Early Sepsis Identification at the Point of Triage

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ICU Clinician
Billings Clinic

- Community-owned health care organization
- 272 bed hospital
- Magnet Designation
Purpose

• Sepsis is the 10th leading cause of death in the United States
• Patient’s admitted with septic shock have 46% mortality rate
• Mortality increases with delay in treatment
What our data showed

- Our actual mortality exceeded our expected mortality
- Something had to be done!
Goal

• Improve mortality
  – Early identification
  – Patient placement for treatment
    • Up to 3 patients per month were transferred to ICU within hours of admission to the hospital with Sepsis
Multidisciplinary Team

- ICU
- ED
- Pharmacy
- Med-Surg
- Informatics
Process

- ED triage
- Computerized cue
- Standard order sets
- Guidelines for patient placement
- Nursing and medical staff education
ED initial triage and screening
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ED Identifier
ED 2nd Screening

Sepsis Screening
- Screen Criteria for Possible Sepsis
  - Possible infection
  - Temperature > 100.4°F
  - Temperature < 96.8°F
  - Heart rate > 90

Pain
- No complaint of pain
- Pain Scale Used
- Pain Location
- Pain Intensity/Score
- Pain Interventions
- Pain Quality
- Pain History/Comments

Additional Pain
- WBC > 12,000
- WBC < 4,000
- WBC diff showing > 10% immature neutrophils

HEENT
- Eye, Right Visual Acuity
- Eye, Right w/Correction V...
- Eye, Left Visual Acuity
- Eye, Left w/Correction Vis...

Other: pelvis
Admit to ICU

- Suspected Sepsis
- Lactate >3
- Greater than 2 organ failure
Early Treatment

1. Supplemental oxygen ± endotracheal intubation and mechanical ventilation
2. Central venous oximetry catheter and continuous arterial pressure monitoring
3. Sedation, paralysis (if intubated), or both
   - CVP (Central Venous Pressure)
   - MAP (Mean Arterial Pressure)
   - ScvO₂ (Central Venous O₂ Saturation)
4. Vasoactive Agents
5. Crystalloid
6. Colloid
7. Transfusion of red cells until hematocrit ≥ 30%
8. Inotrope Agents
9. Goals Achieved
10. Hospital Admission
Med-Surg Education

- Mandatory Classes
- Sepsis Case Studies
- Failure to recognize individual case reviews
Med-Surg Involvement

Your Patient

Call me

Signs

Blood pressure

Oxygenation

Blood pressure

Oxygenation

Treatment

INFECTION → SEPSIS → SEVERE SEPSIS → MODS* → DEATH

Fluids

Vasopressors

Face mask oxygen

Mechanical ventilation

*MODS = Multiple organ dysfunction syndrome

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Patient Placement and Case Identification

Graph showing the number of FTR placements and identified cases from 1 Q 2011 to 3 Q 2012.
Latest Outcomes