Chasing Zero Infections
Webinar: Reducing Sepsis
September 15, 2017
Welcome & HIIN Update
- Sally Forsberg, RNC-OB, BSN, MBA, NEA-BC, CPHQ, Clinical Performance Improvement Advisor, FHA

Reducing Sepsis Presentation: “Sepsis Overview: First Do No Harm, Prevention Strategies”
- Linda R. Greene, RN, MPS, CIC, FAPIC, Manager of Infection Prevention, UR Highland Hospital, Rochester, NY

Next Chasing Zero Infections Webinar & Meeting
Evaluation & Continuing Nursing Education
HIIN Core Topics – Aim is 20% reduction

- Adverse Drug Events (ADE)
- Catheter-associated Urinary Tract Infections (CAUTI)
- Clostridium Difficile Infection (CDI)
- Central line-associated Blood Stream Infections (CLABSI)
- Injuries from Falls and Immobility
- Pressure Ulcers (PrU)
- Sepsis
- Surgical Site Infections (SSI)
- Venous Thromboembolisms (VTE)
- Ventilator Associated Events (VAE)
- Readmissions (12% reduction)
- Worker Safety
How are we doing with reducing Sepsis?
Hospital-Onset Sepsis Mortality Rate

**FL Rate**

<table>
<thead>
<tr>
<th>Month</th>
<th>10/16</th>
<th>11/16</th>
<th>12/16</th>
<th>01/17</th>
<th>02/17</th>
<th>03/17</th>
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<td>265.7</td>
<td>252.5</td>
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<td>240.4</td>
<td>282.6</td>
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**HRET HIIN Rate**

<table>
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<td>201.8</td>
<td>213.3</td>
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<td>236.1</td>
<td>256.4</td>
<td>249.1</td>
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**# FL Reporting**

<table>
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**# HRET HIIN Reporting**

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<th>01/17</th>
<th>02/17</th>
<th>03/17</th>
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<td>1,115</td>
<td>1,108</td>
<td>994</td>
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Source: Comprehensive Data System, September 5, 2017
Overall Sepsis Mortality

<table>
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<tr>
<th></th>
<th>BL</th>
<th>10/16</th>
<th>11/16</th>
<th>12/16</th>
<th>01/17</th>
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<th>03/17</th>
<th>04/17</th>
<th>05/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL Rate</td>
<td>150.0</td>
<td>146.5</td>
<td>144.4</td>
<td>134.9</td>
<td>153.3</td>
<td>133.7</td>
<td>141.5</td>
<td>152.6</td>
<td>124.6</td>
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<tr>
<td>HRET HIIN Rate</td>
<td>129.0</td>
<td>116.8</td>
<td>119.3</td>
<td>120.7</td>
<td>128.5</td>
<td>120.1</td>
<td>123.7</td>
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<td>1,220</td>
<td>1,218</td>
<td>1,105</td>
<td>951</td>
<td>897</td>
</tr>
</tbody>
</table>

Source: Comprehensive Data System, September 5, 2017
Sepsis Post-op Rate

Source: Comprehensive Data System, September 5, 2017
MTC HIIN Resources

- Change Packages & Top 10 Checklists – 2017 Updates
- Listservs- Infection Focused & *Sepsis Listserv*
- TeamSTEPPS training
- Chasing Zero Infections Series: Webinars and In-person Meetings
- Up Campaign- Soap Up (Hand Hygiene)
- Hospital Consultation with Experts
- QI Fellowships & PFE Fellowship

Check the weekly email: MTC HIIN Upcoming Events and [www.HRET-HIIN.org](http://www.HRET-HIIN.org) for additional resources
LISTSERV® Collaboration

- Subscriber-based email group
- Each email group covers a different topic or group of topics
- Monitored by national experts
- Ideal for:
  - Peer-shared learnings
  - Asking questions about barriers
  - Sharing data-collection opportunities
  - Clarifications about measures or inclusion/exclusion criteria
Sepsis

Importance: Sepsis is diagnosed in over one million patients each year in the United States (Hall et al., 2011). Furthermore, septicemia treatment resulted in an estimated $20.3 billion or 5.2 percent of the total cost for all hospitalizations and was the most expensive condition treated in the year 2011 (Hall et al., 2011). Not only is sepsis expensive and prevalent, patients diagnosed with sepsis are estimated to have a mortality rate of 28 to 50 percent (Angus, 2001). Learn more from Carl Flatley who founded the Sepsis Alliance after the death of his daughter, Erin.

