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|  | | **Emergency Department and Urgent Care Centre (UCC)**  **adult sepsis pathway** | | | | | SURNAME | | | | | URN | | |  |
| GIVEN NAME | | | DOB | | | SEX | |
| ADDRESS | | | | | | | |
| SUBURB POSTCODE | | | | TELEPHONE | | | |
|  |  | | | | | | | | | | | | | **ADULT SEPSIS PATHWAY** | |
| **RECOGNISE, RESUSCITATE & REFER** | **1. Does your patient have a known or suspected infection?** | | | | | | | | | | | | |
| * History of fevers or rigors * Neutropenia or recent chemotherapy * Indwelling medical devices * Recent surgery or invasive procedure * Skin: cellulitis, wound, petechial rash | | | | * Respiratory: cough, shortness of breath * Abdominal: pain, peritonism * CNS: decreased mental alertness, headache * Genitourinary: dysuria, frequency | | | | | | | | |
| **2. Does your patient have abnormal vital signs?** | | | | | | | | | | | | |
|  | | | | | | | | | | | | |
| **SEVERE SEPSIS**  **≥ 2 of the following:**   * SBP < 100 mmHg * Altered mental status * Lactate > 2 mmol/L | | **AND/ OR** | **SUSPECTED SEPSIS**  **≥ 2 of the following:**   * Temperature < 36oC or  > 38oC * Heart rate > 90 per minute * Respiratory rate > 20 per minute * WCC < 4 or > 12 x 109/L | | | | | **NO** | | | | |
| **YES** | |  | **YES** | | | | |  | | | | |
|  | **Consider other causes:**   * Myocardial infarct * Haemorrhage * Ischaemia * Pulmonary embolism * Transfusion or drug reaction   **Patient requires:**   * Clinical assessment * Repeat observations within 30 minutes and manage accordingly * Re-evaluate for sepsis | | | | |
| **This patient is at risk of rapid deterioration/septic shock** | |  | **Patient may have sepsis** | | | | |
|  | |  |  | | | | |
| **Does your patient have a Goals of Care form and/or Advance Care Directive to limit treatment?**  Review before proceeding | | | | | | | |
|  | | | | | | | |
| **If sepsis is most likely COMMENCE SEPSIS PATHWAY**  **Notify medical officer**  **Consider escalation of care as required** | | | | | | | |
|  | | | | | | |  |  | | | | |
| **Six key actions in 60 minutes** | | | | | | | | | | | | |
| 1. Oxygen administration 2. Two sets of blood cultures 3. Venous blood lactate | | | | | 1. Fluid resuscitation 2. Intravenous antibiotics\* 3. Monitoring observations and fluid balance | | | | | | | |
| **\*Antibiotics should be administered within 60 minutes if risk of organ dysfunction. Cancer patients currently undergoing systemic chemotherapy require first antibiotic within 30 minutes.** | | | | | | | | | | | | |

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|  | | **Emergency Department and**  **Urgent Care Centre (UCC) adult sepsis pathway** | | | | | | SURNAME | | | | | | | | | | | URN | | | |
| GIVEN NAME | | | | | | DOB | | | | | | | SEX | |
| ADDRESS | | | | | | | | | | | | | | |
| SUBURB POSTCODE | | | | | | | | | | | | TELEPHONE | | |
| **First 30 minutes from presenting signs/symptoms** | **Recognise** | | Name |  | | Sign | |  | | | | | Designation | | | | | | |  | | |
| Date |  | | Time | |  | | | | | | | | | | | | | | |
| **Has a Goals of Care/ACD/Resuscitation Options been completed?** | | | | | | * Yes | | | * No | | | | | | | | * Unknown | | |
| **ESCALATE care if patient starts to deteriorate at any stage, e.g. MET call** | | | | | | | | | | | | | | | | | | | |
| **Signs/symptoms** | | **1. Does your patient have Severe or Suspected Sepsis (see page 1 for criteria)?** | | | | * Temperature <36oC or >38oC | | | | | | | | * WCC < 4 or > 12 x 109/L | | | | | | | |
