Sepsis Management - High Tech and Low Tech Strategies
1. Review of 2012 Program – High Tech
   - Results
     - Participant Feedback – Impact? Retention plan?

2. Low Tech Strategies to Reduce Sepsis Mortality
   - Roundtable discussion regarding sepsis protocol implementation
     - Is anyone tackling this problem?

3. Knowledge Assessment
   - Gap analysis tool
   - Group assessment

4. 2013 Sepsis Blended Learning Program
   - Dates
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QI Clinical Operations Manager

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(C) 720-289-2631

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Medical Simulation Corporation accelerates the rate of adoption of evidence-based medicine

Reduce Patient Errors – Higher Quality

Improve Patient Outcomes – Better Care

Reduce Costs – Increased Profit
2012 Sepsis Blended Learning Program
Up to two decades may pass before the findings of original research becomes part of routine clinical practice.” AHRQ ³
“Sepsis...continues to be a major challenge for hospitals nationwide. **Urgent treatment and seamless coordination of care is critical** in order to control this condition before it causes major disability or death.”

Sepsis patients at a Healthgrades 5-star hospital have a 47% lower risk of dying than those treated at a 1-star hospital.
One hundred and ninety-six (196) healthcare professionals from twenty-six (26) different hospitals participated in the HASC / Simsuite Sepsis Quality Initiative Program, over three weeks in September and October, 2012.

Clinical Roles

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HASC Simsuite Sepsis Blended Learning Program Fall 2012

Community Memorial Health

Glendale Adventist Medical Center
Final Results

Participants demonstrated a **42% increase** in knowledge from the knowledge check to the simulation post-test. Additionally, the **standard deviation decreased by 43%** across participant scores.
Participant Feedback

1. Participating Hospitals?

2. How did you use the program to your benefit?
   1. Implementing change?
   2. Tracking outcomes?
   3. Plan for retention?

3. Advice for Future Participants?
   1. Barriers to participation?
Low Tech Strategies to Reduce Sepsis Mortality
Strategies for Sepsis Mortality Reduction

- Sepsis Protocols
- Sepsis Alerts
- "Golden Hour" – How are you handling timely antibiotic administration?
- Lab testing
- Fluid resuscitation – What is guiding your therapy?
MSC Sepsis Knowledge Assessment
Quality Initiative Knowledge Assessment

Application of evidence-based guidelines has been proven to improve patient care, reduce mortality, and reduce healthcare cost.

Medical Simulation Corporation invites you to test your healthcare team’s understanding of national, evidence-based guidelines for care of patients with sepsis, heart failure, healthcare-associated infections and more.

Visit www.medsimulation.com to submit a request for a complimentary knowledge assessment.
Quality Initiative Knowledge Assessments

- Central Line Management
- Sepsis
- Stroke
- Door-to-Balloon Time
- Decompensated Heart Failure
- Venous Thromboembolism: DVT/PE
- Moderate Sedation
What is the Assessment?

Online

QI Program specific:
- Pre-course survey (demographics & confidence evaluation)
- Objective Knowledge Test (4-8 multiple-choice questions)

Assessment Topics Available (Quality Initiatives):
- Sepsis
- CLABSI
- Stroke
- Decompensated Heart Failure
- VTE
- Door to Balloon Time
- Moderate Sedation

Time to Complete: 10-15 minutes
Written summary of participant results provided to the hospital representative, including:

- Participant demographics
- Objective knowledge test score
- Breakdown of aggregate knowledge test scores by objective
- Self-confidence survey results by objective.

Example of assessment scores associated with training program.

Recommendation for training to address gaps identified by the knowledge assessment.
Knowledge Assessment: How does it work?

1. Hospital representative provides contact information and indicates clinical topic area of interest at www.medsimulation.com.

2. MSC contacts representative to confirm interest and provides web access code and instructions to be distributed to participants.

3. Hospital representative distributes web access code and instructions to participants. The assessment is available for 30 days.

