

# PEDIATRICS (< 18 years-old)

## ED Sepsis BPA Training Sheet – Providers

In Epic, a Best Practice Alert (BPA) warns when pediatric patients are at risk for decompensation and/or sepsis, and require **immediate assessment** to determine the appropriate care.

- ▶ 3 tools aid in early decision-making for pediatric patients at risk for decompensation:
  1. Arrival Vital Sign Alert
  2. Sepsis Evaluation Alert
  3. Sepsis Upgrade Alert
- ▶ A 4<sup>th</sup> tool allows providers to initiate the sepsis pathway based on clinical judgment.

### 1. Arrival Vital Sign Alert: fires based on first set of ED vital signs (VS) taken, within 1 hour of arrival

- ▶ The BPA will fire for the provider, nurse and ED tech based on the criteria below:

**Low Systolic Blood Pressure<sup>1</sup> (SBP) by age**

**OR**

At least **3 of 4** abnormal vital signs :

- Temp.  $\leq 35.8^{\circ}$  or  $\geq 38.0^{\circ}$
- O<sub>2</sub> Sat < 90%
- Heart Rate<sup>1</sup> by age
- Resp. Rate<sup>1</sup> by age

<sup>1</sup> Abnormal VS criteria are age-specific

- ▶ Pediatric patients have certain age-specific criteria that trigger the BPA:

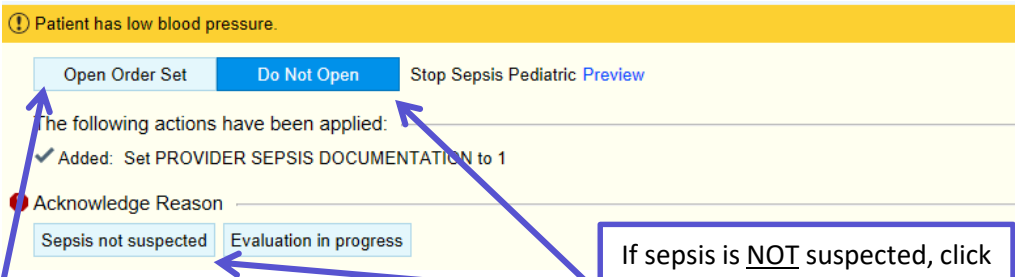
Pediatric Age Group	WBC Count	HR Over	SBP Under	RR Over
0 to 6 Days	>34	180	59	50
1 Week to < 1 Month	>19.5 or <5	180	79	40
1 Month to < 2 Years	>17.5 or <5	180	75	34
2 Years to < 6 Years	>15.5 or <6	140	74	22
6 Years to < 13 Years	>13.5 or <4.5	130	83	18
13 Years to < 18 Years	>11 or <4.5	110	90	13

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- Upon the BPA firing, the nurse will notify the Attending, who will evaluate the patient within the appropriate timeframes:

a. SBP is Low for Age: ED provider must evaluate the patient **within 10 minutes**



! Patient has low blood pressure.

Open Order Set Do Not Open Stop Sepsis Pediatric Preview

The following actions have been applied:

- ✓ Added: Set PROVIDER SEPSIS DOCUMENTATION to 1

Acknowledge Reason

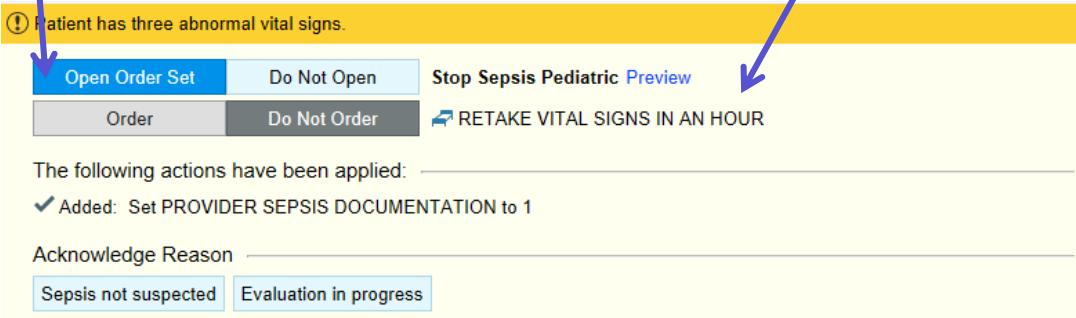
Sepsis not suspected Evaluation in progress

Click "Open Order Set" to put the patient on sepsis pathway

If sepsis is NOT suspected, click "Do Not Open" then "Sepsis not suspected"

b. 3 of the 4 Abnormal Vital Signs: ED provider must evaluate the patient **within 30 minutes**

### SNOOZE OPTION



! Patient has three abnormal vital signs.

