

<b>Document Title:</b>	<b>SEPSIS - EMERGENCY MANAGEMENT IN ADULTS</b>						
<b>Document ID:</b>	cq_s22	<b>Version No:</b>	1.0	<b>Effective Date:</b>	10/04/2017	<b>Next Review Date:</b>	28/02/2020
<b>Document Custodian:</b>	Chair, RRCDP Committee			<b>Executive Sponsor:</b>	Executive Director of Medical Services		
<b>Endorsement:</b>	<b>[SIGNED]</b> <b>Dr Antony Attokaran</b> Chair, RRCDP Committee CQHHS  Date: 01/04/2017			<b>Authorisation:</b>	<b>[SIGNED]</b> <b>Dr Tim Smart</b> Executive Director of Medical Services CQHHS  Date: 10/04/2017		

## Policy Statement

This procedure outlines the resources available and describes the process to follow, including governance, to assist with the early recognition and management of sepsis in adults. The goal of the program is to reduce preventable harm to patients, throughout the Central Queensland Hospital and Health Service (CQHHS), by promoting and enabling improved recognition and early management of sepsis not only in emergency departments and but also in inpatient wards.

**Sepsis is a MEDICAL EMERGENCY  
just like acute coronary syndrome or a stroke.**

## Intent/Purpose

This procedure describes the process to follow and specifies the resources available to assist clinicians to recognise and manage sepsis. Sepsis is a medical emergency, and can lead to shock, multiple organ failure and death, especially if not recognised early and treated promptly.

## Scope

This procedure applies to all clinical staff in CQHHS.

## Procedure

The Central Queensland Hospital and Health Service has implemented a **Sepsis Awareness Program**. It comprises:

- Sepsis Pathway. This resource has been adapted from the Sepsis Kills program developed by the New South Wales Clinical Excellence Commission (NSW CEC) and latest Surviving Sepsis Campaign guidelines. It provides direction for sepsis recognition, notification, escalation and initial management.
- Links to Antibiotic Guidelines for Sepsis which has been developed from the current recommendations of the Therapeutic Guidelines.
- [Links to Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock : 2016](#) (PDF).

## EARLY WARNING SYSTEM

The use of the standardised vital signs *Queensland Adult Deterioration Detection System (Q- ADDS) Acute, Emergency or Maternity* tool will assist in the early detection of patient deterioration.

This tool supports trending of vital signs and guides the process for clinicians to request a prompt medical review and / or escalate to an emergency call (Q-ADDS= /> 8).

Sepsis / infection must be excluded prior to a temporary modification being made to an Early Warning tool.

## GOVERNANCE

Sepsis education is available on line through the Learning management System CQ Learn and is strongly recommended for all clinical staff.

Compliance regarding clinician's use of pathways will be monitored by the Recognising and responding to clinical deterioration (RRCD) committee through evaluation of MET and clinical incident data related to Sepsis outcomes across the HHS.

## SEPSIS PATHWAYS

The sepsis pathways for adult patients provide clear guidelines for sepsis recognition, notification, escalation and initial management. They are built around three key actions:

- **RECOGNISE** risk factors, signs and symptoms of sepsis.
- **RESUSCITATE** with rapid intravenous fluids and antibiotics within the first hour of recognition of sepsis.
- **REFER** to senior clinicians and specialty teams including retrieval as required.

It is anticipated that the Sepsis pathway will result in:

- Enhanced clinician skills in sepsis recognition and management.
- More timely, standardised and effective detection and management of sepsis.
- Reduced mortality, morbidity and bed-stays from sepsis-related conditions.
- Improved and safer patient experience.

**A number of causes lead to DELAY IN RECOGNISING AND TREATING SEPSIS IN THE WARDS these are included in the appendix.**

## BACKGROUND INFORMATION ON SEPSIS

**Sepsis** is a life threatening condition that arises when the body's response to infection injures its own tissues and organs. It may lead to shock, multiple organ failure, and death, especially if not recognized early and treated promptly. Sepsis is one of the most underestimated health risks. Surviving patients often suffer for years from late complications. The main danger of sepsis results from a lack of knowledge about it (Global Sepsis Alliance, 2015).

