SS. SEPSIS: ADULT

1. Inclusion Criteria
   a) Infection can cause a systemic response resulting in fever, altered mental status, shock including or excluding hypotension, and death. Early recognition and treatment with aggressive fluids, when not contraindicated, and early hospital notification may improve survival rates and patient outcomes.
   b) The following patient populations are considered especially high risk for sepsis and should have their temperature measured:
      (1) Altered mental status
      (2) Patients in long-term care facilities (nursing home)
      (3) Indwelling catheters
      (4) Oncology patients
      (5) Solid organ transplant
      (6) Bedridden
      (7) Post-operative
      (8) Currently on antibiotics
      (9) Asplenic
      (10) Left ventricular assist device
   c) For an adult patient, 18 years of age and older, to qualify for this protocol, they must have a suspected source of infection AND also present with at least two of the following criteria:
      (1) Temp greater than 100.4ºF (38ºC) or less than 95.9ºF (35.5ºC)
      (2) HR greater than 100 bpm
      (3) RR greater than 25 (or $ETCO_2$ less than or equal to 32 mmHg)
      (4) Hypotension (systolic BP less than 90 mmHg)
      (5) Point of care lactate reading greater than or equal to 4 mmol/L (if available)
   d) Patients with hypotension or altered mental status should be considered to have septic shock and treated and transported rapidly. Patients may be treated under this protocol if they do not meet the above criteria with medical consultation.

IF PATIENT MEETS ABOVE SEPSIS CRITERIA, THIS PATIENT IS A PRIORITY 1 OR 2 PATIENT AND REQUIRES NOTIFICATION OF THE NEAREST APPROPRIATE FACILITY AS SOON AS POSSIBLE TO ALLOW FOR HOSPITAL PREPARATION. DURING THE CONSULTATION WITH THE RECEIVING FACILITY, THE CLINICIAN SHALL USE THE VERBIAGE, “SEPSIS ALERT” AS THE UNIVERSAL METHOD OF NOTIFYING THE FACILITY THAT THE PATIENT MEETS THE SEPSIS INCLUSION CRITERIA

2. Treatment
   a) Place patient in position of comfort, or supine if hypotension is present.
   b) Carefully monitor airway and respiratory status, manage as required using the appropriate respiratory distress protocol (especially for patients with suspected pneumonia).

TT. SEPSIS: PEDIATRIC

1. Inclusion Criteria
   a) Infection can cause a systemic response resulting in fever, altered mental status, shock including or excluding hypotension, and death. Early recognition and treatment with aggressive fluids, when not contraindicated, and early hospital notification may improve survival rates and patient outcomes.
   b) The pediatric septic patient may be difficult to identify due to a poor history or clinicians may have difficulty identifying an obvious source of infection, as many pediatric sepsis patients are very young children or infants.
   c) The following pediatric patients are at greater risk for sepsis and should have their temperature measured:
      (1) Altered mental status
      (2) Asplenia (spleen removed from treatment of trauma or illness)
      (3) Bone marrow or solid organ transplant
      (4) Cancer patients
      (5) Cerebral Palsy
      (6) Sickle Cell Disease
      (7) Central or indwelling catheters
      (8) Immunodeficiency or immunosuppression
      (9) Bedridden
      (10) Severe mental delay
   d) For a pediatric patient, who has not reached their 18th birthday, to qualify for this protocol, they must have a known or suspected infection AND also present with at least three of the Pediatric Sepsis Rule-In Criteria by Age.
   e) A patient not meeting three or more Pediatric Sepsis Rule-In Criteria by Age may be treated under this protocol with Pediatric Base Station approval if sepsis is suspected by the prehospital clinician.

ALERT ALTERED MENTAL STATUS REQUIRES GLUCOSE CHECK.

   f) Patients who meet the sepsis rule-in criteria and have at least one of the High risk Sepsis Rule-In Criteria by Age (shaded) should receive aggressive standing order fluid therapy. Other patients meeting the pediatric sepsis rule-in criteria but not having one of the high risk signs may be treated only after contacting a Pediatric Base Station for medical consultation.

TT. SEPSIS: PEDIATRIC (Continued)

Pediatric Sepsis Rule-In Criteria by Age						
Suspected or known infection plus three criteria						
	Less than 28 days	**1-12 months**	**1 year but less than 2 years**	**2-4 years**	**5-12 years**	**13-17 years**
Heart Rate (sustained)	greater than 205 bpm	greater than 205 bpm	greater than 190 bpm	greater than 140 bpm	greater than 140 bpm	greater than 100 bpm
Respiratory Rate	greater than 60 rpm	greater than 60 rpm	greater than 40 rpm	greater than 40 rpm	greater than 34 rpm	greater than 25 rpm
Temp	greater than 38.0 C° or greater than 100.4 F°					
Cap Refill/Skin	Delayed (greater than 3 seconds), mottled					
Systolic BP (mmHg)	less than 60	less than 70	(less than 70+ (age x2))	(less than 70+ (age x2))	(less than 70+ (age x2))	less than 90
Mental Status	Unresponsive, confused, inappropriate, lethargic					
High Risk Condition	Cancer, Asplenia, Sickle Cell Disease, bone marrow or solid organ transplant, central or indwelling line/catheter, immunodeficiency or immunosuppression					
Meeting any of these criteria indicates standing order initiation of a fluid bolus.						

