



TITLE

SUSPECTED SEPSIS ASSESSMENT AND TREATMENT IN THE ADULT PATIENT

SCOPE

Provincial, Emergency Departments and Urgent Care

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Not applicable

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NOTE: The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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OBJECTIVES

- To assist **health care professionals** when implementing specific diagnostics, therapeutics, and interventions prior to the initial Physician or Nurse Practitioner's (NP) assessment for **adult** patients with suspected **sepsis**.
- This Protocol is intended for adult patients who present to Emergency Departments (ED) or Urgent Care Centres (UCC) with suspected sepsis.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, Students, Volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary), working in an Emergency Department or Urgent Care Centre.

ELEMENTS

1. Points of Emphasis

- 1.1 Follow local process when a patient, who has had this protocol implemented, leaves prior to Physician or NP assessment.

2. Inclusion Criteria

- 2.1 This Protocol applies to an adult patient who presents with:
 - a) a known or suspected infection; and
 - b) two (2) or more of the following Systemic Inflammatory Response Syndrome (SIRS) criteria:

- hyperthermia - temperature greater than 38 degrees Celsius (°C);
 - hypothermia - temperature less than 36°C;
 - tachycardia - heart rate greater than 90 beats per minute (bpm); and
 - tachypnea - respiratory rate greater than 20 breaths per minute.
- 2.2 Consider patients with suspected sepsis may present with additional signs and symptoms of organ dysfunction:
- a) altered level of consciousness - Glasgow Coma Scale (GCS) less than 15; and/or
 - b) systolic blood pressure less than 100 millimeter of mercury (mmHg).
- 2.3 Patients who have received chemotherapy within the last 14 days are at greatest risk for infection due to low white blood cell count. These patients may not display SIRS criteria. These patients shall be considered immunocompromised and assigned a Canadian Triage Assessment Scale (CTAS) two (2).
- 2.4 Pregnancy and the puerperium are a time of significant physiological changes and patients may not meet the traditional definitions of sepsis despite the presence of severe infection. Consider puerperal sepsis may occur from intrapartum up to any time in the first six (6) weeks postpartum.

3. Assessment

- 3.1 A comprehensive patient assessment including a full set of vital signs (temperature, heart rate (HR)/pulse, blood pressure, respiratory rate, oxygen saturation and Glasgow Coma Scale [GCS]) shall be completed. Consider end tidal carbon dioxide (ETCO₂) monitoring where available. Refer to AHS *Assessment and Reassessment of Patients* Guideline.
- 3.2 If a patient has an altered level of consciousness, obtain a Point-of-Care Test (POCT) blood glucose measurement.
- 3.3 Immediately notify the Nurse Clinician/Charge Nurse and an ED/UCC Physician/NP of any patient who presents with suspected sepsis and/or signs and symptoms of septic shock.
- 3.4 Follow AHS Infection Prevention and Control (IPC) guidelines for appropriate precautions based on IPC screening results. See References Section below for additional information.

4. Treatment

4.1 Oxygen Therapy:

- a) Routine administration of oxygen may be harmful. Do not administer supplemental oxygen unless saturations are less than 92%. If oxygen is administered, titrate to maintain oxygen saturation at 92%.
 - (i) If the patient states or the clinician suspects that they have chronic hypercapnia (a carbon dioxide [CO₂] retainer), an oxygen saturation of 88% may be reasonable and oxygen therapy may not be required. A Physician or NP **order** for oxygen is required in this population.
- b) Page Respiratory Therapy, if available, to assist with airway management as required.

4.2 Start two (2) large bore intravenous (IV).

4.3 Infuse 0.9% Sodium Chloride (Normal Saline) at 30 milliliters per hour (mL/hr).

4.4 IV Bolus:

- a) If systolic blood pressure is less than 90 mmHg and heart rate is greater than 100 bpm, notify an ED/UCC Physician or NP and obtain an order for the following:
 - (i) Administer warmed Normal Saline bolus of 500 mL over five (5) to 10 minutes. An additional 500 mL may be administered if systolic BP remains less than 90 mmHg and heart rate remains greater than 100 bpm following the initial bolus.
- b) Patients with known congestive heart failure shall have the IV bolus administered over 10 to 20 minutes.
- c) Perform chest auscultation after completion of each bolus. Presence of abnormal breath sounds shall be reported to a Physician or NP.