| * Heart rate > 90 bpm | | | | | | | | * Systolic BP < 100 mmHg | | | | | | | |
| * Respiratory rate > 20/min | | | | | | | | * Altered mental state | | | | | | | |
| **2. Does your patients also have any of the following risk factors, signs or symptoms of infection?** | | | | * History of fever or rigor | | | | | | | | * Respiratory: cough, shortness of breath | | | | | | | |
| * Neutropenia or recent chemotherapy | | | | | | | | * Abdominal: pain, peritonism | | | | | | | |
| * Indwelling medical device | | | | | | | | * CNS: decreased mental alertness, headache | | | | | | | |
| * Recent surgery/invasive procedure | | | | | | | | * Genitourinary: dysuria, frequency | | | | | | | |
| * Skin: cellulitis, wound, petechial rash | | | | | | | | | | | | | | | |
| **3. Does your patient have clinical signs of hypoperfusion?** | | | | * Cool peripheries (hands and feet) | | | | | | | | * Decreased/no urine output (for > 8 hours) | | | | | | | |
| **Triage** | | Triage category | |  | | | | | Triage time |  | | | | | | | Initials | | | |  |
| **NOTIFY SENIOR MEDICAL OFFICER IF SEVERE SEPSIS IS SUSPECTED** | | | | | | | | | | | | | | | | | | | |
| **Medical review** | | Name | |  | | | | | | Time | | | | | | |  | | | | |
| **Oxygen administration** | | Aim SpO2 92–96% (or 88–92% for COPD and chronic type II respiratory failure) | | | | | | | | | | | | | | | | | | | |
| **Ensure IV access** | | Large bore peripheral cannula inserted/ available for fluid bolus, OR | | | | | | | | | | | | | | | | | | | |
| If central venous access device already available: Type (if applicable) | | | | | | | | | | | | |  | | | | | | |
| **Blood cultures** | | **Two sets** of blood cultures (2 peripheral; or 1 from all lumens of device or port if accessible, plus 1 peripheral) | | | | | | | | | | | | | | | Initials | | | |  |
| **Lactate** | | Venous blood lactate | | | | | | | | | | | | | | | Initials | | | |  |
| **Record lactate level** | | | | | | | | | | | | | | |  | | | | mmol/L |
| **Pathology** | | * Collect FBC, UEC, CRP, LFTs, coags and blood glucose level * Consider cross match if patient at risk of anaemia or known recent surgery | | | | | | | | | | | | | | | | | | | |
| **DO NOT WAIT for test results. Commence fluid resuscitation and antibiotics ASAP** | | | | | | | | | | | | | | | | | | | |
| **Fluid resuscitate**  If hypotensive  (SBP< 100 mmHg)  **or**  lactate > 2 mmol/L | | **Fluids must have medical officer authorisation and be prescribed on the IV Therapy Chart** | | | | | | | | | | | | | | | | | | | |
| * **Give RAPID fluid bolus STAT** * **500 mL 0.9% sodium chloride or Hartmann’s solution\*** | | | | | | | | | | | | | | | | | | | |
| * **1st bolus required and given** If no response to initial fluid resuscitation with ongoing hypotension repeat fluid bolus | | | | | | | | | | | | | | Initials | | | | |  |
| * **2nd bolus required and given** Caution if signs of pulmonary oedema, history of cardiac dysfunction or elderly patient | | | | | | | | | | | | | | Initials | | | | |  |
| **\*** Antibiotics MUST NOT be administered concurrently with Hartmann’s, flush with compatible fluid before or after | | | | | | | | | | | | | | | | | | | |
| **If blood pressure does not improve after fluid boluses ESCALATE care and consider inotropes** | | | | | | | | | | | | | | | | | | | | | |

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|  | | **Emergency Department and**  **Urgent Care Centre (UCC)  adult sepsis pathway** | | | | | SURNAME | | | | | | URN | | | |
| GIVEN NAME | | | | DOB | | | | | SEX |
| ADDRESS | | | | | | | | | |
