



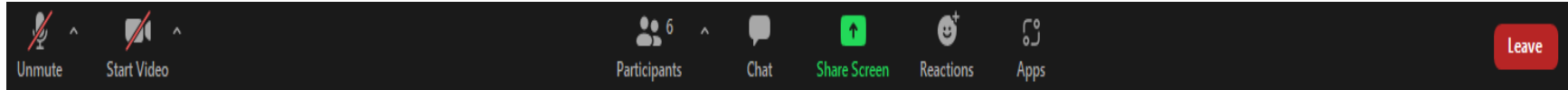


Health Quality Innovation Network

# Sepsis Affinity Group

August 5, 2021

# Logistics – Zoom Meeting



To ask questions, click on the **Chat** icon.

**Raise your hand** if you want to verbally ask a question by clicking on the **Reactions** icon and then clicking on “Raise Hand”.

You may adjust your audio by clicking the caret (^) next to the **Unmute** icon.

A recording and slides from today’s session will be shared after the call.

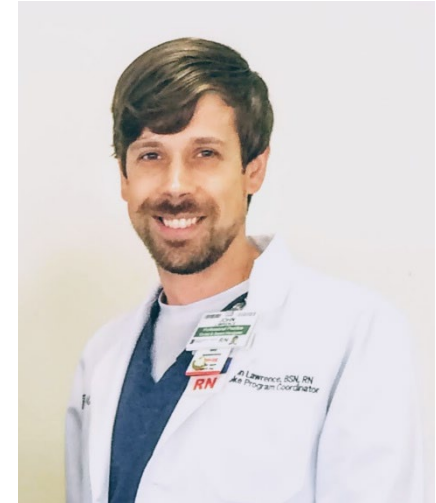
# Reminder: Homework from Session 1

Please complete the Hospital Sepsis Gap Analysis:

[Link to online Gap Analysis](#)

# Today's Speaker

John Lawrence, RN, BSN, SCRNP, is the RN Sepsis Coordinator at Inova Mount Vernon hospital in Alexandria, VA. He leads the sepsis interprofessional team in delivering quality patient care based on the latest treatment guidelines and core measure standards. Through real-time case reviews, coaching and collaboration, John has helped his hospital reach, and often exceed, expectations for sepsis quality targets. He comes to nursing with a previous B.A. in Humanities. He holds a BSN from the University of South Carolina Upstate.





# Session 2: Implementation/Improvement of Sepsis Bundles

# Agenda

**1**

**Bundle Basics**

**2**

**Raising Awareness**

**3**

**Addressing Barriers**

**4**

**Success Factors/Facilitators**

**5**

**Keeping Things in Perspective**

**6**

**Questions**

# Inova Mount Vernon Hospital

Founded in 1976, Inova Mount Vernon Hospital is a 237-bed community hospital in Alexandria, VA, offering patients convenience and state-of-the-art care in a unique healing environment.







# BUNDLE BASICS

# Summary of SEP-1

## Within 3 hours of presentation:

- Measure initial lactate level
- Obtain blood cultures prior to antibiotic administration
- Start broad-spectrum antibiotic(s)
- Start 30mL/kg fluid bolus for hypotension or lactate  $\geq 4$

## Within 6 hours of presentation:

- Re-measure lactate if initial lactate  $> 2.0$
- Re-assess BP after fluids are complete
- Start vasopressors for hypotension unresponsive to fluids = "septic shock"
- If persistent hypotension after fluids or lactate  $\geq 4$ , provider re-assesses patient and documents volume status and tissue perfusion assessment

### HOURLY-1 BUNDLE: INITIAL RESUSCITATION FOR SEPSIS AND SEPTIC SHOCK:

- 1) Measure lactate level.\*
- 2) Obtain blood cultures before administering antibiotics.
- 3) Administer broad-spectrum antibiotics.
- 4) Begin rapid administration of 30mL/kg crystalloid for hypotension or lactate  $\geq 4$  mmol/L.
- 5) Apply vasopressors if hypotensive during or after fluid resuscitation to maintain a mean arterial pressure  $\geq 65$  mm Hg.

\*Remeasure lactate if initial lactate elevated ( $> 2$  mmol/L).

### HOURLY-1 BUNDLE: INITIAL RESUSCITATION FOR SEPSIS AND SEPTIC SHOCK:

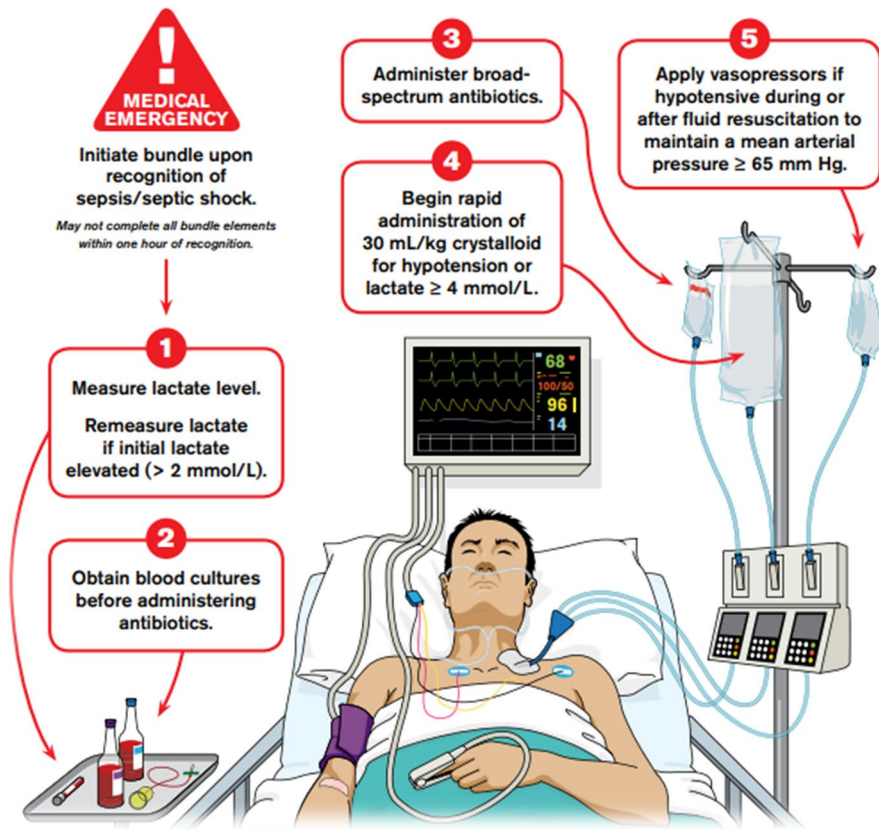
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- 2) Obtain blood cultures before administering antibiotics.
- 3) Administer broad-spectrum antibiotics.
- 4) Begin rapid administration of 30mL/kg crystalloid for hypotension or lactate  $\geq 4$  mmol/L.
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Surviving Sepsis Campaign. (2019). *Hour-1 bundle*. Adult Patients.  
<https://www.sccm.org/getattachment/SurvivingSepsisCampaign/Guidelines/Adult-Patients/Surviving-Sepsis-Campaign-Hour-1-Bundle.pdf?lang=en-US>

# Hour-1 Bundle

## Initial Resuscitation for Sepsis and Septic Shock



Surviving Sepsis Campaign. (2019). *Hour-1 bundle*. Adult Patients.  
<https://www.sccm.org/getattachment/SurvivingSepsisCampaign/Guidelines/Adult-Patients/Surviving-Sepsis-Campaign-Hour-1-Bundle.pdf?lang=en-US>



