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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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| **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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|  | **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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