June 2017 to December 2017. The automated PCR test was performed directly from respiratory specimens. The results were compared with in-house PCR for detection of carbapenemase genes performed on KP colonies isolated from respiratory specimens as our reference method. Patient and clinical characteristics between patients with CPK and non-CPK were also analyzed.

Results. The prevalence of CPK was 10.6% (18/169 isolates). The automated PCR test had 91.12% accuracy, 66.7% sensitivity (95% CI, 40.9–86.6), 94.0% specificity (95% CI, 88.9–96.1), 57.1% positive predictive value (95% CI, 39.5–73.1) and 95.9% negative predictive value (95% CI, 92.48–97.85). Of 18 isolates, 2blaKPC and 1blaNDM was the most common carbapenemase gene (9 isolates; 49.4%), followed by 2blaOXA and 2blaNDM detected in 6 isolates (33.3%). There were 7 (38.8%) colonizations and 11 (61.1%) infections. The significant risk factors for CPK included post-surgery (P = 0.04) and prior antibiotics exposure (P = 0.04). There was a trend toward higher mortality in patients with CPK albeit not significantly (33% vs. 24.5%, P = 0.41).

Conclusion. The automated PCR test has an acceptable accuracy with fair sensitivity for the detection of carbapenemase genes. It is unique that OXA-48 and OXA-48/NDM carbapenemase genes were amplified in our institute. This diagnostic test may be used for rapid diagnosis or infection control purposes. Exposure to antibiotics associated with colonization or infection with CPK. Patients with CPK had higher mortality.

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2065. Whole Genome Sequencing for Antimicrobial Resistance Prediction in MRSA and VRE: A Real-world Application

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Background. The antimicrobial resistance (AMR) crisis represents a serious threat to public health and the healthcare economy. The impact of increasing AMR has resulted in concentrated efforts to increase rapid molecular diagnostics of AMRs. In combination with publicly available web-based AMR databases, whole-genome sequencing (WGS) offers the capacity for detection of antibiotic resistance genes with low turnaround times and is becoming increasingly affordable. Here we sought to describe and investigate the accuracy of a repurposed existing technology (VITEK MS target (MBT Biotarget 96, Bruker Daltonics, Germany). Microdroplets (6 µl) containing antibiotic and 6FLuorescein isothiocyanate MBI-TOF mass spectrometry using the direct-on-target microdroplet growth assay (DOT-MGA) aiming to offer an easy and rapid phenotypic identification of AmpC, KPC, MBL and VRE production.

Methods. Seven well-characterized Enterobacteriaceae strains recommended by ECCUS were screened for carbapenem and carbapenemase inhibitors (phenylboronic acid, aminophenylboronic acid, clavulanic acid, dipicolinic acid, ethylenediaminetetraacetic acid, and avibactam) and temocillin resistance were determined using a testing panel developed on a 96-spot MALDI-TOF MS target (MBT Biotarget 96, Bruker Daltonics, Germany). Microdroplets (6 µl) containing bacterial suspension and antibiotic or antibiotic/inhibitor in cation-adjusted Mueller-Hinton broth were spotted on the target and incubated for 4 hours at 36°C in a humid chamber to avoid evaporation. The medium was subsequently removed and MALDI-TOF MS of the cells adhering to the target were performed. The minimum inhibitory concentration (MIC) was considered to be the lowest concentration at which the MALDI Biotyper software yielded no organism identification. Synergy was defined by an eightfold or greater reduction of the meropenem MIC in the presence of an inhibitor. The absence of synergy between meropenem and inhibitors as well as high-level temocillin resistance was considered suggestive of OXA production. Results were processed and interpreted using a computer-based algorithm.

Results. After 4 hours, the method was able to correctly detect the foreseen resistance mechanisms of all tested strains (KPC, MBL, OXA, and AmpC), yielding results that agreed with those obtained by performing broth microdilution with 18 hours of incubation.

Conclusion. The DOT-MGA approach allowed easy identification and differentiation of carbapenem resistance, delivering reliable results one day earlier than the usual phenotypic methods, thus displaying great potential for the clinical setting.

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2067. Novel Methodology for Same-Day Antimicrobial Susceptibility Testing on VITEK 2 for Gram-Negative Rod Bacteremia

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Background. Bloodstream infections with Gram-negative rods are potentially fatal and where tailored antimicrobial treatment. Optimizing therapy is currently limited by the 1-2 days turnaround time required for antimicrobial susceptibility testing. Novel same-day technologies have been developed but are expensive. Here, we describe and investigate the accuracy of a repurposed existing technology (VITEK 2, bioMérieux) for same-day susceptibility testing directly from positive blood cultures.

Methods. Starting in August 2017, patients with blood cultures positive for Gram-negative rods were prospectively included. In addition, aerobic and anaerobic blood culture bottles were spiked with a standardized inoculum of enteric Gram-negative rods from a repository of frozen samples. Positive blood cultures were processed using