The risk of mortality and urgency when treating all stages of sepsis, from sepsis to septic shock, drove the development of the three and six hour bundles, which are approved by the National Quality Forum as the first scientifically sound, valid and reliable elements for the care of the septic patient (Dellinger, 2013). These bundles prompt the completion of the indicated tasks within the first three to six hours after the identification of septic symptoms - 109 percent of the time.

PfP Goal: By September 27, 2018, a 20 percent reduction in Sepsis.
Sepsis resources available at www.HRET-HIIN.org:

- Change Package
- Top 10 Checklist
- Watch Past Webinars
- Listen to Sepsis podcast
- Additional Resources
UP Campaign: Hand Hygiene

CDI
CAUTI
SSI
VAE
CLABSI
Sepsis

SOAP - UP
<table>
<thead>
<tr>
<th>S</th>
<th>Scrub: for 20 seconds with the right product. Remember soap for <em>C. diff</em>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>Own: your role in preventing HAIs.</td>
</tr>
<tr>
<td>A</td>
<td>Address: immediately intervene if breach is observed.</td>
</tr>
<tr>
<td>P</td>
<td>Place: hand hygiene products in strategic locations.</td>
</tr>
<tr>
<td></td>
<td><strong>-</strong></td>
</tr>
<tr>
<td>U</td>
<td>Update: hand hygiene products and policies as needed to promote adherence.</td>
</tr>
<tr>
<td>P</td>
<td>Protect: patient and families, get them involved.</td>
</tr>
<tr>
<td>Didactic Webinars</td>
<td>Interactive Coaching Calls</td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------------</td>
</tr>
<tr>
<td>Feb. 14 – MRSA</td>
<td>Mar. 21 – CAUTI</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Apr. 11 – SSI</td>
<td>Aug. 8 – C. difficile</td>
</tr>
<tr>
<td>June 6 – CLABSI</td>
<td></td>
</tr>
<tr>
<td><strong>Sept. 12 – Sepsis</strong></td>
<td></td>
</tr>
<tr>
<td>Oct. 24 – Soap Up (Hand Hygiene)</td>
<td></td>
</tr>
</tbody>
</table>

Check your **MTC HIIN Upcoming Events** Weekly Email for details and registration
To request an archived webinar, email [HIIN@fha.org](mailto:HIIN@fha.org)
Given the hurricane recovery efforts across the state, the following FHA in-person meetings are POSTPONED:

- **Sept. 18** – Readmissions Stakeholder Summit
- **Sept. 19-20** – We Have Your Back Annual Worker Safety Educational Conf.
- **Sept. 26** – TCAB Cohort 2 Nursing Unit Launch Meeting
- **Sept. 27** – TCAB Cohort 1 Mid-point Meeting
- **Sept. 28** – Sepsis Workshop: A TeamSTEPPS Approach

**New Dates Coming Soon!**
We are working to reschedule these meeting later this year; Check your *MTC HIIN Upcoming Events* Weekly Email for details and registration.
Upcoming Meetings & Virtual Events

**Virtual Events:**
- **Sept. 19** – HRET HIIN Diagnostic Stewardship Virtual Event
- **Sept. 21** – FL Dept of Elder Affairs: How to Prevent Falls for Older Adults & Caregivers
- **Sept. 21** – HRET HIIN SOAP Up Virtual Event (Hand Hygiene)
- **Sept. 28** – FHA HIIN TeamSTEPPS Pre-Meeting Introductory Webinar

**In-Person Meetings:**
- **Nov. 7-8** – TeamSTEPPS Master Trainer Course | Indian River Recreation Center, Vero Beach, FL (Sept. 28 Pre-meeting webinar)
- **Nov. 16** – Chasing Zero Infections: Connecting the Dots to Reduce Patient Harm- Hot Topics in Infection Prevention | Signature Grand, Davie, FL

Check your *MTC HIIN Upcoming Events* Weekly Email for details and registration
Sepsis Overview: First Do No Harm
Prevention Strategies

Linda R. Greene, RN,MPS,CIC, FAPIC
Manager of Infection Prevention
Highland Hospital Rochester, NY
University of Rochester Medical Center
linda_greene@urmc.rochester.edu
Objectives

• Define Sepsis

• Identify causes of sepsis

• Discuss the role of nurses and Infection Preventionists in prevention of sepsis
Sepsis

Taking a different approach

Upside down approach

- Much work on recognition
- Let’s look at risk factors and prevention
- What can we do to prevent sepsis?
What is your background?

