Recognition and Management of Sepsis

Sites where PCP applies
This PCP applies to: HNE LHD Emergency Department and Inpatient facilities
1. Adults
   Yes
2. Children up to 16 years
   Yes
3. Neonates – less than 29 days
   Yes
   Approval gained from the Children Young People and Families Network on 16.2.2017

Target audience
All clinical staff

Description
The Sepsis Kills Program guides clinicians in the recognition and management of the patient with suspected or confirmed sepsis. This document reflects what is currently regarded as safe and clinically appropriate practice, but does not replace the need for the application of clinical judgment in respect to each individual patient.

Keywords
Sepsis, Recognition, Detection, Deterioration, Patient, Pathways, CERS, Clinical Review, Rapid Response

This PCP relates to NSW Ministry of Health Policy Directive
NSW Health Policy Directive PD2013_049 Recognition and Management of Patients who are Clinically Deteriorating

PCP number
PD2013_049:PCP 7

Replaces existing document?
No

Related Legislation, Australian Standard, NSW Ministry of Health Policy Directive or Guideline, National Safety and Quality Health Service Standard (NSQHSS) and/or other, HNE Health Document, Professional Guideline, Code of Practice or Ethics:

- See Reference List on page 10

Tier 2 Director responsible for Policy to which the PCP relates. PCP authorised by
Executive Director, Clinical Governance

PCP contact person and Network or Service etc. responsible for the PCP
Mary Bond. Manager, Health Systems Improvement, Clinical Governance

Contact details
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Date authorised
1 February 2017

This document contains advice on therapeutics
Yes

Confirmed approval from HNE Quality Use of Medicines Committee not required on 01/02/2017, due to referencing already approved documents

Issue date
17 February 2017

Review date
17 February 2020
RISK STATEMENT

Sepsis is a medical emergency and poses significant risk to patients if there is a failure to recognise and respond to sepsis related deterioration.

Compliance with this procedure is required to reduce these risks by ensuring clinicians are able to:

- Recognise and respond to sepsis risks
- Initiate treatment and follow Sepsis Pathways, including the management plan.
- Locate and utilise sepsis resources, including Sepsis Pathways and antibiotic guidelines

Risk Category: Clinical Care & Patient Safety

GLOSSARY

<table>
<thead>
<tr>
<th>Acronym or Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>BTF</td>
<td>Between the Flags</td>
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<tr>
<td>CEC</td>
<td>Clinical Excellence Commission</td>
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<tr>
<td>CERS</td>
<td>Clinical Emergency Response System</td>
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<tr>
<td></td>
<td>A formalised system for obtaining urgent assistance when a patient is clinically deteriorating. The CERS includes the facility based response as well as the formalised referral and escalation steps to obtain expert assistance and/or transfer to other levels of care within the facility or to another facility.</td>
</tr>
<tr>
<td>Clinical Review</td>
<td>A patient review undertaken within 30 minutes by the attending medical team, or designated responder, as defined in the local CERS protocol.</td>
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<tr>
<td>CQPCC</td>
<td>Clinical Quality and Patient Care Committee (local or district)</td>
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<tr>
<td>IIMS</td>
<td>Incident Information Management System</td>
</tr>
<tr>
<td>ISBAR</td>
<td>Introduction, Situation, Background, Assessment, Recommendation</td>
</tr>
<tr>
<td>IV</td>
<td>Intravenous</td>
</tr>
<tr>
<td>MAM</td>
<td>Monthly Accountability Meeting</td>
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<tr>
<td>MON</td>
<td>Medical Officers Notice Board</td>
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<tr>
<td>PCP</td>
<td>Policy Compliance Procedure</td>
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<tr>
<td>Rapid Response</td>
<td>This is an urgent review for patients who have Red Zone observations or Additional Criteria undertaken by a Rapid Response Team, or designated responder(s), as defined in the local CERS protocol.</td>
</tr>
<tr>
<td>RAD</td>
<td>Resuscitation and Deteriorating Patient Committee</td>
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<tr>
<td>SBP</td>
<td>Systolic Blood Pressure</td>
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Compliance with this PCP is mandatory
PROCEDURE

OVERVIEW

Sepsis is a life-threatening condition that arises when the body responds to infection with its own tissues and/or organs by releasing chemicals into the bloodstream and triggering inflammatory responses throughout the body. If untreated sepsis can damage multiple organ systems causing them to fail and progress to severe sepsis, septic shock and death.

