1758. Impact of Accelerate Pheno® Rapid Blood Culture Detection System on Laboratory and Clinical Outcomes in Bacteremic Patients

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**Session:** 211. Diagnostics Making a Difference

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**Background.** Molecular-based automated systems for the rapid diagnosis of bacterial infections have potential to improve patient care. The Accelerate Pheno® blood culture detection system (ACCEL) is an FDA approved platform that allows for identification (ID) and antimicrobial susceptibility testing (AST) 8 hours following growth in routine culture.

**Methods.** This is a single-center retrospective chart review of bacteremic adult inpatients before and after implementation of ACCEL. Laboratory and clinical data were collected February–March 2018 (intervention) and compared with a January–April 2017 historical cohort (standard of care). Standard of care ID and AST were performed using VITEK® MS (MALDI-TOF MS) and VITEK 2®, respectively. An active antimicrobial stewardship program was in place during both study periods. Patients with polymicrobial cultures, off-plate isolates, previous positive culture, or who were discharged prior to final AST report were excluded. Primary outcomes were clinical (LOS) and stay (LOS). Secondary outcomes were patient antibiotic duration of therapy (DOT) and time to optimal therapy (TTOT). Nonparametric unadjusted analyses were performed due to non-normal distributions. Statistics were performed using SAS 9.4.

**Results.** Of 73 blood cultures positive on ACCEL during intervention, 183 (93%) were identified as on-panel organisms. Seventy-five (64%) of these 118 cultures and 79 (70%) of 113 reviewed standard of care cultures met inclusion criteria. Patient comorbidities (P = NS), MEWS severity score (P = 0.10), source of bacteremia (P = 0.07), and pathogen detected (P = 0.30) were similar between cohorts. Time from collection to ID (28.2 ± 12.7 hours vs. 53.8 ± 20.9 hours; P < 0.001) and AST (31.9 ± 11 hours vs. 71.8 ± 20 hours; P < 0.001) were shorter in the intervention arm.

**Conclusion.** Compared with standard of care, ACCEL shortens laboratory turn-around time and improves clinical outcomes. The use of this system has resulted in decreased mean antibiotic DOT, TTOT, and LOS. Further studies are needed to verify these findings.

**Disclosures.** All authors: No reported disclosures.

1759. High Proportion of Discordant Results in Culture-Independent Diagnostic Tests (CIDTs) for Shiga Toxin, Foodborne Disease Active Surveillance Network (FoodNet), 2012-2017

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**Background.** FoodNet conducts active laboratory-based surveillance for 9 pathogens transmitted commonly through food, including Shiga toxin-producing E. coli (STEC). Adoption of CIDTs has allowed for rapid identification of Shiga toxin or Shiga toxin genes, but incorporating multiple test results with differing sensitivity and specificity complicates treatment decisions and public health surveillance. Between 2007 and 2017, FoodNet reported increases in the use of CIDTs and decreases in rates of confirmation by culture.

**Methods.** We examined STEC cases reported to FoodNet during 2012–2017 with a positive immunoassay (IA) or polymerase chain reaction (PCR) test performed at a clinical laboratory, followed by positive or negative test at a state public health laboratory. Three test type combinations were assessed (IA/IA, PCR/PCR, and IA/PCR) by state, symptoms, test discordance, and culture (cx) result.

**Results.** During 2012–2017, 8,298 (76% of all STEC reported) specimens were tested by IA or PCR at both a clinical and a public health laboratory, 58% by IA/PCR, 27% IA/IA, and 25% by PCR/PCR. Some specimens had more than one test at each laboratory. Among these, 8,132 (98%) were also tested by cx. Among the IA/PCR test results, 20% were discordant and 75% of these were cx-negative. Even more of IA/IA (27%) and PCR/PCR (24%) results were discordant, and 75% of these were cx-negative. A median of 0.30% of test results were discordant (range by state, 13%–44%). Persons with discordant test results were less likely to have diarrhea (91% vs. 97%) and bloody diarrhea (33% vs. 57%). During 2012–2017, discordant results increased for IA/PCR (14% to 22%), IA/IA (17% to 34%), and PCR/PCR (6% to 25%). Most (85%) specimens with discordant results were cx-negative and 8% did not have a cx.

**Conclusion.** Almost a quarter of results were discordant, with marked variation by state, and most of these infections could not be confirmed by culture at the public health laboratory. Discordant results can pose problems for patient management. Including or excluding patients with discordant results also affects our ability to measure trends. Sensitivity and specificity of test types, test targets, and specimen transport must be considered when interpreting test results.

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1760. Interferon Gamma Release Assay for Diagnosis of Lyme disease

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**Background.** The sensitivity of current antibody detection assays against Borrelia burgdorferi spirochetes in the early stage of disease is very low. Individuals who commonly have febrile viral illnesses, manifestations of early Lyme disease can be misdiagnosed. We previously demonstrated that IFNy secretion could be detected in whole blood collected from Lyme disease patients at first clinical presentation following overnight incubation of the blood with peptides derived from B. burgdorferi. In the present study, we further evaluated the utility of IFNy release for the laboratory diagnosis of Lyme disease in children with varying stages of the illness.

**Methods.** Children ages 2-18 years with no prior history of Lyme disease and without manifestations of Lyme disease at the time of enrollment in the study were enrolled. The clinical data were obtained with manifest report of Lyme disease in patients with non-specific febrile illness in the absence of erythema migrans.

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1761. Effect of Carbapenem-Resistant Enterobacteriaceae (CRE) Surveillance Case Definition Change on CRE Epidemiology—Selected US Sites, 2015–2016

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**Background.** CRE infections are a public health threat and surveillance of CRE is critical for controlling the spread of emerging resistance antimicrobials. The 2015 updates to the Centers for Disease Control and Prevention (CDC) CRE case definition broadened the case definition to include more cases of infections caused by CRE. The impact of these changes on CRE surveillance data was evaluated.

**Methods.** CRE surveillance data for all CRE cases from 2015 to 2016 was evaluated. The 2015 case definition was compared with the 2016 case definition, and cases were categorized as meeting the 2015 case definition, the 2016 case definition or both. The sensitivity and positive predictive value were calculated using the 2016 case definition as the gold standard.

**Results.** A total of 2,886 cases were reported under the 2016 case definition, compared with 1,676 cases reported under the 2015 case definition. The sensitivity was 62% and the positive predictive value was 90%. The 2016 case definition identified 1,210 more cases than the 2015 case definition, indicating that the 2016 case definition increased the scope of surveillance.

**Conclusion.** The updated CRE case definition improved surveillance and increased the identification of CRE cases, thus allowing for better antimicrobial stewardship practices and public health response.

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