1. Infection Prevention
2. Quality/ Patient Safety
3. Staff nurse
4. Nurse manager
5. Other
Background

Sepsis is likely to be the leading cause of death worldwide.

18 million people die of sepsis worldwide every year.

Sepsis is the leading cause of childhood deaths.
“Sepsis” is a widely used term that can be interpreted in many different ways.

Sepsis typically begins with the **systemic inflammatory response syndrome (SIRS)**—body’s response to an insult that activates the immune system.

Can be triggered by both infectious and non-infectious complications.
Our focus today

**Overlapse**

**Patient Safety**

“Absence of bad things, things that are under your control, happening to patients.”

**Quality**

“Presence of the right things happening to patients... evidence-based care in the right quantity at the right time.”

- Antimicrobial Stewardship
- Infection Prevention
- Sepsis Bundle
SIRS

Diagnosed when a patient has 2 or more of the following signs and symptoms:

- Body temperature less than 96.8°F (36°C) or above 100.4°F (38°C)
- Heart rate greater than 90 beats per minute
- Hyperventilation (respiratory rate greater than 20 breaths per minute)
- PaCO₂ less than 32 mm Hg (normal 35 to 45 mm Hg)
- White blood cell count greater than 12,000/mm or less than 4,000/mm (normal 5,000 to 10,000/mm)

Sepsis: A Complex Disease

- This Venn diagram provides a conceptual framework to view the relationships between various components of sepsis.
- The inflammatory changes of sepsis are tightly linked to disturbed hemostasis.

Severe Sepsis

Symptoms may include:

- Altered mental status
- Acute oliguria (urine output less than 0.5 mL/kg/h)
- Hyperglycemia in the absence of diabetes
- Hypoxemia
- Coagulopathy (international normalizing ratio (INR) greater than 1.5)
- Gastric ileus
Septic Shock

- Sepsis with hypotension (SBP < 90 mm Hg or a reduction of > 40 mm Hg from baseline) despite adequate fluid resuscitation

- With perfusion abnormalities:
  - Lactic acidosis
  - Oliguria (low urine output)
  - Altered mental status
    - CCM 20:864-874, 1992
Why is the diagnosis so hard to make?

- No single criteria makes the diagnosis (Unlike New ST Elevation on ECG, or New Onset Focal Neurologic Exam)
- Changing Patient Status During Presentation
- Diagnosis Not Black and White but Grey
- Patient May Look Good and Yet Crash Two Hours Later
- Many Physicians Like an Observation Period Before Reacting and Loose the Critical Window of Opportunity

**HUMAN FACTORS**
- Slips, Mistakes
If it looks like a duck, sounds like a duck, and walks like a duck, it's not a horse.

If it feels wrong, it probably is.
New Definition

- Sepsis is a syndrome without a standard diagnostic test
- Sepsis/Septic shock: No process to operationalize the definition
- 2 or more SIRS criteria reflect poorly as discriminants of sepsis
- SEQUENTIAL ORGAN FAILURE ASSESSMENT (SOFA) (qSOFA)
The qSOFA score (also known as quickSOFA) is a bedside prompt that may identify patients with suspected infection who are at greater risk for a poor outcome outside the intensive care unit (ICU). It uses three criteria, assigning one point for low blood pressure (SBP ≤ 100 mmHg), high respiratory rate (≥ 22 breaths per min), or altered mentation (Glasgow coma scale < 15).
Sequential Organ Failure Assessment Score

