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

Ryan Dare, MD, MS[1]; Kelsey McCain, PharmD[2]; Katherine Lusardi, PharmD, BCPS-AQ ID[2]; Kay Daniels, BS[3]; Jacob Painter, PharmD, MBA, PhD[4]; Mrinmayee Lakkad, MS[4]; Nicole Emery, BS M(ASCP)[5]; Eric Rosenbaum, MD, MPH[5] and J Ryan Bariola, MD[6], [1]Division of Infectious Diseases, University of Arkansas for Medical Sciences, Little Rock, Arkansas, [2]Hospital Pharmacy, University of Arkansas for Medical Sciences, Little Rock, Arkansas, [3]College of Pharmacy, University of Arkansas for Medical Sciences, Little Rock, Arkansas, [4]Division of Pharmaceutical Evaluation and Policy, University of Arkansas for Medical Sciences, Little Rock, Arkansas, [5]Department of Pathology, University of Arkansas for Medical Sciences, Little Rock, Arkansas and [6]Division of Infectious Diseases, University of PIttsburgh Medical Center, Pittsburgh, Pennsylvania

Session: 211. Diagnostics Making a Difference
Saturday, October 6, 2018: 10:30 AM

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-panel isolates, previous positive culture, or who were discharged prior to final AST report were excluded. Primary outcome was length of stay (LOS). Secondary outcomes were inpatient 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 the 143 positive cultures performed on ACCEL during intervention, 118 (83%) 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 = NS), 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.

Clinical Outcomes	Standard of Care (Mean ± SD) N = 79	Intervention (Mean ± SD), N = 75	P-value
LOS (days)	12.1 (11.9)	9.1 (7.6)	0.03
TTOT (hours)	73.5 (50.2)	37.5 (32.7)	<0.001
Total antibiotic DOT (days)	9.0 (7.5)	7.0 (4.6)	0.05
Meropenem DOT (days)	6.6 (3.7)	3.7 (2.1)	0.03

Conclusion. Compared with standard of care, ACCEL shortens laboratory turnaround-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 (CIDT) for Shiga Toxin, Foodborne Disease Active Surveillance Network (FoodNet), 2012–2017

Kelly A. Barrett, MPH[1], Danielle Tack, DVM, MPVM, DACVPM[2], Carlota Medus, PhD, MPH[3], Katie N. Garman, MPH, CHES[4], John Dunn, DVM, PhD[5], Sharon Hurd, MPH[6], Julie Hatch, MT[7], Karleys Parada, MPH[8], Siri Wilson, MPH[9], Elisha Wilson, MPH[10], Kathryn Wymore, MPH[11], Patricia M. Griffin, MD, FIDSA[12] and Aimee L. Geissler, PhD, MPH[13], [1]National Center for Emerging and Zoonotic Infectious Diseases, Division of Foodborne, Waterborne, and Environmental Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia, [2]Centers for Disease Control and Prevention, Atlanta, Georgia, [3]Minnesota Dept Health, St. Paul, Minnesota, [4]Tennessee Department of Health, Nashville, Tennessee, [5]Division of Communicable and Environmental Diseases and Emergency Preparedness, Tennessee Department of Health, Nashville, Tennessee, [6]CT EIP, New Haven, CT, [7]OR Dept of Human Services, Portland, Oregon, [8]Georgia Emerging Infections Program, Atlanta, Georgia, [9]Georgia Department of Public Health, Atlanta, Georgia, [10]Colorado Department of Public Health and Environmental, Denver, Colorado, [11]California Emerging Infections Program, Oakland, California, [12]Division of Foodborne, Waterborne, and Environmental Diseases, CDC, Atlanta, Georgia and [13]National Center for Emerging Zoonotic Infectious Diseases, Division of Foodborne, Waterborne, and Environmental Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia

Session: 211. Diagnostics Making a Difference
Saturday, October 6, 2018: 10:30 AM

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% by 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 24% 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.

