

<b>Title:</b>	<b>Utilization of a DNA Hybridization-Based, Rapid Molecular Diagnostic Test for Faster Bacterial Identification and Antimicrobial Optimization in Bacteremic Patients</b>
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<b>Background:</b>	
<p>Empiric antibiotic selection is often based on gram stain results and clinical factors before identification and susceptibility results for the causative bacteria are available. In an era of increasing antibiotic resistance, it is essential to obtain this information rapidly to ensure appropriate definitive antibiotic therapy. Rapid diagnostic testing (RDT) has the potential to provide results within hours of blood culture positivity, offering a unique collaborative opportunity for antimicrobial stewardship programs (ASP). The primary objective was to evaluate the effect of RDT coupled with an ASP communication on time to identification of bacterial species, time to antimicrobial optimization and clinical outcomes in bacteremic patients.</p>	
<b>Methods:</b>	
<p>RDT was performed using the Verigene<sup>®</sup> System (Northbrook, IL) and results were reported to the Infectious Diseases pharmacist. A retrospective chart review was performed to compare management of bacteremic patients prior to implementation of the Verigene<sup>®</sup> System from June to July 2013 and after implementation from February to March 2014. Demographic and disease specific information was collected. The primary endpoints were time to bacterial identification and time to antibiotic switch. Secondary endpoints were infection-related mortality, 30-day mortality, intensive care unit length of stay and overall length of stay.</p>	
<b>Results:</b>	
<p>Eighty-one bacteremic patients were included in our analysis; 45 in the pre-RDT group and 36 in the post-RDT group. After initiation of RDT there was a statistically significant decrease in time to bacterial identification (5:49 h:min vs. 52:37 h:min, p&lt;0.001) and time to antibiotic switch (16:22 h:min vs. 73:16 h:min, p&lt;0.001) in the post-RDT and pre-RDT groups respectively. Although there was no statistically significant difference in the secondary endpoints, there was a trend toward a reduction in 30 day mortality (5.5% vs. 11.1%, p=0.19).</p>	
<b>Conclusion:</b> RDT coupled with an ASP communication resulted in faster identification of microorganisms and prompt de-escalation and escalation of antimicrobials, with potential implications for improved clinical outcomes in patients with bacteremia.	

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