4. MSC provides a written summary of results to the hospital representative.
Hospital submits knowledge assessment request (online form) (Within one week following request)

MSC provides web access & instructions for use to hospital for distribution to participants (30 days)

Participants complete knowledge assessment

MSC provides written summary of participant scores & training recommendation to hospital (Within 2 weeks after assessment completion)
No charge and no future purchase obligation.

MSC asks that >50% of the staff within a targeted department complete the knowledge assessment to provide a representative sample.

MSC asks for the opportunity to present the results summary report to the hospital representative(s) with decision making authority for Quality Improvement Programs.
'Take the Shock out of Sepsis

Strengthen nurse and physician competence and confidence in the early identification and treatment of sepsis.
<table>
<thead>
<tr>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I can differentiate between sepsis, severe sepsis, and septic shock.</td>
</tr>
<tr>
<td>2. I can interrelate the patient's presenting signs and symptoms to those</td>
</tr>
<tr>
<td>consistent with systemic inflammatory response syndrome (SIRS).</td>
</tr>
<tr>
<td>3. I can identify historical findings that are correlated with an increased risk for sepsis (index of suspicion).</td>
</tr>
<tr>
<td>4. I can recognize signs and symptoms of organ dysfunction.</td>
</tr>
<tr>
<td>5. I can name findings indicative of decreased tissue oxygenation.</td>
</tr>
<tr>
<td>6. I can apply early goal-directed initial fluid resuscitation.</td>
</tr>
<tr>
<td>recommendations according to the Surviving Sepsis Campaign (SSC) guidelines.</td>
</tr>
<tr>
<td>7. I can prioritize interventions used in the treatment of patients with severe sepsis/septic shock outlined in the Surviving Sepsis Campaign guidelines.</td>
</tr>
<tr>
<td>8. I can apply rationale for septic shock treatments.</td>
</tr>
</tbody>
</table>
Randomized, multiple choice questions

Knowledge Assessment – 1 question per objective

“The thing about multiple-choice questions is that the answer is right there on the screen. So the challenge as question-writers is to construct the question and its answer choices in such a way that the learner really has to master the objective in order to select the correct choice.”

© Medical Simulation Corporation 2012
Test banks are randomized and questions contain different degrees of difficulty:

- Remembering
- Applying
- Analyzing

Advantage of using a randomized test bank:

- Unable to memorize test
- Skimming the course does not result in a passing score
I can differentiate between sepsis, severe sepsis, and septic shock.

A nursing home resident is admitted to the hospital with a leg wound that is red, hot to touch, and oozing yellow drainage. Findings include heart rate 120, temperature 39 °C, lactate 4.8 mmol/L, and blood pressure 84/68 mmHg prior to fluid bolus. In which stage of the sepsis continuum would this patient be categorized?

A. SIRS
B. Sepsis
C. Severe sepsis
D. Septic shock
I can interrelate the patient's presenting signs and symptoms to those consistent with systemic inflammatory response syndrome (SIRS).

Of the following, the indicators most suggestive of systemic inflammatory response syndrome (SIRS) are:

A. Temperature 38.6 °C, pulse 110
B. Temperature 36.4 °C, pulse 91
C. Temperature 38.2 °C, pulse 88
D. Temperature 36.6 °C, pulse 70
I can identify historical findings that are correlated with an increased risk for sepsis (index of suspicion).

Which of the following patient presentations would lead the practitioner to suspect sepsis as a causative SIRS stimulus until proven otherwise?

A. 23-year-old female with history of diabetes, temperature 37 °C, and respiratory rate of 16

B. 72-year-old female with a recent hip surgery, temperature 38.5 °C, and pulse 95

C. 45-year-old male with a history of cancer and an indwelling central catheter, with temperature 36.1 °C and pulse 89

D. 80-year-old male with history of atrial fibrillation, temperature 37.5 °C and pulse 120
I can recognize signs and symptoms of organ dysfunction.

In severe sepsis, which of the following most likely indicates an organ at risk?