In February 2016, the Third International Consensus Definitions on Sepsis and Septic Shock (Sepsis-3) were published in the Journal of the American Medical Association and this has re-evaluated the traditional concepts and come out with new recommendations regarding nomenclature of various stages of sepsis. These are listed under "Sepsis-3 and New Definitions". It is important to note these are only changes in nomenclature. We should currently aim to follow the Sepsis 3 definitions.

## SEPSIS 3 AND NEW DEFINITIONS

**Sepsis:** is defined as 'life-threatening organ dysfunction caused by a dysregulated host response to infection'.

**Septic shock:** is defined as 'a subset of sepsis where underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality' requiring vasopressors to maintain a mean arterial pressure of 65mmHG or greater AND serum lactate greater than 2mmol/L despite adequate fluid resuscitation.

**Organ dysfunction:** due to infection is identified by an increase in the Sequential [sepsis related] Organ Failure Assessment (SOFA) score of 2 points or more. This includes a number of clinical and laboratory parameters all of which may not be readily available. Therefore Quick SOFA (qSOFA) is used outside ICUs with a score of 2 or more suggesting organ dysfunction and thus presence of Sepsis.

**Quick SOFA (qSOFA)** has been proposed as a tool to identify patients in hospital wards or the ED with infection who are at increased risk of in hospital death from sepsis or treatment in an intensive care unit for 3 or more days. Presence of 2 or more features will suggest presence of sepsis.

**Respiratory rate of 22/minute or greater  
Altered mentation  
Systolic blood pressure of 100mmHg or less**

Among encounters with suspected infection outside of the ICU, the predictive validity for in-hospital mortality of qSOFA was statistically greater than SIRS criteria, supporting its use as a prompt to consider possible sepsis.

### Other Key points from Sepsis 3

1. Measurement of serum lactate is not included in qSOFA but this should not limit monitoring of lactate as an indicator of illness severity or guide to therapeutic response.
2. Neither qSOFA nor SOFA is intended to be a stand-alone definition of sepsis.
3. Failure to meet 2 or more qSOFA or SOFA criteria should not lead to deferral of investigation or treatment of infection or to a delay in any other aspect of care deemed necessary by the treating practitioners.
4. SIRS criteria still remain useful for the identification of infection.

## RECOGNISING AND RESPONDING

It is very important to commence and optimise the management of patients with infection as early as possible without waiting for the progression to sepsis or septic shock especially in the group of immune compromised patients. The early identification and immediate treatment of these patients is crucial to their outcome. The initial management should focus on resuscitation and investigation and appropriate referral. The commonest causes of sepsis in Australia are related to respiratory, abdominal and urinary infections. Amongst other sources of infection the presence of indwelling vascular catheters or other implanted devices should raise the index of suspicion. Meningitis and bacterial endocarditis should also be considered and ruled out while diagnosing infection.

If the source is not immediately obvious, different investigations, including imaging, should be performed. If the source of infection is found and is amenable to removal, this should be undertaken to ensure adequate source control.

### Initial 24 hrs

- a. Initial pathway / procedure to follow is listed below.
- b. If Sepsis suspected, vital signs documented (on QADDS sheet) at least ½ hourly for 2 hrs then hourly for four hours and then based on clinical status.
- c. Early cultures ( Blood / Sputum / Urine routinely + any other suspected source eg CSF )
  - a. Attempts to obtain these should not delay administration of antibiotics.
- d. Early antibiotics.
  - a. There is about 8% increase in mortality for every hour of delay (from onset of hypotension) in starting antibiotics.
- e. Ensure QADDS followed and appropriate escalation undertaken if required.
- f. Reassess: Check preliminary results / Confirm diagnosis / Monitor for deterioration.
- g. Review treatment / management.
- h. Ensure documentation of discussions.

### 24-48 hrs

- a. Actively seek to confirm diagnosis.
- b. Review Microbiological evidence and rationalise antibiotics.
- c. Review need for source control.
- d. Repeat FBC/Biochemistry.
- e. Continue monitoring including urine output.