## Surviving Sepsis Campaign: International Guidelines for Management of Sepsis and Septic Shock: 2016

Andrew Rhodes, MB BS, MD(Res) (Co-chair)<sup>1</sup>; Laura E. Evans, MD, MSc, FCCM (Co-chair)<sup>2</sup>; Waleed Alhazzani, MD, MSc, FRCPC (methodology chair)<sup>3</sup>; Mitchell M. Levy, MD, MCCM<sup>4</sup>; Massimo Antonelli, MD<sup>5</sup>; Ricard Ferrer, MD, PhD<sup>6</sup>; Anand Kumar, MD, FCCM<sup>7</sup>; Jonathan E. Sevransky, MD, FCCM<sup>8</sup>; Charles L. Sprung, MD, JD, MCCM<sup>9</sup>; Mark E. Nunnally, MD, FCCM<sup>2</sup>; Bram Rochwerf, MD, MSc (Epi)<sup>3</sup>; Gordon D. Rubenfeld, MD (conflict of interest chair)<sup>10</sup>; Derek C. Angus, MD, MPH, MCCM<sup>11</sup>; Djillali Annane, MD<sup>12</sup>; Richard J. Beale, MD, MB BS<sup>13</sup>; Geoffrey J. Bellingham, MRCP<sup>14</sup>; Gordon R. Bernard, MD<sup>15</sup>; Jean-Daniel Chiche, MD<sup>16</sup>; Craig Coopersmith, MD, FACS, FCCM<sup>8</sup>; Daniel P. De Backer, MD, PhD<sup>17</sup>; Craig J. French, MB BS<sup>18</sup>; Seitaro Fujishima, MD<sup>19</sup>; Herwig Gerlach, MBA, MD, PhD<sup>20</sup>; Jorge Luis Hidalgo, MD, MACP, MCCM<sup>21</sup>; Steven M. Hollenberg, MD, FCCM<sup>22</sup>; Alan E. Jones, MD<sup>23</sup>; Dilip R. Karnad, MD, FACP<sup>24</sup>; Ruth M. Kleinpell, PhD, RN-CS, FCCM<sup>25</sup>; Younsuck Koh, MD, PhD, FCCM<sup>26</sup>; Thiago Costa Lisboa, MD<sup>27</sup>; Flavia R. Machado, MD, PhD<sup>28</sup>; John J. Marini, MD<sup>29</sup>; John C. Marshall, MD, FRCSC<sup>30</sup>; John E. Mazuski, MD, PhD, FCCM<sup>31</sup>; Lauralyn A. McIntyre, MD, MSc, FRCPC<sup>32</sup>; Anthony S. McLean, MB ChB, MD, FRACP, FJFICM<sup>33</sup>; Sangeeta Mehta, MD<sup>34</sup>; Rui P. Moreno, MD, PhD<sup>35</sup>; John Myburgh, MB ChB, MD, PhD, FANZCA, FCICM, FAICD<sup>36</sup>; Paolo Navalesi, MD<sup>37</sup>; Osamu Nishida, MD, PhD<sup>38</sup>; Tiffany M. Osborn, MD, MPH, FCCM<sup>31</sup>; Anders Perner, MD<sup>39</sup>; Colleen M. Plunkett<sup>40</sup>; Marco Ranieri, MD<sup>40</sup>; Christa A. Schorr, MSN, RN, FCCM<sup>22</sup>; Maureen A. Seckel, CCRN, CNS, MSN, FCCM<sup>41</sup>; Christopher W. Seymour, MD<sup>42</sup>; Lisa Shieh, MD, PhD<sup>43</sup>; Khalid A. Shukri, MD<sup>44</sup>; Steven Q. Simpson, MD<sup>45</sup>; Mervyn Singer, MD<sup>46</sup>; B. Taylor Thompson, MD<sup>47</sup>; Sean R. Townsend, MD<sup>48</sup>; Thomas Van der Poll, MD<sup>49</sup>; Jean-Louis Vincent, MD, PhD, FCCM<sup>50</sup>; W. Joost Wiersinga, MD, PhD<sup>51</sup>; Janice L. Zimmerman, MD, MACP, MCCM<sup>52</sup>; R. Phillip Dellinger, MD, MCCM<sup>22</sup>

\*See also p. 553.

<sup>1</sup>St. George's Hospital London, England, United Kingdom.

<sup>2</sup>New York University School of Medicine New York, NY.

<sup>3</sup>McMaster University Hamilton Ontario, Canada

<sup>4</sup>Emory University Hospital Atlanta, GA.

<sup>5</sup>Hadassah Hebrew University Medical Center Jerusalem, Israel.

<sup>6</sup>Sunnybrook Health Sciences Centre Toronto, Ontario, Canada.

<sup>7</sup>University of Pittsburgh Critical Care Medicine CRISMA Laboratory

Rhodes, A., Evans, L. E., Alhazzani, W., Levy, M. M., Antonelli, M., Ferrer, R., ... & Dellinger, R. P. (2017). Surviving sepsis campaign: international guidelines for management of sepsis and septic shock: 2016. *Intensive Care Medicine*, 43(3), 304-377.

# COVID-19 Resources

## Summary of recommendations on the management of patients with COVID-19 and ARDS

### COVID-19 with mild ARDS

**DO:**  
Vt 4-8 ml/kg and  $P_{plat} < 30$  cm H<sub>2</sub>O

**DO:**  
Investigate for bacterial infection

**DO:**  
Target SpO<sub>2</sub> 92% - 96%

**CONSIDER:**  
Conservative fluid strategy

**CONSIDER:**  
Empiric antibiotics

### COVID-19 with mod to severe ARDS

**CONSIDER:**  
Higher PEEP  
PEEP should be tailored to individual response

**CONSIDER:**  
NMBA boluses to facilitate ventilation targets

**CONSIDER:**  
If PEEP responsive  
Traditional recruitment maneuvers

**CONSIDER:**  
Prone ventilation 12 -16 h

**CONSIDER:**  
If proning, high  $P_{plat}$ , asynchrony  
NMBA infusion for 24 h

**DON'T DO:**  
Staircase recruitment maneuvers

### Rescue/adjunctive therapy

**CONSIDER:**  
If proning, high  $P_{plat}$ , asynchrony  
NMBA infusion for 24 h

**CONSIDER:**  
Prone ventilation 12 -16 h

**CONSIDER:**  
A trial of inhaled nitric oxide  
STOP if no quick response

**CONSIDER:**  
V-V ECMO or referral to ECMO center  
follow local criteria for ECMO

Mod = moderate  
ARDS = adult respiratory distress syndrome  
 $P_{plat}$  = plateau pressure  
SpO<sub>2</sub> = peripheral capillary oxygen saturation  
PEEP = positive end-expiratory pressure  
NMBA = neuromuscular blocking agents  
ECMO = extracorporeal membrane oxygenation

Surviving Sepsis Campaign. (2021). *Summary of recommendations on the management of patients with COVID-19 and ARDS*. COVID-19 Guidelines.

<https://www.sccm.org/getattachment/SurvivingSepsisCampaign/Guidelines/COVID-19/SSC-COVID19-Infographic-Management-of-Patients-with-COVID-19-and-ARDS.pdf.aspx?lang=en-US>

## Timely & effective care

These measures show how often or how quickly hospitals provide care that research shows gets the best results for patients with certain conditions, and how hospitals use outpatient medical imaging tests (like CT scans and MRIs). This information can help you compare which hospitals give recommended care most often as part of the overall care they provide to patients.