A. Lactate 2.0 mmol/L

B. ScvO2 70%

C. Increase in baseline creatinine by 200%

D. pH 7.30, PaCO2 65, PO2 88, bicarb 29
I can name findings indicative of decreased tissue oxygenation.

Which laboratory test may be used to evaluate tissue hypoperfusion and increased anaerobic metabolism?

A. Cortisol level
B. Serum lactate or wide anion gap
C. WBC differential
D. Procalcitonin
I can apply early goal-directed initial fluid resuscitation

Administering a 30 ml/kg fluid bolus of normal saline is a therapy designed to do which of the following?

A. Reduce inflammation
B. Limit hypercoagulability
C. Improve tissue oxygen delivery
D. Decrease ScvO2%
I can prioritize interventions used in the treatment of patients with severe sepsis/septic shock outlined in the Surviving Sepsis Campaign guidelines.

In the process of identifying the probable cause of sepsis, it is important to a) find and eliminate the source of infection, b) draw blood cultures, and c) consider surgery as soon as possible if the source is operable. Which of the following is also an important action to take during this stage of sepsis?

A. Hold antibiotics pending blood culture results
B. Administer broad spectrum antibiotics in less than 1 hour
C. Start prophylactic vasopressors
D. Administer bolus dose of corticosteroids
I can apply rationale for septic shock treatments.

Which vasopressor does the SSC recommend for persistent hypotension unresponsive to fluid resuscitation?

A. Norepinephrine
B. Phenylephrine
C. Vasopressin
D. Neosynephrine
Data Report Example - Demographics

Profession: ED Participants

- MD: 65%
- RN: 20%
- PA: 10%
- NP: 3%
- Other: 2%

Subjective Evaluation of Expertise: ED Participants

- Expert: 18%
- Advanced: 17%
- Experienced: 12%
- Novice: 53%

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# Knowledge Check

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
<th>Mean Score: ED</th>
<th>Mean Score: ICU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Differentiate between sepsis, severe sepsis, and septic shock.</td>
<td>60%</td>
<td>62%</td>
</tr>
<tr>
<td>2</td>
<td>Interrelate the patient’s presenting signs and symptoms to those consistent with systemic inflammatory response syndrome (SIRS).</td>
<td>78%</td>
<td>69%</td>
</tr>
<tr>
<td>3</td>
<td>Identify historical findings that are correlated with an increased risk for sepsis (index of suspicion).</td>
<td>85%</td>
<td>54%</td>
</tr>
<tr>
<td>4</td>
<td>Recognize signs and symptoms of organ dysfunction.</td>
<td>60%</td>
<td>54%</td>
</tr>
<tr>
<td>5</td>
<td>Name findings indicative of decreased tissue oxygenation.</td>
<td>90%</td>
<td>85%</td>
</tr>
<tr>
<td>6</td>
<td>Apply early goal-directed initial fluid resuscitation recommendations according to the Surviving Sepsis Campaign (SSC) guidelines.</td>
<td>88%</td>
<td>69%</td>
</tr>
<tr>
<td>7</td>
<td>Prioritize interventions used in the treatment of patients with severe sepsis/septic shock outlined in the Surviving Sepsis Campaign guidelines.</td>
<td>93%</td>
<td>92%</td>
</tr>
<tr>
<td>8</td>
<td>Apply rationale for septic shock treatments.</td>
<td>53%</td>
<td>54%</td>
</tr>
</tbody>
</table>
# Self-Confidence Survey: ED Participants

*(percentage of participants indicating agreement with each objective statement)*