## PROCEDURE TO FOLLOW WHEN LOOKING AFTER ADULTS WITH SUSPECTED SEPSIS

### 1. Assess for Risk Factors:

<ul style="list-style-type: none"> <li>• Immunocompromised (ESRD patients on dialysis, HIV infected patients, Diabetics, steroids, chemotherapeutics &amp; biologics, alcohol dependence / malnourished).</li> <li>• Immunosuppressant drugs including steroids, chemotherapeutics &amp; biologics.</li> </ul>	<ul style="list-style-type: none"> <li>• Indwelling medical devices.(VasCath, PermCath).</li> <li>• Recent surgery / invasive procedures.</li> <li>• Splenectomy.</li> <li>• Elderly.</li> <li>• Hypothermia.</li> </ul>
--	--

### 2. Assess for Clinical features commonly encountered, but not limited to:

<ul style="list-style-type: none"> <li>• History of fever / rigors.</li> <li>• Confusion.</li> <li>• Tachycardia.</li> <li>• Tachypnoea.</li> </ul>	<ul style="list-style-type: none"> <li>• Leucocytosis or neutropenia.</li> <li>• Raised lactate.</li> <li>• Hypotension.</li> <li>• Organ system specific symptoms suggestive of infection</li> </ul>
---	---

### 3. Simultaneous Resuscitation and Assessment:

- a. Attend to Airway, Breathing, Circulation : administer oxygen if required.
- b. Establish IV access - Escalate to senior help if unable to cannulate after two attempts.
- c. Sepsis screen:
  - a. MSU / Sputum culture/ Blood culture \* 2 sets / CXR
  - b. Further imaging and tests based on clinical findings (e.g. LP / Pleural or ascitic fluid aspirates, or USS or CT)
  - c. However these tests should not delay Antibiotic administration.
- d. Baseline assessment of renal function / liver function / FBC.
- e. Lactate.
- f. Coagulation profile if sepsis or anticipated invasive procedures.
- g. **Fluid resuscitation**
  - i. Give crystalloid fluids in aliquots of 500ml with reassessment in between.
  - ii. If hypotensive administer up to 30ml/kg (use caution in heart failure and ESRD on dialysis).
  - iii. If no improvement consider vasopressors.

#### h. Early Empiric antibiotics

- i. Calculate appropriate dose based on renal function.
- ii. **Within 1 hr (for every hour after onset of hypotension that appropriate antibiotic administration is delayed there is an 8% increase in mortality).**

Therapeutic guidelines : <https://tqldcdp.tg.org.au/etgAccess>.

#### 4. Early Consideration of Source control:

- a. Assess for possibility of collections that will need to be drained surgically or radiologically.
- b. Assess for indwelling medical devices that may be the source.

#### 5. Sepsis stratification

- a. Stratify sepsis based on risk factors predictive of poor prognosis in Sepsis - **qSOFA score**.
  - i. Altered in mental status.
  - ii. RR > 22.
  - iii. SBP < 100mmHg.

*(Presence of 2 features is suggestive of Sepsis with organ dysfunction and leads to 10% inpatient mortality)*

#### b. Assess for Haemodynamic compromise.

- i. Persisting MAP < 65 mmHg or Systolic BP < 90 mmHg despite fluid resuscitation;
- ii. Lactate > 2.

*(Septic shock leads up to 40% mortality)*

#### 6. Frequent reassessment to exclude deterioration following initial resuscitation.

#### 7. ICU Referral if haemodynamic compromise present.

#### 8. Escalation Policy.

- a. For patients with qSOFA score 2 or more we strongly recommend:
  - i. Urgent SMO review / discussion within the hour.
  - ii. Targeted treatment.
  - iii. Consideration of early source control.
- b. For patients with haemodynamic compromise recommend:
  - i. Immediate SMO review / discussion.
  - ii. Consider Vasopressor support.
  - iii. Attempt early source control.
  - iv. Expedite transfer to resuscitation area/ ICU or equivalent.

#### 9. Other Suggested triggers for calling SMO:

- a. MET call/ Rapid Response call.
  - i. including serum lactate > 4mmol/L (adults)
- b. 2 Clinical Review Calls in an eight hour timeframe or earlier if concerned.
- c. Persisting hypotension (SBP less than 90mmHg).
- d. High level of clinician concern.
- e. Serious concern by any patient/family member.
- f. Significant deterioration in condition and/or admission to ICU.
- g. Patient is immunocompromised.
- h. Patient with complex antibiotic prescribing requirements see recommendations below.

