HRET HIIN SEPSIS VIRTUAL EVENT: LET’S TACKLE SEPSIS FROM THE START!
READY, SET, GO!
November 29, 2016
1:00 – 2:00 p.m. CST
**AGENDA FOR TODAY**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Description</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00-1:05 p.m.</td>
<td>Welcome and Introductions</td>
<td>Open and housekeeping information, including review of relevant HRET HIIN resources, change packages and Listserv®.</td>
<td>Mallory Bender, Program Manager, HRET</td>
</tr>
<tr>
<td>1:05-1:10 p.m.</td>
<td>HIIN Data Update</td>
<td>Topic-specific data update – not limited to national percent reduction and percent reporting.</td>
<td>Mariana Lesher, Data Analyst, HRET</td>
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<tr>
<td>1:10-1:15 p.m.</td>
<td>Process Does Matter— and here’s why!</td>
<td>Patient and family stories of sepsis survival and mortality, highlighting the impact of early recognition and treatment</td>
<td>Video</td>
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<td>1:15-1:30 p.m.</td>
<td>Early Recognition and Early Treatment</td>
<td>Critical steps to implement and measure along your way.</td>
<td>Maryanne Whitney RN CNS MSN, Cynosure Improvement Advisor</td>
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<tr>
<td>1:30-1:55 p.m.</td>
<td>You Can Do It! Hospital Panel Discussion</td>
<td>Panelists from Jackson Memorial Hospital in Florida, Lafayette General Hospital in Louisiana and University of Arkansas for Medical Sciences speak on finding the data for sepsis. This is your time to ask questions and find a way to tackle sepsis in your facility.</td>
<td>Maryanne Whitney RN CNS MSN, Steve Tremain MD, Cynosure Improvement Advisors</td>
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<tr>
<td>1:55-2:00 p.m.</td>
<td>Bring it Home</td>
<td>Action items and tying together of didactic, hospital-level and improvement science information.</td>
<td>Mallory Bender, Program Manager, HRET</td>
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</table>
HIIN DATA UPDATE: Sepsis Measures
Mariana Lesher, Data Director | HRET | 1:05 – 1:10 p.m.
WHERE ARE WE NOW?

Did you know¹...

• Sepsis is the most expensive reason for hospitalization
• An average hospital stay for sepsis costs approximately double a stay for another diagnosis
• Sepsis patients stay in the hospital 75% longer than other patients

¹ [https://blogs.cdc.gov/safehealthcare/the-cost-of-sepsis/]
HOW WILL WE KNOW WE’RE MAKING PROGRESS?

• Sepsis outcome measure options
  – Post-operative sepsis (AHRQ PSI-13)
  – Hospital-Onset Sepsis Mortality Rate
  – Overall Sepsis Mortality Rate

• Details are in the Encyclopedia of Measures, available on the HIIN website, in the “data” section

Process Does Matter...and Here’s Why!

Video | 1:10 – 1:15 p.m.
VIDEO

• Faces of Sepsis
WHAT PROMOTES SEPSIS SCREENING AT YOUR HOSPITAL?

- Great tools
- Engaged nurses
- Standard process
- Education
- Physician leadership
- Other- Please chat in what “other” means
WHAT IMPEDES SEPSIS SCREENING IN YOUR HOSPITAL?

- Time
- Lack of understanding
- Everyone does it differently
- Physician engagement
- Sepsis is not a priority
- Other – Please chat in what this means at your facility
Early Recognition & Treatment Make the Difference

Maryanne Whitney, RN, CNS, MSN Improvement Advisor
Cynosure Health | 1:15 – 1:30 p.m.
• Make it deliberate
• Screen every patient in ED at triage
• Screen inpatients for sepsis every shift and at transfers
• Measure compliance with screening, provide feedback
Evaluation for Severe Sepsis Screening Tool

Instructions: Use this optional tool to screen patients for severe sepsis in the emergency department, on the medical/surgical floors, or in the ICU.