<table>
<thead>
<tr>
<th>Objective</th>
<th>Description</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I can differentiate between sepsis, severe sepsis, and septic shock.</td>
<td>3%</td>
<td>5%</td>
<td>8%</td>
<td>63%</td>
<td>23%</td>
</tr>
<tr>
<td>2</td>
<td>I can interrelate the patient’s presenting signs and symptoms to those consistent with systemic inflammatory response syndrome (SIRS).</td>
<td>-</td>
<td>-</td>
<td>5%</td>
<td>73%</td>
<td>23%</td>
</tr>
<tr>
<td>3</td>
<td>I can identify historical findings that are correlated with an increased risk for sepsis (index of suspicion).</td>
<td>-</td>
<td>5%</td>
<td>5%</td>
<td>73%</td>
<td>18%</td>
</tr>
<tr>
<td>4</td>
<td>I can recognize signs and symptoms of organ dysfunction.</td>
<td>-</td>
<td>-</td>
<td>0%</td>
<td>65%</td>
<td>28%</td>
</tr>
<tr>
<td>5</td>
<td>I can name findings indicative of decreased tissue oxygenation.</td>
<td>-</td>
<td>-</td>
<td>5%</td>
<td>75%</td>
<td>20%</td>
</tr>
<tr>
<td>6</td>
<td>I can apply early goal-directed initial fluid resuscitation recommendations according to the Surviving Sepsis Campaign (SSC) guidelines.</td>
<td>-</td>
<td>3%</td>
<td>5%</td>
<td>65%</td>
<td>28%</td>
</tr>
<tr>
<td>7</td>
<td>I can prioritize interventions used in the treatment of patients with severe sepsis/septic shock outlined in the Surviving Sepsis Campaign guidelines.</td>
<td>-</td>
<td>5%</td>
<td>8%</td>
<td>65%</td>
<td>23%</td>
</tr>
<tr>
<td>8</td>
<td>I can apply rationale for septic shock treatments.</td>
<td>-</td>
<td>-</td>
<td>15%</td>
<td>65%</td>
<td>20%</td>
</tr>
</tbody>
</table>
Post Knowledge Assessment Recommendations – Match individual learning needs to course

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Format</th>
<th>Audience</th>
<th>Features</th>
<th>CE</th>
<th>Meets Pre-Simulation Requisite?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sepsis</td>
<td>Online course</td>
<td>All healthcare providers</td>
<td>Pre-test, post-test, 2 case studies,</td>
<td>3.0 CE Contact Hours</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>practice questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sepsis Comprehensive</td>
<td>Online course</td>
<td>Physicians, mid-level providers,</td>
<td>Pre-test, post-test, 1 case study, practice</td>
<td>5.0 CE Contact Hours</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Critical Care RNs</td>
<td>questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sepsis Library</td>
<td>Online library of 7</td>
<td>Module-specific (see outline</td>
<td>Each module includes pre-test, post-test,</td>
<td>1.0 or 1.5 CE Contact</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>course modules</td>
<td>below)</td>
<td>1 case study</td>
<td>Hours/Module</td>
<td></td>
</tr>
</tbody>
</table>
“MSC Quality Initiative Programs have great credibility. It’s evidence-based and state-of-the-art. Anytime you can create that kind of a scenario, you are going to come out ahead, especially when you are working in acute hospitals.”

“The programs allow an introduction to a language and an understanding that levels nurses’ ability to communicate with the physicians, and gave them specific tools around what they need to look for and assess. In terms of critical thinking, it gives them a better depth of understanding of what they need to look for.”
Knowledge Assessment Contact

Lori Jennings

Business Development Consultant

Medical Simulation Corporation

(O) 916-501-6255 or lori.jennings@medsimulation.com.
Next Steps

4 More Training Weeks in Spring 2013

2013 Dates:

April 15\textsuperscript{th}-19\textsuperscript{th} Whittier Hospital Medical Center - Whittier, CA

April 22\textsuperscript{nd}-26\textsuperscript{th} TBD

April 29\textsuperscript{th}-May 3\textsuperscript{rd} Providence Tarzana - Tarzana, CA

May 6\textsuperscript{th}-May 10\textsuperscript{th} City of Hope - Duarte, CA

If you are interested in hosting the bus or sending participants contact:

Julia Slininger VP, Quality and Patient Safety Hospital Association of Southern California \texttt{jslininger@hasc.org}