#### 10. Daily Review of antibiotic use with view to rationalise antimicrobial use.

### ANTIBIOTIC GUIDELINES

Prompt administration of antibiotics and resuscitation fluids is vital for effective management of sepsis in combination with effective source control. The goal is to commence antibiotic therapy within the first hour of recognition and diagnosis of sepsis related hypotension.

**Antibiotic therapy should not be delayed whilst waiting for investigations or results.**

The CQHHS Antibiotic Guideline aims to guide the prescription and timely administration of antibiotics for patients that have a diagnosis of sepsis. See <http://qheps.health.qld.gov.au/cqld/antimicrobial-stewardship/docs/adult-empiric-antibiotic.pdf>. It is based on the recommendations in **Therapeutic Guidelines: Antibiotic** version 15, 2014.

CQHHS Febrile Neutropenia Guideline can be accessed through this link:

[http://qheps.health.qld.gov.au/cqld/procedure/clinical-practice/docs/cq\\_cpc\\_n1.pdf](http://qheps.health.qld.gov.au/cqld/procedure/clinical-practice/docs/cq_cpc_n1.pdf).

The most current version of Therapeutic guidelines: Antibiotic version is available online through CKN. We encourage the use of it. See <https://tqldcdp.tg.org.au/etgAccess>.

If the patient has been admitted to hospital for 48 hours or more, hospital/healthcare associated sepsis should be considered and treatment is often complex. In the differential diagnoses vascular access or other indwelling device related sepsis should be strongly considered.

### Escalation to the Senior Medical Officer (SMO) for antibiotic advice

The following triggers are suggested as an important but not exclusive list to assist the treating doctor in determining (for each case of sepsis) if the Antibiotic Guideline can be used or if escalation to the SMO for further advice is required:

1. Antibiotic prescribing for patients with sepsis due to hospital-acquired infections.
  - i. This is often complex due to local resistance patterns of multi-drug resistant bacteria e.g. MRSA, VRE, ESBLs, MBLs, other MDR-GNBs and their association with different sources of infection.
2. Propensity for drug-resistance due to time spent in hospital, overseas travel, certain procedures, and previous antimicrobial therapy.
3. Constraints such as renal and/or hepatic failure, drug allergy and potential interactions with other medications.
4. Restriction of certain antibiotics which can only be used on discussion.

### Escalation to the Infectious Diseases physician or clinical microbiologist

In most cases, the SMO will feel comfortable prescribing antibiotics for patients. It is anticipated however, that there will be times when the SMO recognises the need for seeking immediate advice from a specialist Infectious Diseases Physician or Clinical Microbiologist. A 24-hour a day referral pathway does exist for all CQHHS hospitals to obtain such advice on the authority of the patient's SMO, who can then direct the junior medical officer (or registrar if possible) to call. This should be clarified on each hospital/health facility.

The following are recommended as triggers for discussion with ID physician:

1. Unfamiliarity with the dosing, efficacy, toxicity, and spectrum of activity of rarely used and/or newer generation drugs (e.g. meropenem, daptomycin, linezolid, tigecycline, colistin, amikacin, caspofungin, cefepime).
2. Patient has had a recent infection with a resistant organism.
3. Pre-existing antibiotics, recent or current antibiotic therapy.
4. Any contradictions to specific antimicrobial therapy.
5. Multiple possible sources of infection.
6. Acute renal failure, CKD, Dialysis patients.
7. Recent travel overseas or to a tropical location.
8. Difficulty in assessing positive or negative microbiology results when rationalising therapy at 48-72 hours.
9. Recent candidiasis.

### Review of antibiotic therapy

**Antibiotic therapy must be reviewed within 24 hours of commencement and again when microbiology results are available.**

Antibiotics should be changed or ceased (if appropriate) when results are available. It is important to consider de-escalation of antibiotics during each clinical review if appropriate to avoid emergence of antibiotic resistant organism.

## Roles & Responsibilities

### Panel Chairperson

- The chair and the CQHHS Standard 9 (RRCDP) committee are responsible for **ensuring effective governance**, compliance regarding the clinician use of pathways will be monitored by this committee through evaluation of clinical incident data related to sepsis.