Sepsis can present in any patient in any clinical setting and is regarded as a medical emergency.

HNE LHD has adopted the CEC’s Sepsis Kills Program for the management of patients with sepsis. The Sepsis Kills program is closely aligned with the Between the Flags system, in that it aims to reduce preventable harm through the early recognition and management of severe infection and sepsis in all patient groups, within both emergency departments and inpatient wards.

The focus is to:

- RECOGNISE risk factors, signs and symptoms of sepsis
- RESUCITATE with rapid intravenous fluids and antibiotics upon recognition of sepsis
- REFER to senior clinicians and specialty teams, including retrieval as required.

When NOT TO USE the Sepsis Pathway

Use relevant febrile neutropenia guidelines if the patient has haematology or oncology diagnosis
Use relevant nephrology guidelines for renal dialysis patients.

RISK IDENTIFICATION AND RESPONSE

- Engage with patients/parents/family/carers to assess sepsis risk factors and obtain a comprehensive history
- Consider reviewing recent patient clinical information via the Clinical Access Portal (CAP) to aid in identification of re-presentation, recent procedure, infection or chronic illness
- Be alert to parental concern and age of the paediatric patient
- Consider any new onset of signs and symptoms of infection
- Undertake and document an A – G clinical assessment (including serum lactate and BGL) using the Sepsis Pathway to assist in determining the risk of sepsis and escalate accordingly
- If no clearly defined sepsis risk continue monitoring vital sign observations and further investigation and treatment as per clinical judgment
- Re-evaluate sepsis risk if vital sign observations remain abnormal or on clinical deterioration.

Remember: The absence of risk factors DOES NOT exclude sepsis as a cause of deterioration.

Yellow Zone activation of Sepsis Pathway

The identification of sepsis risk factors PLUS two (2) or more ‘Yellow Zone’ early warning signs of deterioration OR

Additional criteria including clinician concern are indicators the patient may have sepsis.

Expected actions for Yellow Zone activation of Sepsis Pathway

- Call for Clinical Review as per local CERS protocol using ISBAR
- Complete a targeted history and A-G clinical examination is undertaken
• Escalate to a senior Clinician to review patient, confirm diagnosis, prioritise investigations and management
• Refer to the age related Sepsis Pathway in determining sepsis treatment under the heading ‘resuscitate’ for ongoing management
• If a sepsis diagnosis is confirmed by the senior clinician you must commence treatment as per Sepsis Pathway resuscitation guidelines with the administration of antibiotics and Fluid Resuscitation within 60 minutes for paediatric and newborn patients and 2 hours for adult patients

Red Zone activation of Sepsis Pathway
The identification of any Red Zone late warning signs of deterioration and/or a serum lactate level ≥ 4mmol/L in adults or ≥ 2mmol/L in children indicates severe sepsis or septic shock until proven otherwise.

Note Elevated serum lactate can be a late sign in children, but persistent tachycardia is often consistent with sepsis in children and action needs to be taken.

Expected actions for Red Zone activation of Sepsis Pathway
• Immediate escalation and a Rapid Response must be activated as per local CERS protocol
• Conduct an A-G clinical examination
• Collect blood cultures as per CEC Blood Culture collection guidelines
• Collect additional pathology as outlined on Sepsis Pathway (serum lactate)
• Administer oxygen if clinically indicated; aim for SpO2 >95% (COPD patients 88-92%)
• Prescribe and administer antibiotics as per CEC Antibiotic guidelines within 60 minutes
• Commence IV fluid resuscitation as per the Sepsis Pathway.

Sepsis Pathways
Sepsis Pathways are to be used to determine if your patient is at risk of sepsis. The Sepsis Management Plan provides guidance regarding sepsis management for the initial 24 hours, followed by 24-48 hour reassessment requirements.