| SUBURB POSTCODE | | | | | | | TELEPHONE | | |
|  | **Clinically examine the patient for a focus of infection, e.g. chest, urinary tract infection** | | | | | | | | | | | | | | | |
| **First 60 minutes from signs/symptoms** | **Antibiotics** | | | Check the patient’s **ALLERGY STATUS** – indicate:   * no penicillin allergy * non-life-threatening penicillin allergy (e.g. rash) * life-threatening penicillin allergy (e.g. anaphylaxis) | | | | | | | | Initials | | |  | |
| Record antibiotic allergy and reaction: | | | | | | | |
| For SUSPECTED, KNOWN or UNKNOWN infection:  **Refer to empiric antibiotic guidelines on next page** (circle presumed site) | | | | | | | | Initials | | |  | |
| **Antibiotics must be prescribed on a medication chart by a medical/nurse practitioner** | | | | | | | | | | | | |
| **ADMINISTER ANTIBIOTICS\***  **\*Antibiotics should be administered within 60 minutes if risk of organ dysfunction. Cancer patients currently undergoing systemic chemotherapy require first antibiotic within 30 minutes.** | | | | | | | | Initials | | |  | |
| Time prescribed |  | Time given | | |  | | |
| **Steroids** | | | Consider hydrocortisone if patient taking corticosteroids or known/suspected steroid deficiency | | | | | | | | | | | | |
| **If deteriorating or NOT improving – ESCALATE care, e.g. ICU referral** | | | | | | | | | | | | | | | |
| Name of contact | |  | | | | | | | Time | |  | | | | |
| **First 6 hours** | **Monitoring** | | | Monitor vital signs and fluid balance every 30 minutes for 2 hours, then hourly for 4 hours or more frequently as needed | | | | | | | | | | | | |
| Keep oxygen saturation 92–96% (88–92% if at risk of CO2 retention) | | | | | | | | | | | | |
| **Assess for deterioration which may include one or more of the following:** | | | | | | | | | | | | |
| * Increasing respiratory rate (in orange or purple zone on observation chart) | | | | * Urine output < 0.5 ml/kg/hour | | | | | | | | |
| * SBP < 100 mmHg | | | | * If lactate elevated repeat in 2 hours – if elevated >2 mmol/L ESCALATE care, e.g. ICU referral | | | | | | | | |
| * Decreased or no improvement in consciousness | | | |
| **Investigation** | | | Initiate investigations **as directed by likely source**, consider: | | | | | | | | | | | | |
| * Diagnostic imaging (e.g. CXR) | | | | * Sputum for MCS | | | | | | | | |
| * Urine MSU (or CSU) for MCS | | | | * Wound swab for MCS | | | | | | | | |
| * Throat swab for respiratory multiplex PCR | | | | * Stool for *C. difficile* testing (if diarrhoea present) | | | | | | | | |
| **Source control** | | | **ALWAYS CONSIDER THE NEED FOR SOURCE CONTROL**  **Refer to infectious disease and/or surgical teams early** | | | | | | | | | | | | |

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| **Empiric antibiotic guide based on presumed site of infection** | | | | | |
| * These guidelines DO NOT replace an Infectious Diseases consult (if available) * Empirical regimens are intended for initial therapy ONLY (up to 48 hours) – modify as soon as additional information is available * Ensure the patient’s clinical findings and investigations are concordant with the presumed site of infection; if uncertain, use the recommendations for unknown site of infection * The following guidelines have been adapted from Therapeutic Guidelines (TG): Antibiotic (version 16, 2019), please refer here for more detailed information if required or seek expert advice * All doses recommended in this guideline are for normal renal function with CrCl > 50 ml/min, dose reductions may be required for patients with renal impairment – see Table 2.80 (TG) for advice * Risk factors for high risk of multidrug-resistant organisms: known colonisation with multidrug-resistant organism, e.g. ESBL, *Pseudomonas*, high risk travel (Indian subcontinent, Asia, Southern/Eastern Europe) | | | | | |
