P0292
Poster Session I
EUCAST antimicrobial susceptibility testing

VALIDATION OF M.I.C.EVALUATOR STRIPS FOR TESTING ANTIMICROBIAL SUSCEPTIBILITIES OF FASTIDIOUS ORGANISMS ACCORDING TO EUCAST GUIDELINES

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Validation of M.I.C.Evaluator Strips for Testing Antimicrobial Susceptibilities of Fastidious Organisms According To EUCAST Guidelines

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The Thermo Scientific™ Oxoid™ M.I.C.Evaluator™ (M.I.C.E.™) strips (Thermo Fisher Scientific) allow the quantitative determination of antimicrobial agent minimum inhibitory concentration (MIC). These M.I.C.E. strips provide a gradient of stabilized antimicrobial agent in a convenient polymer strip format. This study was undertaken to validate the performance of Ceftriaxone 32 M.I.C.E., Clindamycin 256 M.I.C.E., Ciprofloxacin 32 M.I.C.E., Erythromycin 256 M.I.C.E., Imipenem 32 M.I.C.E., Linezolid 256 M.I.C.E., Levofloxacin 32 M.I.C.E., Meropenem 32 M.I.C.E., Teicoplanin 256 M.I.C.E., Tetracycline 256 M.I.C.E. and Vancomycin 256 M.I.C.E. strips for the determination of antimicrobial susceptibility of fastidious organisms against the EUCAST broth microdilution method.

Streptococci and Haemophilus strains originally isolated from clinical samples were tested during the study. Organisms were grown on non-selective agar plates overnight in the appropriate conditions according to EUCAST guidelines.

Microtitre plates containing cation-adjusted Mueller-Hinton broth supplemented with 5% lysed horse blood and 20mg/L beta-NAD and appropriate concentrations of each tested antimicrobial agent were inoculated with 0.5 McFarland inoculum suspension of each isolate (resulting in approximately 7.5x10^5 CFU/mL per well) using a multi-channel pipette.

The M.I.C.E. strip method was performed with Mueller-Hinton agar supplemented with 5% defibrinated horse blood and 20mg/L beta-NAD. The same inoculum suspension of each isolate tested was inoculated by swabbing the agar plate in 3 different directions using a cotton swab. The M.I.C.E. strips were applied to agar plates using sterile forceps.

Agar plates and microtitre plates were incubated in appropriate conditions. The MIC values were read and used to determine the essential agreement (EA) between M.I.C.E. strips and the EUCAST broth microdilution method. The latest EUCAST breakpoints were used for interpretation of MICs.

Comparison of M.I.C.E. strip MIC results with those obtained by EUCAST broth microdilution method showed equal to or greater than 90% EA across all tested organisms for all antimicrobial agents.

The accompanying table 1 summarizes the EA results between M.I.C.E. strips and the EUCAST method for each antimicrobial agent. Organism numbers tested are shown in brackets. Gaps within the table are present due to different panels of organisms being tested with some of the antimicrobial agents.

Table 1. Essential agreement (shown as a percentage) between M.I.C.E. strip and EUCAST broth microdilution method.

M.I.C.E. Strip	Organism	
	Streptococci	Haemophilus
ceftriaxone	100 (n=20)	94.7 (n=19)
clindamycin	100 (n=30)	
ciprofloxacin	100 (n=10)	94.7 (n=19)
erythromycin	100 (n=20)	100 (n=18)
imipenem	100 (n=20)	90 (n=19)
linezolid	95 (n=20)	
levofloxacin	100 (n=20)	100 (n=18)
meropenem	90 (n=20)	90 (n=20)
teicoplanin	96.7 (n=30)	
tetracycline	100 (n=20)	100 (n=19)
vancomycin	100 (n=30)	

The presented data confirm that the M.I.C.E. strip method for determination of the antimicrobial susceptibility patterns of fastidious organisms is comparable to the EUCAST broth microdilution method. Our study indicates that the M.I.C.E. strip method constitutes an effective and reliable alternative for susceptibility testing of fastidious bacteria by routine clinical microbiology laboratories.