Sepsis Pathways must be referenced when reading this PCP
• Adult Sepsis Pathway – For patients 16 years and over (order code - NH700066)
• Paediatric Sepsis Pathway – For patients one month to 16 years, plus neonates presenting to an emergency department (order code - NH700131)
• Maternal Sepsis Pathway – For antenatal women >20 weeks pregnant and postnatal women up to 42 days post-partum (order code - NH700107)
• Newborn Sepsis Pathway – For newborns up to one month who have not been discharged home (order code - NH700108)

SEPSIS MANAGEMENT
Patients with suspected or confirmed sepsis are at a high risk of deterioration despite initial resuscitation with antibiotics and fluids. These patients require a management plan, which needs to be discussed with the Admitting Medical Officer and communicated during patient clinical handover using ISBAR. The patient/parent and their carer/family should be involved where possible in these conversations.
Expected actions

- Increase frequency of core observations to every 30 minutes for 2 hours, then hourly for 4 hours if stabilised
- Blood collection, testing and re-testing
- Obtain at least one set of blood cultures and other clinical specimens (e.g. urine, cerebrospinal fluid, wound swabs) as appropriate PRIOR TO antibiotic commencement
- Commence a fluid balance chart for strict monitoring of input and output
- Administer antibiotics, IV fluids and obtain serum lactate as per Sepsis Pathway guidelines
- Action any signs of deterioration or no clinical improvement as per local CERS protocol
- Discuss the Sepsis Management Plan with the Attending Medical Officer and include this plan in the clinical handover to the Medical Officer, Unit Manager, Nurse-in-Charge with patient/parent/family/carer involvement
- Ensure the patient is reviewed by the Attending Medical Officer within 24 hours of commencing the Sepsis Pathway and antibiotic therapy
- Refer to the Infectious Diseases team and/or clinical microbiology service for specific advice if required
- Adapt treatment to patient’s end of life care plan if applicable.

Sepsis Resuscitation – Antibiotics

Antibiotics must be given as a priority in initial sepsis management. Delayed sepsis treatment is associated with high mortality rates, significant morbidity and high costs to the health care system.

If you experience difficulties with obtaining blood specimens DO NOT DELAY antibiotic administration.

(CEC Adult Antibiotic Guidelines)

Antibiotics are NOT to be withheld for the following reasons:

- Difficulties obtaining blood culture specimens
- Awaiting pathology results

Expected actions

- Reference CEC antibiotic guidelines when prescribing
- Timely administration of antibiotics without delay, including first and subsequent antibiotic doses
- Review of blood culture results once available and align antibiotic prescribing
- Prescribe broad spectrum antibiotics as per guidelines if the infective source unknown, and until resistance confirmed.

The CEC antibiotic guideline targets the following suspected sources:

- community-acquired pneumonia
- hospital-acquired pneumonia
- lower and high risk of multi-resistant organisms
- urinary tract
- biliary
- gastro-intestinal
- cellulitis
- diabetic foot infection
- intravascular device
- toxic shock syndrome
- neurological and neurosurgical
Antibiotic Guidelines

- CEC Adult Antibiotic Guideline for severe sepsis and septic shock (use adult guidelines for maternal sepsis)
- CEC Paediatric Antibiotic Guideline for Severe Sepsis and Septic Shock and Unwell Neonates
- CEC Newborn Antibiotic Guideline for early and late onset of sepsis during birth episode of care
- Antibiotic Prescribing/Therapeutic Guidelines via CIAP

Sepsis Resuscitation - Fluids

Fluid resuscitation, especially in the presence of hypotension and/or an elevated serum lactate, is essential. Fluids may be administered via IV or intraosseous mode.

Expected actions

- Monitor strict fluid intake and output
- Administer IV fluids promptly:
  - Adult Emergency Department patients receive initial 20 mL/kg bolus IV fluids STAT, if no response repeat 20 mL/kg STAT
  - Adult Inpatients receive initial 250-500 mL bolus IV fluids STAT, if no response repeat 250-500 mL STAT
  - Paediatric patients receive 20 mL/kg 0.9% sodium chloride IV bolus STAT and repeat if no improvement in heart rate, capillary refill, colour
  - Newborn patients receive 10mL/kg 0.9% sodium chloride IV bolus STAT and repeat if no improvement in heart rate, capillary refill, colour
- Reassess and monitor the patient including volume status, vital signs, tissue perfusion and signs of pulmonary oedema
- Activate a Rapid Response escalation if no improvement in SBP following administration of fluid therapy

REMEMBER

Patients can respond well to initial treatment but without ongoing close monitoring there is an increased risk for undetected deterioration. Observe and monitor your patient closely.

Blood Cultures

Blood culture collection is a starting point to commence investigations and is critical in the detection of microbial pathogens and guiding appropriate antimicrobial selection.

Blood culture collection is a Level 1 clinical procedure.