|  | | | | | |
| **No allergy to penicillin** | **Non-life-threatening penicillin allergy** | | **Life-threatening penicillin allergy** | | |
| **UNKNOWN SOURCE OF INFECTION** | | | | | |
| gentamicin IV (see dosing table) **PLUS**  flucloxacillin 2 g IV 4-hourly | gentamicin IV (see dosing table) **PLUS**  cefazolin 2 g IV 6-hourly | | gentamicin IV (see dosing table) **PLUS**  vancomycin IV (see dosing table) | | |
| * Add **vancomycin** **IV** (see dosing table) if MRSA is suspected or if septic shock * Add **ceftriaxone 2 g IV 12-hourly** if *Neisseria meningitidis* infection suspected (**ciprofloxacin 400 mg IV 8-hourly** if life-threatening penicillin allergy) * Use **meropenem 1 g IV 8-hourly** PLUS **vancomycin IV** (see dosing table) if high risk of multidrug-resistant organism | | | | | |
| **FEBRILE NEUTROPENIA** | | | | | |
| piperacillin/tazobactam 4.5 g IV  6-hourly | cefepime 2 g IV 8-hourly **OR**  ceftazidime 2 g IV 8-hourly | | ciprofloxacin 400 mg IV 12-hourly **PLUS** vancomycin IV (see dosing table) | | |
| * Add **vancomycin** **IV** (see dosing table) if sepsis * Add **gentamicin IV** and **vancomycin** **IV** if septic shock or critically ill * Consider adding **vancomycin** **IV** (see dosing table) if increased risk of MRSA or line-related infection suspected * Use **meropenem 1 g IV 8-hourly** if colonised or recently infected with multidrug-resistant organism * Consider adding **metronidazole 500 mg IV 12-hourly** (to cefepime and ciprofloxacin regimens) if intra-abdominal infection possible * Seek specialist advice if fungal infection suspected | | | | | |
| **INTRAVASCULAR DEVICE SOURCE (remove device)** | | | | | |
| gentamicin IV (see dosing table) **PLUS** vancomycin IV (see dosing table) | gentamicin IV (see dosing table) **PLUS** vancomycin IV (see dosing table) | | gentamicin IV (see dosing table) **PLUS** vancomycin IV (see dosing table) | | |
| Consider adding **antifungal** cover if severe sepsis, high risk (e.g. prolonged intravenous access) | | | | | |
| **RESPIRATORY TRACT SOURCE** | | | | | |
| ceftriaxone 2 g IV 24-hourly **PLUS**  azithromycin 500 mg IV 24-hourly | ceftriaxone 2 g IV 24-hourly **PLUS**  azithromycin 500 mg IV 24-hourly | | moxifloxacin 400 mg IV 24-hourly | | |
| * Consider oral **oseltamivir 75mg 12-hourly** if influenza suspected * Use **ceftriaxone 1g IV** **12-hourly** in critically ill patients with severe sepsis or septic shock * Replace **ceftriaxone** with **piperacillin-tazobactam 4.5g IV 6-hourly** OR **meropenem 1g IV 8-hourly** (if life-threatening penicillin allergy) if severe AND known respiratory colonisation with *Pseudomonas.* Consider adding **gentamicin** **IV** (see dosing table) if sepsis or septic shock. * Consider adding **vancomycin IV** (see dosing table) if strongly suspect *Staphylcoccus aureus* in severe cases (e.g. rapid clinical deterioration or cavitating pneumonia) | | | | | |
| **URINARY TRACT SOURCE** | | | | | |
| gentamicin IV (see dosing table) **PLUS** amoxicillin 2 g IV 6-hourly | | | gentamicin IV (see dosing table) **AND**  seek expert advice | | gentamicin IV (see dosing table) **AND**  seek expert advice |
| * If gentamicin is contraindicated use **ceftriaxone 1 g IV 24-hourly,** OR **ceftriaxone 1 g IV 12-hourly** if critically ill or septic shock * Use **meropenem 1 g IV 8-hourly** if high risk of multidrug-resistant organism | | | | | |