4.5 Cardiac Monitoring:

- a) Apply cardiac monitor leads; monitor patient in lead II and if available V1. Interpret the rhythm strip and place on patient's **health record**.
- b) If patient is triaged to a non-monitored treatment space, place the patient on a portable cardiac monitor.
- c) Perform a 12 lead electrocardiograph (ECG) if the patient is experiencing chest pain or dyspnea.
- d) Evaluate the ECG; follow local procedure:

- (i) Bring the ECG to the attention of the Physician or NP; or
- (ii) assess the ECG for abnormalities that deviate from normal sinus rhythm. Compare current ECG with previous ECG if available. If any new abnormalities (e.g., bundle branch block, flipped t-waves, atrial fibrillation) are present or there are abnormalities present and no previous ECG to compare with, bring the ECG to the attention of a Physician or NP.

4.6 Laboratory Studies:

a) The following laboratory tests should be drawn and sent:

(i) Standard laboratory tests:

- complete blood count;
- electrolytes (sodium, potassium, chloride, carbon dioxide);
- creatinine; and
- glucose.

(ii) For patients with signs and symptoms of organ dysfunction (GCS less than 15 and/or systolic blood pressure less than 100 mmHg), the additional laboratory tests should be drawn and sent:

- prothrombin time / international normalized ratio (PT, INR);
- partial thromboplastin time (PTT);
- urea;
- alanine aminotransferase (ALT);
- alkaline phosphatase (ALP),
- bilirubin;
- lactate/venous blood gas, based on local availability;

Note: Blood specimen should be collected without a tourniquet to ensure a reliable lactate; and

- if temperature is less than 36 degrees Celsius (°C) or greater than 38 degrees Celsius (°C), or patient has taken an antipyretic within the last four (4) hours, obtain two (2) sets of blood cultures. Collect prior to administering first antibiotic wherever possible.

- b) Urine:
 - (i) Perform a Urine Dip/ Point-of-Care Testing (POCT).
 - (ii) If POCT is positive for blood, leukocytes and/or nitrites send specimen for urinalysis.
 - (iii) Send for culture if POCT is positive for nitrites and/or leukocytes.

4.7 Local practice guidelines may determine the laboratory tests that are included as part of this Protocol.

5. Reassessment

5.1 Monitor vital signs every 15 minutes whenever possible but no longer than 60 minutes for this at risk patient. Refer to AHS *Assessment and Reassessment of Patients* Guideline.

5.2 Monitor urine output if patient requires IV fluid bolus.

6. Documentation

6.1 Document initiation of this protocol and all assessments, treatments, medication administration, laboratory blood work, and/or diagnostics on the patient's health record.

6.2 All orders shall be written/entered on the paper/electronic health record as per local protocol.

DEFINITIONS

Adult means a person aged 18 years and older.

Health care professional means an individual who is a member of a regulated health discipline, as defined by the *Health Disciplines Act* (Alberta) or the *Health Professions Act* (Alberta), and who practises within scope and role.

Health record means the Alberta Health Services legal record of the patient's diagnostic, treatment and care information.

Order means a direction given by a regulated health care professional to carry out specific activity(-ies) as part of the diagnostic and/or therapeutic care and treatment to the benefit of a patient. An Order may be written (including handwritten and or electronic), verbal, by telephone or facsimile.

Patient means an adult or child who receives or has requested health care or services from Alberta Health Services and its health care providers or individuals authorized to act on behalf of Alberta Health Services. This term is inclusive of residents, clients and outpatients.

Sepsis means for the purpose of this document, is the body’s overwhelming and life-threatening response to infection which can lead to tissue damage, organ failure, and death.

REFERENCES

Alberta Health Services Governance Documents:

- *Assessment and Reassessment of Patients* Guideline (#HCS-181-01)
- *Infection Prevention and Control Guidelines*
<http://www.albertahealthservices.ca/info/Page6410.aspx>
- *Point-of-Care Testing (POCT)* Policy (#PS-90)
- *Prevention Of Peripartum Acquired Group A Streptococcus* Protocol (#HCS-255-01)

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