Kennedy’s Sepsis Taskforce Goals:

- Improve outcomes and quality of care for sepsis patients
- Reduce mortality to less than 10% by December 2015
- Provide evidenced-based care
- Lessons learned from case drill-downs of missed opportunities
- Promote nurse-driven lactate policy
- Continuing education for all staff and physicians
Results

- **ED Countdown Clocks**
- **Stacked Antibiotics**
- **Antibiotics stocked in ED**
- **Sepsis Alert - ED Patients**
- **ED/ICU Bundle Worksheet**
- **Sepsis Alert - Floor patients**
- **Sepsis Warning**
- **Lactate Turn Around Time Goal 30 mins**
- **Sepsis on the Floors Taskforce**
- **Sepsis Algorithm**
- **Nurse Initiated Lactic Acid Policy**
- **Putting it All Together**
- **SOTF Bundle Worksheet**

- **07/2012**
  - Mortality Rate 17.91%
- **02/2013**
  - Mortality Rate 13.36%
- **09/2013**
- **2013**
- **03/2014**
  - Mortality Rate 11.88%
- **10/2014**
- **2014**
- **04/2015**
- **2015**

**Lives Saved 130.4**
Changes We Tested

- Sepsis Algorithm
- “Putting It All Together” posters
- Read & Sign computer-based learning
- Sepsis classes
- Sepsis worksheets
  - ED to ICU and Floor Patients

The Kennedy Experience: Consistent Practice, Consistent Results
Changes We Tested to Reach Our Aim

• Sepsis warnings/alerts in the ED
• Lactate turn-around time goal of 30 minutes
• Nurse-driven lactate policy
  ➢ RN to draw lactate if 2 SIRS criteria are met
• Stock ED with commonly used ABX
• Development of “Sepsis on the Floors” taskforce
• “Sepsis alerts” on general floor patients
• Joint RN and physician lectures

The Kennedy Experience: Consistent Practice, Consistent Results
We Were Surprised to Learn...

- Survival rate was lower when sepsis was hospital-acquired
- Bundle compliance was poor for hospital-acquired sepsis
- In 2014, 149 patients, or 7%, acquired sepsis while in the hospital
We Wonder if We Should...

- Facilitate approval of our RN-initiated blood culture policy
- Initiate mandatory education of CMS sepsis guidelines for all staff and physicians
- Work toward risk-stratifying data for further analysis
- Develop “Prevent Sepsis Before it Even Occurs” posters
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The Kennedy Experience: Consistent Practice, Consistent Results
SEPSIS is TWO of the following, plus a source of infection:
- Temperature < 96.8 or > 100.4
- Heart rate > 90
- Respiratory rate > 20
- WBC > 12 or < 4
- Bandemia > 10%

If you have identified Sepsis, draw a STAT Lactate in accordance with RN Initiated Lactate Acid Policy.

Call a physician immediately if lactate ≥ 4.

SEVERE SEPSIS is Sepsis (see left column) plus evidence of organ damage/dysfunction. End-organ damage is any of the following:
- Lactate ≥ 4
- Altered mental status
- Acute kidney injury
- Elevated troponin levels
- Acute respiratory distress syndrome
- New/Worsened elevation of ALT and AST
- Urine output < 0.5 ml/kg/hr
- New/Worsened platelet count < 100

Call an RRT for sepsis evaluation in your patient.

SEPTIC SHOCK is Severe Sepsis (see middle column) plus hypotension despite a 30 ml/kg NSS IVF bolus.

Call an RRT if this is your patient. If your patient remains hypotensive, after the above bolus, he/she will be transferred to the ICU.
Early Recognition of Sepsis

**STEP 1**

CNA/Tech Assesses Patient Upon Arrival and Each Time Vital Signs are Taken

<table>
<thead>
<tr>
<th>Vital Sign</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Rate &gt; 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heart Rate &gt; 90</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Temperature &lt; 36 (96.8) or &gt; 38 (100.4)</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

If you circled "YES" to ONE or NONE, the evaluation is complete. No further action is necessary.