### Executive Responsibilities

- The executive sponsor of the CQHHS Standard 9 committee is responsible to support the committee to promote and enable the implementation of the policy.

### Department Responsibilities / Line Manager Responsibilities

- Departmental leaders and Line managers are responsible for ensuring that sepsis pathways are evidence based and are adhered with the goal of reducing preventable harm to patients at risk
- Departmental leaders and line managers are responsible for ensuring that incident reporting occurs when there is failure to adhere to established sepsis pathway.
- Ensure that the clinical workforce is educated in the early recognition and appropriate response to an emerging sepsis.

### Employee Responsibilities

- CQHHS clinical employees are responsible to ensure the early recognition and response to sepsis as supported by CQHHS pathways.

## Appendices

1. Sepsis Pathway - Adult
2. Antibiotic Guidelines for Sepsis
3. Background on Sepsis definitions
4. Delays in recognising Sepsis on the wards

## Definition of terms

Term	Definition	Source
Sepsis	Generalised systemic inflammatory response to infection.	

## Supporting documents

### Authorising Policy and Standard/s:

- Nil

### Procedures, Guidelines, Protocols:

- [CQHHS - Clinical Escalation](#) (PDF)
- [DDHHS - Q-ADDS/CEWT/Q-MEWT vital signs and observations](#) (PDF)
- [DDHHS - Deteriorating Patient Response System](#) (PDF)
- [CQHHS Antibiotic Prescribing Guidelines](#) (PDF)
- CQHHS Sepsis Pathway – Adult

### Forms and Templates:

- Nil

## References and Suggested Reading

- NSQHS Standard 9 — Recognising and responding to clinical deterioration in acute health care
- NSQHS Standard 4 — Medication safety
- NSQHS Standard 3 — Preventing and Controlling Healthcare Associated Infections, Antimicrobial Stewardship criterion
- Rhodes A, Evans LE, Alhazzani W, et al: Surviving Sepsis Campaign: International Guidelines for the Management of Sepsis and Septic Shock: 2016. *Crit Care Med* 2017; 45:XX–XX
- Rhodes A, Evans LE, Alhazzani W, et al: Surviving Sepsis Campaign: International Guidelines for the Management of Sepsis and Septic Shock: 2016. *Int Care Med* 2017; 3:XX–XX
- Dellinger RP, Schorr CA, Levy MM: A Users' Guide to the 2016 Surviving Sepsis Guidelines. *Crit Care Med* 2017; 45:XX–XX
- Dellinger RP, Schorr CA, Levy MM: A Users' Guide to the 2016 Surviving Sepsis Guidelines. *Int Care Med* 2017; 3:XX–XX
- Kumar, A, Roberts D, Wood K, et al: - Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock: *Critical Care Med* 2006 Vol. 34, No. 6
- Singer M, Deutschman CS, Seymour CW, et al: The Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA* 2016; 315:801–810
- Shankar-Hari M, Phillips GS, Levy ML, et al; Sepsis Definitions Task Force: Developing a New Definition and Assessing New Clinical Criteria for Septic Shock: For the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA* 2016; 315:775–787
- Seymour CW, Liu VX, Iwashyna TJ, et al: Assessment of Clinical Criteria for Sepsis: For the Third International Consensus Definitions for Sepsis and Septic Shock (Sepsis-3). *JAMA* 2016; 315:762–774
- Kumar A, Roberts D, Wood KE, et al: Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. *Crit Care Med* 2006; 34:1589–1596
- [Clinical Excellence Commission – Patient Safety Programs – Adults Patient Safety – Sepsis Kills](#)
- [World Sepsis Day](#)

## Consultation

Key stakeholders (position and business area) who reviewed this version are:

Name	Position and Business Area	Date of consultation
Antony Attokaran	Intensive Care Unit SMO & Chair RRCDP Committee CQHHS	December 2016
David Austin	Director Intensive Care Unit	January 2017
Jaco Poggenpoel	Deputy Director ICU	January 2017
Jeremy Fernando	ICU/Anaesthesia SMO	January 2017
Kieran Behan	Assistant Director Pharmacy Rockhampton Hosp & Committee member of QLD Health State-wide Sepsis Working Group	January 2017

