

Conclusion. Verigene BC-GN, in combination with antibiotic stewardship, successfully improved time to effective antibiotic therapy among MDR GN organisms causing bacteremia.

Disclosures. All authors: No reported disclosures.

2131. Successful Implementation of BCID Across Large Healthcare System Using a Central Testing Laboratory and Multidisciplinary Pharmacy Team

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Background. Molecular testing has been shown to improve turnaround time (TAT) for identifying bloodborne pathogens. Early results can inform directed escalation or de-escalation of antimicrobial therapy. Paired with antibiotic stewardship, rapid pathogen identification has been shown to reduce antibiotic utilization and improve patient outcomes. However, many of these studies were in single site institutions. We evaluated implementation of the BioFire[®] FilmArray Blood Culture Identification System (BCID) across 3 acute care facilities utilizing a central testing laboratory at Carolinas Healthcare.

Methods. BCID testing was implemented over a 2-month period. A multidisciplinary team developed standard protocols for processing, transport and testing, with communication of results across teams of stewardship pharmacists. Standard algorithms were used across all facilities to guide antibiotic prescribing. Data were collected between January and May 2017 from three sources (BacTec, Theradoc and Cerner EMR). Positive bottles were tracked from the time of the positive bottle alert through pharmacist intervention. We evaluate rates of interventions and consistency using variance comparison tests.

Results. 708 positive blood cultures were identified at 3 acute care facilities and tested using BCID. TAT from positive bottle to BCID result was 4.6 (95% CI 4.4–4.8) hours. 86.7% (614/708) were on appropriate empiric antimicrobials at the time of the BCID result. 28.0% (198/708) required a recommendation by a pharmacist. 39.6% (78/197) had an escalation recommendation while 26.4% (52/197) had a de-escalation recommendation. There was no significant variation across shifts or sites except with de-escalation where variation was greater than 10% across sites ($P = 0.02$).

Conclusion. BCID testing was successfully implemented across a large integrated healthcare system using central testing laboratory paired with a team of stewardship and virtual care pharmacists. Our strategy provided timely and reproducible results across facilities and shifts. Implementation of BCID allowed for more pathogen directed therapy at all facilities with variability in need for escalation and de-escalation of the therapy between facilities.

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2132. Evaluation of the Clinical Impact of the Biofire Filmarray[®] Rapid Multiplex PCR Assay in Blood Culture Identification Combined with Antimicrobial Stewardship Intervention

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Background. Bloodstream infections are a major cause of morbidity and mortality worldwide, with favorable clinical outcomes associated with early optimal antibiotic selection. Rapid diagnostics have become a key part in achieving this. Biofire Filmarray[®] was introduced at our institution for rapid blood culture (BC) identification, coupled with antimicrobial stewardship (AS) interventions. We aimed to assess the impact of this test on time to adequate antimicrobial therapy in a setting with pre-existing effective AS interventions.

Methods. An observational retrospective chart review, pre and post study was performed. We reviewed adult positive BC before and after implementation of Biofire. Outcomes were: (1) time from BC result reported to health care provider to start of adequate antimicrobial therapy, (2) time to stopping antimicrobial therapy in BC thought to be contaminants, (3) time to any change in antimicrobial therapy and (4) a composite outcome of outcomes 1 and 2. A univariate Cox proportional hazards model was performed.

Results. 326 positive BC were analyzed, 173 before and 153 after Biofire implementation. At the time of healthcare provider notification, 77 were not on adequate antimicrobials, with median time to adequate therapy of 6.98 hours. (IQR 3.93–23.96) before and 6.1 hours. (IQR 1.84–20.95) after implementation, $P = 0.48$. There were 75 BC classified as contaminants and median time to stopping antimicrobials was 48.28 (IQR 18.56–89.36) vs. 45.25 hours. (IQR 15.12–100.60), $P = 0.61$. Time to any change in any antimicrobial therapy was similar with a median of 13.05 (IQR 4.00–36.77) vs.