**BUT, if TWO or THREE are “YES,”**

then **ALERT** the nurse to perform Step 2.

**STEP 2**

RN Assesses Patient After Being Alarmed by CNA/Tech

<table>
<thead>
<tr>
<th>Vital Sign</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is MAP &lt; 65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is WBC &lt; 4 or &gt; 12</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If **BOTH** of the above are "NO,”

then page the Primary Team or overnight Intern to alert them SIRS Criteria has been met for this patient, and draw a STAT Lactate. If no CBC done, call doctor for STAT CBC. If no response received, call RRT.

If **EITHER** of the above are “YES,”

then immediately call a RAPID RESPONSE for Sepsis Evaluation.
<table>
<thead>
<tr>
<th>SEPSIS FLOOR WORKSHEET</th>
<th>Rapid response called</th>
<th>[ ] NO [ ] YES _______(time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE: ___________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of 1st STAT lactic acid:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achieved within First Hour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of 1st STAT lactic acid + 1 hour =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time ___________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achieved by Third Hour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of 1st STAT lactic acid + 3 hours =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time ___________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achieved by Sixth Hour</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time of 1st STAT lactic acid + 6 hours =</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time ___________</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat lactic acid ______(ensure repeat lactic acid by 6 hr)</td>
<td>Improved Lactic Acid ______Yes ______No</td>
<td>Vaspressors for hypotension (MAP &lt; 65) that does not respond to initial resuscitation</td>
</tr>
<tr>
<td>Time ___________</td>
<td>Drug ___________ Conc.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drug ___________ Conc.</td>
<td></td>
</tr>
</tbody>
</table>
| Floor RN Signature ___________ Date-Time ___________ | ICU RN Signature ___________ Date-Time ___________ | TIME IS TISSUE: PATIENT MUST HAVE ALL TASKS COMPLETED WITH 6 HOURS FROM TIME OF 1ST VITAL SIGNS TO 1ST LACTIC ACID. Floor- Send worksheet with patient to RECEIVING UNIT NOT A PERMANENT PART OF THE RECORD Revised 3/16
<table>
<thead>
<tr>
<th>DATE: ___________________</th>
<th>Sepsis Warning called (ED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIME OF GREET______________</td>
<td>[ ] NO [ ] YES [ ] (time)</td>
</tr>
<tr>
<td></td>
<td>Patient Sticker</td>
</tr>
<tr>
<td></td>
<td>[ ] NO [ ] YES [ ] (time)</td>
</tr>
</tbody>
</table>

**Achieved within First 90 minutes**

- Initial labs: Time drawn ________
- Serum lactate: Time Ordered ________ Time Drawn ________ RESULT: ________
- Blood Cultures x 2 Time 1 ________ Time 2 ________
- Initial fluid resuscitation: MAP ________ (MAP = 2(DP) + SP ÷ 3)
  - Patient weight (kg) ________ X 30 ml = ________ ml NS  **OVER 1 HOUR**
  - Start time ________ Time of completion ________
- Antibiotic (name)  *Infusion must be completed collaboratively between ED and ICU. Antibiotics may run concurrently - check drug to drug compatibility (see back)*
  1st ________ Time ________ [ ] ED [ ] ICU
  2nd ________ Time ________ [ ] ED [ ] ICU
  3rd ________ Time ________ [ ] ED [ ] ICU

**Achieved by THIRD Hour**

- Continuous Infusion Rate NSS @ ________ ml/hour
  (start immediately after bolus complete)
- Additional Fluid Resuscitation 1000 ml every 30 minutes or until MAP > 65
  **Fluid resuscitation to be managed collaboratively by ED or ICU RN**
  - Time ________ Amount ________ MAP ________
  - Time ________ Amount ________ MAP ________
  - Time ________ Amount ________ MAP ________
  - Time moved to ICU ________
  - Central Line Placed: YES / NO Time ________ If no, why not?
  - **ED Intake ________ Output ________**