Expected actions

- Collect blood cultures as per CEC Blood Culture collection guidelines
- Obtain verbal consent from patient/parent/carer/family member
- Confirm patient identity prior to procedure commencing
- When collecting blood cultures:
  - In adult and children (excluding neonates) collect two blood cultures sets filled with the indicated volume of blood from different peripheral sites: two bottles for aerobic and two bottles for anaerobic (4 bottles in total)
  - Collect the blood culture specimens FIRST (inoculating the aerobic bottle first) then, if required, collect additional blood pathology tubes at this point
  - In instances of difficulties to obtain bloods or waiting on results DO NOT DELAY in commencing antibiotic treatment
- Document in the health care record post procedure including the consent procedure
CEC Blood Culture Guidelines

- Adult blood culture guideline (use adult guidelines for maternal sepsis)
- Paediatric blood culture guideline
- Neonatal blood culture guideline

Serum Lactate

Elevated serum lactate is typically present in patients with sepsis and has clinical and statistical significance in predicting mortality. High lactate levels require an escalation in care including a rapid response call activation / local CERS protocol and/or ICU management.

Expected actions

- Repeat serum lactate assessment and re-assessment at 4 hours and 8 hours post commencement of treatment so that clinical progress can be assessed
- Escalate care via Rapid Response / local CERS protocol:
  - for a lactate level greater than 4 mmol/L in adults and 2 mmol/L in children
  - if no improvement or an increase in lactate level on re-assessment of the patient

The Maternal Sepsis Pathway has no set upper lactate level as a single trigger for escalation due to a natural increase in lactate for laboring women. However an increase or no improvement in serum lactate requires escalation as per CERS.

A Lactate information sheet for clinicians is available on the CEC Sepsis website, which provides more details about lactate production, the importance of lactate in sepsis, plus different conditions and medications that may impact on lactate levels.

ROLES AND RESPONSIBILITIES

Facility/Service Manager Responsibility

- Ensure that all clinical staff are aware of and know how to activate their local CERS protocol
- Ensure opportunities for sepsis education is available i.e. on orientation
- Implement the NSW Health Sepsis Pathways and associated clinical guidelines
- Ensure monitoring, analysis and evaluation of the Sepsis Kills Program through the local Clinical Quality and Patient Care Committee
- Regularly review and report sepsis data and related incidents and take appropriate action to improve the safety and quality of patient care
- Ensure the required antibiotics are accessible by the relevant clinical areas

Line management responsibility

- Ensure that all clinical staff are informed of their obligations regarding this PCP through staff orientation, education and/or leader rounding
- Lead the implementation of Sepsis Kills Program, through managing Sepsis Pathway, education, and access to resources
- Monitor implementation through analysis and trending of sepsis data and clinical incidents
- Discuss sepsis audit results and improvement strategies with clinical staff
- Support staff to undertake the online HETI sepsis education
Clinical responsibility

- Read and comply with the requirements of this HNE LHD PCP
- Undertake the online HETI sepsis education
- Engage with patients/parents/family/carers in using Sepsis Pathways
- Activate local CERS protocol, for prompt review and treatment of patients who are clinically deteriorating
- Report any incidents relating to a delay or failure to recognise or respond to sepsis related patient deterioration in IIMS

TRAINING AND RESOURCES

SEPSIS EDUCATION

Sepsis Kills on-line education for the adult and paediatric patient is available via HETI.

- Emergency SEPSIS KILLS Program - Course Code: 39941883
- Inpatient SEPSIS KILLS Program - Course Code: 49389821

Sepsis education should also be incorporated into local orientation programs and annual education calendars. During Between the Flags Tier 2 Face to Face training (including DETECT/ DETECT Junior) and the clinical scenario relating to the septic patient it is recommended that DETECT trainers have copies of the relevant Sepsis Pathway at hand to aid in education.

SEPSIS RESOURCES

The Sepsis Pathway Label is currently available to purchase from the state print supplier (Stream Solutions – NH700072). This is a sticky label that can be added to a patient's clinical record to flag commencing the Sepsis Pathway and is a prompt to review, complete and follow up the Sepsis Pathway.

The Bomb on the MON
This is a resource that enables you to flag septic patients on the Medical Officers Noticeboard (MON) to increase clinician awareness that a patient with sepsis is on the ward, to monitor closely and keep these high risk patients in the forefront of clinicians’ minds.