10.90 hours. (IQR 2.97–31.10), $P = 0.87$. Analysis of the composite outcome revealed a median of 23.95 (6.29–58.50) vs. 14.82 (IQR 4.07–44.79) hours. (Hazard ratio 1.33, 95% confidence interval 0.96–1.84, $P = 0.09$).

Conclusion. Implementation of the Biofire Filmarray[®] did not have a statistically significant effect on our composite outcome of time to adequate therapy and time to discontinuation in the case of contaminants. Our findings suggests that when added to other effective AS surveillance and interventions, the magnitude of the clinical impact of rapid PCR diagnostics for BC identification is minimal.

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2133. Clinical Utility of Universal PCR and its Real-world Impact on Patient Management

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Background. Over the past decade, detection of bacterial and fungal DNA by universal polymerase chain reaction (PCR) has been increasingly used for organism identification in culture negative tissue samples. Few studies have assessed the diagnostic utility of this test in real-world clinical practice. The aim of this study was to assess the clinical performance of this test by examining available clinical information, test results and the impact on patient management.

Methods. We performed a single-center retrospective cohort study of patients who had clinical specimens sent for universal PCR from August 2013 to April 2016. Clinical data were extracted from medical records. Odds ratios were calculated and patients testing positive/negative were compared with univariate logistic regression. Sensitivity, specificity, positive predictive value and negative predictive values were calculated by comparing the test result with a gold standard composite final clinical diagnosis determined by 3 independent reviewers based on all available clinical information.

Results. 71 tissue samples were included, of which 21(29.6%) were positive. 12 bacteria, 3 mycobacteria and 7 fungi were identified. The number of leukocytes in the gram stain (odds ratio, OR 1.57, $P = 0.04$) and presence of inflammation on histopathological examination (OR 5.69, $P = 0.02$) were found to be significantly associated with a positive result. The sensitivity, specificity, positive predictive value, and negative predictive values were 56%, 95%, 91% and 70% respectively. Management was altered in 22 patients, 9 of whom had a positive and 13 had a negative result.

Conclusion. These findings suggest that the universal PCR assay has significant clinical utility, but the yield of this test can be optimized by careful patient/specimen selection. Utility was highest in patients with microscopic evidence of inflammation by gram stain or histopathological examination. Specificity was high. The use of this complex, difficult to interpret, and expensive test should be limited to infectious disease physicians incorporating all available clinical information to optimize performance.

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2134. Impact of Accelerate Pheno System on Time to Antimicrobial Stewardship Intervention in Patients with Gram-Negative Blood Stream Infections

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Background. Rapid diagnostic tests in combination with antimicrobial stewardship interventions have been shown to improve antimicrobial therapy-related outcomes in patients with blood stream infections (BSIs). The Accelerate Pheno[™] System (APS) has a potential advantage over many currently approved rapid diagnostic tests in that it can quickly provide both identification and antimicrobial susceptibility (AS) information. This study aimed to explore the impact of utilization of the APS when compared with VITEK-2 on time to simulated antimicrobial stewardship service intervention (ASTEWE-I) in patients with Gram-negative BSIs. Potential impact of availability of ASTEW-I based on time of day was also examined.

Methods. Consecutive patients with Gram-negative rod blood stream isolates were enrolled during a 3 month time frame (February-May 2017). The standard of care (SOC) laboratory protocol consisted of matrix-assisted laser desorption ionization time of flight (MALDI-TOF) for pathogen identification and VITEK-2 for AS results. Antimicrobial susceptibility reporting on the electronic health record was performed once daily in the morning. The isolates that were analyzed through SOC measures were also simultaneously tested on the APS. Time to ASTEW-I was simulated utilizing AS reporting time and availability of personnel for ASTEW-I based on time of day.

Results. 27 patients with positive blood cultures for Gram-negative rods were enrolled in the study. Mean decrease in time to simulated ASTEW-I with APS was 18