IF A PEDIATRIC PATIENT MEETS THE ABOVE **PEDIATRIC SEPSIS RULE-IN CRITERIA BY AGE**, THIS PATIENT IS A PRIORITY 1 OR 2 PATIENT AND REQUIRES NOTIFICATION AS "SEPSIS ALERT" TO THE NEAREST APPROPRIATE FACILITY PRIOR TO ARRIVAL.

IF A PEDIATRIC PATIENT MEETS ANY OF THE **SEPSIS RULE-IN PLUS ONE OR MORE OF THE SHADED AREAS IN THE CHART,** CONSULTATION WITH A DESIGNATED PEDIATRIC BASE STATION IS REQUIRED AND SHOULD BE COMBINED WITH LOCAL BASE STATION CONSULTATION.

2. Treatment

a) Carefully monitor airway and respiratory status. Manage as required using the appropriate respiratory distress protocol (especially for patients with suspected pneumonia).

b) Place patient on cardiac monitor.

c) If patient meets the pediatric sepsis rule-in criteria and meets one of the high risk criteria (shaded), initiate IV/IO access and provide a 20 mL/kg bolus of LR IV/IO over 5–20 min.
Maximum single dose of 2L.
Accurately document start time of IV fluid initiation.

TT. SEPSIS: PEDIATRIC (Continued)

d) Monitor closely for signs of respiratory distress, rales or delayed capillary refill (greater than 2 seconds). If respiratory status deteriorates rapidly, stop bolus and obtain medical consultation.

e) For volume-sensitive children administer initial fluid bolus of 10 mL/kg LR IV/IO (max of 250 mL). (Volume-sensitive children are children who need smaller fluid bolus volumes due to special needs including neonates (birth to 28 days), congenital heart diseases, chronic lung disease, or chronic renal failure.)

f) **If patient's vital signs do not improve after 20 mL/kg fluid,** consider additional 20 mL/kg LR boluses (up to a max of 60 mL/kg total, including first bolus, in one hour).

ALERT FLUID LIMITS OR DOSES MAY BE MODIFIED WITH CONSULTATION.

g) Pediatric epinephrine infusion dosage **(NEW '20)**:

(1) The following dosing chart should be used for pediatric patients less than 50 kg who do not achieve an age-appropriate BP (70 + 2 x Age) after 60 mL/kg fluid bolus (using approved epinephrine infusion and 60 drop set):

Weight range (kg)	Initial epinephrine dose	If goal blood pressure not achieved at 5 min, increase to
LESS than 10 kg	6 drops/min (0.1 mL/min)	12 drops/min (0.2 mL/min)
10-19 kg	12 drops/min (0.2 mL/min)	24 drops/min (0.4 mL/min)
20-29 kg	18 drops/min (0.3 mL/min)	36 drops/min (0.6 mL/min)
30-39 kg	24 drops/min (0.4 mL/min)	48 drops/min (0.8 mL/min)
40-49 kg	30 drops/min (0.5 mL/min)	60 drops/min (1.0 mL/min)

(2) Blood pressure goal:
- (a) For patients 10 years and older (including adults), systolic blood pressure greater than 90 mmHg;
- (b) For patients under 10 years of age, systolic blood pressure greater than 70 + 2x age in years mmHg; OR
- (c) Systolic blood pressure ordered by the pediatric base station.

(3) If above blood pressure goal not met after 10 minutes, obtain online medical consultation.

SS. SEPSIS: ADULT (Continued)

c) Initiate large bore IV. If large bore IV not available, consider a second peripheral IV with the intention of not causing delay in transport and reserve the use of IO for priority 1 patient. If transport time is greater than 20 minutes and IV access is unsuccessful, consider placement of an IO (especially for septic shock). Consider performing a blood draw if time permits. Accurately document start time of IV fluid initiation.

d) If lungs are clear, and patient does not have a history of CHF or end-stage renal failure, provide 2 L of LR wide open. Reassess every 500 mL for shortness of breath, blood pressure, and SpO_2 saturation changes.
OR

e) If patient is fluid sensitive (i.e., has a history CHF, pulmonary edema, or end-stage renal disease) infuse 250 mL and carefully monitor and reassess. Repeat 250 mL once if no worsening of respiratory status is noted to a max of 500 mL (consultation may be obtained to provide more fluid).

f) If available, perform point of care lactate testing (Jurisdictional Pilot Program only).

ALERT FLUID LIMITS OR DOSES MAY BE MODIFIED WITH CONSULTATION.

g) Place patient on cardiac monitor and perform 12-lead (do not delay IV therapy or fluid bolus).

h) If hypotension persists after 2 L of LR are provided, consider additional LR up to a maximum of 30 mL/kg total.

i) For persistent hypotension after 30 mL/kg fluid bolus, administer epinephrine infusion. **(NEW '20)**
   (1) Add 1 mg of epinephrine (either 1:1,000 or 1:10,000) in a 100 mL bag of LR or NS
   (2) Use a Microdrip set (60 drops/mL) for infusion administration
   (3) Adult ephinephrine infusion dosage
      (a) Administer infusion through a free-flowing IV, ideally 20 gauge or larger, or by IO
      (b) Start infusion at 1 mL/min (60 drops/min) IV/IO
      (c) Check blood pressure every 5 minutes. If MAP is less than 65 mmHg or systolic blood pressure is less than 90 mmHg, increase to a maximum rate of 2 mL/min (120 drops/min).
      (d) If above blood pressure goals are not met upon reaching maximum rate, obtain online medical consultation