**QI: Modified CPIS as a surrogate tool for antibiotic de-escalation in patients with HAP/HCAP/VAP**

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**BACKGROUND**

CPIS was originally devised to predict presence or absence of VAP, but has low sensitivity (77%) and specificity (42%) and high inter-observer variability (K=0.16). A lower respiratory tract culture needs to be collected from all patients before antibiotic therapy, but the collection of cultures should not delay the initiation of therapy in critically ill patients.

CPIS of 6 or less for 3 days, proposed by Singh and coworkers, is an objective criterion for blood gas analysis make the CPIS impractical for use outside ICU.

**STUDY AIMS**

1. Determine adherence to the IDSA guidelines for HAP/HCAP/VAP: Namely, sputum culture collection rate and antibiotic de-escalation practices at YNHH SRC
2. Determine proportion of ICU patients admitted with HAP/HCAP/VAP where the standard CPIS cannot be calculated
3. Create a modified CPIS
4. Compare correlation and inter-observer variability of the original and the modified CPIS

**METHODS**

**Phases I - Evaluation**

1. Retrospective chart review (ICU and step down unit admissions with primary diagnosis HAP/HCAP/VAP; July 1, 2011-June 30, 2012)
2. 85/200 patients met the inclusion criteria
3. Original and Modified CPIS was calculated on admission (or diagnosis) and at 72 hours
4. Antibiotic de-escalation practices were reviewed at 72 hours

**Phase II - Implementation**

1. Antimicrobial Stewardship program was created
2. Prospective chart review was conducted daily
3. Modified CPIS was calculated on Day 3
4. If the score was <6 - recommendations to de-escalate antibiotics were made

**RESULTS**

**Can I calculate the Original CPIS?**

Modified CPIS was calculated in 100% of the patients

<table>
<thead>
<tr>
<th>Initial</th>
<th>72 Hour</th>
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<tr>
<td><strong>No</strong></td>
<td><strong>Yes</strong></td>
</tr>
<tr>
<td>41%</td>
<td>59%</td>
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<tr>
<td>24%</td>
<td>76%</td>
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**Were antibiotics de-escalated timely?**

**Antibiotic De-escalation Phase I**

1st evaluator: r=0.99 (p<0.01) for initial and r=0.79 (p<0.01) for 72 hour scores
2nd evaluator: r=0.91 (p<0.01) for initial and r=0.89 (p<0.01) for 72 hour scores

**Antibiotic De-escalation Phase II**

Cronbach’s alpha (original CPIS): 0.85 for the initial and 0.92 for the 72 hour score
Cronbach’s alpha (Modified CPIS): 0.94 for both initial and 72 hour scores

**CORRELATION BETWEEN ORIGINAL AND MODIFIED CPIS**