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| **No allergy to penicillin** | | **Non-life-threatening penicillin allergy** | **Life-threatening penicillin allergy** |
| **BILIARY OR GASTROINTESTINAL SOURCE** | | | |
| gentamicin IV (see dosing table) **PLUS** amoxicillin 2 g IV 6-hourly **PLUS** metronidazole 500 mg IV 12-hourly  **OR**  piperacillin/tazobactam 4.5 g IV 6-hourly (if gentamicin contraindicated) | | ceftriaxone 2 g IV 24-hourly **PLUS**  metronidazole 500 mg IV 12-hourly  **OR**  ceftriaxone 1 g IV 12-hourly **PLUS**  metronidazole 500 mg IV 12-hourly  (if critically ill or septic shock) | gentamicin IV (see dosing table) **PLUS**  clindamycin 600 mg IV 8-hourly |
| **CNS SOURCE** | | | |
| ceftriaxone 2 g IV 12-hourly | | ceftriaxone 2 g IV 12-hourly | moxifloxacin 400 mg IV 24-hourly |
| * Add **dexamethasone 10 mg IV 6-hourly** for 4 days – starting before or with the first dose of antibiotic (and up to 4 hours after) * Add **benzylpenicillin 2.4 g IV 4-hourly** for patients at risk of *Listeria monocytogenes* (immunocompromised, > 50 years old, alcohol abuse, debilitated or pregnant) * Add **vancomycin IV** (see dosing table) if patient has known or suspected otitis media or sinusitis, been recently treated with  beta-lactam antibiotics or lumbar puncture contraindicated * Add **aciclovir 10 mg/kg IV 8-hourly** if viral encephalitis is suspected | | | |
| **NECROTISING FASCIITIS** | | | |
| meropenem 1 g IV 8-hourly **PLUS** vancomycin IV (see dosing table) **PLUS** clindamycin 600 mg IV 8-hourly | meropenem 1 g IV 8-hourly **PLUS**  vancomycin IV (see dosing table) **PLUS** clindamycin 600 mg IV 8-hourly | | meropenem 1 g IV 8-hourly **PLUS**  vancomycin IV (see dosing table) **PLUS** clindamycin 600 mg IV 8-hourly |
| * Add **ciprofloxacin 400 mg IV 8-hourly** if the wound has been immersed in water * Consider the need for IVIg, discuss with infectious diseases team * Early referral to surgery **essential** | | | |
| **SKIN SOURCE** | | | |
| flucloxacillin 2 g IV 6-hourly | cefazolin 2 g IV 8-hourly | | vancomycin IV (see dosing table) |
| * Add **vancomycin IV** (see dosing table) if at increased risk of MRSA, purulent cellulitis or *S. aureus* is suspected * For cellulitis associated with hypotension, septic shock or rapid progression of systemic features use the regimens in necrotising fasciitis | | | |
| **DIABETIC FOOT INFECTION** | | | |
| piperacillin/tazobactam 4.5 g IV 6-hourly | | ciprofloxacin 400 mg IV 12-hourly **PLUS** clindamycin 900 mg IV 8-hourly | ciprofloxacin 400 mg IV 12-hourly **PLUS** clindamycin 900 mg IV 8-hourly |
| Add **vancomycin IV** (see dosing table) if at increased risk of MRSA | | | |
| **Please refer to Therapeutic Guidelines for antibiotic recommendations for other specific infections not listed here** | | | |
| **VANCOMYCIN DOSING**   * Load **25–30 mg/kg** IV (up to 2.5 g), then **15–20 mg/kg** (up to 2 g) IV 12-hourly, use **actual body weight** * Reduce frequency in renal impairment * Higher doses may be used with expert advice   **GENTAMICIN DOSING**   * Give **4–5 mg/kg** IV stat (round to 40 mg), *higher doses up to 7 mg/kg may be used in selected cases of severe sepsis or septic shock* * Use **ideal or adjusted body weight** to calculate dose * Repeated doses not recommended in renal impairment (CrCl < 40 mL/min) * Empirical therapy should not continue beyond 48 hours | | | |

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