How big of a problem is sepsis?

- Sepsis is the leading cause of death in non-coronary ICU (US)\(^1\)
- Sepsis is the 10th leading cause of death overall (US)\(^2\)
- More than 750,000 cases of severe sepsis are reported in the US annually\(^3\)

How does severe sepsis compare with our current care priorities?

<table>
<thead>
<tr>
<th>Quality Projects</th>
<th>US Incidence</th>
<th>Number of Deaths</th>
<th>Mortality Rate</th>
<th>US Annual Spend</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMI(^4,5)</td>
<td>920,000</td>
<td>156,816</td>
<td>17%</td>
<td>$16.6B</td>
</tr>
<tr>
<td>Stroke(^6)</td>
<td>780,000</td>
<td>150,074</td>
<td>19%</td>
<td>$51B</td>
</tr>
<tr>
<td>Pneumonia(^6,7)</td>
<td>1,400,000</td>
<td>58,564</td>
<td>4%</td>
<td>$10B</td>
</tr>
<tr>
<td>Severe Sepsis(^3)</td>
<td>751,000</td>
<td>215,000</td>
<td>29%-38%</td>
<td>$16.7B</td>
</tr>
</tbody>
</table>

Sepsis is manageable:
Recent studies have led to a new era in the management of septic shock and sepsis patients.


Paper highlights:
- The CVP/ScvO\(_2\) component of the bundle had the greatest impact on survival, more so than any other bundle element (lactate, blood culture, antibiotics)\(^8\)

Implementation of a bundle of quality indicators for the early management of severe sepsis and septic shock is associated with decreased mortality.

Paper highlights:
Severe sepsis bundle compliance was successful, following the completion of these five indicators:
1. Initiate CVP/ScvO\(_2\) monitoring within 2 hours
2. Give antibiotics within 4 hours
3. Complete Early Goal-Directed Therapy
4. Give steroid if patient is on vasopressor or suspect adrenal insufficiency
5. Monitor lactate clearance

Further, bundle compliance increased from 0% to 51.2% in 2 years\(^9\) and in-hospital mortality was lower in patients when the bundle was completed compared to patients with whom the bundle not completed (20.8 vs 39.5%, p<.01)\(^5\)
Economic implications of an evidence-based sepsis protocol: can we improve outcomes and lower costs?

**Paper highlights:**

<table>
<thead>
<tr>
<th></th>
<th>Before Protocol Initiation</th>
<th>After Protocol Initiation</th>
<th>Change</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Total Costs</td>
<td>$21,985</td>
<td>$16,103</td>
<td>$5,882</td>
<td>0.008</td>
</tr>
<tr>
<td>Hospital LOS</td>
<td>13 days</td>
<td>8 days</td>
<td>5 days</td>
<td>0.023</td>
</tr>
<tr>
<td>Mortality</td>
<td>48.3%</td>
<td>30%</td>
<td>18.3%</td>
<td>0.40</td>
</tr>
</tbody>
</table>

- A median savings of $5,882 per patient translated into total cost difference of $573,000 between the two groups.11

Implementation of early goal-directed therapy for severe sepsis and septic shock: a decision analysis.

**Paper highlights:**

<table>
<thead>
<tr>
<th>Strategy Type</th>
<th>ED Based</th>
<th>ED/ICU Based</th>
<th>ICU Based</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>EGDT Adoption Per Patient Cost Savings</td>
<td>$8,413</td>
<td>$8,607</td>
<td>$8,978</td>
<td>$8,666</td>
</tr>
</tbody>
</table>

All three implementation strategies yielded similar, favorable cost-effectiveness estimates, suggesting that hospitals can customize EGDT implementation.11
- For a hospital treating 91 sepsis patients annually, implementing EGDT would yield average cost savings of $788,606 and 13 additional survivors.11

### Additional Sepsis Information:

**The Surviving Sepsis Campaign:** www.survivingsepsis.org/

**IHI Sepsis Webpage:** www.ihi.org/IHI/Topics/CriticalCare/Sepsis/

“The STOP Sepsis Bundle Tool Kit” Loma Linda Medical Center: www.llu.edu/llumc/emergency/patientcare/


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References