Rudyard Yap	SMO Infectious Diseases, CQHHS	January 2017
Andrea Mc Lucas	ICU Nurse Educator	January 2017
Sharon Miskell	DMS, Gladstone Hospital	March 2017
Julie-Ann Graham	Locum SMO, Emerald Hospital	March 2017
RRCDP committee	Members of RRCDP Committee	January 2017
MEAG	Members of MEAG Committee	January 2017
Joy Pitman	DON Biloela Hospital	October 2016
Peter Ganter	Clinical Director, O&G	March 2017
Garry Dyke	Clinical Director, Surgery	March 2017
Miriam Tohill	Clinical Director, Anaesthetics	March 2017
Adriaan Smith	Clinical Director, Orthopaedics	March 2017
Thin Han	Clinical Director, Medicine	March 2017
Ajay Chipiri	Clinical Director, Emergency	March 2017
David Austin	Clinical Director, ICU	March 2017
Annette Turley	Director of Clinical Training	March 2017
Parbodh Gogna	Clinical Director, Capricorn Coast	March 2017
Bruce Chater	Medical Superintendent, Theodore	March 2017
Keith Tiong	Clinical Director, SAGE	March 2017
Kerryn Coleman	Clinical Director, Public Health	March 2017
Ganesh Gnanasekaran	Clinical Director, GARS	March 2017
Thomas John	Clinical Director, Mental Health	March 2017

## Audit Strategy

<b>Risk Rating</b>	<input type="checkbox"/> Very High	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Medium	<input type="checkbox"/> Low	As per QH <a href="#">Risk Matrix</a>
<b>Audit strategy</b>	Audit of 10 admissions with a Sepsis diagnosis in the month of July 2017 – CQHHS RRCDP committee will facilitate this audit and report results to appropriate committees				
<b>Audit tool attached</b>					
<b>Audit date</b>					
<b>Audit responsibility</b>					
<b>Key Elements / Performance Indicators / Expected Outcome</b>					

## Key Words

Sepsis, Medical Emergency, Adults, Clinical Practice, CQHHS

## Review

This document will be reviewed as per the [CQHHS Policy, Procedure & Terms of Reference Schedule](#) (PDF)

State-wide Sepsis Working group is undertaking a multidisciplinary review of current guideline. Once it is finalised this document will be reviewed to align CQHHS policy with state-wide guidelines.

## Supersedes

New Document - N/A

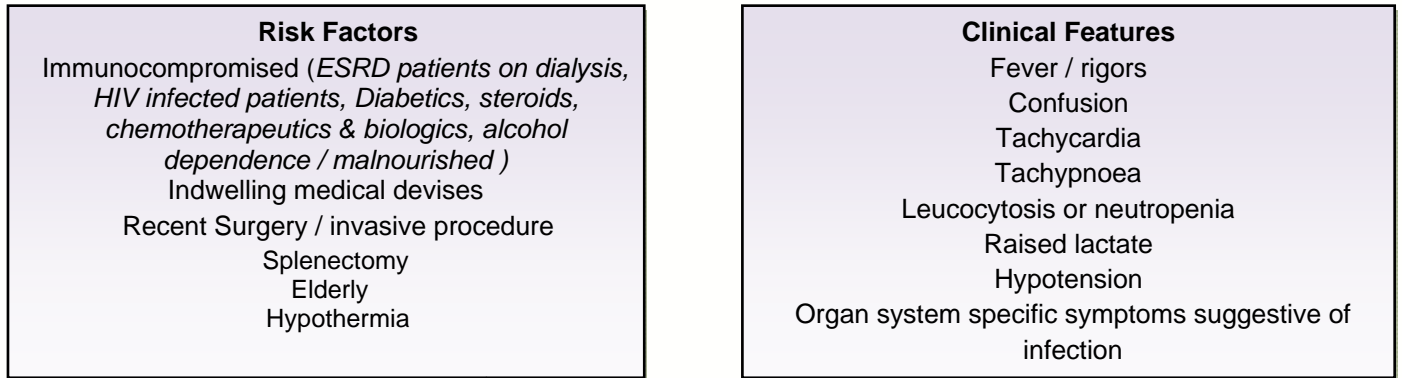
## Reasons for new document/revised document