[Find out why these measures are important](#)

[Get more information about the data](#)

[Get current data collection period](#)

### Sepsis care

Sepsis is a complication that occurs when your body has an extreme response to an infection. It causes damage to organs in the body and can... [Read more](#)

Percentage of patients who received appropriate care for severe sepsis and septic shock

↑ Higher percentages are better

**96%**  
of 68 patients

National average: 60% **26**

Virginia average: 58% **26**

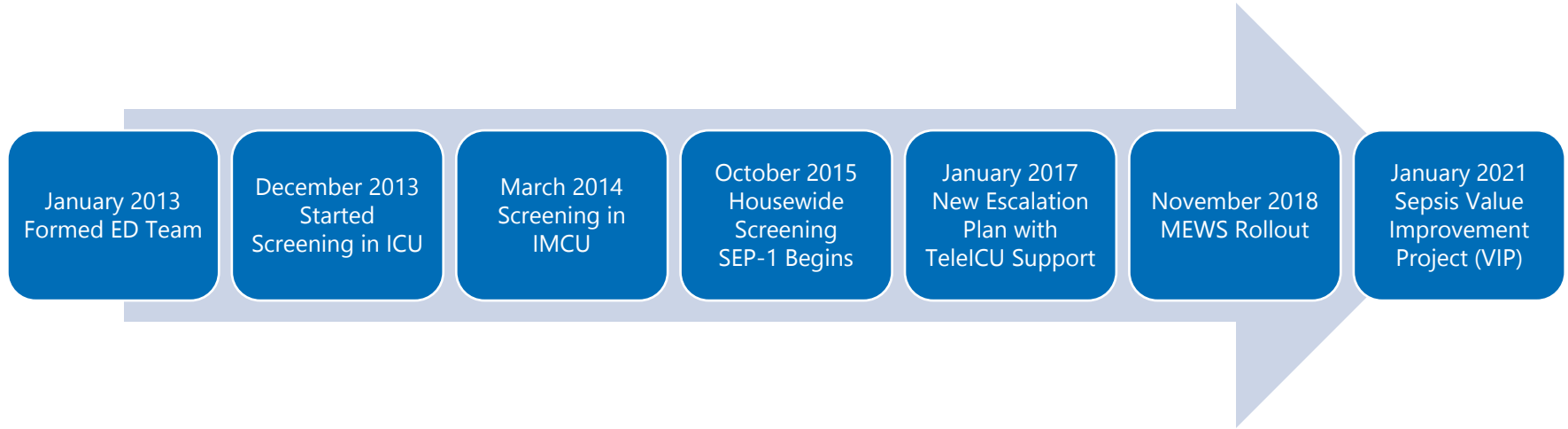
SEP-1 is publicly reported at Medicare.gov



# RAISING AWARENESS



# Our Journey with Sepsis



### CODE SEPSIS: RN + PROVIDER HUDDLE CHECKLIST

Updated 8/15/2022 map revision

Time SIRS + Infection Documented

1-HOUR GOAL \_\_\_\_\_

3-HOUR GOAL \_\_\_\_\_

6-HOUR GOAL \_\_\_\_\_

PATIENT IDENTIFICATION

|   | Provider<br>Initials | RN<br>Initials |
|---|----------------------|----------------|
| <b>FOR SEVERE SEPSIS AND SEPTIC SHOCK</b><br>SIRS + Suspected Infection + Acute (not chronic) Organ Dysfunction (Lactic > 2.0, SBP < 90 or MAP < 65, Cr > 2.0, INR > 1.5)<br>Collect cultures AND print label BEFORE scanning antibiotics. Do not delay antibiotics more than 45 minutes. Chart any barriers to obtaining cultures.   |                      |                |
| <b>DOCUMENT WEIGHT (ACTUAL) &amp; HEIGHT</b><br>DRAW LACTIC ACID #1 (Goal: <1 hour)<br>Result: _____<br>Is lactic 4.0 or more? <input type="checkbox"/> Yes: Provider must chart, "Sepsis exam done after fluids started."  |                      |                |
| <b>DRAW BLOOD CULTURES BEFORE ANTIBIOTICS</b><br>Collect cultures AND print label BEFORE scanning antibiotics. Do not delay antibiotics more than 45 minutes. Chart any barriers to obtaining cultures.   |                      |                |
| <b>START IV ANTIBIOTICS (Goal: &lt;1 hour from arrival time or first recognition)</b><br>Sepsis is a medical emergency. You may start multiple antibiotics at once: Use compatibility chart at bottom. PO vancomycin for suspected C. diff is acceptable.   |                      |                |
| <b>DRAW LACTIC ACID #2 (Goal: &lt;3 hours)</b><br>Time Due: _____<br>Result: _____<br>If first lactic 2.0 or less, cancel repeat lactic. If repeat higher than first, draw third lactic in 2 hours.   |                      |                |
| <b>START FLUID BOLUS 30 ML/KG IF PATIENT MEETS TRIGGERS (&lt;3 hours)</b><br>Fluid bolus triggers: SBP < 90 or MAP < 65 or Lactic Acid ≥ 4. Normal saline, lactated Ringer's or Plasmalyte acceptable. Label each bag (ex. Bag 1 of 3, Bag 2 of 3, etc.). Monitor for fluid overload. May use ideal body weight if BMI > 30. Patient is exempt ONLY if provider charts refusal by patient/family or consults palliative care. |                      |                |
| Patient Weight: _____ kg x 30 mL = Bolus Total (mL): _____<br>Bolus Given (mL): _____<br>Bolus Remaining (mL): _____  |                      |                |
| <b>BEGIN AUTO-CYCLING BP EVERY 15-30 MINUTES DURING BOLUS INFUSION AND FOR 1 HOUR AFTER BOLUS ENDS</b>  |                      |                |
| <b>CHART END TIME OF FLUID BOLUS + I/O'S</b><br>End Time: _____<br>(Chart all recorded BPs, including validating device data.)  | Provider<br>Initials | RN<br>Initials |
| <b>FOR SEPTIC SHOCK</b><br>Severe sepsis + persistent hypotension after 30 mL/kg fluid bolus ends OR lactic ≥ 4   |                      |                |
| <b>START VASOPRESSOR (Goal: &lt;6 hours)</b><br>Required if two consecutive readings of SBP < 90 or MAP < 65 during hour after 30 mL/kg amount is completely infused.   |                      |                |
| <b>CHECK WITH MD THAT VOLUME STATUS/TISSUE PERFUSION ASSESSMENT CHARTED</b><br>Part of pressor order OR if initial lactic ≥ 4. Provider must chart, "Sepsis exam done after fluids started."  | RN<br>Initials       |                |
| <b>FOR ALL PATIENTS</b><br>INFORM RECEIVING RN DURING REPORT OF ANY INCOMPLETE ITEMS AND WHEN THEY ARE DUE<br>BEFORE ADMISSION/TRANSFER, SCAN FORM TO IMVH SEPSIS COORDINATOR. PINK COPY STAYS WITH PATIENT.  |                      |                |
| Provider: _____<br>Primary RN: _____<br>Receiving RN: _____<br><small>By signing, I acknowledge that I will continue the sepsis care outlined above.</small>  |                      |                |

Below are broad-spectrum antibiotics: Start these first. Sepsis is a medical emergency. You may start multiple antibiotics at once. If using one IV site, check Y-site compatibility.

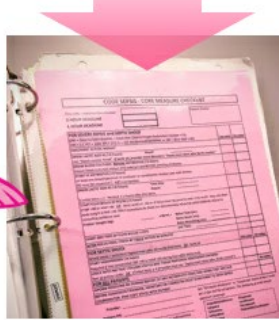
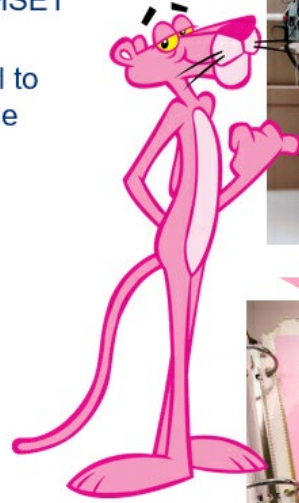
|                               |                                 |
|-------------------------------|---------------------------------|
| Ampicillin/Sulbactam (Unasyn) | Ertapenem (Invanz)              |
| Cefepime (Maxipime)           | Levofloxacin (Levaquin)         |
| Cefotaxime (Claforin)         | Mercapronem (Mepron)            |
| Ceftazidime (Fortas)          | Piperacillin/tazobactam (Zosyn) |
| Ceftioxcid (Rocephin)         |                                 |

## When It Comes to Sepsis: **THINK PINK!**



Join the future of health.

