categories using the following definition: multidrug-resistant (MDR) non-susceptible (NS) to ≥1 agent in ≥3 different antimicrobial classes, extensive drug-resistant (XDR) NS to 4 or 5 different classes, and pan drug-resistant (PDR) NS to all 6 classes except colistin.

Results. Forty-two *P. aeruginosa* respiratory isolates from 32 patients with CF were included. The overall susceptibility to C/T and CZA was 59.5% and 42.9%, respectively. Thirty-eight (90%) isolates were considered MDR with susceptibility of 55.3% to C/T and 44.7% to CZA. Among the 11 XDR isolates, susceptibility to C/T was 81.8% vs. CZA 72.7%. Susceptibility to C/T vs. CZA was also higher (37.5% vs. 25%) among the 24 PDR isolates.

Conclusion. Among *P. aeruginosa* isolated from CF respiratory cultures, C/T appears to have better in vitro activity compared with CZA, and remained true among isolates considered XDR and PDR. These results suggest using C/T while awaiting susceptibilities when standard anti-pseudomonal agents cannot be used. Future studies evaluating clinical outcomes for the treatment of pulmonary CF exacerbations are needed to assess the applicability of *in vitro* susceptibility data.

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1595. Comparative *In Vitro* Activity of Imipenem–Relebactam Against Drug-Resistant Gram-Negative Isolates from Pediatric Patients

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Background. Drug resistance in Gram-negative bacteria is of particular concern in children. Relebactam, a novel diazabicyclooctane inhibitor, coupled with imipenem has broad-spectrum activity against β-lactamase producing organisms. Here, we compare the *in vitro* activity of imipenem-relebactam to 10 standard comparator drugs against resistant Gram-negative isolates from two US pediatric hospitals.

Methods. We tested 100 isolates (50 per site) from pediatric clinical specimens tested during 2015–2017. All isolates were extended-spectrum cephalosporin-resistant (ESC-R); more than half were multidrug resistant (67%). Selected ESC-R isolates included *Escherichia coli* (90), *Klebsiella pneumoniae* (8), *Klebsiella oxytoca* (1), and *Enterobacter cloacae* (1) that were resistant or intermediate to ≥1 cephalosporins and/or aztreonam. A 0.5 McFarland suspension was prepared from colonies grown on blood agar plates (Thermo Scientific) at 35 ± 1°C for 18–24 hours. A final inoculum of 5×10^5 CFU/mL was prepared in Mueller–Hinton broth. Sensititre plates (Thermo Fisher Scientific) containing graded concentrations of imipenem/relebactam and 10 comparator drugs were inoculated and incubated at 35 ± 1°C for 18–24 hours. The minimum inhibitory concentration (MIC) was determined using the Sensititre Vizion system (Thermo Fisher Scientific) and endpoints were interpreted using CLSI (2019) breakpoint criteria, with the exception of colistin (EUCAST 2019).

Results. Selected ESC-R isolates had high rates of resistance to cephalosporins (64%–97%), aztreonam (80%), and levofloxacin (61%). All isolates were susceptible to imipenem/relebactam, imipenem and meropenem (MIC, ≤1 μg/mL for all). The imipenem/relebactam MIC_{50} (0.06 μg/mL) and MIC_{90} (0.12 μg/mL) values for ESC-R isolates were within one dilution of MICs of imipenem alone (0.12 μg/mL and 0.25 μg/mL). Among the comparators, colistin, amikacin, and piperacillin/tazobactam demonstrated comparable activities with 100%, 99%, and 94% susceptibilities, respectively.

Conclusion. Meropenem, imipenem alone and in combination with relebactam exhibited 100% susceptibilities against ESC-R *Enterobacteriaceae* isolated from pediatric specimens, demonstrating the high potency of carbapenems.