Table 1. Sequential (Sepsis-Related) Organ Failure Assessment Score

<table>
<thead>
<tr>
<th>System</th>
<th>Score</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td>Respiration</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \text{Paco}_2/\text{FiO}_2 ) (mm Hg)</td>
<td>≥400 (53.3)</td>
<td>&lt;400 (53.3)</td>
<td>&lt;300 (40)</td>
<td>&lt;200 (26.7) with respiratory support</td>
<td>&lt;100 (13.3) with respiratory support</td>
<td></td>
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<tr>
<td>Coagulation</td>
<td></td>
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<tr>
<td>Platelets, ( \times 10^9/\mu L )</td>
<td>≥150</td>
<td>&lt;150</td>
<td>&lt;100</td>
<td>&lt;50</td>
<td>&lt;20</td>
<td></td>
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<tr>
<td>Liver</td>
<td></td>
<td></td>
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<tr>
<td>( \text{Bilirubin, mg/dL (\mu mol/L)} )</td>
<td>&lt;1.2 (20)</td>
<td>1.2-1.9 (20-32)</td>
<td>2.0-5.9 (33-101)</td>
<td>6.0-11.9 (102-204)</td>
<td>&gt;12.0 (204)</td>
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<tr>
<td>Cardiovascular</td>
<td></td>
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<tr>
<td>MAP ≥70 mm Hg</td>
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<tr>
<td>Dopamine &lt;5 or dobutamine (any dose)</td>
<td>Dopamine 5.1-15 or epinephrine ≤0.1 or norepinephrine ≤0.1</td>
<td>Dopamine &gt;15 or epinephrine &gt;0.1 or norepinephrine &gt;0.1</td>
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<tr>
<td>Central nervous system</td>
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<tr>
<td>Glasgow Coma Scale score</td>
<td>15</td>
<td>13-14</td>
<td>10-12</td>
<td>6-9</td>
<td>&lt;6</td>
<td></td>
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<tr>
<td>Renal</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>( \text{Creatinine, mg/dL (\mu mol/L)} )</td>
<td>&lt;1.2 (110)</td>
<td>1.2-1.9 (110-170)</td>
<td>2.0-3.4 (171-299)</td>
<td>3.5-4.9 (300-440)</td>
<td>&gt;5.0 (440)</td>
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<tr>
<td>Urine output, ml/d</td>
<td></td>
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<tr>
<td></td>
<td>&lt;500</td>
<td>&gt;200</td>
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</table>

Abbreviations: \( \text{FiO}_2 \), fraction of inspired oxygen; \( \text{MAP} \), mean arterial pressure; \( \text{Paco}_2 \), partial pressure of oxygen.

- **ORGAN DYSFUNCTION:**
  - SOFA SCORE OF >2 : 10% MORTALITY
  - **LAY TERMS:**
    - Sepsis is a life threatening condition that arises when the body’s response to infection injures its own tissues.
    - Indicators of prolonged ICU stay or death:
      - Alteration in mental status
      - SBP <100
      - RR >22
CDC Report Calls for Sepsis Education, Prevention

August 30, 2016 07:25 pm News Staff – For about eight in 10 patients, sepsis begins outside the hospital. And, according to a CDC Vital Signs report released Aug. 26, about seven in 10 patients with sepsis had used health care services within the previous month or had a chronic disease that required frequent medical care.

Consequently, said CDC officials, health care visits present important opportunities for physicians to prevent, recognize and treat sepsis before it causes life-threatening illness or death.

An accompanying Morbidity and Mortality Weekly Report related findings from a retrospective review of medical records for 246 adults and 79 children (ages birth to 17 years) whose discharge information included diagnosis codes for severe sepsis or septic shock. The records were obtained from four general, acute-care hospitals in New York. Patients were eligible for inclusion if they had a hospital admission from Oct. 1, 2012, to Sept. 30, 2013, or from Oct. 1, 2014, to Sept. 30, 2015.
CDC Vital Signs Report

• Begins outside the hospital for nearly 80% of patients

• 7 out of 10 patients had recent healthcare exposure or frequent diseases needing healthcare intervention

• Prime opportunity for education

Education

Educate your patients and their families about:

- Preventing infections
- Keeping scrapes and wounds clean
- Managing chronic conditions
- Recognizing early signs of worsening infection and sepsis and seeking immediate care if signs are present

https://www.cdc.gov/sepsis/get-ahead-of-sepsis/hcp-resources.html
Prevention Strategies

- Prioritize Infection control and prevention
- Recognize early
- Appropriate antibiotic use
- Promote vaccination
- Promote smoking cessation
Sepsis on Arrival

For patients who arrive at the hospital with sepsis, recent healthcare exposure is identified in over 60% of the cases.

1. True
2. False
Rates of Readmission

- Rates of readmission for sepsis and renal failure were higher and accounted for a greater proportion of the total readmissions after severe sepsis.

- Readmissions for a primary diagnosis of infection (sepsis, pneumonia, urinary tract, and skin or soft tissue infection) occurred in 11.9% (95% CI, 10.6%-13.1%) of severe sepsis survivors compared with 8.0% (95% CI, 7.0%-9.1%) of matched acute medical conditions ($P < .001$).
Infection Prevention

- Preventing HAIs
- Patient and family education
- Helping to identify source of infection (micro reports, etc.)
- Culturing Stewardship
- Reporting and communicating culture results to facilitate de-escalation of therapy
PROTECT YOUR PATIENTS FROM SEPSIS.

Infections put your patients at risk for sepsis. Be alert to the signs and, if suspected, act fast.

Sepsis is the body’s extreme response to an infection. It is life-threatening, and without prompt treatment, often rapidly leads to tissue damage, organ failure, and death.

**SEPSIS STATS**

- More than 1.5 MILLION people get sepsis each year in the U.S.
- At least 250,000 Americans die from sepsis each year.
- About 1 IN 3 PATIENTS who die in a hospital have sepsis.

**WHAT CAUSES SEPSIS?**

The most frequently identified pathogens that cause infections that can develop into sepsis include *Staphylococcus aureus* (staph), *Escherichia coli* (E. coli), and some types of *Streptococcus* (strep).

Four types of infections that are often linked with sepsis:

- Lungs (e.g., pneumonia)
- Urinary tract (e.g., bladder)
- Skin
- Gut

Anyone can get an infection, and almost any infection can lead to sepsis. Certain patients are at increased risk for developing sepsis:

- **65+** Adults 65 or older
- People with chronic medical conditions, such as diabetes, lung disease, cancer, and kidney disease
- People with weakened immune systems
- Children younger than one

**WHO IS AT RISK?**

[Link to CDC Sepsis Resources](https://www.cdc.gov/sepsis/get-ahead-of-sepsis/hcp-resources.html)
Post- Operative Sepsis

- Incidence of postoperative sepsis is high (than 1% for elective surgery and than 4% for non-elective)

- Co-morbid conditions are associated with development:
  - Pulmonary disease
  - Smoking
  - Immunosuppression before surgery (single dose of steroids)
  - Hyperglycemia

Fried et.al current Opinion in Critical Care 2011,17:
Causes of Post-op Sepsis

Risk-adjusted rates of postoperative sepsis for groups of major surgical procedures (error bar, 95% CI).


https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2951484/
Frequency, Hospital length of stay, and Cost Adjusted to 2006 for various surgical procedures with and without postoperative sepsis.

<table>
<thead>
<tr>
<th>Surgical procedures</th>
<th>Frequency</th>
<th>LOS, days (median)</th>
<th>Cost, SS (median)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>w/o sepsis</td>
<td>with sepsis</td>
</tr>
<tr>
<td>Cardiac surgery</td>
<td>653,481</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Colorectal surgery</td>
<td>534,151</td>
<td>6</td>
<td>18</td>
</tr>
<tr>
<td>Vascular surgery</td>
<td>259,728</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Thoracic surgery</td>
<td>182,394</td>
<td>6</td>
<td>18</td>
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<tr>
<td>Gastric surgery</td>
<td>151,543</td>
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<td>Hernia surgery</td>
<td>94,562</td>
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<td>14</td>
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<tr>
<td>Gallbladder surgery</td>
<td>64,918</td>
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<td>14</td>
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<tr>
<td>Small bowel surgery</td>
<td>50,239</td>
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<td>19</td>
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<tr>
<td>Pancreatic surgery</td>
<td>35,955</td>
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<td>24</td>
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<td>Breast surgery</td>
<td>33,639</td>
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<td>6</td>
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<td>28,584</td>
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<tr>
<td>Esophageal surgery</td>
<td>16,117</td>
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<td>27</td>
</tr>
<tr>
<td>Thyroidectomy</td>
<td>13,265</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>Splenic surgery</td>
<td>13,220</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>Adrenal surgery</td>
<td>7,125</td>
<td>5</td>
<td>14</td>
</tr>
</tbody>
</table>
# Prevention

**TABLE 1. SUMMARY OF UPDATED, KEY RECOMMENDATIONS FROM THE CENTERS FOR DISEASE CONTROL AND PREVENTION GUIDELINE FOR THE PREVENTION OF SURGICAL SITE INFECTION, 2017**

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Strength of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PARENTERAL ANTIMICROBIAL PROPHYLAXIS</strong></td>
<td></td>
</tr>
<tr>
<td>Administer antimicrobials only when indicated based on published guidelines. Time administration such that bactericidal concentration is established in serum and tissues at initial incision.</td>
<td>Category IB</td>
</tr>
<tr>
<td>For caesarean sections, administer the appropriate agent prior to skin incision (versus at cord clamping).</td>
<td>Category IA</td>
</tr>
<tr>
<td><strong>NONPARENTERAL ANTIMICROBIAL PROPHYLAXIS</strong></td>
<td></td>
</tr>
<tr>
<td>Consider use of triclosan-coated sutures.</td>
<td>Category II</td>
</tr>
<tr>
<td><strong>GLYCEMIC CONTROL</strong></td>
<td></td>
</tr>
<tr>
<td>Implement perioperative glycemic control using blood glucose target levels ≤ 200 mg/dL in both diabetic and non-diabetic patients.</td>
<td>Category IA</td>
</tr>
<tr>
<td><strong>NORMOTHERMIA</strong></td>
<td></td>
</tr>
<tr>
<td>Maintain perioperative normothermia.</td>
<td>Category IA</td>
</tr>
<tr>
<td><strong>OXYGENATION</strong></td>
<td></td>
</tr>
<tr>
<td>Administer increased fraction of inspired oxygen intraoperatively and in the immediate post-operative period following extubation for all patients with normal pulmonary function undergoing general anesthesia with endotracheal intubation.</td>
<td>Category IA</td>
</tr>
<tr>
<td><strong>ANTISEPTIC PROPHYLAXIS</strong></td>
<td></td>
</tr>
<tr>
<td>Instruct patients to perform full body shower or bath the night before surgery (with either soap or an antiseptic agent).</td>
<td>Category IB</td>
</tr>
<tr>
<td>Intraoperative skin preparation should be performed with an antiseptic agent containing alcohol unless contraindicated.</td>
<td>Category 1A</td>
</tr>
<tr>
<td>Consider intraoperative irrigation of deep or subcutaneous tissues with aqueous iodophor solution.</td>
<td>Category II</td>
</tr>
</tbody>
</table>
### Table 2. Strategies Determined to Be Unnecessary in the Prevention of Surgical Site Infections

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Strength of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimicrobial prophylaxis after surgical closure (clean and clean-contaminated procedures)</td>
<td>Category IA</td>
</tr>
<tr>
<td>Topical antimicrobial agents applied to the surgical incision</td>
<td>Category IB</td>
</tr>
<tr>
<td>Autologous, platelet-rich plasma</td>
<td>Category II</td>
</tr>
<tr>
<td>Antimicrobial sealant following intraoperative skin preparation</td>
<td>Category II</td>
</tr>
<tr>
<td>Plastic adhesive drapes for antisepsis</td>
<td>Category II</td>
</tr>
<tr>
<td>Withholding transfusion of necessary blood products (question posed for patients undergoing prosthetic joint arthroplasty)</td>
<td>Category IB</td>
</tr>
</tbody>
</table>
Effectiveness of intrapartum antibiotic prophylaxis for prevention of early-onset group B streptococcal disease.

Fairlie T, Zell ER, Schrag S.

Abstract

OBJECTIVE: To estimate the effectiveness against early-onset group B streptococcal (GBS) disease of intrapartum antibiotic prophylaxis among term and preterm deliveries, deliveries with fewer than 4 hours of antibiotics, and deliveries receiving clindamycin regimens.

CONCLUSION: Beta-lactam prophylaxis given 4 or more hours before delivery is highly effective for prevention of early-onset GBS disease. Prophylaxis of shorter durations or with clindamycin is less effective, reinforcing the need for health care providers to adhere to prevention recommendations, particularly for preterm deliveries, penicillin-allergic women, and neonates exposed to fewer than 4 hours of prophylaxis.
Pneumonia

Leading cause of death due to infectious disease in the USA, sixth leading cause of death overall >65, leading cause for NH.

>900,000 CAP cases in population over 65.

Mortality rate in USA about 5%.

Estimated 33-114 HCAP per 1000 NH residents.

1st or 2nd most common infection in NH (13-48%).

Mortality rate 13-41% if NH resident.
Preventing Pneumonia

- Aspiration protocols
- Swallow screens
- Positioning
- Immunizations
- Adequate nutrition
Pneumococcal Sepsis

- Decreased immune function from disease or drugs
- Functional or anatomic asplenia
- Chronic heart, lung (including asthma), liver or renal disease
- Cigarette smoking
- Cerebrospinal fluid leak
Pneumococcal Pneumonia

Pneumococcal vaccine is primarily used to prevent pneumococcal pneumonia.