- Checklists are in the back of the MSET notebook on the crash cart.
- Use the checklist as an SBAR tool to talk to the physician about what the patient needs.

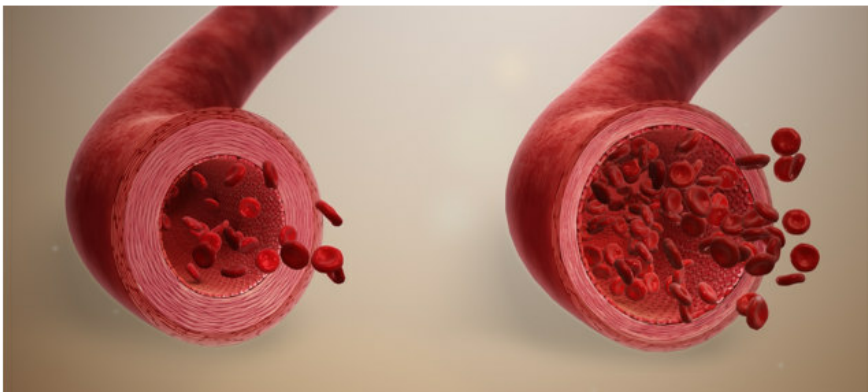


# Staff Education Examples

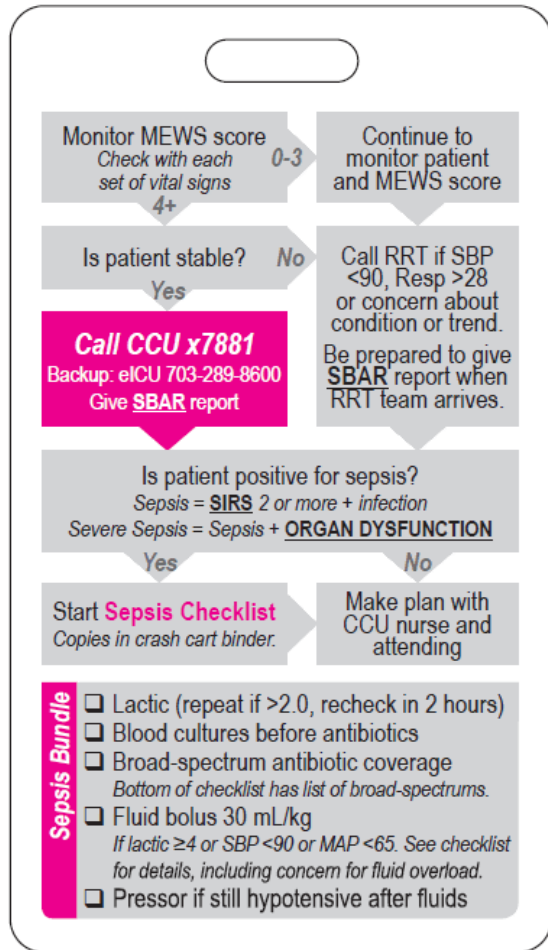
1. Education rollout in 2017 across the entire health system for both RNs and clinical technicians
2. Annual nursing and clin tech skills fair / competency
3. 30 minutes at new employee orientation for RNs and clin techs
4. 20-minute onboarding with all new ED and hospitalist providers
5. Ongoing coaching of front-line staff



- What if whole body experiences an inflammatory response at once?
  - This is a Systemic Inflammatory Response Syndrome or “SIRS”
  - This is abnormal and bad
  - Massive vasodilation → Drop in blood pressure → Tissues don’t get oxygen → Lactic begins to go up



Teach the “why”  
behind the bundle.



### CHARGE NURSES

1. Monitor patient list for MEWS scores 4+.

### CLIN TECHS

1. If patient has one or more **SIRS** (see below) or SBP <90, notify RN or Charge RN.
2. Document in Epic who you notified.

### SIRS

*SIRS 2 or more + infection, start Sepsis Checklist.*

- Resp >20 • HR >90 • Temp >100.9 or <96.8
- WBC >12 or <4 or >10% bands

### ORGAN DYSFUNCTION

*SIRS 2 or more + infection + abnormal lab or condition listed below could be severe sepsis. Start Sepsis Checklist! Draw new lactic if none in past 6 hours and blood cultures if none in past 24 hours.*

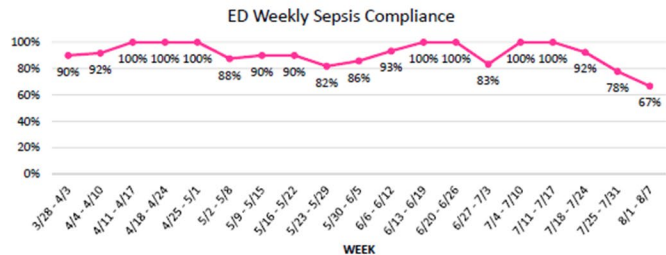
- Lactic >2 • SBP <90 or MAP <65 • Cr >2
- Plt <100 • INR >1.5 or PTT >60 • Bili >2
- New need for CPAP, BiPAP or ETT

### SBAR

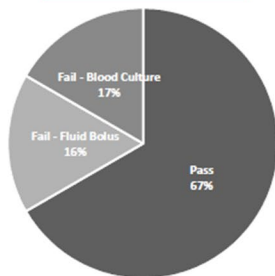
- *Situation* – Reasons MEWS is elevated.
- *Background* – Reason for admission, list tests/treatments already completed.
- *Assessment* – For example, “I’m concerned that my patient has sepsis.”
- *Recommendation* – For example, “To pass the sepsis bundle, the patient still needs ... (list orders needed to pass Sepsis Checklist).”

Sepsis badge buddy given to all nurses and clin techs.

## 2021 IMVH ED Sepsis Dashboard



### Last Week's Performance



### Recent Fallouts

- MRN - Patient with perforated bowel and lactate 4.0 only received 500 mL bolus instead. 30 mL/kg bolus is required with hypotension or lactate 4.0 or more due to sepsis.
- MRN - Patient presents with generalized fatigue, diaphoresis, and worsening SOB than baseline. Patient self-caths at home. Tachycardia on arrival (HR 136). UA positive then temp 100.4F. Lactate (=2.6) and cefepime ordered but no blood cultures.

### Reminders

- Patients with infection who have a lactate 4.0+ or hypotension should be evaluated for 30 mL/kg fluid bolus. If abnormal BP or labs are not due to sepsis, provider should state this in their note.

ED sepsis compliance dashboard sent out each week.



Staff and students at IMVH heard from a sepsis survivor at a 2018 Sepsis Lunch & Learn.

## *Detecting and treating sepsis for our inpatients can be challenging.*

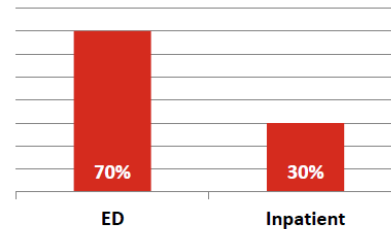
It's true – the ED and inpatient are two different worlds. But here are some elements of a successful sepsis team:

- Physician-nurse collaboration
- Careful clinical assessment (“sepsis until proven otherwise”)
- Consistent use of order sets

### **In turn, what can we do?**

- Be responsive. Nurses are required to screen for sepsis and may call requesting orders to meet the sepsis bundles.\*
- For patients with infection or low-severity sepsis, be vigilant for organ dysfunction that could signal severe sepsis.
- For severe sepsis or septic shock, use one of these order sets: **SUSPECTED SEPSIS ORDERS** or **CRITICAL CARE ADMIT TO ICU**

Sepsis Bundle Compliance  
(May-July)



#### **\*3-HOUR BUNDLE**

- Initial lactic
- Blood cultures
- Broad spectrum antibiotic
- 30 mL/kg fluid bolus if lactic  $\geq 4$  or SBP  $< 90$  (or MAP  $< 65$ )

#### **6-HOUR BUNDLE**

- Repeat lactic (if initial  $> 2$ )
- Septic shock exam (.sepsiscms), if lactic  $\geq 4$  or vasopressors required
- Vasopressors, if refractory hypotension after fluid bolus

Example of focused sepsis bundle education given to providers in 2017.