1. Is the patient’s history suggestive of a new infection?
   - Pneumonia, empyema
   - Urinary tract infection
   - Acute abdominal infection
   - Meningitis
   - Skin/soft tissue infection
   - Bone/joint infection
   - Wound infection
   - Bloodstream catheter infection
   - Endocarditis
   - Implantable device infection
   - Other Infection

2. Are any two of the following signs & symptoms of infection both present and recent to patient? No laboratory values may have been obtained for inpatients but may not be available for outpatients.
   - Hyperthermia > 38.3°C (101.0 °F)
   - Hypothermia < 36°C (96.8 °F)
   - Hypoglycemia (plasma glucose >140 mg/dL or < 77 mmol/L in the absence of diabetes)
   - Tachypnea > 20
   - Leukopenia < 4 x 10^9/L
   - Leukocytosis > 10 x 10^9/L
   - C-reactive protein < 100 mg/L

   _Yes_  _No_

   For either yes, to both questions 1 and 2, suspicion of infection is present:

   - Obtain: lactic acid, blood cultures, CBC with differential, basic chemistry labs, bilirubin.
   - At the physician’s discretion obtain: UA, chest x-ray, amylase, lipase, ABG, CRP, CT scan.

3. Are any of the following organ dysfunction criteria present at a site remote from the site of the infection that are NOT considered to be chronic conditions? Note: in the case of bilateral pulmonary infiltrates the remote site stipulation is waived.
   - SBP < 90 mmHg or MAP < 65 mmHg
   - SBP decrease > 40 mm Hg from baseline
   - Creatinine > 2.0 mg/dL (176.8 mmol/L) or urine output < 0.5 ml/kg/hour for 2 hours
   - Bilirubin > 2 mg/dL (34.2 mmol/L)
   - Platelet count < 100,000 µL
   - Lactate > 2 mmol/L (10.8 mg/dL)
   - Coagulopathy (INR > 1.5 or aPTT > 60 secs)
   - Acute lung injury with PaO2/FIO2 < 200 in the absence of pneumonia as infection source
   - Acute lung injury with PaO2/FIO2 < 200 in the presence of pneumonia as infection source

   _Yes_  _No_

If suspicion of infection is present AND organ dysfunction is present, the patient meets the criteria for SEVERE SEPSIS and should be entered into the severe sepsis protocol.

Date: ___/___/____ (circle: dd/mm/yy or mm/dd/yy)  Time: ____: ____ (24 hr. clock)

Version 7.2.13
POSITIVE SEPSIS SCREEN

3HR BUNDLE

(TO BE COMPLETED WITHIN 3 HOURS OF PRESENTATION)

- Measure lactate level
- Obtain blood cultures prior to administration of antibiotics
- Administer broad spectrum antibiotics
- Administer 30ml/kg crystalloid for hypotension or lactate ≥4mmol/L
REFER & COMMUNICATE

• Rural and Critical Access (CAH) to tertiary care facility
• ED to critical care
• Med-surg to critical care
IMCP Severe Sepsis/Septic Shock Bundle Handoff/Checklist - 2014

Patient Name: ________________________  ECN: ____________________  DOA: ______ / ____ / _____

--- “Time Zero” (ED admits = time of arrival. -- Floor admits = time of admission to ICU or IMC)

--- Enter Patients Height

--- Enter “Time Zero” + 3 hours for ED patients or + 1 hour for other inpatient unit arrivals

Severe Sepsis Resuscitation Bundle

Goal: to be done within a max. of 3 hours from “Time Zero” above or
for non-ED patients within 1 hour from “Time Zero” above

1. Measure serum lactate. (If ≥ 2, see #7 below)
2. Obtain blood cultures prior to antibiotic administration
3. Broad-spectrum antibiotic administration*: (see below)  Time started: __________
4. Fluid bolus of 30 mL/kg PBW of crystalloid IV over 1 hour PRN MBP < 65 and/or Lactate ≥ 4 mmol/L
(See height to fluid bolus conversion table)

Septic Shock Bundle

• If low BP responds to fluid bolus permanently, continue to monitor and mark steps 5-6 “NA”
• If persistent hypotension after fluid bolus proceed to steps 5-7
• If MBP is ≥ 65 but initial lactate is ≥ 4, mark step 5 “NA” and proceed to steps 6-7

5. Administer Vasopressors (norepinephrine is preferred if not contraindicated)
6. Place central monitoring line and measure CVP and ScvO2 or use NICOM for further fluid
resuscitation with goal of:
   Central line: CVP ≥ 8 mmHg and ScvO2 ≥ 70%
   OR NICOM: ≥ 10% increase in SVI with PLR and CI ≥ 2.5 L/minute
7. If initial serum lactate is ≥ 2 repeat lactate within 6 hours (may be done before 6 hr).

