

Victorian Adult Sepsis Pathway

1. Could it be Sepsis?



RECOGNISE

Does your patient have a known or suspected infection?

- History of fevers or rigors
- Neutropenia
- Indwelling medical devices
- Recent surgery or invasive procedure
- Skin: cellulitis, wound, petechial rash, cool peripheries
- Respiratory: cough, shortness of breath
- Abdominal: pain, peritonism, diarrhoea or vomiting
- CNS: decreased mental alertness, headache
- Genitourinary: dysuria, frequency

AND/OR any of the following increased RISK Factors?

- Aged ≥ 65
- Frail, chronic condition or recent fall
- Aboriginal and Torres Strait Islander people
- On immunosuppressive treatment
- Patient, carer or family concern
- Re-presentation or deterioration

2. Does your patient have abnormal vital signs?



RESUSCITATE & REFER

≥ 2 of the following:

- SBP < 90 mmHg
- Altered mental status
- Lactate > 2 mmol/L

YES

Initiate **EMERGENCY CALL** as per local guidelines

Treat as SEPSIS and/or SEPTIC SHOCK until proven otherwise

COMMENCE SEPSIS TREATMENT IMMEDIATELY

- Review the patient's Goals of Care (GOC)/Advanced Care Plan (ACP)
- Consider if patient requires transfer to a higher acuity setting
- Discuss treatment plan with patient, carer, and/or family

OR

≥ 2 of the following:

- Temperature < 36°C or > 38°C
- Heart rate > 90 bpm
- Respiratory rate > 20 per minute
- WCC < 4 or > 12 x 10⁹/L

YES

Call for **Senior clinical review** as per local guidelines

Does the patient have **POSSIBLE SEPSIS?**

YES

NO

Consider other causes:

- Myocardial infarct
- Haemorrhage
- Ischaemia
- Pulmonary embolism
- Transfusion or drug reaction
- Intoxication/withdrawal
- Dehydration
- Endocrine/pancreatitis

Patient requires:

- Clinical assessment
- Repeat observations within 30 minutes and manage according to Step 2 of this pathway

3. Six key actions in 60 minutes

1. Fluid resuscitation
2. Intravenous antibiotics*
3. Monitoring observations and fluid balance
4. Oxygen administration
5. Two sets of blood cultures
6. Venous blood lactate

*Antibiotics should be administered within 60 minutes. Cancer patients currently undergoing systemic chemotherapy require first antibiotics within 30 minutes.

For further Sepsis information and resources for Consumers and Clinicians please see **Sepsis Clinical Care Standard | Australian Commission on Safety and Quality in Health Care** <<https://www.safetyandquality.gov.au/standards/clinical-care-standards/sepsis-clinical-care-standard>>

4. Document and monitor

Sepsis Pathway Commenced	Name/Designation:	
	Date/Time:	Initials:
	Triage Category:	Time:
Has the goals of care/ACP/resuscitation options been completed?	<input type="radio"/> Yes <input type="radio"/> No	Initials:
Has the diagnosis and treatment plan been discussed with the patient, carer, or family member?	<input type="radio"/> Yes <input type="radio"/> No	Initials:

Key Actions

FIRST 30 MINUTES FROM PRESENTING SIGNS/SYMPTOMS	Senior Medical Review	Name/Designation:		
		Time:	Initials:	
	Oxygen Administration	<input type="radio"/> Aim SpO ₂ 92–96% (or 88–92% for COPD and chronic type II respiratory failure)	Time:	Initials:
	Ensure IV Access Large bore peripheral cannula available for fluid bolus, OR access to a suitable central venous access device (CVAD)			
	Blood Cultures	<input type="radio"/> Two sets of blood cultures (2 peripheral; or 1 peripheral and 1 from CVAD lumen)	Time:	Initials:
	Lactate	<input type="radio"/> Venous blood lactate	Time:	Level: Initials:
	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			
	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*			
<input type="radio"/> First bolus required and given			Initials:	
If hypotension persists after the initial fluid resuscitation, administer second fluid bolus				
<input type="radio"/> Second 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 and after				
If blood pressure does not improve after fluid boluses ESCALATE care and consider inotropes				

FIRST 60 MINUTES FROM PRESENTING SIGNS/SYMPTOMS	Clinically examine the patient for a focus of infection, e.g. chest, urinary tract			
	Check the patient's ALLERGY STATUS	<input type="radio"/> No penicillin allergy <input type="radio"/> Non-life threatening penicillin allergy (e.g. rash) <input type="radio"/> Life-threatening penicillin allergy (e.g. anaphylaxis)	Record antibiotic allergy and reaction:	Initials:
	For SUSPECTED, KNOWN OR UNKNOWN infection refer to local antimicrobial policy			
	Antibiotics must be prescribed on a medication chart by a medical/nurse practitioner			
	Administer Antibiotics* *Antibiotics should be administered within 60 minutes. Cancer patients currently undergoing systemic chemotherapy require first antibiotic within 30 minutes.		Time prescribed:	Initials:
		Time given:		
Steroids	<input type="radio"/> Consider hydrocortisone if patient taking corticosteroids or known/suspected steroid deficiency	Time prescribed:	Initials:	
		Time given:		

FIRST 6 HOURS	Ongoing Care			
	Source control	<input type="radio"/> ALWAYS CONSIDER THE NEED FOR SOURCE CONTROL <input type="radio"/> Refer to infectious disease and/or surgical teams early		Initials:
	Investigation Initiate investigations as directed by likely source	<input type="radio"/> Diagnostic Imaging <input type="radio"/> Urine MSU (or CSU) for MCS <input type="radio"/> Throat swap for respiratory multiplex PCR	<input type="radio"/> Sputum for MCS <input type="radio"/> Wound swab for MCS <input type="radio"/> Stool for <i>C. difficile</i> testing (if diarrhoea present)	Initials:
	Monitoring Monitor vital signs and fluid balance every 30 minutes for 2 hours, then hourly for 4 hours or more frequently as needed	<input type="radio"/> Keep oxygen saturation >92% (88–92% if at risk of CO ₂ retention)		
		Assess for deterioration which may include one or more of the following:		
<input type="radio"/> SBP < 100 mmHG		<input type="radio"/> Urine output < 0.5ml/kg/hour		
	<input type="radio"/> Decreased or no improvement in consciousness	<input type="radio"/> If lactate elevated, repeat in 2 hours		

IF PATIENT DETERIORATING OR NOT IMPROVING – ESCALATE CARE

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)
<ul style="list-style-type: none"> • Add vancomycin IV (see dosing table) if MRSA is suspected or if septic shock • Add ceftriaxone 2 g IV 12-hourly if <i>Neisseria meningitidis</i> 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)
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • 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 <i>Pseudomonas</i>. Consider adding gentamicin IV (see dosing table) if sepsis or septic shock. • Consider adding vancomycin IV (see dosing table) if strongly suspect <i>Staphylococcus aureus</i> 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
<ul style="list-style-type: none"> • 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 		

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
<ul style="list-style-type: none"> • 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 <i>Listeria monocytogenes</i> (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
<ul style="list-style-type: none"> • 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)
<ul style="list-style-type: none"> • Add vancomycin IV (see dosing table) if at increased risk of MRSA, purulent cellulitis or <i>S. aureus</i> 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		
<p>VANCOMYCIN DOSING</p> <ul style="list-style-type: none"> • 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 <p>GENTAMICIN DOSING</p> <ul style="list-style-type: none"> • Give 4–5 mg/kg IV stat (round to 40 mg), <i>higher doses up to 7 mg/kg may be used in selected cases of severe sepsis or septic shock</i> • 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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