# ADDRESSING BARRIERS

# Top Bundle Barriers

1. Documentation of elements in the EHR
2. Fluids
3. Blood cultures before antibiotics
4. Physician buy-in

# Barriers

- Keep bundle tools simple.
- Our success with tracking bundle elements has been done almost entirely on paper for last 5+ years.
- Of course order sets in EHR have been key.

**CODE SEPSIS: RN + PROVIDER HUDDLE CHECKLIST**  
Submittal #: HQUIN-10-001-100

Time SIRS + Infection Documented: \_\_\_\_\_

1-HOUR GOAL: \_\_\_\_\_

3-HOUR GOAL: \_\_\_\_\_

6-HOUR GOAL: \_\_\_\_\_

PATIENT IDENTIFICATION: \_\_\_\_\_

**FOR SEVERE SEPSIS and SEPTIC SHOCK**  
 SIRS + Suspected Infection + Acute (not chronic) Organ Dysfunction (Lactic > 2.0, SBP < 90 or MAP < 65, Cr > 2.0, INR > 1.5, P/a < 100/50, P/a > 2.0, Intubation/CPAP/BiPAP for acute respiratory failure)

DOCUMENT WEIGHT (ACTUAL) & HEIGHT: \_\_\_\_\_

|   | Provider Initials | RN Initials |
|---|-------------------|-------------|
| <b>DRAW LACTIC ACID #1 (Goal: &lt;3 hour)</b><br>Result: _____<br>Is lactic 4.0 or more? <input type="checkbox"/> Yes: Provider must chart, "Sepsis exam done after fluids started."  |                   |             |
| <b>DRAW BLOOD CULTURES BEFORE ANTIBIOTICS</b><br>Collect cultures AND print label BEFORE scanning antibiotics. Do not delay antibiotics more than 45 minutes. Chart any barriers to obtaining cultures.   |                   |             |
| <b>START IV ANTIBIOTICS (Goal: &lt;1 hour from arrival time or first recognition)</b><br>Sepsis is a medical emergency. You may start multiple antibiotics at once. Use compatibility chart at bottom. PO vancomycin for suspected C. diff. is acceptable.  |                   |             |
| <b>DRAW LACTIC ACID #2 (Goal: &lt;3 hours)</b><br>Time Due: _____<br>Result: _____<br>If first lactic 2.0 or less, cancel repeat lactic. If repeat higher than first, draw third lactic in 2 hours.   |                   |             |
| <b>START FLUID BOLUS 30 ML/KG IF PATIENT MEETS TRIGGERS (&lt;3 hours)</b><br>Fluid bolus triggers: SBP < 90 or MAP < 65 or Lactic Acid ≥ 4. Normal saline, lactated Ringer's or PlasmaLyte acceptable. Label each bag (ex. Bag 1 of 3, Bag 2 of 3, etc.). Monitor for fluid overload. May use ideal body weight if BMI > 30. Patient is exempt ONLY if provider charts refusal by patient/family refusal or consults palliative care.<br>Patient Weight: _____ kg x 30 mL = Bolus Total (mL): _____<br>Bolus Given (mL): _____<br>Bolus Remaining (mL): _____ |                   |             |
| <b>BEGIN AUTO-CYCLING BP EVERY 15-30 MINUTES DURING BOLUS INFUSION AND FOR 1 HOUR AFTER BOLUS ENDS</b><br>Chart end time of fluid bolus + 1 HO'S<br>Chart all recorded BPs, including validating device data.<br>End Time: _____  |                   |             |
| <b>FOR SEPTIC SHOCK</b><br>Severe sepsis + persistent hypotension after 30 mL/kg fluid bolus ends OR lactic ≥ 4   |                   |             |
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| <b>CHECK WITH MD THAT VOLUME STATUS/TISSUE PERFUSION ASSESSMENT CHARTED</b>   |                   |             |
| <b>FOR ALL PATIENTS</b>   |                   |             |
| <b>INFORM RECEIVING RN DURING REPORT OF ANY INCOMPLETE ITEMS AND WHEN THEY ARE DUE BEFORE ADMISSION/TRANSFER, SCAN FORM TO IMVH SEPSIS COORDINATOR. PINK COPY STAYS WITH PATIENT.</b>   |                   | RN Initials |
| Provider: _____   |                   |             |
| Primary RN: _____   |                   |             |
| Receiving RN: _____   |                   |             |

Below are broad-spectrum antibiotics: Start these first. Sepsis is a medical emergency. You may start multiple antibiotics at once. If using one IV site, check Y-site compatibility.

|                               |                         |
|-------------------------------|-------------------------|
| Ampicillin/Sulbactam (Unasyn) | Ertapenem (Invanz)      |
| Cefepime (Maxipime)           | Levofloxacin (Levaquin) |
| Cefotaxime (Clavoxil)         | Mertanserin (Mertrom)   |
| Ceftriaxone (Rocephin)        | Piperacillin/           |
|                               | tazobactam (Zosyn)      |

By signing, I acknowledge that I will continue the sepsis care outlined above.

# Barriers

- A proactive approach has helped us with blood cultures.
  - We do not wait for patients to meet severe sepsis criteria to start the bundle.
  - We order blood cultures on every ED patient receiving IV antibiotics who will be admitted.
- Patients receiving the 30 mL/kg fluid bolus has been more challenging.
  - We encourage providers to order the full amount from the beginning or to clarify in documentation why another approach was taken.
  - Ultimate goal is to achieve organ perfusion by maintaining MAP.

Smartphrases allow the provider to clarify diagnoses and plan of care.

Summary:



### Initial Sepsis Documentation:

At 1836 on 08/16/21, I suspect the patient to meet severe sepsis criteria due to a lactate >2 This timestamp also applies to every infectious and/or SEP-1-related diagnosis in Clinical Impression or MDM sections of this note.

### Fluid Management

An initial bolus <30 mL/kg was given because a 30 mL/kg bolus of crystalloid fluids would be detrimental or harmful for the patient despite hypotension. The patient has stage V or GFR < 15 mL/min or ESRD. I performed a sepsis focused physical examination and reassessment on 07/28/21 at 2053.

