

P1142 Susceptibility to ceftazidime/avibactam in German MDR/XDR *Pseudomonas aeruginosa*Frieder Schaumburg*¹, Stefan Bletz², Alexander Mellmann^{2,1}, Karsten Becker¹, Evgeny A. Idelevich¹¹ Institute of Medical Microbiology, University Hospital Münster, Münster, Germany, ² Institute for Hygiene, University Hospital Münster, Münster, Germany

Background: Antimicrobial resistance is an increasing challenge in the management of *Pseudomonas aeruginosa* infections. The evaluation of newly approved therapeutic options is therefore needed. The objectives of this study were to study (1) the susceptibility of multi- (MDR) and extensively drug resistant (XDR) *P. aeruginosa* to ceftazidime-avibactam (CZA) and (2) the clonal relation of CZA resistant vs. susceptible isolates and (3) to compare the performance of disk- and gradient diffusion methods with broth microdilution (BMD).

Materials/methods: Isolates were collected at the University Hospital Münster between 2013–2018. All *P. aeruginosa* were eligible if they were resistant to at least three out of four antimicrobial agents (i.e. piperacillin, ceftazidime, meropenem/imipenem, ciprofloxacin) according to Vitek 2 routine testing. One isolate per patient was included in the final analysis that met the definition of MDR or XDR according to ECDC and CDC. Susceptibility to CZA was tested by disk diffusion (two manufacturer) and gradient diffusion (two manufacturer) and compared to BMD (reference method). Whole genome sequencing of all isolates was used to screen for resistance genes and to assign the multilocus sequence type (ST).

Results: In total, 192 isolates were included (MDR=80, XDR=112). The overall susceptibility to CZA according to BMD was 64.1% (MIC₅₀: 8 mg/L, MIC₉₀: >256 mg/L, range: 0.5->256 mg/L). Susceptibility rates were higher in MDR (85.0%, MIC₅₀: 4 mg/L, MIC₉₀: 16 mg/L, range: 0.5-64 mg/L) compared to XDR (49.1%, MIC₅₀: 16 mg/L, MIC₉₀: >256 mg/L, range: 1->256 mg/L). The categorical agreement of gradient diffusion with BMD was higher in the gradient diffusion tests (85.9% for MIC Test Strip, Liofilchem and 94.3% for Etest, bioMérieux) than in disk diffusion tests (79.7% for Mast and 88.0% for Oxoid). The predominant STs were ST395 in CZA-susceptible isolates and ST235 in CZA-resistant isolates. The carbapenemases *bla*_{IMP} and *bla*_{VIM} were the predominant metallo-β-lactamases and only found in CZA-resistant isolates.

Conclusions: CZA may represent an alternative treatment option for MDR/XDR *P. aeruginosa* infections. The categorical agreement was acceptable for only one gradient diffusion test.