The CEC Sepsis Kills website provides additional resources including a sepsis information sheet for patients and families. This resource can be used to help increase patient and family awareness of sepsis, such as following diagnosis of sepsis or on discharge for those at risk.

IMPLEMENTATION AND MONITORING COMPLIANCE

Implementation

- Clinical Governance will continue to support implementation of the Sepsis Kills program through engagement with key stakeholders at district and local level
- Awareness of this PCP will be promoted through the CE Newsletter
- This PCP will be communicated via email to General Managers for distribution and to be tabled at the relevant Clinical Quality Committee
- It is the responsibility of clinical managers to identify the best communication strategies to apply within their local context
- The PCP will be uploaded to the Policy, Procedure and Guideline Directory
Compliance, Monitoring and Evaluation

- The HNE District RAD committee provides oversight of the Sepsis Kills Program in HNE Health in collaboration with Clinical Governance
- HNE Executive Director, Clinical Governance is responsible for ensuring systems are in place to monitor the implementation and effectiveness of the Sepsis Kills Program as per the Sepsis data management plan
- Monitoring and evaluation mechanisms are outlined in the Sepsis data management plan (Appendix 1) including reporting quarterly via Local Health Committees/CQPCC
- Monitoring compliance with the PCP is to be undertaken annually at each health facility via the structural, process and patient outcome measures outlined in the data management plan

FEEDBACK
Any feedback on this document should be sent to the Contact Officer listed on the front page.

APPENDICES
- Appendix 1: Sepsis Data Management Plan
- Appendix 2: Example Adult Sepsis Pathway
REFERENCES

Policies

- NSW Health Policy Directive PD2013_049 Recognition and Management of Patients who are Clinically Deteriorating
- NSW Health Policy Compliance Procedure PD2013_049:PCP1 Recognition and Management of Patients who are Clinically Deteriorating
- NSW Health Policy Directive: PD2014_004 Incident Management
- NSW Health Policy Directive PD2014_036 Clinical Procedure Safety
- NSW Health Policy Directive PD2007_036 Infection Control Policy
- NSW Health Policy Directive PD2009_060 Clinical Handover – standard key principles
- NSW Health Guideline GL2015_005 Infants and Children: Acute Management of Community Acquired Pneumonia Clinical Practice Guideline
- NSW Health Guideline GL2015_013 Infants and Children: Initial Management of Fever/Suspected Sepsis in Oncology /Transplant Patients
- NSW Health Guideline Maternity - Maternal Group B Streptococcus (GBS) and Minimisation of Neonatal Early-Onset GBS Sepsis
- HNELHD Policy Compliance Procedure PD2009_060: PCP1 Clinical Handover
- HNELHD Policy Compliance Procedure PD 2009_060 PCP 3 Clinical Handover – INTRA facility transfers
- HNELHD Clinical Guideline Adult Community Acquired Pneumonia: Initial Investigation and Empiric Antibiotic Therapy HNELHD CG 15_34
- HNELHD Clinical Guideline Antimicrobial HNELHD CG 11_02
- HNELHD Clinical Guideline Management of suspected neutropenic sepsis in haematology and/or medical oncology patients receiving chemotherapy who present with fever HNELHD CG 16_07
- HNELHD Clinical Guideline Sepsis Adult First Dose Empirical Intravenous Antibiotic Guideline HNELHD CG 12_16
- HNELHD Maternity Medication Standing Order: Administration of benzyl penicillin for prophylaxis against group B Streptococcus sepsis
- HNELHD Maternity Medication Standing Order: Administration of clindamycin IV for intrapartum prophylaxis against group B Streptococcal sepsis when benzyl penicillin is contraindicated

Clinical Excellence Commission (access documents via CEC website)

- Clinical Excellence Commission. Statement regarding the new international sepsis definitions (Sepsis-3); Sydney 2016.