Open Order Set Do Not Open Stop Sepsis Pediatric Preview

Order Do Not Order RETAKE VITAL SIGNS IN AN HOUR

The following actions have been applied:

- ✓ Added: Set PROVIDER SEPSIS DOCUMENTATION to 1

Acknowledge Reason

Sepsis not suspected Evaluation in progress

Click "Open Order Set" to put the patient on sepsis pathway

Click "RETAKE VITAL SIGNS IN AN HOUR" if you feel abnormal vital signs may NOT be due to sepsis

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## ED Sepsis BPA Training Sheet – Providers

### 2. Sepsis Evaluation Alert: fires for abnormal vital signs (VS) and/or lab values > 1 hour after ED arrival

- ▶ Evaluates patients NOT previously placed on the sepsis pathway
- ▶ Looks for abnormal vital signs and/or lab values over a rolling 6-hour window

**Low Systolic Blood Pressure<sup>1</sup> (SBP) by age**

**AND**

At least **3 of 7** abnormal VS/lab values :

- Temp.  $\leq 35.8^{\circ}$  or  $\geq 38.0^{\circ}$
- O<sub>2</sub> Sat < 90%
- Band cells > 15%
- Lactate > 2
- Heart Rate<sup>1</sup> by age
- Resp. Rate<sup>1</sup> by age
- WBC<sup>1</sup> by age

<sup>1</sup> Abnormal VS or lab criteria are age-specific (See table on Page 1)

⚠ This patient is at risk for sepsis, please evaluate.

Open Order Set

Do Not Open

Stop Sepsis Pediatric [Preview](#)

Click “**Open Order Set**” to put patient on sepsis pathway

The following actions have been applied:

Added: Set PROVIDER SEPSIS DOCUMENTATION to 1

Completed: Ms ed sepsis provider monitoring fire event

Knowledge Reason

Sepsis not suspected

Sepsis care has already been initiated

Not on patient care team

If sepsis NOT suspected, click “**Do Not Open**” then “**Sepsis not suspected**”

If sepsis care has already begun, click here

### 3. Sepsis Upgrade Alert: fires for new or worsening SBP or lactate criteria due to concern for decompensation after “Sepsis” or “Severe Sepsis” diagnosis

- ▶ ONLY evaluates patients previously placed on the sepsis pathway (i.e., Provider diagnosed “Sepsis” or “Severe Sepsis” in the *ED Progress Note*)

**Lactate (LA) > 2 trending upwards**

**OR**

**No previous LA, New LA Result > 2**

**OR**

**Low SPB for age trending downward**

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## ED Sepsis BPA Training Sheet – Providers

### 3. Sepsis Upgrade Alert (continued):

BestPractice Advisory - PEDSepsis, Sixteen

⚠ This patient previously met criteria for sepsis and is now at risk for severe sepsis or septic shock, please evaluate.

Order Information	Last New Bag	Last Action
<b>sodium chloride 0.9 % bolus</b>		<b>New Bag</b>
Rate: 5,440 mL/hr Dose: 20 mL/kg Start: 01/28/19 1200 End: 01/28/19 1215 Ordering Provider: Attending Physician Emergency, MD	Rate: 5,440 mL/hr Dose: 1,360 mL Documented: 01/28/19 1200 User: Nurse Emergency, RN	Rate: 5,440 mL/hr Dose: 1,360 mL Documented: 01/28/19 1200 User: Nurse Emergency, RN

**Recent Results**  
No lab values to display.

**Acknowledge Reason:**

⏏ Accept

If infection NOT suspected, click “Do Not Open” then “Sepsis not suspected”

Clicking “Open Order Set” puts the patient on sepsis pathway

If sepsis order set has already been used, click here

### 4. Activating the Sepsis Pathway without meeting SIRS criteria:

- Based on clinical judgement alone, MDs can place patients on the sepsis pathway via the ED Track Board.