- Planned/Period Review
- Recommendation(s) from a coronial enquiry or an incident analysis (RCA/HEAPS)
- Identification of gaps in existing procedures or processes
- Change to current service delivery model or the introduction of new equipment
- Change to legislation, standards, QH policy
- To improve an existing control or as a treatment action for an identified risk
- Patient Safety and Quality Improvement Service alert/notice

APPENDIX 1

### Sepsis Pathway: Adult

#### Risk Factors / Clinical Features of Infection



**Suspect Infection**

1. Administer Oxygen if required
2. Establish IV access
3. Lactate
4. Sepsis screen:
  - i. MSU / Sputum culture / Blood culture \* 2 sets / CXR
  - ii. Further imaging and tests based on clinical findings (e.g. Lumbar puncture / Pleural, ascitic, synovial fluid aspirates, USS or CT)
5. Baseline assessment of renal function / liver function / FBC / Coagulation profile .
6. Fluid resuscitation :
  - a. If hypotensive up to 30ml/kg
  - b. In aliquots of 500ml crystalloids and reassess (caution if dialysis or heart failure patients)
7. **Early empiric antibiotics within 1 hr if Sepsis or Septic shock**

**Screen for Sepsis**  
*Two or more qSOFA score suggest Sepsis*

Assess for risk factors predictive of poor prognosis in Sepsis

- qSOFA score (Presence of 2 or more features)**
1. Altered in mental status
  2. RR > 22
  3. SBP < 100mmHg

- Hemodynamic compromise (Presence of either feature)**
1. Persisting MAP < 65 mmHg or SBP < 90mmHg despite fluid resuscitation
  2. Lactate > 2 despite fluid resuscitation

Reassess after fluid resuscitation

- Sepsis (with organ dysfunction)**
1. Urgent SMO review / discussion (within 1 hr)
  2. Targeted treatment
  3. **Consideration of early source control**
  4. **Consider ICU referral**

- Septic shock**
1. Immediate SMO review / discussion
  2. Consider Vasopressor support
  3. Attempt early source control
  4. **Expedite transfer to resuscitation area / ICU**



## APPENDIX 2

### Recommended Antibiotic Guidelines

1. CQHHS antibiotic guideline covers common infections and recommended antibiotics. This could be used as a reference for choosing IV antibiotics for Sepsis or Septic shock.

<http://qheps.health.qld.gov.au/cqld/antimicrobial-stewardship/docs/adult-empiric-antibiotic.pdf>

2. For detailed consideration of antibiotic choice please refer to Therapeutic guidelines available through CKN

<https://tgdcdp.tg.org.au/etgAccess>

3. CQHHS Febrile neutropenia guideline can be accessed through this link.

[http://qheps.health.qld.gov.au/cqld/procedure/clinical-practice/docs/cq\\_cpc\\_n1.pdf](http://qheps.health.qld.gov.au/cqld/procedure/clinical-practice/docs/cq_cpc_n1.pdf)

## APPENDIX 3

## Background Information on SEPSIS

**Sepsis** is a life threatening condition that arises when the body's response to infection injures its own tissues and organs. It may lead to shock, multiple organ failure, and death, especially if not recognized early and treated promptly. Sepsis is one of the most underestimated health risks. It affects more than 30 million people worldwide each year; for 6 to 8 million of them with a fatal outcome. Surviving patients often suffer for years from late complications. The main danger of sepsis results from a lack of knowledge about it (Global Sepsis Alliance, 2015).

Historically the first International Consensus Conference in 1991 (Sepsis -1) and Second International Sepsis Definition conference in 2001 (Sepsis -2) have led to the development of definitions of stages of Sepsis which are listed under "Traditional Definitions".

In February 2016, the Third International Consensus Definitions on Sepsis and Septic Shock (Sepsis-3) were published in the Journal of the American Medical Association and this has re-evaluated the traditional concepts and come out with new recommendations regarding nomenclature of various stages of sepsis. These are listed under "Sepsis-3 and New Definitions". It is important to note these are only changes in nomenclature. We should currently aim to follow the Sepsis 3 definitions.

### Traditional Definitions

**Infection** is defined as the presence of microorganisms (bacteria, viruses, fungi, parasites or prions) in normally sterile tissues.