1. True
2. False
Prevention

Pneumococcal Vaccine!!
MDROs

- Septicemia with multiply resistant organisms is associated with a 2 Fold increase in mortality
- MDROs found in Blood Cultures contributed to mortality by a statistically significant difference
- Gram negative organisms had a higher mortality than gram positives

Chendrasekhar et.al Critical Care Medicine 2013;41, 12 supplement
Infectious disease experts are calling the emergence of hypervirulent, multidrug-resistant and highly transmissible strains of *Klebsiella pneumoniae* described in a recent paper by Chinese scientists an alarming and worrisome development that could be a sign of things to come.

The paper, published last week in the *Lancet Infectious Diseases*, described a ventilator-associated pneumonia outbreak among five patients in an intensive care unit (ICU) at a hospital in Hangzhou, China. The five patients, who had suffered severe trauma from car accidents and other incidents, developed pneumonia after undergoing multiple surgeries, did not respond to any antibiotic treatment, and died over the course of several weeks from severe lung infection, multi-organ failure, or septic shock.
Prevention Strategies

- Hand Hygiene
- Appropriate glove use
UTIs and Sepsis

- UTIs are frequent cause of sepsis
- Most frequently from urinary catheter
- Appropriate culturing
- Do not treat asymptomatic bacteriuria
The Story of a Simple Catheter
ICU Patient

- Catheter had been removed according to protocol
- Patient pending discharge form ICU – sudden temp spike
- Physician orders urine culture
- Patient incontinent of stool and urine
- Nurse asks for urinary catheter order
- Urine culture obtained – no growth
- Urinary catheter is left in place
Continued

- Patient leaves the ICU 3 days later with catheter in place
- Catheter is still present on the unit
- The next morning patient is hypotensive, febrile to 39 and nearly unresponsive
- Moved back into the ICU – Diagnosis sepsis
- Urine and blood grow Klebsiella
- Potentially preventable?
Connecting Back

Patient Safety

“Absence of bad things, things that are under your control, happening to patients."\(^1\)

Quality

“Presence of the right things happening to patients... evidence-based care in the right quantity at the right time."\(^1\)

*Antimicrobial Stewardship*

*Infection Prevention*

*Sepsis Bundle*
Nurse’s Role
Table 1: Antimicrobial Stewardship Functions Performed by Nurses

