



# Comparison of EUCAST and CLSI zone interpretation criteria in clinical *Enterobacteriaceae* isolates

Tulin Demir<sup>1</sup>, Burcu Ozdemir<sup>1</sup>, Gorkem Aytac Alagoz<sup>1</sup>

<sup>1</sup>Ahi Evran University Research and Training Hospital, Microbiology Department, Kirsehir, Turkey

## OBJECTIVES

EUCAST and CLSI recently published new antimicrobial susceptibility testing (AST) guidelines that revealed a major change in the interpretation and reporting of the testing. This study aimed to analyse the AST profiles of clinical *Enterobacteriaceae* isolates applying EUCAST 2014 and CLSI 2014 AST guidelines and evaluate discrepancies in AST profiles according to the two guidelines.

## METHODS AND MATERIALS

232 clinical isolates (including 150 *E.coli*, 50 *Klebsiella* spp, 17 *Proteus* spp., 15 *Enterobacter* spp.) were investigated by antibiotic disk diffusion testing with ampicillin (AMP), amoxicillin-clavulanic acid (AMC), ceftriaxone (CRO), cefepime (FEB), cefuroxime (CXM), aztreonam (ATM), ciprofloxacin (CIP), co-trimoxazole (SXT), imipenem (IMP), meropenem (MEM), ertapenem (ERT), gentamicin (GEN), amikacin (AK), norfloxacin (NOR) with the Kirby-Bauer method. Interpretation was performed by using EUCAST and CLSI breakpoints.

## CONCLUSIONS

EUCAST non-susceptible breakpoints for CRO and AZT detect more ESBL-producing *Enterobacteriaceae* isolates compared with CLSI ESBL screening breakpoints. Evaluation of other cephalosporins such as CTX and CAZ is crucial to better understand of which criteria should be used. This study implies that EUCAST breakpoints are more sensitive to detect ESBL producing strains, but more comprehensive studies should be conducted to confirm this data.

## RESULTS

Overall the isolates compared according to the breakpoints of guidelines, number of intermediate susceptible test results were lower while using EUCAST criteria especially in the testing of IMP, MEM, CXM and AK. Rates for intermediate susceptibility of the strains against CIP widely varied, 16.5% v 2.6%, for CLSI and EUCAST, respectively. While the frequency for resistance/or intermediate susceptible strains against CRO was 33.6% v 34.0% for CLSI and EUCAST, the frequencies were 21.6% v 30.5% for AZT, respectively. The highest discrepancy between CLSI and EUCAST interpretation was observed with AZT, CIP and CXM disks, as the major discrepancy was intermediate susceptibility by CLSI but susceptibility/resistance by EUCAST. Comparison of the resistance/intermediate susceptible rates of the *Enterobacteriaceae* strains according to the breakpoints for selected antimicrobials were shown on Table.

Table. Comparison of the test results

Antimicrobial		%	
		CLSI	EUCAST
AMP	R	69.8	69.8
	I	-	-
AMC	R	15.9	24.5
	I	7.3	3.4
CRO	R	23.5	23.5
	I	10	10.4
FEB	R	10.8	14.7
	I	9.9	3.4
AZT	R	13.2	21.6
	I	8.4	8.8
CIP	R	24.3	24.7
	I	16.5	2.6
NOR	R	24	30.1
	I	1.3	3.9
IMP	R	3.1	1.3
	I	9.4	6.2
ERT	R	7.4	9
	I	0.8	1.6
MEM	R	4.7	2.5
	I	4.3	3.8
GEN	R	13.5	13.5
	I	3.6	12.1
AK	R	5	3.6
	I	2.7	1.3
CXM	R	37	44.1
	I	42.8	-

## CONTACT

drtulin@yahoo.com