P1732 Comparison of ceftazidime-avibactam MICs for KPC- or OXA-48-positive Klebsiella pneumoniae strains using BD Phoenix and broth microdilution

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Background: This study aimed to compare MICs determined using the BD Phoenix™ NMIC-502 panel containing ceftazidime/avibactam with those derived by broth microdilution.

Materials/methods: Fifty KPC- and 50 OXA-48-positive Klebsiella pneumoniae from 25 countries in Europe and beyond (EuSCAPE collection) were studied, including carbapenem-non-susceptible and susceptible isolates. Genetic diversity of the isolates was confirmed by Illumina sequencing and draft genome assembly. The isolates were tested against a combination of ceftazidime (<=0.25 - >8 mg/L) plus 4 mg/L avibactam (fixed) by the BD Phoenix™ M50 NMIC panel 502, and against ceftazidime (0.06 – 128 mg/L) plus 4 mg/L avibactam by broth microdilution. Essential agreement between both testing methods was determined from paired MIC values within one geometrical dilution step except for those that were smaller/equal or greater than the analytical ranges.

Results: Forty-three of 50 KPC-positive isolates with MIC values within the analytical range were available for assessment of essential agreement between both testing methods. MICs for 41 isolates revealed essential agreement within +/- one dilution step. Two of 43 resulted in 4- to 8-fold differences in MIC above and below the reference testing method, respectively. The seven isolates with MIC values outside the detection ranges differed by >=1 (n = 4) and >= 2 dilution steps (n = 3). Forty-four OXA-48-positive isolates revealed an essential agreement. Of the six remaining isolates, MICs for four were above the range tested in both AST techniques. MICs for two OXA-48 positive isolates were outside the range tested of the BD Phoenix™ system and differed from broth AST by one or more dilution steps.

Conclusions: MICs determined by the BD Phoenix™ NMIC-502 panel were consistent with broth microdilution in 45 out of 50 KPC and all OXA-48-positive K. pneumoniae from diverse clinical origin. One limitation is the predominance of CAZ-AVI susceptible isolates among the clinical isolate collection. Isolates with MICs of 16 mg/L were largely absent and further studies are desirable.