CHILDREN'S HOSPITAL & RESEARCH CENTER OAKLAND – SEVERE SEPSIS CPG

These guidelines are used at Children's Hospital & Research Center Oakland and are provided as a reference.*

Time Zero**(ideal:start timer)*

1) **Concern for shock**-Besides fever, tachycardia, and hypotension, some patients present initially only with altered mental status and decreased perfusion (delayed or flash capillary refill) – **REFER TO RAPID SEPSIS ASSESSMENT TOOL!***(ideal:link to Rapid Sepsis Assessment Tool)*

2) Call **Rapid Response Team or move to resuscitation room**.

3) Place **oxygen** on **all** patients-min. 2 L NC to keep SpO2 > 94%!

4) Initiate attempts at **IV access** and **lab testing (OK to use Broviac/central line)**:
(**POC** tests-blood gas, glucose, lytes, lactate. Also CBC, chem 8, blood cultures)

5) Know where **IO** equipment is!

0-15 Minutes – START!

1) If no IV access by 5 minutes, **consider IO!***(ideal: link to IO video and/or protocol) (timer to pop up:"5 minutes have passed. Place IO if no IV access obtained")*

2) **PUSH** fluids (NS *by hand* over 5 minutes if possible, not on a pump, 20 ml/kg IV, repeat until perfusion improves unless rales or hepatomegaly develop, maximum 60 ml/kg IV. Assess liver margin after each NS bolus.
(Fluid resuscitation will take longer than 15 minutes, but initiate here!)

3) Assess **point of care** results and **treat hypoglycemia***(ideal:link to hypoglycemia protocol)* **and hypocalcemia** (ionized Ca < 1-confirm with CHRCO physician control) *(ideal:link to calcium replacement protocol).* ***Consider NaHCO3 1 mEq/kg for pH < 7.0.***

4) Order **antibiotics** *(ideal:link to antibiotic algorithm with antibiotic and dosing recommendations, e.g. 0-28 days ampicillin 50 mg/kg and cefotaxime50 mg/kg iv; >28 days: ceftriaxone 50 mg/kg iv up to 2 gm. Do not administer with calcium, etc.)* and give ASAP (Goal for first dose to be in by 30 minutes!)

5) Order **inotropes** to bedside, use if BP low *and* 2nd IV available, MAY give inotropes through PIV or IO, even on the ward!*(link to lookup:dopamine first up to 10 mcg/kg/min then, a. if cold extremities add epinephrine 0.01-0.3 mcg/kg/min ; b. if warm extremities add norepinephrine 0.01-0.3 mcg/kg/min)*

15-60 Minutes – REASSESS! *(timer to pop up: "15 minutes have passed. Reassess patient")*

1) Consider **hydrocortisone** for potential adrenal insufficiency! (slow IV push: 25 mg IV under 6 months, 50 mg IV up to 9 years, 100 mg IV if 10 years or older)
2) Reconsider need for **inotropes** if not already being given.
3) Reassess:
   A) Appropriate **cultures** have been drawn (min. 1 mL blood),
   B) **Antibiotics** given, and
   C) Sufficient **fluid resuscitation** given

1-4 Hours (Even if not yet in PICU) ***(timer to pop up: "60 minutes have passed. Reassess patient")***

If blood pressure is *not* normalized, tachycardia is *not* resolved, or still needs inotropes;

1) Consider need for more **fluid boluses** (up to 200 ml/kg).
2) Consider adjusting **inotropes** upwards or adding vasopressors (norepinephrine or vasopressin *(link to norepinephrine and vasopressin protocols)*).
3) May need **blood transfusion.**
   (Surviving Sepsis Guidelines suggest goal Hgb 10)
4) Consider **pericardial effusion**, **pneumothorax**, and **increased intra-abdominal pressure**. Treat if found.(link to protocols for treatment)

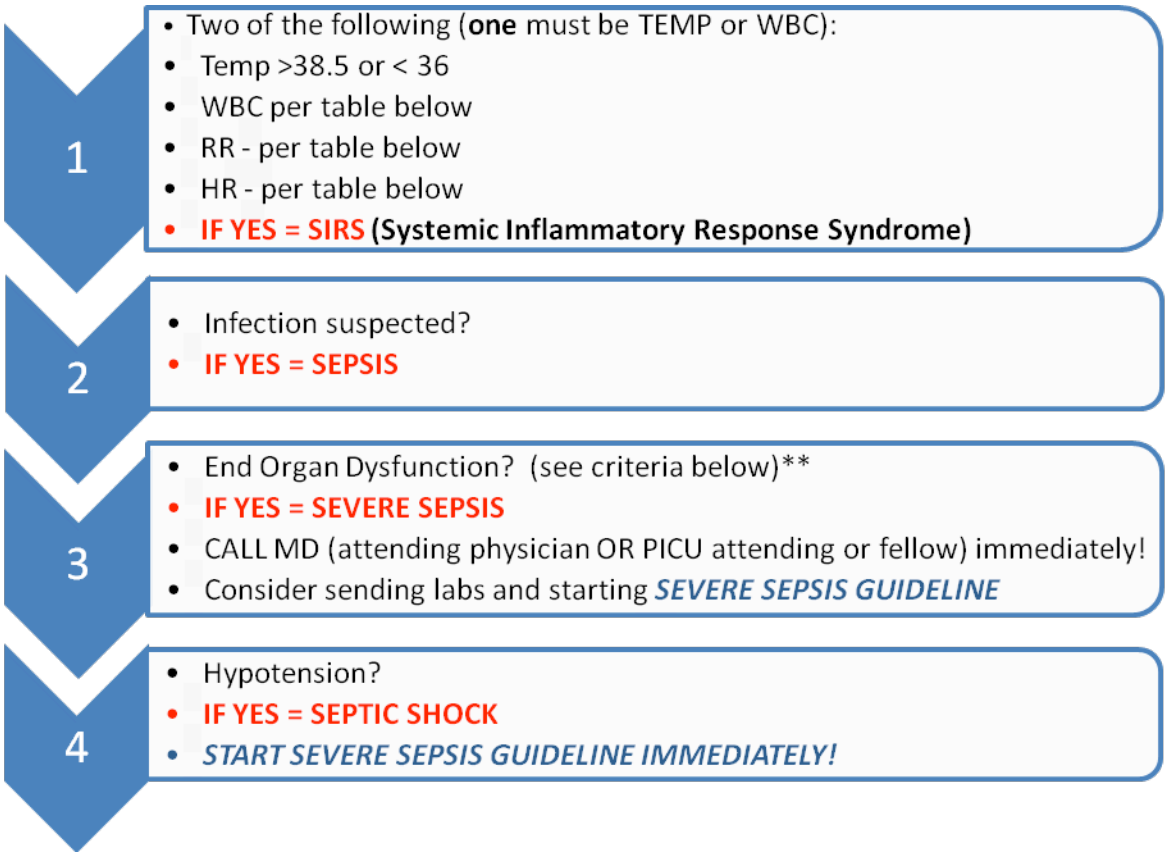
5) May require **central line** for access and/or monitoring CVP.
6) Consider repeat POC blood gas with lytes and glucose.

** **Time zero** is the first point at which anyone considers that a child might be septic. Other times are given as ranges with the idea that every point will have been initiated, or at least considered, by the end of the time frame.

* Based on Surviving Sepsis Campaign Guidelines: Intensive Care Med (2008) 34:17–60, No.3; www.survivingsepsis.org

RAPID SEPSIS ASSESSMENT *

For reference only – based on guidelines at Children's Hospital & Research Center Oakland



AGE GROUP	TACHY-CARDIA	BRADY-CARDIA	RESPIRATORY RATE	WBC	SYSTOLIC BP
0 d to 1 wk	> 180	< 100	> 50	> 34	< 65
1 wk - 1mo	> 180	< 100	> 40	> 19.5 or < 5	< 75
1 mo – 24 mo	> 180	< 90	> 34	> 17.5 or < 5	< 100
2 – 5 yrs	> 140	NA	> 22	> 15.5 or < 6	< 94
6 – 12 yrs	> 130	NA	> 18	> 13.5 or < 4.5	< 105
13 - < 18 y	> 110	NA	> 14	> 11 or < 4.5	< 117

** End Organ Dysfunction:

Lethargy/irritability/altered mental status (not just "cranky") OR

Poor perfusion (CRT > 3 secs) OR

Decreased urine output (< 0.5 ml/kg/hr) OR

ANY bilateral infiltrates on CXR + need for oxygen

* Based on **International pediatric sepsis consensus conference: Definitions for sepsis and organ dysfunction in pediatrics** Pediatr Crit Care Med 2005 Vol. 6, No. 1