Australian Commission on Safety and Quality in Health Care: National Safety and Quality Health Service (NSQHS) National Standards

- Standard 2 – Partnering with Consumers
- Standard 3 – Prevention of Healthcare-associated Infection
- Standard 4 – Medication Safety
- Standard 6 – Clinical Handover
- Standard 9 – Recognising and Responding to Clinical Deterioration in Acute Health Care

Articles

### Appendix 1: Sepsis Data Management Plan

<table>
<thead>
<tr>
<th>Element 1 Policy Compliance Procedure</th>
<th>Measures</th>
<th>Data Source</th>
<th>Responsibility of:</th>
<th>Reporting to:</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Policy Compliance Procedure</strong></td>
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</tbody>
</table>
| **Structure**                         | HNE Resuscitation & Deteriorating Patient (RAD) Committee  
NSW Policy Directive PD2013_049 Recognition and Management of the Patient who is clinically deteriorating implemented  
PD2013_049: PCP 1 Recognition and Management of Patients Who Are Clinically Deteriorating Patient/Family Activated Escalation REACH PCP 7 Recognition and Management of Sepsis PCP 8  
CEC Standard State Sepsis Pathways    
- Adult Sepsis Pathways             
- Paediatrics Sepsis Pathways       
- Maternal Sepsis Pathways          
- Newborn Sepsis Pathways           
NSW Health Standard Observation Charts SAGO, SPOC, SMOC, ASSOC, SNOC, AEDOC, PEDOC CERS District templates for Adult & Paediatrics available  
CEC Blood culture collection guidelines implemented  
CEC Antibiotic guidelines implemented | Committee Charter  
Policy/Procedure/ Guideline page PPG | Chair RAD (Critical Care Services)  
Manager, Health Systems Improvement (HSI) | District Clinical Quality & Patient Care Committee (CQPCC)  
Resuscitation & Deteriorating Patient (RAD) Committee | Annually |
| **Process**                           | % of patients who received best practice ‘bundles of care’    
- appropriate antibiotic therapy        
- blood cultures obtained              
- fluid therapy administered           
- lactate level ascertained             
- First dose antibiotics within timeframe  
Frequency of vital signs increased | QARS | Manager, HSI | District CQPCC  
RAD committee | Biannually |
| **Outcome**                           | Reduction in significant incidents (RCA’s and London protocols) relating to a delay or failure to recognise and manage sepsis.  
% of patients diagnosed with sepsis who have a Sepsis Pathway incorporated into their medical record | Patient Safety Manager & IIMS system QARS | Manager, HSI | RAD committee  
District CQPCC | Biannually |
## Appendix 1: Sepsis Data Management Plan

<table>
<thead>
<tr>
<th>Element 2 Education of the Healthcare workforce in best practice principles of sepsis recognition, management and escalation of care to ensure best patient outcomes</th>
<th>Structure</th>
<th>HETI On-Line Sepsis education (Adult and Paediatric modules)</th>
<th>HETI</th>
<th>Manager, HSI</th>
<th>District CQPCC</th>
<th>Annually</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process</td>
<td>%Clinicians (Nursing/Medical) who have undertaken the HETI online Sepsis adult education</td>
<td>HETI</td>
<td>Manager, HSI</td>
<td>District CQPCC</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>Process</td>
<td>%Clinicians (Nursing/Medical) who have undertaken the HETI online Sepsis paediatric education</td>
<td>HETI</td>
<td>Manager, HSI</td>
<td>District CQPCC</td>
<td>Annually</td>
<td></td>
</tr>
<tr>
<td>Outcome</td>
<td>% of patients with unexpected in hospital deaths relating to Sepsis recognition and management in comparison to total number of unexpected in hospital deaths</td>
<td>IIMS, PSM</td>
<td>Manager, HSI</td>
<td>District CQPCC</td>
<td>Annually</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 2: Example Adult Sepsis Pathway

**SEPSIS MANAGEMENT PLAN**

Patients with presumed sepsis are at a high risk of deterioration despite initial resuscitation with intravenous antibiotics and fluids. These patients require a management plan which needs to be discussed with the attending medical officer (AMO). The infectious diseases physician/clinical microbiologist and antimicrobial stewardship (AMS) team are to be consulted where necessary. This plan needs to be communicated to the general medical officer, nurse in charge, patient and patient’s family.

**Specific management plans are to be documented in the health care record**

**Continue monitoring**
- Prescribe the frequency of observations
- Monitor and record fluctuations and trends seen in the observations
- Monitor and record for signs of deterioration

**Resuscitation**
- Maintain intravascular volume
- Monitor for signs of pulmonary oedema
- Administer IV fluids as per local CERS and AMO

**Review treatment/management**
- Discuss AMO
- Document plan to continue, change or cease antibiotics
- Document plan to continue, change or cease fluid balance
- Document management plan in the health care record
- Continue monitoring for deterioration including urine output

**24 - 48 hours**
- Continue to monitor as per patient’s condition – observations, medical review, antibiotics