Effect of CLSI and EUCAST clinical breakpoints on antibiotic susceptibility test reporting of CTX-M-15 ESBL and KPC-3 carbapenemase *Klebsiella pneumoniae isolates*

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Background

In the era of multiresistance, it is important to analised the impact of different interpretative criteria when ESBL and carbapenemase-producing strains are envolved.

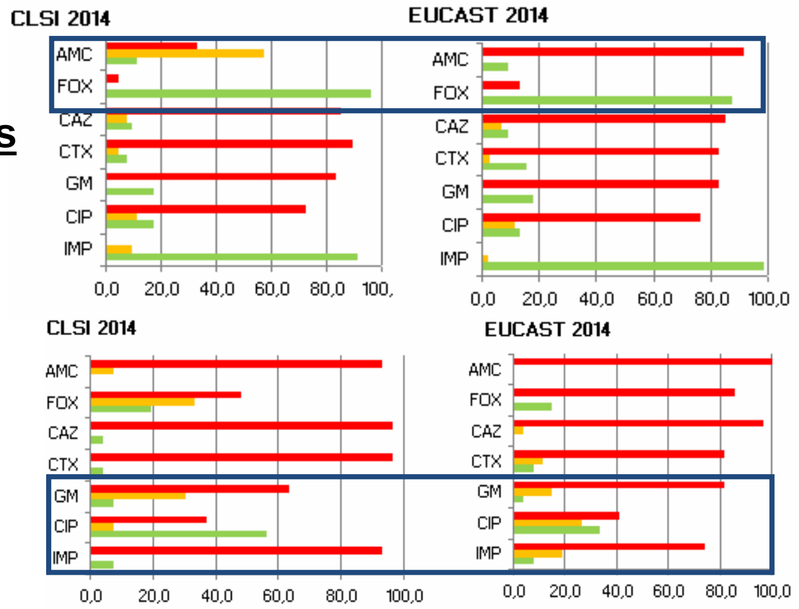
The aim of this study was to analyse the effect of Clinical and Laboratory Standards Institute (CLSI) and European Committee on Antimicrobial Susceptibility Testing (EUCAST) clinical breakpoints on antibiotic susceptibility reports in CTX-M-15 ESBL and KPC-3 carbapenemase *Klebsiella pneumoniae* producers.

Methods

73 *K. pneumoniae* clinical isolates CTX-M-15 (n=46) and KPC-3 (n=27) producers were studied. Antimicrobial susceptibility was assessed using disk diffusion method for amoxicillin/clavulanic acid, cefoxitin, cefotaxime, ceftazidime, imipenem, ciprofloxacin and gentamicin. The results were interpreted applying *Enterobacteriaceae* CLSI and EUCAST 2014 criteria. For KPC-3 isolates the results for imipenem were also interpreted according to 2010 breakpoints in order to evaluate the impact of 2010-14 breakpoints evolution.

Results

CTX-M-15 producers

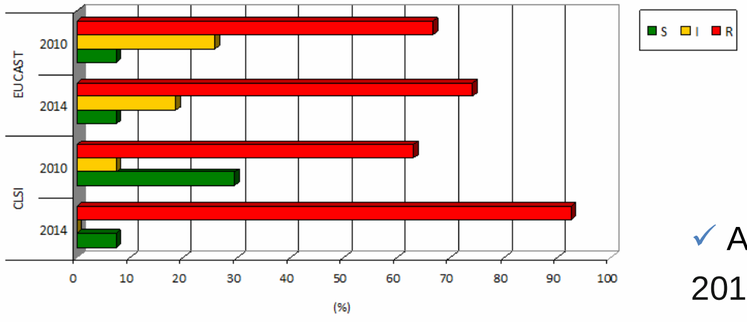


KPC-3 producers

- ✓ Removal the intermediate category for amoxicillin/clavulanic acid;
- ✓ Resistance rates to cefoxitine increased from 4.3% to 13.0%;
- ✓ Resistance rate to imipenem decreased and intermediate category increased;
- ✓ The resistance rate for ciprofloxacin and gentamicin increased.

✓ The EUCAST breakpoints will lead to less 18.6% of KPC-3 *K. pneumoniae* isolates reported resistant to imipenem.

Imipenem breakpoints 2010 Vs 2014



Imipenem Resistant Isolates

	2010	2014
EUCAST	66.7 %	74.1%
CLSI	63.0%	92.6%

✓ A small increase <10% of resistant rates was found considering 2010 and 2014 EUCAST breakpoints evolution for imipenem when compared with CLSI (30%).

Conclusion

✓ Resistance surveillance is critical especially in *Klebsiella pneumoniae* KPC-3 producers considering that antimicrobial susceptibility results can lead to an increase of carbapenem prescription by clinicians and important selection pressure.