<table>
<thead>
<tr>
<th>Stewardship Activity or Task</th>
<th>CDC Core Stewardship Element</th>
<th>Role Responsible in Current ASP Models</th>
<th>Unrecognized Nurse Role in Stewardship Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate triage and isolation</td>
<td>Accountability Drug Expertise Education</td>
<td>Infection Preventionist</td>
<td>The nurse initially assesses the source of infection and identifies appropriate precautions. Consultation may come subsequently from the infection preventionist.</td>
</tr>
<tr>
<td>Accurate antibiotic allergy history</td>
<td>Accountability Drug Expertise Education</td>
<td>Pharmacist</td>
<td>The nurse takes the allergy history, performs medication reconciliation, and records this in the medical record.</td>
</tr>
</tbody>
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</thead>
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<tr>
<td>Early and appropriate cultures</td>
<td>Accountability Drug Expertise Tracking</td>
<td>Hospitalist/Microbiologist</td>
<td>The nurse obtains the cultures before starting antibiotics and sends the cultures to the microbiology laboratory. The nurse monitors the culture results and reports results to the physician.</td>
</tr>
<tr>
<td>Timely antibiotic initiation</td>
<td>Drug Expertise Action Tracking</td>
<td>Hospitalist Infectious Disease Specialist or Preventionist Pharmacist</td>
<td>The nurse receives the orders, reviews dose/time for accuracy, checks for allergy, and administers and records the antibiotics.</td>
</tr>
<tr>
<td>Stewardship Activity or Task</td>
<td>CDC Core Stewardship Element</td>
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<tr>
<td>-----------------------------</td>
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<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Progress reporting</td>
<td>Drug Expertise Action Tracking</td>
<td>Hospitalist Infectious Disease Specialist</td>
<td>The nurse cares for the patient 24/7, and monitors and communicates daily patient progress.</td>
</tr>
<tr>
<td>Antibiotic adjustment based on microbiology reports</td>
<td>Drug Expertise Action Tracking</td>
<td>Hospitalist Infectious Disease Specialist Microbiologist</td>
<td>Laboratory and radiology reports “chase” the patient and are typically received first by the bedside nurse. Results are coordinated by the nurse and communicated to treating physicians.</td>
</tr>
<tr>
<td>Antibiotic dosing, culture and sensitivity reporting, and de-escalation</td>
<td>Drug Expertise Action Tracking Education</td>
<td>Infectious Disease Specialist Microbiologist Pharmacist</td>
<td>The nurse updates clinical and laboratory renal function results, drug levels, and preliminary/final microbiology results.</td>
</tr>
<tr>
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</tr>
<tr>
<td>-----------------------------------</td>
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<td>-----------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Adverse events</td>
<td>Action Tracking Education</td>
<td>Hospitalist Pharmacist</td>
<td>The nurse monitors and reports to the physician and pharmacist any adverse events including diarrhea.</td>
</tr>
<tr>
<td>Antibiotic orders</td>
<td>Drug Expertise Action Tracking Education</td>
<td>Hospitalist Infectious Disease Specialist</td>
<td>The nurse reviews the patient’s clinical status and changes in medications.</td>
</tr>
<tr>
<td>Antibiotic resistance</td>
<td>Drug Expertise Action Tracking Education</td>
<td>Infectious Disease Specialist Hospitalist Microbiologist</td>
<td>The nurse reviews culture and sensitivity results, and reports bug/drug mismatches, time outs, and antibiotic de-escalation.</td>
</tr>
<tr>
<td>Superinfection / resistant infection</td>
<td>Action Tracking Education</td>
<td>Infectious Disease Specialist Infection Preventionist Microbiologist</td>
<td>The nurse monitors patient response and initiates appropriate changes in isolation precautions.</td>
</tr>
<tr>
<td>Stewardship Activity or Task</td>
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</tr>
<tr>
<td>---------------------------------------------------------------------------------------------</td>
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<td>-------------------------------------------------</td>
</tr>
<tr>
<td>Transition IV-to-PO antibiotic, outpatient antibiotic therapy</td>
<td>Drug Expertise Action Tracking Education</td>
<td>Case Management Infectious Disease Specialist Pharmacist</td>
<td>The nurse monitors clinical progress and the patient’s capacity to take oral medications.</td>
</tr>
<tr>
<td>Length of stay</td>
<td>Action Tracking Education</td>
<td>Administration Case Management Infectious Disease Specialist</td>
<td>The nurse monitors the patient’s progress 24/7.</td>
</tr>
<tr>
<td>Patient education, medication reconciliation</td>
<td>Drug Expertise Action Education</td>
<td>Hospitalist Infectious Disease Specialist Pharmacist</td>
<td>The nurse continuously educates the patient and family, and performs discharge teaching.</td>
</tr>
<tr>
<td>Outpatient visiting nurse association (VNA)/skilled nursing facility (SNF)/long-term care facility (LTCF) transition management, re-admission to hospital</td>
<td>Action Tracking Education</td>
<td>Administration Case Management Infection Preventionist</td>
<td>The nurse communicates the patient’s diagnosis, management, and medications to the nurse at the VNA/ SNF/LTCF.</td>
</tr>
</tbody>
</table>

Stewardship's main goal is to help the population being served achieve positive outcomes while carefully managing the limited resources available.
Working Collaboratively with Nursing

- IP interacts with nursing frequently
- Identify innovative opportunities
- Ideas
- Stewardship course for nurses
Faces of Sepsis
Power of Stories

"Facts bring us to knowledge, but stories lead to wisdom."

Dr. Rachel Naomi Remen
Didactic Webinar

- Topic: Soap UP: Hand Hygiene
- Date: Oct. 24, 2017
- Time: 1:00 – 2:00 p.m. ET
- Registration Link: https://cc.readytalk.com/r/igs8x5dl3p8e&eom

Don’t Forget to Register!

Nov. 16: Chasing Zero Infections Hot Topics In-person Meeting

Signature Grand in Davie, FL (Ft. Lauderdale area)
Registration Link: http://www.cvent.com/d/55qyv9/2K
Register today at:
www.FHAAnnualMeeting.com
Eligibility for Nursing CEU requires submission of an evaluation survey for each participant requesting continuing education:

https://www.surveymonkey.com/r/ChasingZero091517

- Share this link with all of your participants if viewing today’s webinar as a group *(Survey closes Sept. 25)*
- Be sure to include your contact information and Florida nursing license number
- FHA will report 1.0 credit hour to CE Broker and a certificate will be sent via e-mail *(Please allow at least 2 weeks after the survey closes)*
Contact Us

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