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

1760. Interferon Gamma Release Assay for Diagnosis of Lyme disease

Yosefa Hefter, MD[1]; Christina D'Arco, BS[2]; Travis Shute, MS[2]; Raymond Dattwyler, MD[2,3]; Paul Arnaboldi, PhD[2,3] and Sheila Nolan, MD, MSCE[4], [1]Pediatrics, Westchester Medical Center, Valhalla, New York, [2]New York Medical College, Valhalla, New York and [3]Biopeptides Corporation, East Setauket, New York, [4]Pediatric Infectious Diseases, New York Medical College, Valhalla, New York

Session: 211. Diagnostics Making a Difference
Saturday, October 6, 2018: 10:30 AM

Background. The sensitivity of current antibody detection assays against *Borrelia burgdorferi* in the early stage of Lyme disease is very low. In children especially, who commonly have febrile viral illnesses, manifestations of early Lyme disease can be misdiagnosed. We previously demonstrated that IFNγ 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 IFNγ 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 with manifestations of Lyme disease at any stage were enrolled in the study. Sick and healthy controls were enrolled for comparison. We collected history and physical examination data and blood samples at the time of enrollment, at 1 month, and at 6 months. Standard 2-tier testing with ELISA (whole cell sonicate [WCS] and C6) and western blot were run in parallel to the IFNγ release assay for all blood samples. Sensitivity and specificity of the study assay were determined for presentation at all stages of Lyme disease. Clinical data were summarized.

Results. Blood samples from 22 patients with Lyme disease and 7 controls (4 sick, 3 healthy) were obtained at the first visit. The IFNγ release assay detected early and early disseminated Lyme disease with 78% sensitivity compared with 59% sensitivity of 2-tier testing in our study. For patients presenting with a single erythema migrans (EM) lesion, the IFNγ release assay detected Lyme disease with 63% sensitivity compared with 14% sensitivity with 2-tier testing. The IFNγ release assay had only 25% sensitivity for detecting late disease. A single control patient was positive for both the IFNγ release assay and 2-tier serology.

Conclusion. A novel IFNγ release assay demonstrated significantly increased sensitivity when compared with 2-tier testing in the laboratory diagnosis of Lyme disease in patients presenting with a single EM lesion. Future study is needed to determine its utility in detecting early Lyme disease in patients with nonspecific febrile illness in the absence of erythema migrans.

Disclosures. **R. Dattwyler**, Qiagen: Collaborator, Research support. **P. Arnaboldi**, Qiagen: Collaborator, research materials.

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

Nadezhda Duffy, MD, MPH[1]; Sandra N. Bulens, MPH[1]; Hannah Reses, MPH[1]; Maria S. Karlsson, PhD[1]; Uzma Ansari, MS[1]; Wendy Bamberg, MD[2]; Sarah J. Janelle, MPH, CIC[2]; Jesse T. Jacob, MD[3]; Chris Bower, MPH[4]; Lucy E. Wilson, MD[5]; Elisabeth Vaeth, MPH[6]; Ruth Lynfield, MD, FIDSA[7]; Medora Witwer, MPH[8]; Erin C. Phipps, DVM, MPH[9]; Ghinwa Dumyati, MD, FSHEA[10]; Rebecca Pierce, PhD, MS, BSN[11]; P. Maureen Cassidy, MPH[12]; Marion A. Kainer, MBBS, MPH[13]; Daniel Muleta, MD, MPH[14] and Isaac See, MD[1], [1]Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, Georgia, [2]Colorado Department of Public Health and Environment, Denver, Colorado, [3]Division of Infectious Diseases, Emory University School of Medicine, Atlanta, Georgia, [4]Georgia Emerging Infections Program, Decatur, Georgia, [5]Maryland Department of Health and Mental Hygiene, Baltimore, Maryland, [6]Infectious Disease Epidemiology and Outbreak Response Bureau, Maryland Department of Health, Baltimore, Maryland, [7]State Epidemiologist and Medical Director for Infectious Diseases, Epidemiology and Community Health, Minnesota Department of Health, St. Paul, Minnesota, [8]Minnesota Department of Health, St. Paul, Minnesota, [9]New Mexico Emerging Infections Program, University of New Mexico, Albuquerque, New Mexico, [10]NY Emerging Infections Program, Center for Community Health and Prevention, University of Rochester Medical Center, Rochester, New York, [11]Acute and Communicable Disease