Summary:

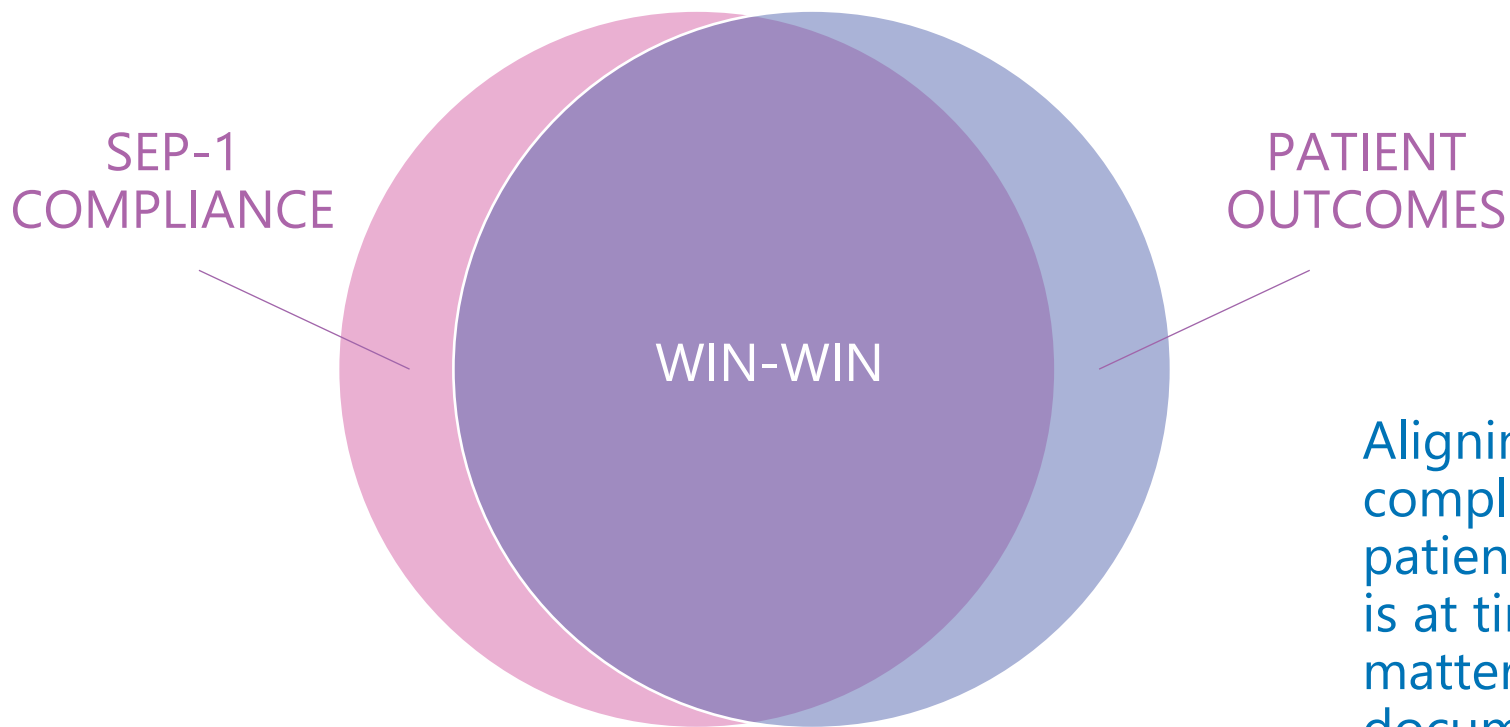


### Initial Sepsis Documentation:

At 1836 on 08/16/21, I suspect the patient to be excluded from severe sepsis or septic shock consideration due to all SIRS criteria, abnormal vitals and evidence of organ dysfunction NOT being due to severe sepsis or septic shock, but due to alternative cause. This timestamp also applies to every infectious and/or SEP-1-related diagnosis in Clinical Impression or MDM sections of this note.

### Fluid Management

The patient did not require 30 mL/kg fluid bolus, because patient did not present with an initial lactate >=4.0 mmol/L or initial hypotension.



Aligning SEP-1 compliance with patient outcomes is at times a matter of documentation.

### ▼ Lab Orders

#### ▼ Inova Lab Orders

- Timed Lactic Acid Panel
- Blood Culture X 2
- CBC and differential  
STAT, Once
- Comprehensive metabolic panel  
STAT, Once

### ▼ Bolus Fluids

#### ▼ Inova Fluid Bolus Orders

30 mL/kg bolus is only required if patient has hypotension or lactic acid  $\geq 4$  due to sepsis. Ideal body weight may be used if BMI is documented  $>30$ .

- sodium chloride 0.9 % bolus (\$)  
30 mL/kg, Intravenous, Administer over 60 Minutes, Starting 8/16/21

## ▼ Medication - Unidentified Source

Consider gentamicin/tobramycin if septic shock (lactate greater than or equal to 4 mmol/L or hypotension despite fluids) or if patient has received antibiotics within the last 90 days.

Gentamicin/tobramycin 7 mg/kg x 1 dose if CrCl 30 mL/min or greater (order random level 6-12 hours after dose).

Gentamicin/tobramycin 2 mg/kg x 1 dose if CrCl less than 30 mL/min OR acute kidney injury.

▶ Inova Unidentified Source

[Click for more](#)

## ▼ Medication - Suspected Source

Consider gentamicin/tobramycin if septic shock (lactate greater than or equal to 4 mmol/L or hypotension despite fluids) or if patient has received antibiotics within the last 90 days.

Gentamicin/tobramycin 7 mg/kg x 1 dose if CrCl 30 mL/min or greater (order random level 6-12 hours after dose).

Gentamicin/tobramycin 2 mg/kg x 1 dose if CrCl less than 30 mL/min OR acute kidney injury.

▶ Inova Pneumonia Antimicrobials

[Click for more](#)

▶ Inova Intra-abdominal Infection

[Click for more](#)

▶ Inova Bacterial Meningitis (Community Acquired)

▶ Inova Bacterial Meningitis (Immunocompromised and/or g

▶ Inova UTI - Community Acquired

▶ Inova UTI - Hospital/SNF/Catheter Related

▶ Inova Skin/Skin Structure Infection

▶ Inova Skin/Skin Structure Infections - Immunocompromised or DM Foot

▶ Inova Neutropenic Fever

### ▼ Inova UTI - Community Acquired

cefTRIAxone IV

levoFLOxacIn +/- gentamicin IV (severe beta-lactam allergy)

meropenem +/- gentamicin IV (history of ESBL/MDRO)

[Click for more](#)

[Click for more](#)

[Click for more](#)



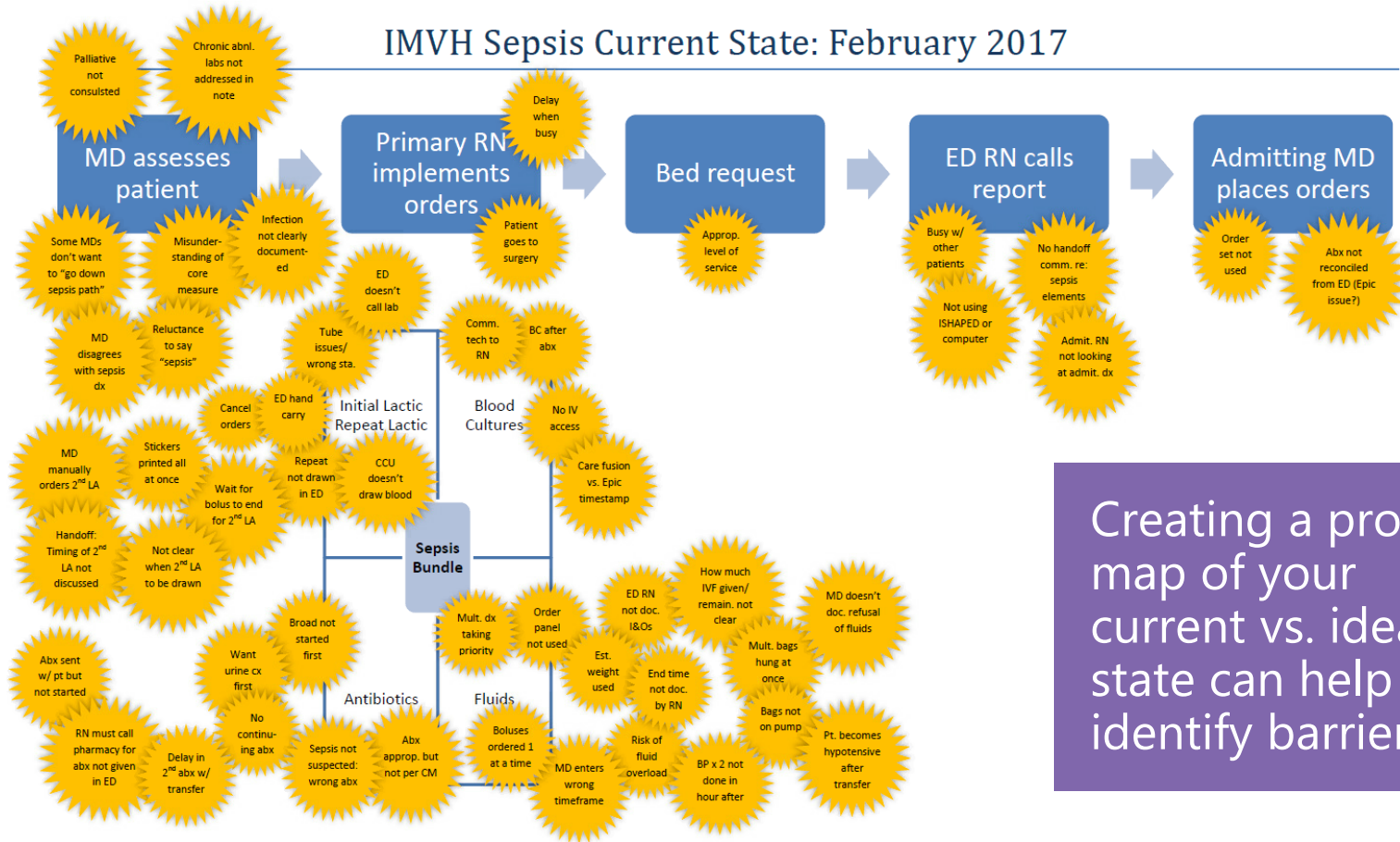
The screenshot displays the Epic EMR interface for a patient with Sepsis. The main dashboard is titled "Sepsis" and includes several key components:

- Left Sidebar:** Patient information for "Septic Asap" (Male, 70 y.o., 4/21/1951, MRN: 206832). It shows "OI Attending Physician Emergency, MD" and "COVID-19: Travel Screened 4/21/2021". Vital signs include BP 89/50, Temp 39.4°C (103°F), and SpO2 95%.
- Top Navigation:** Includes "Chart Review", "Triage", "ED Narrator", "Disposition", and "Orders".
- Event Log:** Shows a "Sepsis Huddle" at 09:10 and "Sepsis Documentation Start" at 09:09.
- Checklist:** A list of tasks such as "Blood Cultures Not Ordered", "Lactate Not Ordered", "Repeat Lactate Not Resulted", and "Antibiotics Not Ordered".
- Sepsis Timer:** A digital timer showing "00:00".
- Alerts:** A section for "Alerts (1)" with a "Time since Sepsis Call" of 00m.

A purple text box is overlaid on the right side of the dashboard, containing the following text:

Currently working to implement an electronic version of the checklist in EHR with a timer.

# IMVH Sepsis Current State: February 2017



Creating a process map of your current vs. ideal state can help you identify barriers.



# SUCCESS FACTORS/ FACILITATORS

# Success Factors/Facilitators

- Having a sepsis coordinator, even part-time, has been key.
  - Permanent position allows for succession planning.
- Short feedback cycle for fallouts and successes.
  - Value of concurrent reviews.
- Leadership, accountability and support of CMO and medical directors (ED, hospitalists) has been critical.
  - Emergency physician group allows me to attend quarterly meetings to give updates.
- Monthly sepsis committee meetings for last 5+ years.
  - Role of interprofessional collaboration.
- 24/7 support from TeleICU for inpatient nurses on *all* units.

## Sepsis Coaching Record

|              |  |                                    |   |
|--------------|--|------------------------------------|---|
| Date         |  | 1. SIRS 2 or more                  |   |
| Patient Name |  | 2. Infection Documentation         |   |
| MRN          |  | 3. Organ Dysfunction               |   |
| Location     |  | Severe Sepsis Presentation Time    |   |
| Employee(s)  |  | Sepsis Screen Positive in Triage?  | <input type="checkbox"/> Yes <input type="checkbox"/> No                              |
| Provider(s)  |  | Secondary Screen Completed?        | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |
|              |  | Copy of Sepsis Checklist Received? | <input type="checkbox"/> Yes <input type="checkbox"/> No                              |

### Description of Event:

- Your patient met severe sepsis criteria, but no lactic acid was drawn or it was drawn late (not drawn within 3 hours).
- Blood cultures were not drawn before antibiotics. If there were any barriers to drawing cultures, documentation could not be found.
- Your patient did not receive broad-spectrum antibiotic coverage within 3 hours of severe sepsis presentation.
- A repeat lactic was not drawn within 6 hours of severe sepsis. The recommended timing is to redraw a repeat lactic within 1-2 hours of the initial lactic.
- Your patient had hypotension (SBP <90 or MAP <65) or a lactic of 4 or more, but a 30 mL/kg bolus was not initiated within 3 hours. If the provider orders individual boluses, instead of a single order with the total amount, the "start time" is considered when the final bolus, which completes the required amount, is begun. (Example: Patient needs 2500 mL and orders are written for 1000 mL, 1000 mL and 500 mL: start time is when the last bolus for 500 mL, is started. If a single order for 2500 mL is entered, start time is when first bolus hung. Don't forget to label boluses with pink stickers "Bag: \_\_ of \_\_"). If the provider is concerned about fluid overload, patient refusal must be documented or palliative care consulted. Ideal body weight may be used if BMI is greater than 30. Have the provider document this.
- Two BPs were not recorded during the hour after the 30 mL/kg fluid amount finished. The finish time was . (Because a stop time was not entered in Epic, the end time was calculated using the duration specified in the order.)
- The provider's note did not contain the statement, "Sepsis exam performed after fluids started." This statement is required when a patient receives the 30 mL/kg fluid bolus. Provider may also use .sepsiscms Smart Phrase.
- Vasopressor was not started within 6 hours of septic shock presentation, if patient had persistent hypotension after 30 mL/kg bolus.
- Other notes:

Coaching tool for  
fallouts.

# Celebrate Successes



- Each month we recognize a nursing Sepsis Star in our sepsis committee.
- They receive a gold star pin.



