Presentation Type:
Poster Presentation - Poster Presentation
Subject Category: Antibiotic Stewardship
Uptake of Revised CLSI Breakpoints and Potential Impact among Hospitals Reporting to The NHSN AR Option, 2022
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Background: Antimicrobial susceptibility testing (AST) is critical for detecting antimicrobial resistance (AR) and guiding antimicrobial treatment. The Clinical and Laboratory Standards Institute (CLSI) regularly publishes and revises breakpoints to guide the interpretation of AST results. In 2010–2019, CLSI has lowered many breakpoints for Enterobacterales and Pseudomonas aeruginosa. Timely implementation of updated breakpoints can vary across hospital laboratories, leading to shifts in the interpretation of AST results. This issue is a potential threat to the estimation of national prevalence estimates for AR and limits the comparability of AR data across hospitals. Hospitals submit AST data with clinical laboratory interpretations to the AR Option of CDC's National Healthcare Safety Network (NHSN). NHSN tracks whether a hospital adopted the revised CLSI breakpoints for six organism-antimicrobial combinations involving AR phenotypes commonly associated with healthcare associated infections through hospital self-reporting status into a structured survey — 2022 NHSN Annual Hospital Survey (Table). For this analysis, we describe the uptake of revised CLSI breakpoints and compare cumulative antibiograms among hospitals that used various breakpoints. **Methods:** We included hospitals that completed the 2022 NHSN annual survey and submitted data to the NHSN AR Option for at least 9 months in 2022 by November 1, 2023. The percentage of hospitals that implemented CLSI breakpoints, published during 2010–2019, were determined for combinations of antibiotic class, organism, and CLSI revision year (Table). We calculated percent resistance (%R) as the number of isolates meeting AR phenotype definitions divided by the total number of Isolates tested for the following phenotypes: carbapenem-resistant Enterobacterales (CRE) which included E. coli, Klebsiella, and Enterobacter species; extended-spectrum cephalosporin-resistant Enterobacterales (ESC); carbapenem-non-susceptible P. aeruginosa; fluoroquinolone-resistant P. aeruginosa; and fluoroquinolone-resistant Enterobacterales. **Results:** Among the 741 hospitals included, 75%–93% implemented any of the six revised CLSI breakpoints (Table). The %R was higher among isolates from hospitals that adopted revised breakpoints compared to those that did not ($p < 0$ .0001). The largest difference was observed for carbapenem-non-susceptible P. aeruginosa (14.91% vs 10.11%). **Conclusions:** The uptake of revised CLSI breakpoints varied across hospitals, organism-antimicrobial combinations, and CLSI versions. This analysis indicates that the prevalence of AR for corresponding phenotypes could be underestimated if data from hospitals using higher, outdated breakpoints are included. It is important for NHSN to continue tracking breakpoints used in individual hospitals and encourage hospitals to report complete data on the original AST results, such as MIC, to optimize the accuracy of national AR surveillance.

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Blood Culture Contamination Mitigation: Sustaining Success and Stewardship Systemwide
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Background: False-positive blood cultures compromise care; extended stays, Clostridioides difficile risk increases and renal woes tagged to antibiotic alms contribute to the doubling of patient in-hospital mortality that is observed relative to true negative diagnostic results. False-positive affiliated central line-associated bloodstream infection reports can further obfuscate the quality of care provided. Between personnel performance pressures, laboratory resource losses and the risk for financial penalty

Table: Proportion of Isolates AR phenotypes between hospitals that implemented revised Clinical Laboratory Standard Institute breakpoints versus those that did not, NHSN AR Option, 2022.

		Revised Breakpoints (Yes)				Revised Breakpoints (No)				
Phenotype Name	Revised Breakpoints	Hospitals* N (%)	No. Isolates Resistant	No. Isolates Tested	% Resistant	Hospitals* N (%)	No. Isolates Resistant	No. Isolates Tested	% Resistant	P-value
Carbapenem-resistant Enterobacterales	Carbapenem breakpoints for Enterobacterales in 2010	690 (93%)	2828	400344	0.71%	51 (7%)	86	20440	0.42%	<0.0001
Carbapenem-resistant Enterobacterales	Ertapenem breakpoints for Enterobacterales in 2012	652 (88%)	2753	386126	0.71%	89 (12%)	161	34658	0.46%	<0.0001
Extended-spectrum cephalosporin resistant Enterobacterales	Cephalosporin and monobactam breakpoints for Enterobacterales in 2010	682 (92%)	72233	468233	15.43%	59 (8%)	3517	28625	12.29%	<0.0001
Fluoroquinolone-resistant Enterobacterales	Fluroquinolone breakpoints for Enterobacterales in 2019	556 (75%)	79335	367365	21.76%	185(25%)	24891	123748	20.11%	<0.0001
Fluoroquinolone-resistant *Pseudomonas aeruginosa*	Fluroquinolone breakpoints for Pseudomonas aeruginosa in 2019	592 (80%)	8400	50020	16.79%	149(20%)	1414	10522	13.44%	<0.0001
Carbapenem-non-susceptible *Pseudomonas aeruginosa*	Carbapenem breakpoints for Pseudomonas aeruginosa in 2012	662 (89%)	7267	48743	14.91%	79 (11%)	2695	2998	10.11%	<0.0001

Note: * represents the number of hospitals that reported AR Option data; % Resistant denotes number of isolates resistant divided by the number of isolates tested.

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