

Performance of the Accelerate Pheno™ system for Early identification and antimicrobial susceptibility testing for Sepsis diagnosis from positive blood cultures. (First Evaluation from Middle East)



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Objectives: To evaluate the performance of the Accelerate Pheno™ system for the early identification and antimicrobial susceptibility testing (AST) of a panel of Gram-negative bacilli (GNB) with different resistance profiles (e.g. penicillinases, ESBLs, cephalosporinase overproduction, carbapenemases, impermeability) directly from positive blood cultures in <7 h.

Methods: A panel of 46 positive blood culture bottles (15 Gram positive, 30 Gram negative and one off panel organism) from clinical samples, that was positive using BacT-Alert system (bioMérieux, France), where tested parallel using the Accelerate Pheno™ system. Positive blood cultures were subjected to parallel testing using the Accelerate Pheno™ system and conventional culture methods [identification of isolated colonies by MALDI-TOF and VITEK® 2 system (bioMérieux, France), and AST by disc diffusion and Etest following CLSI recommendations.

Results: The overall identification agreement between the Accelerate Pheno™ system and conventional culture methods was 95.3% (41/43) Sensitivity 99.8% (649/650) specificity. The overall categorical agreement between the system and culture-based AST was 91.4% (41/43), with rates for minor errors of 6.6% (16/244) major errors 2% (3/151) and very major errors 2.4% (2/83). The Accelerate Pheno™ system produced AST results more faster than conventional method by 40 hrs.

The Accelerate Pheno™ system has 90 mins Time -To-Report for identification and 7 hrs Time-to-Report AST.

Conclusions: The Accelerate Pheno™ system is an accurate, sensitive and easy-to-use test for the rapid identification and AST for MDR GNB and GPB in bloodstream infections. Given the burden of multidrug resistance, its implementation in the microbiology laboratory could be a useful tool for prompt and early management of sepsis.

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Achieving the United Nations AIDS (UNAIDS) 90-90-90 Target; A Single Center Experience



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Background: In 2014, the United Nations AIDS (UNAIDS) program launched the “90-90-90 target” to be achieved by 2020, the first target is that 90% of all people living with HIV will know their status, target two is 90% of those diagnosed will be on antiretroviral therapy (ART), and the final target was 90% of those on ART achieve viral suppression.

Aim: The aim of this study was to analyze how much progress King Abdulaziz Medical City-Riyadh has made in achieving the targets among their HIV patients.

Methods: Data regarding HIV patient demographics, date of diagnosis, current treatment and viral load was extracted from

patients' medical files. Patients included have been diagnosed with HIV between January 2003 and December 2017 in King Abdulaziz Medical City-Riyadh.

UNAIDS targets for HIV were used and calculation has been made according to their methodology.

Results: A total of 51 patients with HIV are currently following up KAMC-Riyadh. Based on national estimates of the disease, the expected number of HIV positive patients would be 354, only 14% of HIV positive people were diagnosed. Out of 51 patients diagnosed with HIV, 48 were on ART (94%), and out of the 48 patients on ART, 43 had achieved viral suppression (89%).

Conclusion: The first target is considerably underachieved, this is probably due to avoidance of applying to the military or ministry of national guard due to fear of rejection and stigma at the time of employment due to their HIV positive status. Therefore, the hospital needs to focus on screening programs to detect undiagnosed cases.

Both the second and third targets have been almost achieved, displaying the tremendous efforts which are being made in treating cases and keeping them on a suppressed viral load.

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In vitro activity of newer and conventional antimicrobial agents, including fosfomycin and colistin, against selected gram-negative bacilli in Kuwait



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Background and Purpose: Multi-drug resistant gram-negative bacilli present increasing and diverse problems globally with Kuwait being no exception. However, limited data are available on susceptibilities of these organisms to some of the recently made accessible antimicrobial agents. The in vitro activities of newer antibiotics, such as ceftolozane/tazobactam (C/T) and ceftazidime/avibactam (CZA) along with some “older” antibiotics, namely fosfomycin (FOS) and colistin (CL), and conventional ones, for example, amikacin (AN), aztreonam (AZM), cefepime (FEP), ceftazidime (CAZ), ciprofloxacin (CIP), imipenem (IMP), meropenem (MEM), piperacillin/tazobactam (PTZ) and tobramycin (TOB) were determined against selected strains (resistance to ≥ 3 antimicrobial agents by disk diffusion or commercial methods) of *Escherichia coli*, *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa*.

Methodology: Minimum inhibitory concentrations (MIC) were determined by Clinical and Laboratory Standards Institute micro-broth dilution. 133 isolates comprising of 46, 39, and 48 strains of *E. coli*, *K. pneumoniae* and *P. aeruginosa*, respectively were tested.