Select “Add Sepsis Flag” located under *Quick Doc*

ED Track Board (ED)

Refresh Review Visit Orders Notes Quick Doc Commu

2 00 Call the nurse edrn made

My Patients All Patients Acute Or

Peds Bed Board Rad Tracking Co

Room Tea Clir Sep Patient Cal Age

Acute... D Mug, Coffee (F)

Add Sepsis Flag

#### TO ADD SEPSIS FLAG

If determined to be ☒ Based on my evaluation, this patient merits sepsis workup.

BestPractice Advisory - Sepsis,Enrol

⚠ Please complete sepsis order set.

Consider taking these recommended actions after addressing this advisory —

- Select “Based on my evaluation, this patient merits sepsis workup”
- BPA will then pop up with a link to sepsis order set

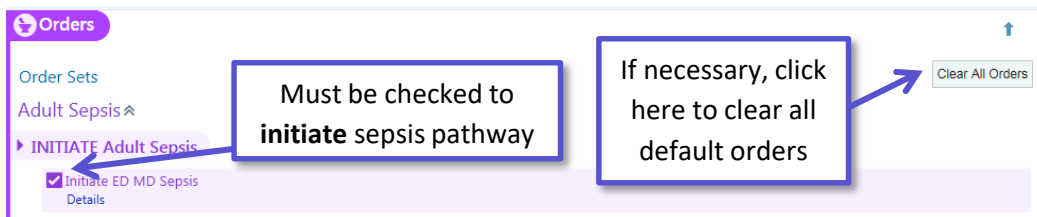
- Pre-checked box in the sepsis order set will put the patient on the sepsis pathway

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## ED Sepsis BPA Training Sheet – Providers

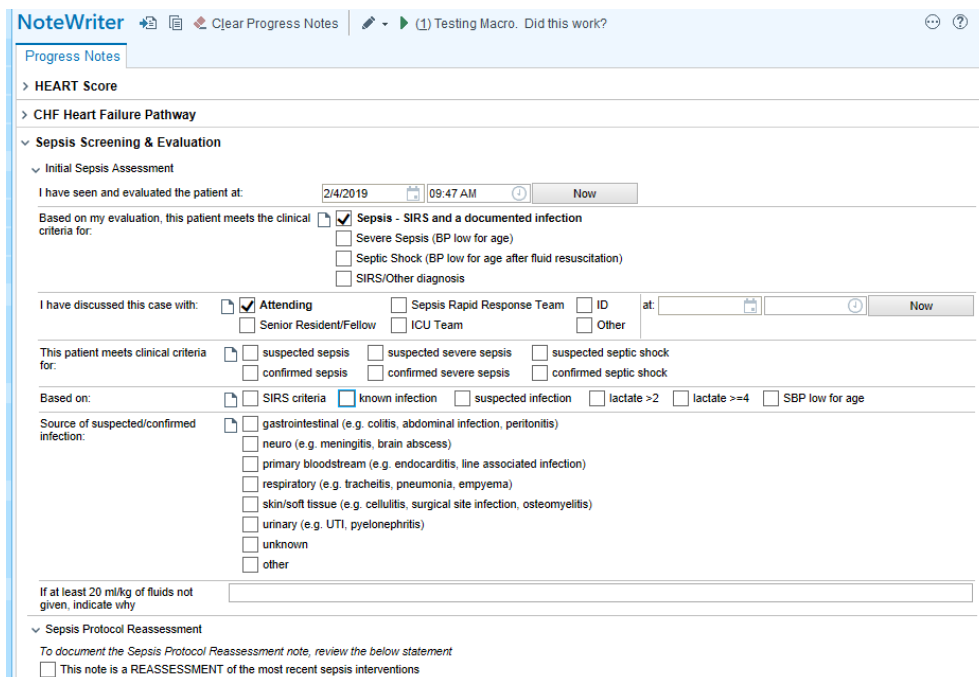
### Sepsis Order Set

- ▶ Please use the **Stop Sepsis Order Set** for management of all septic patients
  - The order set incorporates ALL components to manage septic patients
- ▶ Antibiotic choice is organized by potential source; 1st STAT dose does not need ID approval; they are safe regardless of renal function.
  - Select ABX may be administered VIA the IM route if lack of access will prevent admin within 1 hr of recognition. This does not supplant the need for definitive IV access in septic patients; continuing efforts should be made to obtain IV access for rapid fluid and medication administration
- ▶ Fluids will default to 20 ml/kg for patients weighing < 60 kg and to 30 ml/kg for patients weighing ≥ 60 kg.