Drug	% susceptible	MIC50(μg/ml)	MIC90(μg/ml)
Amikacin	99	4	8
Aztreonam	20	32	32
Cefepime	20	16	32
Ceftazidime	36	16	32
Ceftriaxone	3	16	16
Colistin	100	1	1
Imipenem	100	0.12	0.25
Imipenem/Relebactam	100	0.06	0.12
Meropenem	100	0.06	0.12
Levofloxacin	39	16	32
Piperacillin/Tazobactam	94	3	16

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1596. Impact of Vancomycin Area Under Curve on Persistent Methicillin-Resistant *Staphylococcus aureus* (MRSA) Bloodstream Infections (BSI)

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Background. Persistent Methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections (BSI) are associated with significant morbidity, mortality, and healthcare expenditures. Vancomycin (VAN) remains the treatment of choice for invasive MRSA BSI. Current guidelines for the treatment of MRSA BSI recommend a VAN AUC_{24h}/MIC ratio ≥400. The Detroit Medical Center (DMC) implemented an AUC guided dosing strategy. However, data on the association between AUC_{24h} and clinical outcomes in MRSA BSI are limited. We aimed to evaluate the association between VAN AUC_{24h} and persistent bacteremia (PB) among patients with BSI.

Methods. Multi-center, retrospective cohort study from January 2015 to November 2018. We included adult patients with MRSA bacteremia treated with VAN for which AUC_{24h} monitoring was performed. AUC was measured using 2-level guided dosing. The primary outcome was PB defined as continued positive cultures >72 hours after VAN initiation. Classification and Regression Tree (CART) analysis was performed to determine the AUC_{24h} breakpoint (BP) most predictive of PB in the cohort. Mann–Whitney and Fischer exact tests were used for univariate analysis. The independent association between AUC_{24h}, dichotomized at the CART-derived cut-point, was then examined through multivariable logistic regression analysis.

Results. Overall, 137 patients were included. The median age was 59 (18–85) years, 69.3% male, and 75.2% African American predominance. Most common sources of BSI were skin/soft tissue (39.4%), pneumonia (25.5%), and osteoarticular (16.8%). The median APACHE II score was 13 (8–20). Median time to microbiological clearance was 2.5 days (0.5–12). Patients with $AUC_{24h} \leq 406.25$ were more likely to have PB compared with those with $AUC_{24h} > 406.25$ (59.4% and 35.2%, respectively; $P = 0.002$). After controlling for age, intensive care stay, and concomitant β-lactam therapy; AUC of ≤ 406.25 (aOR 2.767, 95% CI 1.212–6.318) and endocarditis (aOR 2.87, 95% CI 1.079–7.638) were independently associated with PB.

Conclusion. VAN AUC_{24h} BP of <406.25 was independently associated with PB in patients with MRSA BSI. Our findings underscore the importance of VAN dose optimization to achieve timely bacterial clearance in MRSA bacteremia.

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1597. Evaluation of Ceftaroline Resistance (CPT-R) in Chile Across Time and a Comparison of CLSI vs. EUCAST Breakpoints in Methicillin-Resistant *Staphylococcus aureus* (MRSA)

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Background. CPT-R in MRSA is associated with clonal complex (CC) 5 lineages. Chile, with wide dissemination of the CC5 Chilean-Cordobes clone, has high MRSA rates. In 2019, CLSI revised the breakpoints (BPs) keeping susceptible (S, minimum inhibitory concentration [MIC mg/L] ≤1), added susceptible dose-dependent (SDD, MIC 2–4), removed intermediate (MIC 2); resistant (R) is now MIC ≥8. EUCAST S is MIC ≤ 1, but R differentiates among pneumonia (MIC > 1) and nonpneumonia (NP) isolates (MIC > 2). We evaluated CPT-R across time and agreement between agencies for broth microdilution (BMD), E-test and Disk Diffusion (DD)

Methods. Hospital- (HA; $n = 320$, 10 centers) and community-associated (CA, $n = 37$) clinical MRSA isolates collected between 1999 and 2018 were confirmed with MALDI-TOF, cefoxitin DD, and *mecA* PCR. CPT susceptibilities were evaluated by BMD, E-test and DD (5 and 30 mg) across revised and old CLSI or EUCAST BPs. We determined essential and categorical agreement (EA, CA), very major, major, and minor errors (VME, ME, MiE)

Results. The MIC_{50}/MIC_{90} of HA-MRSA with BMD was 2/2 mg/L (64% of isolates considered CPT non-susceptible) and 0.5/0.5 mg/L for CA-MRSA. MIC_{50}/MIC_{90} was 1/1.5 with E-test. Strains collected in 1999–2008 ($n = 161$) and 2009–2018 ($n = 159$) both had a MIC_{50}/MIC_{90} of 2/2. The EA of E-test with BMD was 82%; results of