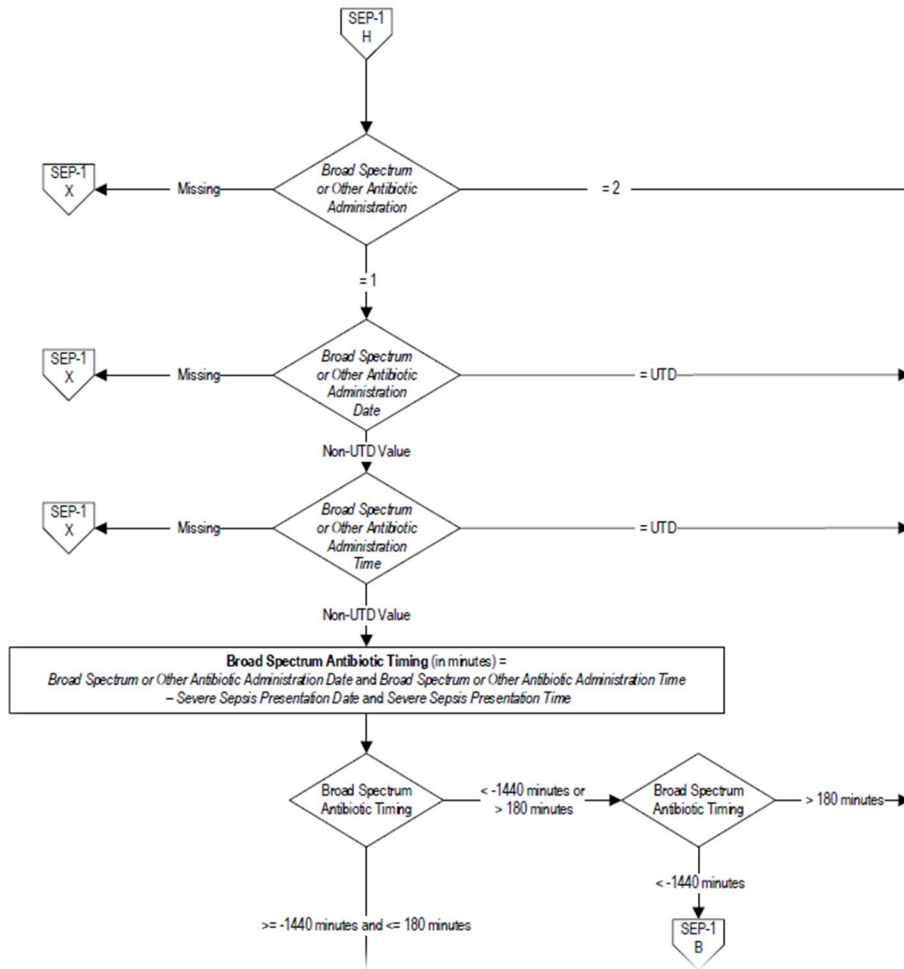
# KEEPING THINGS IN PERSPECTIVE

# Keeping Things in Perspective

- In addition to following SEP-1, consider other contributors to sepsis mortality.
- In addition, to SEP-1, what do *you* consider a fallout?
- Pay attention to near misses and harm from other causes.
- For example, source control.



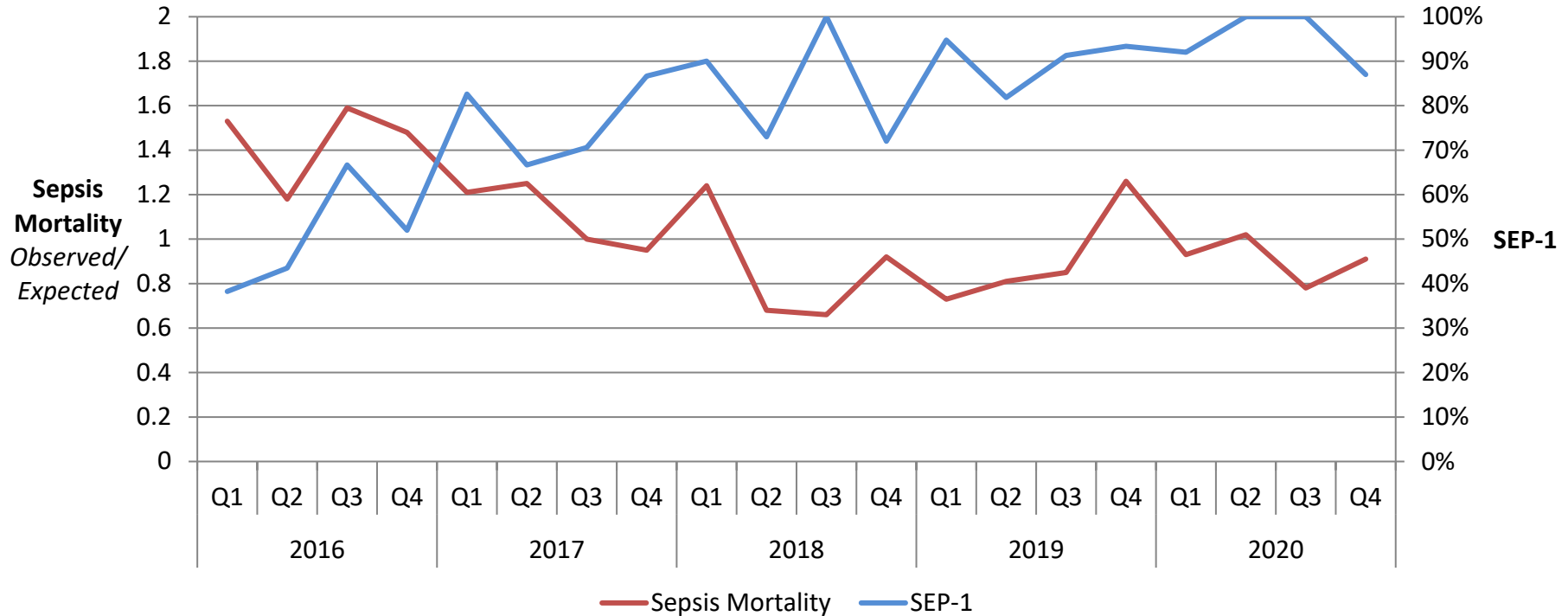




Sections in the CMS specifications manual related to SEP-1 are hundreds of pages long.

# Mortality vs. SEP-1 Compliance

IMVH Sepsis Performance

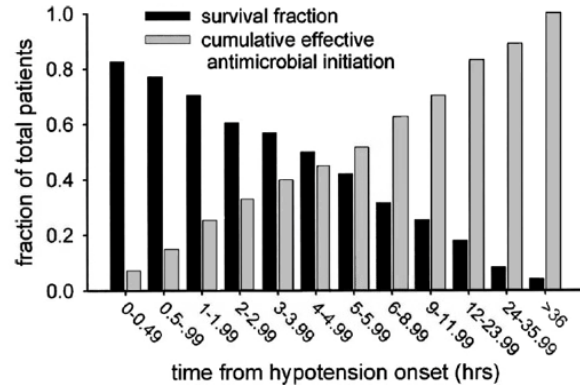


# Focus on Early Antibiotic Administration

## Surviving Sepsis



**Don't delay: Early antibiotics improve sepsis survival!**

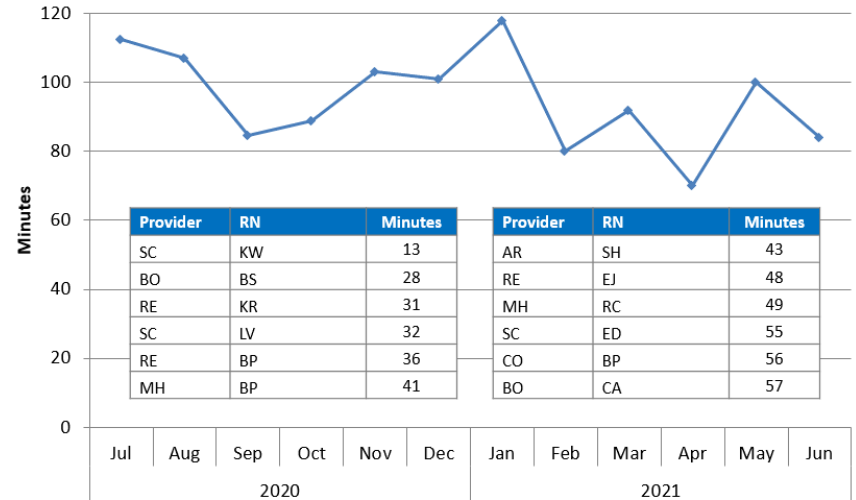


Kumar et al., 2006, p. 1592

## Process: Antibiotic Times



ED Median Door to Antibiotic for Severe Sepsis & Septic Shock  
(Inset: Best June Times)



A word cloud on a dark blue background with the word "Discussion" in the largest, white font at the center. Other words are arranged around it in various sizes and colors (white, orange, light blue, and dark blue). The words include: MEETING, Chat, DIALOG, TALK, BUSINESS, Answers, IDEAS, Communicate, SOCIAL, PROPOSAL, IDEAS, Discuss, Connection, Session, Group, INPUT, CONVERSATION, SHARE, OPERATING, QUESTIONS, Dialog, Business, Communication, PARTNERSHIP, Forum, EXPLORATION, Group, TALK, Debate, and Community.

# Reminder: Homework from Session 1

Please complete the Hospital Sepsis Gap Analysis:

[Link to online Gap Analysis](#)

# Next Sepsis Affinity Group Session

Session 3: Audit, Measure, and Feedback for Success

Date: September 2, 2021  
Time: 1:30 PM EDT

# CONNECT WITH US

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