### Initial Sepsis Assessment (in ED Progress Notes)

- ▶ Enter **time** of initial assessment
- ▶ Select diagnosis
- ▶ Enter with whom you discussed case & **time** of discussion
- ▶ For septic patients, enter if **confirmed or suspected**, **basis** for decision & **infection source**
- ▶ If SBP < 90 or LA > 4, but 20 ml/kg fluid boluses **not** ordered, must indicate reason



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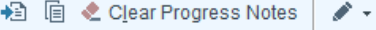


## ED Sepsis BPA Training Sheet – Providers

### Sepsis Reassessment Note (in ED Progress Notes)

- ▶ To be completed following initial fluid resuscitation and repeat LA if initial lactate > 2
- ▶ Goal of note is to reflect the response to interventions performed and to facilitate transition of care outside of the ED

### Documentation Steps:

- ▶ Enter time of reassessment
- ▶ Update / confirm diagnosis after interventions
- ▶ If applicable, document that sepsis ruled out based on additional clinical information
- ▶ Complete vascular assessment
- ▶ Provide amount of fluids given to patient at time of reassessment
- ▶ Free text perfusion status

**NoteWriter**   

**Progress Notes**

> HEART Score

> CHF Heart Failure Pathway

✓ Sepsis Screening & Evaluation



> Initial Sepsis Assessment

✓ Sepsis Protocol Reassessment

To document the Sepsis Protocol Reassessment note, review the below statement

☒ This note is a REASSESSMENT of the most recent sepsis interventions

*This must be completed for all cases of sepsis, severe sepsis, or septic shock within 6 hours of recognition and after fluid administration. Documenting time of the exam, as well as the complete focused exam will change the Sepsis column to a green icon.*

Time Focused exam completed    Now

The patient meets the clinical criteria for ☐ Sepsis - SIRS and a documented infection  
☐ Severe Sepsis (BP low for age)  
☐ Septic Shock (BP low for age after fluid resuscitation)

☐ On further work-up and observation, it is thought the patient does not have Sepsis, Severe Sepsis, or Septic Shock at this time.


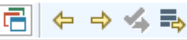
The patient's recent vital signs were reviewed and a focused reassessment exam was performed and included cardiopulmonary, capillary refill, peripheral pulse, and skin assessment. Findings were within normal limits with the following exceptions:

Cardiac	<input type="checkbox"/> Tachycardia	<input type="checkbox"/> JVD	<input type="checkbox"/> Other	<input type="text"/>
Pulmonary	<input type="checkbox"/> Rales	<input type="checkbox"/> Wheezes	<input type="checkbox"/> Rhonchi	<input type="checkbox"/> Other <input type="text"/>
Cap Refill	<input type="checkbox"/> Abnormal (>2 sec)	<input type="checkbox"/> Other	<input type="text"/>	
Peripheral Pulse	<input type="checkbox"/> Diminished	<input type="checkbox"/> Absent	<input type="checkbox"/> Other	<input type="text"/>
Skin	<input type="checkbox"/> Cold	<input type="checkbox"/> Other	<input type="text"/>	

Fluid Resuscitation ☐ Patient received 30 ml/kg ☐ Patient received 20 ml/kg ☐ Patient received other amount

Pertinent diagnostic results: ☐ Pulmonary edema on chest xray ☐ Ascites on exam or imaging  
☐ IVC fullness on ultrasound

Other Notes and Comments

 Insert SmartText 

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## ED Sepsis BPA Training Sheet – Providers

