Decreasing Time to Broad Spectrum Antibiotics for Septic Patients in the Emergency Department

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**Background**
- Infection
- Dysregulated host response
- Sepsis
- Severe Sepsis
- Septic Shock

**Methods**
1. Create tool to identify potentially septic patients
2. Implement electronic medical record (EMR) pharmacist alert
3. Educate physicians, nurses, and pharmacists

**Modified SIRS Criteria**
- Heart Rate > 90 bpm
- Respirations > 20 rpm
- Temperature < 36°C or > 38.3°C
- White Blood Cells < 4,000/mm³ or > 12,000/mm³

**Conclusions**
- Electronic alerts sent to the pharmacist decreased the median time to antibiotic administration for septic patients in the ED
- Electronic alerts sent to the pharmacist increased the percentage of septic patients that received antibiotics within one hour
- Electronic alerts sent to the pharmacist increased the percentage of septic patients that received antibiotics within three hours
- None of the findings were statically significant

**Future Direction**
- Evaluate alert criteria to improve positive predictive value
- Consider creation of EMR workflow to easily track care of septic patients
- Evaluate mortality benefit of implementing this intervention
- Consider creation of similar alerts for other goal-driven disease states with recommended treatment algorithms

**Limitations**
- Small sample size may have limited ability to find statistical significance
- Alert fired frequently on patients that were not determined to have severe sepsis or septic shock
- CMS criteria for determining severe sepsis and septic shock are based on the definitions prior to 2016

**Results**
- Median Time from ED admission to antibiotics
  - Pre-alert (n = 65)
  - Post-alert (n = 74)
- Wilcoxon two-sample test: p = 0.33

**Antibiotics Within One and Three Hours of Admission**
- Antibiotics (%) within 1 hour
- Fisher’s exact test: p = 0.68
- Antibiotics (%) within 3 hours
- Chi-square test: p = 0.49

**References**