**Systemic Inflammatory Response Syndrome (SIRS)** is a systemic response to a variety of initiators, of which infection is one. Routine physiological observations and baseline investigations are utilised to confirm the presence of SIRS. SIRS may also be caused by other conditions such as trauma, burns and pancreatitis however it is more critical development in the presence of infection because this indicates that the patient may have entered the sepsis continuum.

**Sepsis** is defined as the presence (probable or documented) of infection together with systemic manifestations of infection. A local response is sufficient to identify an infection but, to be termed sepsis; the infection must be thought to be causing a systemic response (SIRS).

**Severe sepsis** is defined as sepsis plus sepsis-induced organ dysfunction or tissue hypoperfusion thought to be due to infection.

**Sepsis-induced hypotension** is defined as a systolic blood pressure (SBP) <90 mmHg or mean arterial pressure (MAP) <65 mmHg or a SBP decrease of 40 mmHg or less than two standard deviations below normal for age in the absence of other causes of hypotension in spite of adequate fluid resuscitation. Sepsis-induced tissue hypoperfusion is defined as infection-induced hypotension, elevated lactate, or oliguria.

## Sepsis 3 and New Definitions

**Sepsis:** is defined as 'life-threatening organ dysfunction caused by a dysregulated host response to infection'. Quick SOFA (qSOFA) has been proposed as a tool to identify patients in hospital wards or the ED with infection who are at increased risk of in hospital death from sepsis or treatment in an intensive care unit for 3 or more days. Presence of 2 or more features of (Respiratory rate of 22/minute or greater, Altered Mentation, Systolic BP Less than 100 mmHg) will suggest presence of sepsis.

**Septic shock:** is defined as 'a subset of sepsis where underlying circulatory and cellular/metabolic abnormalities are profound enough to substantially increase mortality' requiring vasopressors to maintain a mean arterial pressure of 65mmHG or greater AND serum lactate greater than 2mmol/L despite adequate fluid resuscitation.

## APPENDIX 4

**COMMON CAUSES OF DELAY IN RECOGNISING AND TREATING SEPSIS IN THE WARDS**

Source: NSW Sepsis Kills guidance

**Recognition**

- Lack of nursing and junior doctor knowledge of sepsis risk factors, signs, symptoms
- Observations performed infrequently so not a timely indicator for deterioration and/or sepsis
- Sepsis screening processes different in each ward
- Rationalise that fever is disease related, not sepsis OR it can't be sepsis as there is not fever
- Night RMO does not give high priority to sepsis due to workload and/or lack of knowledge that sepsis is a medical emergency
- Failure to communicate sepsis risk/diagnosis in clinical handover or ED to ward handover
- Not testing lactate to aid diagnosis due to lack of knowledge and/or access to testing
- Stuck in a particular diagnosis and sepsis not considered.

**Escalation**

- Senior clinician not available to assist in making diagnosis
- No formal RMO escalation process for sepsis
- Medical registrar, SMO or ID not consulted or informed of new sepsis
- Wait for investigations/specimens and/or results before escalation
- Surgical teams in theatre and unable to respond
- Long delay between call and after hours medical review
- NFR status unavailable
- Multiple teams looking after patient – confusion as to who to inform/seek advice.

**Treatment**

- Basic resuscitation not happening whilst awaiting arrival of Rapid Response team
- Doctor not familiar with sepsis pathway or bundle of care
- Long time to cannulation due to difficult access or not done at time of diagnosis
- Doctor or nurse cannulation skills not available on all shifts
- Fluid resuscitation volume/time for administration not standard
- Nurses (and doctors) don't know what/how to give a rapid bolus (fluid challenge)
- Limited understanding of antibiotic prescribing choices/regimes in sepsis or give favoured antibiotics
- Senior doctor or Infectious Diseases advice not sought by junior doctors for initial treatment
- No antibiotics changed/commenced overnight – wait for morning rounds
- Wait for results of tests/investigations before commencing/changing antibiotics
- Prescription of antibiotics (writing up) and communication of same with nursing staff
- Nurses don't consider antibiotics as urgent treatment
- Antimicrobial stewardship impacts on antibiotic choices and availability
- Antibiotics given as a slow infusion
- Equipment and resources for sepsis not centralised or available eg blood culture bottles
- Lack of monitoring of observations and urine output in patients post Rapid Response call or sepsis diagnosis