Impact of Rapid Identification (ID) and Antimicrobial Susceptibility Testing (AST) on Antibiotic Therapy and Outcomes for Patients with Bacteremia/Candidaemia

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BACKGROUND: Infections are a leading cause of mortality and morbidity among hospitalized patients. Rapid ID and AST via AXDX was implemented to improve time to effective therapy and quicker antimicrobial de-escalation.

METHODS: AXDX was implemented in May 2018. Pre-implementation (2017-2018) vs. Post-implementation (2019-2020) analysis of patients with Gram-negative bacterial or fungal pathogens is described. Primary endpoints were time to first antibiotic intervention, time to most targeted antibiotics, and antibiotic intensity score at 96 hours. Secondary endpoints were hospital and ICU LOS, 16-hour antibiotic intensity score, and 30-day readmission.

RESULTS: 189 patients screened, 100 patients enrolled in AXDX implementation group. AXDX group had decreased time to effective therapy and quicker antimicrobial de-escalation. AXDX implementation group had decreased mortality compared to pre-implementation group. AXDX hospital LOS was significantly lower than pre-implementation group

CONCLUSION: Rapid ID/AST implementation via AXDX was associated with a statistically significant decrease in time to first antibiotic intervention, time to most targeted antibiotics, and antibiotic intensity score at 96 hours after positive blood culture. AXDX implementation group had decreased mortality compared to pre-implementation group. AXDX hospital LOS was significantly lower than pre-implementation group. AXDX implementation group had decreased mortality compared to pre-implementation group. AXDX hospital LOS was significantly lower than pre-implementation group.


table

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-Implementation</th>
<th>Post-Implementation</th>
<th>P-value</th>
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</thead>
<tbody>
<tr>
<td>Hospital and ICU LOS (IQR)</td>
<td>3 (2.5-5)</td>
<td>2 (2.0-4)</td>
<td>0.002</td>
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<tr>
<td>Antibiotic intensity score at 16 hr (IQR)</td>
<td>5 (4.75-6)</td>
<td>5 (4.5-6.5)</td>
<td>0.29</td>
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<td>30-day readmission (%)</td>
<td>25 (18.5-30)</td>
<td>10 (7-15.5)</td>
<td>0.12</td>
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REFERENCES: