2033. Evaluation of the FilmArray Meningitis/Encephalitis Molecular Panel in a Tertiary Care Public County Hospital

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Background. Rapid diagnosis and treatment of meningitis and encephalitis is critical to reduce morbidity and mortality. The Biofire FilmArray Meningitis/Encephalitis (ME) Panel is a rapid, multiplex PCR assay that targets 14 common bacterial, viral, and fungal agents of ME. To our knowledge, there are no published studies evaluating the ME Panel's impact on clinical decision-making.

Methods. Retrospective chart review was performed on 100 consecutive cases from January through April 2017 who underwent testing with the ME Panel. ME Panel results were compared with conventional testing methods. Each case was categorized as either contributory (n = 51), possibly contributory (n = 13), or noncontributory (n = 36) based upon clinicians' acknowledgement and utilization of ME Panel results. Duration of ME antimicrobial therapy (bacterial, viral, and/or fungal) was determined for each case.

Results. The average patient age was 41.1 years, with 37% of cases having either a new or established HIV diagnosis at the time of testing. The average turnaround time to reporting was 3.7 hours. The ME panel was positive in seven cases and demonstrated 100% sensitivity and 100% clinical specificity. During the study period, ME Panel detected infections with varicella-zoster virus, *Cryptococcus neoformans* in three different patients, *Listeria monocytogenes*, enterovirus, and *Streptococcus pneumoniae*. The ME panel detected *L. monocytogenes* and *S. pneumoniae* despite antibiotic therapy prior to lumbar puncture. The CSF cultures were subsequently negative but blood cultures were positive. Duration of antibacterial therapy was significantly decreased in the contributory and possibly contributory cases compared with noncontributory cases (28.38 hours vs. 76.69 hours, P = 0.04). Although not statistically significant, similar reductions were observed in duration of antiviral therapy (P = 0.4).

Conclusion. The FilmArray ME Panel demonstrated high sensitivity and specificity during the study period and was capable of detecting infections that would only have been diagnosed by blood culture. Duration of therapy was reduced in patients where the ME panel was contributory to clinical medical decision-making.

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2034. Colistin Susceptibility Testing of *Enterobacteriaceae* by Agar Dilution (AD), Broth Microdilution (BMD) and Polymyxin NP

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Background. Polymyxin resistance among *Enterobacteriaceae* is increasingly reported worldwide, with plasmid-mediated colistin resistance, conferred by *mcr-1*, recently reported. In 2017, CLSI set colistin Epidemiological Cutoff Values (ECVs) for *Enterobacteriaceae*. There are limited accurate methods for colistin susceptibility testing. The new rapid polymyxin NP (PBNP) test detects bacterial growth in the presence of colistin. We evaluated AD and BMD in comparison to PBNP using clinical isolates of *Enterobacteriaceae,* which we also tested for *mcr-1*. We additionally gathered colistin MIC data among *Enterobacteriaceae* isolates over a period of 6 years.

Methods. Colistin MICs were determined by BMD and AD for 100 clinical isolates of *Enterobacteriaceae* submitted to our laboratory from August 2016 to February 2017. *mcr-1* testing was performed via a laboratory developed real-time PCR assay on a LightCycler 480 platform. PBNP was also performed. Colistin MIC distributions, determined using AD, were reviewed for all isolates of *Enterobacteriaceae* submitted to our laboratory from 2011 to 2017 after excluding species with intrinsic resistance to colistin.

Results. With BMD as the reference method, the essential and categorical agreement of AD was 86.3 and 97.7%, respectively. The very major and major error rates for AD were 2.5% (1/40) and 2.9% (1/34), respectively. Sensitivity and specificity of PBNP were 90.7 and 94.1%, respectively. One isolate tested positive for *mcr-1* (*Escherichia coli*, MIC 4 µg/mL by AD and BMD and positive PBNP). Excluding species with intrinsic resistance to colistin, 1153/48,441 isolates (2.4%) had colistin MICs ≥ 4 µg/mL by AD. *Enterobacter cloacae* complex, *Klebsiella pneumoniae* and *E. coli* were the most common species with colistin MICs ≥ 4 µg/mL (by AD). 2.7% (31/1153) of isolates with colistin MICs ≥ 4 µg/mL (by AD) were also resistant to a carbapenem; *K. pneumoniae* was the most common species with concomitant colistin MICs ≥ 4 µg/mL by AD and carbapenem resistance.