Maintenance Bundle

8. Stress-dose Steroids if on high dose or multiple vasopressors**
   (Hydrocortisone 50 mg q8 hrs or 200 mg as continuous 24 hour infusion)
   **High dose includes norepinephrine ≥ 0.3 mcg/kg/min or use of 2 or more vasopressors simultaneously
9. Mean glucose of 80-180 mg/dL by 24 hours checking glucose at least Q4 hours.
   (Exceptions for compliance will be given if initial Glucose > 400 mg)
10. If mechanical ventilated, target Vt at 6 mL/kg PBW (range 4-7 mL/kg PBW)

ENTER INTO EACH BLANK WHITE BOX ABOVE: “Y” = compliant, “N” = not compliant, or “NA” = not applicable

* Antibiotic Suggestions: (Use of antibiotic suggestions is not required to meet compliance criteria)
   CAP: Ceftiraxone + azithromycin (preferred) or levofloxacin alone.
   HCAP: Zosyn (high dose) = levofloxacin + Vancomycin if MRSA risk
         Unospsis: Ceftiraxone or If Pseudomonas suspected Zosyn or Ceftazime
         Surg. Site: Cefazolin or Vancomycin In MRSA suspected
         Intra-abdominal: Levofloxacin + Flaxyl or Zosyn or Ceftiraxone + Flaxyl

This Form Is Not a Part of the Permanent Medical Record 7/28/2016
Transferring Facility Sepsis Screening Tool

**SIRS:** Evaluate patient for Systemic Inflammatory Response Syndrome (SIRS)

If the patient meets two or more of the four criteria listed below during their ED or hospital stay, the patient is positive for SIRS.

1. Temperature greater than or equal to 100.4 F or less than or equal to 96.8 F
2. Heart rate greater than or equal to 90 beats/minute
3. Respiratory rate greater than or equal to 20 breaths/minute
4. WBC greater than or equal to 12,000 or less than or equal to 4,000

**Infection:** Does the patient have ANY of the following documented or suspected Infections, High Risk Criteria or Symptoms / Exam?

- **Infections:**
  - Pneumonia
  - UTI
  - Wound infection
  - Cellulitis
  - Decubitus ulcers

- **High Risk Criteria:**
  - Nsg. Home / LTAC
  - Recent surgery
  - Immunocompromised
  - Indwelling device
  - Currently on antibiotics

- **Symptoms / Exam:**
  - Cough
  - Shortness of breath
  - Purulent wound drainage
  - Urinary pain/frequency
  - Abdominal pain, distension or firmness
  - Stiff neck

If the answer is yes to one of the infection questions above and is positive for SIRS, then the patient is positive for sepsis.

**PROCEED TO NEXT PAGE FOR SEPSIS TREATMENT GUIDELINES.**
Transferring Facility Sepsis Treatment Bundle

Recommended Interventions for Septic Patients prior to Transfer

1. Give recommended 30ml/kg crystalloid fluid bolus for suspected hypovolemia and/or tissue hypo-perfusion (especially for lactate>4 SBP<90 or MAP<65).

2. Draw blood cultures and cultures of other areas of suspected infection.
   (Do not delay antibiotics greater than 30 minutes if unable to draw cultures).

3. Draw a lactate or lactic acid level.

4. Administer a broad spectrum antibiotic (Give antibiotic prior to transport and recommended within an hour after arrival to ED).

Undifferentiated Sepsis: Antibiotic Recommendation

First Line:

- Zosyn 4.5 grams IV once over 30 minutes, plus Vancomycin 20 mg/kg (rounded to the nearest 250mg, max 2000 mg) once given at a rate of 1000 mg/hr.

Allergic Alternative (mild-moderate penicillin allergy):

- Cefepime 1 gram once given as IV push over 3-5 minutes, plus Vancomycin 20 mg/kg (rounded to the nearest 250 mg. max 2000 mg) once given at a rate of 1000 mg/hr.

Allergic Alternative (severe penicillin allergy):

- Aztreonam 1 gram IV once as IV push over 3-5 minutes, plus Levofloxacin 750 mg once over 90 minutes, plus Vancomycin 20 mg/kg (rounded to the nearest 250 mg. max 2000 mg) once given at a rate of 1000 mg/hr.

