

EVALUATION OF A SUSCEPTIBILITY PANEL ON THE BD PHOENIX™ AUTOMATED MICROBIOLOGICAL SYSTEM FOR NONFERMENTING GRAM-NEGATIVE RODS FREQUENTLY ISOLATED FROM CLINICAL SAMPLES IN THE MICROBIOLOGY LABORATORY OF HC UNICAMP

Authors: Zaccariotto, T.R.¹; Bensi, E.A.P.¹; Von Nowakonski, A.¹; Levy, C.E.¹

Institution: ¹ Laboratory of Clinical Microbiology, Hospital de Clínicas – Unicamp (Rua Vital Brasil, 251 Cidade Universitária, Campinas-SP)

There are only few reports about the determination of antimicrobial susceptibility testing (AST) by automated systems, particularly for nonfermenting gram-negative rods (NF-GNR). This study evaluated the performance of the BD Phoenix™ automated system using the NMIC-140 extended panel by comparing with disk diffusion or MIC (Etest®) testing. Thus, between August and December 2014 were analyzed 195 NF-GNR (113 *Pseudomonas aeruginosa*; 45 *Acinetobacter baumannii*, 25 *Burkholderia cepacia complex*; 12 *Stenotrophomonas maltophilia*) isolated from cultures of specimens (respiratory, blood and urine) processed by the Clinical Microbiology Laboratory, Hospital de Clinicas da Universidade de Campinas. The acceptability criteria of $\leq 1,5\%$ for very major error (VME), $\leq 3,0\%$ for major error (ME) and $\leq 3,0\%$ for minor error (mE) were applied. The categoric agreement (CA) should be $>90\%$ for the accuracy to be acceptable. The mean percentage of CA and the error rate for all the antibiotics tested among both automated system and the reference method for all NF-GNR was 97.3% and 0.95% for VME, 0.25% for ME and 1.5% for mE, respectively. Overall, these results demonstrated the acceptability of the test for all NF-GNR and for all antibiotics standardized exceptions were for *P. aeruginosa* for cefepime (CA=89.4%; mE =9.72%), for *A. baumannii* in relation to gentamicin (CA=82.3%; mE= 15.5%) and for *S.maltophilia* for ceftazidime in two isolated (mE=8.3% and VME=8.3%) leading the CA for this antibiotic to 83.4%. Both tests were repeated for the isolate which showed VME for ceftazidime, with identical results to the previous one. The MIC for ceftazidime was also repeated and confirmed the strain resistance for this antibiotic. Regarding the *B. cepacia complex* high error rate was observed for trimethoprim-sulfamethoxazole for 4/25 isolates (VME=16%). Both tests were repeated and the MIC was evaluated and the resistance was confirmed for this antibiotic. Based on these data, the present study demonstrated the efficiency of the BD Phoenix™ automated system for AST for all NF-GNR, except for cefepime and gentamicin in *P. aeruginosa* and *A. baumannii*, respectively, due to the high mE rate for these antibiotics and to ceftazidime and trimethoprim-sulfamethoxazole for *S. maltophilia* and *B. cepacia complex*, respectively, because of VME results for these antibiotics.

Key-words: nonfermenting gram-negative rods; antimicrobial susceptibility testing; BD Phoenix.