### Adults vs. Pediatrics Protocol Response Guidelines\*

Bundle Elements	Adults (≥ 18 years-old)	Pediatrics (< 18 years-old)
<b>Blood Cultures (BCs)</b>	2 sets of BCs within 1 hour from 2 different sites	1 set of BC within 1 hour 2 sets of BCs within 1 hour if at risk for endocarditis or has a central line
<b>Antibiotics</b>	Appropriate ABX within 1 hour	Appropriate ABX within 1 hour After interdisciplinary huddle and discussion with PEM and/or PICU consultants, select ABX may be administered VIA the IM route if lack of access prevents admin within 1 hr of recognition. This does not supplant the need for definitive IV access in septic patients; continuing efforts should be made to obtain IV access for rapid fluid and med administration
<b>Lactate (LA)</b>	1 <sup>st</sup> LA drawn within 1 hour 2 <sup>nd</sup> LA drawn within 4 hours if initial LA > 2	1 <sup>st</sup> LA draw is optional 2 <sup>nd</sup> LA drawn within 4 hours if initial LA > 2
<b>Fluids</b>	Initiate 1L within 1 hour for all sepsis Complete 30 ml/kg within 3 hours for pts with LA ≥ 4 and/or sustained hypotension	Initiate 20 ml/kg bolus and repeat if needed up to total 60 ml/kg within 1 hour Consider 30 ml/kg for patients > 60 kg
<b>Additional Labs</b>	Optional	Urine culture, CBC, electrolytes & liver enzymes, & blood gas within 1 hour
<b>Reassessment</b>	Within 4 hours for all sepsis cases	Within 2 hours for all sepsis cases
<b>Vasopressors</b>	Initiate within 6 hours for septic shock	Initiate within 1 hour for septic shock

\*Unless otherwise specified, timeframes are in reference to the time that the patient was placed on the sepsis pathway (i.e., "Time Zero").



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### Sepsis Definitions for Patients < 18 years-old

- ▶ **Sepsis:** SIRS and a documented infection
- ▶ **Severe Sepsis:** Sepsis with low systolic blood pressure for patient's age despite fluid resuscitation and/or evidence of associated organ dysfunction
- ▶ **Septic Shock:** Severe Sepsis with low systolic blood pressure for patient's age, despite adequate fluid resuscitation or requiring a vasopressor

### Sepsis Care Bundle for Patients < 18 years-old

#### Within 1 hour of placement on pathway













- ▶ Initiate Isotonic fluid 20 mL/kg boluses up to 60 mL/kg unless rales or hepatomegaly develops
  - Consider 30 mL/kg boluses if patient weight > 60kg
- ▶ Draw 1 set of Blood Cultures (BCs)
  - 2 sets of BCs if patient at risk for endocarditis or has central line in place
- ▶ Initiate Antibiotics
  - After interdisciplinary huddle and discussion with PEM and/or PICU consultant\*s, select ABX may be administered VIA the IM route if lack of access prevents admin within 1 hr of recognition. This does not supplant the need for definitive IV access in septic patients; continuing efforts should be made to obtain IV access for rapid fluid and med administration
- ▶ Draw Labs: CBC, blood gas, urine culture, electrolytes & liver enzymes
- ▶ Initiate vasopressors for septic shock

*\*Note: If unable to obtain IV/IO access w/in 30 min of sepsis recognition, a multidisciplinary huddle with the care team & PEM or PICU services is needed to determine next steps for access and treatment plan*

#### Within 2 hours of placement on pathway

- ▶ Complete sepsis reassessment

### Sepsis Icons on the ED Track Board for Patients < 18 years-old

ED Icon	IP Icon	Status	Action
		Patient met alert criteria & is at-risk for Sepsis and/or decompensation	RN must <b>ESCALATE</b> care Provider must <b>EVALUATE</b> patient immediately
		Provider evaluated patient & placed patient on Sepsis Pathway	RN & Provider need to <b>DELIVER</b> care by initiating the sepsis bundle Provider needs to <b>DOCUMENT</b> initial assessment in the <i>ED Progress Note</i> or <i>IP Alert Event Note</i>
		Provider documented <i>Sepsis, Severe Sepsis, or Septic Shock</i> in the <i>ED Progress Note</i> / <i>IP Alert Event Note</i>	RN & Provider need to continue sepsis interventions &, upon completion of fluid resuscitation, <b>REASSESS</b> patient
		Patient was placed on Sepsis Pathway > 1 hour ago	RN needs to ensure <b>REPEAT</b> LA was drawn (if initial > 2) & <b>REASSESS</b> & document blood pressure Provider needs to <b>REASSESS</b> patient & complete the <i>Sepsis Reassessment Note</i> within 1 HOUR
		Provider completed <i>Sepsis Reassessment Note</i> for patient with diagnosis of <i>Sepsis, Severe Sepsis, or Septic Shock</i>	RN & Provider need to <b>MONITOR</b> patient with <b>SEPSIS</b> diagnosis
		Provider evaluated patient & documented <i>SIRS/Other Diagnosis</i> (not sepsis)	RN & Provider need to <b>MONITOR</b> high-risk patient