We are committed to decreasing mortality in our septic patients. Please contact accepting provider at 316-962-3030 with any questions.
YOU CAN DO IT! Hospital Panel Discussion

Hospital Speakers | 1:30 – 1:55 p.m.
HOSPITAL PANELIST

Richard Silverman, MD
Jackson Memorial Hospital
Miami, Florida
ABOUT US

• Jackson Memorial Hospital
• 1500 Beds, Level 1
TESTS OF CHANGE AND WHAT WE LEARNED

- Evaluate every patient on continuing basis
- Engage every resident with the story of sepsis
- Engage all nurses, including charge nurses, in sepsis care and prevention
- Cross-notification with Cerner, nursing and rapid response
BARRIERS AND HOW WE RESOLVED

• Getting the house staff to recognize their key role; achieved with education and reminders
• Getting the right people notified through EMR; took many meetings of rules and diagraming out pathways
• Getting rapid response actively involved. We needed to simply budget for additional help
• Abstraction; increasing staff and training
HOSPITAL PANELIST

Rachel S. Brunt, RN, BSN, MBA-HCA, CIC, CPHQ
Director of Quality
Lafayette General Medical Center, Louisiana
ABOUT US

• Lafayette General Medical Center
  – 2 campus facility within Lafayette General Health
  – 497 beds – 32 Adult ICU and 8 CVICU
TESTS OF CHANGE AND WHAT WE LEARNED

• St. Johns Sepsis Alert (Cerner)
  – Sepsis Response Nurse – ICU RN
  – Sepsis Power Plan
  – Sepsis “Mini” Power Plan

• HAC Concurrent Chart Review
  – Reviews by HIM, CMO and Quality department

• Colon SSI Taskforce
UAMS is the state’s only comprehensive academic health center

Hospital Capacity – 450 Beds

Level I Trauma Center with multiple sub-specialties

UAMS is an Integrated Clinical Enterprise made up of 15 Service Lines

Telemedicine outreach across the entire state
TESTS OF CHANGE AND WHAT WE LEARNED

• Interventions
  • Preoperative Interventions
    – Patient education including smoking cessation preoperatively
    – Chlorhexidine bath before surgery
    – ERAS protocol
    – Hair clipping instead of shaving surgical site
  • Intraoperative Interventions
    – Hand hygiene
    – Timely and appropriate antibiotics prophylaxis
    – Surgical scrubs policy
    – Aseptic techniques for CVL and Foley catheter insertion
    – ERAS Protocol
TESTS OF CHANGE AND WHAT WE LEARNED

• Postoperative Interventions
  – Multimodal pain therapy
  – Early mobility, PT/OT
  – Limited postoperative blood transfusion
    • Acceptance of lower hemoglobin (7/21)
  – Maintenance of euvoolemia (goal directed fluid management)
  – EPIC driven discontinuation of antibiotics prophylaxis
  – Nurse and EPIC driven Foley catheter discontinuation
  – Care of CVL and Foley catheters
  – Curos caps for all IV access points
  – RRT and early transfer of patients to ICU with signs of deterioration
  – Early nutrition as part of ERAS protocol
BARRIERS AND HOW WE RESOLVED

• What surprised you or came up during the implementation and how did you handle it?
  – Patient education
    • Smoking cessation
    • Glycemic control
    • Preoperative NPO guidelines
  – Hand hygiene
  – Preoperative NPO status
  – Intraoperative blood transfusion
  – Restriction of Intraoperative fluid administration
  – Acute pain control and use of multimodal pain therapy order-sets
    • Education of residents, NP’s and faculty regarding pain management
IT’S YOUR TURN!

Call in with questions/comments for our panelists!
UPCOMING EVENTS

• Quality Improvement Fellowship Informational Session, November 30, 11:00 am - 11:30 a.m. CT
  Register here!

• Falls Virtual Event, December 01, 12:00 - 12:50 p.m. CT
  Register here!

• CAUTI Virtual Event, December 06, 11:00 - 11:50 a.m. CT
  Register here!
THANK YOU!

Find more information on our website: http://www.hret-hiin.org/

Questions/Comments: HIIN@aha.org