**Achieved by Sixth Hour**

- ScvO2 ________ (goal > or = to 70)
- Initial CVP reading ________ (8-12 mmHg non-vened) (12-15 mmHg vented)
  **Vaspressors for hypotension (MAP < 65) that does not respond to initial resuscitation**
  - Time ________ Drug ________ Conc ________
  - Time ________ Drug ________ Conc ________

ED RN Signature ___________________ Date/Time ___________________
ICU RN Signature ___________________ Date/Time ___________________

TIME IS TISSUE! PATIENT MUST HAVE ALL TASKS COMPLETED WITH 4 HOURS FROM TIME OF GREET TO CVF AND SCV02. Revised 4/15
Emergency Department: Send worksheet with patient to RECEIVING UNIT
Stages of Sepsis

SIRS Criteria: Characterized by 2 or more of the following conditions:

- Temperature < 96.8 or >/= 100.4;
- HR > 90;
- Respirations > 20
- PaCO2 < 32mmHg
- WBC > 12K, < 4K or > 10% Bands

Sepsis: SIRS plus a documented infection with at least 2 or the 4 SIRS criteria

Severe Sepsis: Sepsis associated with dysfunction of one or more organ systems

Septic Shock: Sepsis with SBP <90 mmHg after 30mL/kg crystalloid IV OR Lactate >/=4

IV DRUG Y-SITE COMPATIBILITY

<table>
<thead>
<tr>
<th>Vancomycin</th>
<th>Zosyn®</th>
<th>Cefepime</th>
<th>Azactam®</th>
<th>Linezolid</th>
<th>Levaquin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compatible:</strong></td>
<td><strong>n/a</strong></td>
<td><strong>Compatible:</strong></td>
<td><strong>Compatible:</strong></td>
<td><strong>Compatible:</strong></td>
<td><strong>Compatible:</strong></td>
</tr>
<tr>
<td>Levaquin, Norepinephrine, Epinephrine, Dopamine</td>
<td>Norepinephrine Epinephrine Dopamine Vancomycin</td>
<td>Levaquin Vancomycin Norepinephrine Epinephrine Dopamine</td>
<td>Levaquin Zosyn® Dopamine</td>
<td>Vancomycin Azactam® Linezolid Epinephrine Dopamine</td>
<td></td>
</tr>
<tr>
<td><strong>Not Compatible:</strong></td>
<td><strong>Zosyn®</strong></td>
<td><strong>Not Compatible:</strong></td>
<td><strong>Not Compatible:</strong></td>
<td><strong>Not Compatible:</strong></td>
<td><strong>Not Compatible:</strong></td>
</tr>
<tr>
<td>Zosyn®</td>
<td>Levaquin Norepinephrine</td>
<td>Epinephrine Epinephrine Dopamine</td>
<td>Levaquin</td>
<td>Cefepime Norepinephrine Epinephrine Dopamine</td>
<td>Zosyn® Cefepime Norepinephrine</td>
</tr>
</tbody>
</table>

Sources: Lexicomp 9/2013

NOT A PERMANENT PART OF THE RECORD
PREVENT SEPSIS BEFORE IT OCCURS!

PREVENT CLABSIs and CAUTIs
Follow Central Line & Urinary Catheter Policies. Remove all lines and Froleys if not medically necessary.

PREVENT CDIFF
Choose appropriate antibiotic dose, duration, and stop date. Use PPIs and H2 blockers when medically indicated.

PREVENT SURGICAL SITE INFECTIONS
Follow SCIP protocol. Practice appropriate post-op incisional care.

PREVENT ASPIRATION PNEUMONIA
Maintain 30 degree elevation for feeding and oral care.

PREVENT PERITONITIS
Be aware of constipation, obstruction, and abdominal perforation.

REMEMBER:
- Wash your hands. Every time – everyone!
- Proactively manage high-risk patients.
- Educate patients about infection prevention.

Kennedy Health