Conclusion. A low percentage of isolates surveyed over the past 6 years demonstrated elevated MICs to colistin by AD. AD did not meet essential agreement criteria for colistin susceptibility testing. PBNP was found to have good sensitivity and specificity when compared with BMD.

Disclosures. **R. Patel**, ASM: Board Member, None CD Diagnostics, BioFire, Curetis, Merck, Hutchison Biofilm Medical Solutions, Accelerate Diagnostics, Allergan, and The Medicines Company: Grant Investigator, Grant recipient Curetis: Consultant, Monies paid to my employer A patent on Bordetella pertussis/parapertussis PCR issued, a patent on a device/method for sonication with royalties paid by Samsung to Mayo Clinic, and a patent on an anti-biofilm substance issued: Patents, Patents, any money is paid to my employer Actelion: DSMB, Money paid to my employer ASM and IDSA: Editor's stipends, Editor's stipends NBME, Up-to-Date and the Infectious Diseases Board Review Course: NBME, Up-to-Date and the Infectious Diseases Board Review Course, Honoraria

2035. Significant Reduction of Blood Culture Contamination in the Emergency Department (ED) Using the Steripath® Blood Diversion Device

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Background. Contaminated blood cultures are a particular problem in EDs and often lead to unnecessary antibiotic treatment. A potential approach to reduce contamination is to discard the initial aliquot of blood which is often contaminated with skin plugs and bacteria. To test this approach, we performed a study using the Steripath® (SP) device (Magnolia Medical Technologies, WA) a pre-assembled, sterile blood culture system designed to divert the initial 1.5–2.0 mls of blood prior to bottle inoculation.

Methods. This was a pre-post intervention study conducted in the ED at Rush University Medical Center, Chicago. During the pre-intervention phase (1 September to 30 November 2015), 2 sets of peripheral blood cultures were collected using standard aseptic technique by nurses in the ED. Skin antisepsis was performed with ChloraPrep® and 5–10 mls of blood was inoculated into BacT Alert SA and SN bottles (Biomerieux). During the intervention phase (1 February to 1 May 2016), blood cultures were collected using the SP device. All bottles were incubated for 5 days and rates of blood culture contamination were compared between control and intervention periods.

Results. Classification of blood culture contamination was based on standard CLSI criteria. During the control phase, 929 sets of blood cultures were collected in the ED. A total of 40/929 sets (4.3%) from 36 patients were identified as contaminations and 81 sets (8.7%) from 51 patients were identified as true bacteremia. The contaminants included: 29 sets (72.5%) coagulase negative *Staphylococcus spp.* (CoNS), 4 sets (10%) *Micrococcus spp.,* 3 sets (7.5%) *Corynebacterium spp.,* 2 sets (5%) alpha-hemolytic *Streptococci spp.,* 1 set (2.5%) each *Bacillus spp.* and *E. faecium*. During the intervention phase, 3/539 (0.6%) sets of blood cultures from 3 patients were contaminated (P < 0.001). The 3 contaminants were 1 CoNS, 1 alpha-hemolytic *Streptococcus spp.* and 1 *Corynebacterium spp.* 49 sets (9.1%) from 35 patients were identified as true bacteremia.

Conclusion. The use of the SP device in the ED over a 3-month period significantly reduced the rate of blood culture contamination from 4.3% to 0.6% while the rates of true bacteremia remain unchanged. The SP device represents a simple and effective method for reducing blood culture contamination

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2036. Combined Bacterial Identification and Antimicrobial Susceptibility Testing Directly from Whole Blood

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Background. Timely identification of a causative pathogen and its antimicrobial susceptibility profile is important for effective therapy. This is especially true in the case of bloodstream infections caused by the ESKAPE (*Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter cloacae*) pathogens where inappropriate antibiotic prescription often leads to higher mortality and increased selection for multi-drug resistant strains. However, current standard protocols for pathogen identification (ID) and antimicrobial susceptibility testing (AST) take days to complete and despite the advancement of molecular diagnostics, none can concurrently provide reliable ID and AST information.

Methods. We developed a method of direct ID and AST of ESKAPE pathogens using real-time PCR-HRM (high resolution melt) as the end-point analysis coupled with whole blood sample preparation. Our assay utilizes blood cell lysis, removal of background human DNA and protein, pathogen enrichment, antibiotic exposure, and broad-range PCR-HRM analysis targeting bacterial internal transcribed spacer region to determine ID and AST in less than 10 hours. We then assessed antimicrobial