Results and Discussions: *E. coli* isolates with MIC_{50/90}, 8/16 $\mu\text{g}/\text{mL}$ for AN; 0.5/1 $\mu\text{g}/\text{mL}$ for CL; 4/32 $\mu\text{g}/\text{mL}$ for FOS; 0.06/0.25 $\mu\text{g}/\text{mL}$ for MEM; 0.25/32 $\mu\text{g}/\text{mL}$ for C/T; 0.25/8 $\mu\text{g}/\text{mL}$ for CZA, exhibited susceptibility rates of 91.3%, 95.7%, 97.8%, 89.1%, 76.1% and 89.1%, respectively. On the other hand, *K. pneumoniae* strains with MIC_{50/90}, 8/512 $\mu\text{g}/\text{mL}$ for AN; 0.5/1 $\mu\text{g}/\text{mL}$ for CL; 256/512 $\mu\text{g}/\text{mL}$ for FOS; 0.12/128 $\mu\text{g}/\text{mL}$ for MEM; 2/128 $\mu\text{g}/\text{mL}$ for C/T; 0.5/128 $\mu\text{g}/\text{mL}$ for CZA showed susceptibility rates of 64.1%, 92.3%, 7.7%, 64.1%, 51.3%, and 64.1%, respectively. And *P. aeruginosa* isolates with MIC_{50/90}, 64/128 $\mu\text{g}/\text{mL}$ for AMK; 1/1 $\mu\text{g}/\text{mL}$ for CL; 32/128 $\mu\text{g}/\text{mL}$ for MEM; 128/128 $\mu\text{g}/\text{mL}$ for C/T; 32/64 $\mu\text{g}/\text{mL}$ for CZA presented susceptibility rates of 31.2%, 97.9%, 8.3%, 33.3%, and 39.6%, respectively.

Conclusion: higher MICs were demonstrated against most of the antibiotics, including C/T and CZA. However, CL retained efficacy at low MICs against most of the isolates tested.

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Positive Perspectives Partners of people living with HIV (PLHIV): findings from the Positive Perspectives Survey



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Background and Purpose: While the psychosocial effect of treatment and support available for people living with HIV (PLHIV) have been evaluated, gaps remain in understanding their influence on partners. We conducted an international survey of partners of PLHIV exploring the support offered to them and their partner's perception of their HIV management.

Methods: Qualitative, in-depth interviews were performed with PLHIV and their partners to identify key hypotheses. A steering group developed survey questions fielded online from November 2016 to April 2017 in 9 countries across North America, Europe, and Australia. A broad cross-section of PLHIV and partners of PLHIV was obtained using a mixed-sampling/recruitment approach.

Results: 250 partners of PLHIV completed the survey from Europe (55%), North America (43%), and Australia (2%). 91% were male, 26% were aged ≥ 50 years, 30% were HIV+, and 77% lived with their partner. Results differed between HIV+ and HIV- partners: Emotional support available to partners of PLHIV was rated "quite" or "very" good in 78% of HIV+ partners and 53% in HIV- partners. Partners of PLHIV stated they provided emotional support (87%) and encouraged their partners to raise concerns with their HIV healthcare provider (HCP) (80%), yet >50% of partners wanted more involvement in these areas; 20% felt they sometimes lacked the information needed for this role. Of those whose partners were on antiretroviral therapy (ART) (98%), 63% helped their partner prepare for an appointment with their HIV HCP and raised concerns about side effects (82%), strategies to reduce the long-term impact of ART (62%), and the possibility of switching regimen (59%).

Conclusions: Most partners were involved in treatment discussions and were concerned about side effects and the long-term impact of ART. Partners represent an important support system for PLHIV. Dedicated resources to inform partners could enable more involvement in their support of PLHIV.

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Molecular detection of Metallo- β -lactamase acquired genes, blaIMP, and blaVIM in Carbapenems susceptible and resistant Gram-negative clinical isolates using multiplex PCR



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Keywords: Metallo β -lactamase; VIM; IMP; Carbapenem; PCR; Gram-negative bacteria; Khartoum-Sudan

Background and objectives: Emergence of Metallo- β -lactamase (MBL) is of great concern in the clinical settings worldwide. The death rate associated with MBL producers is ranging from 18% to 67%.

The main purpose of this study is to determine the prevalence of metallo- β lactamase genes among different Gram-negative clinical isolates.

Methodology: This was a prospective descriptive cross-sectional study, which carried out to detect genes responsible for MBL enzymes such as bla-VIM and bla-IMP by conventional and multiplex PCR, among 200 Gram-negative clinical isolates (*Citrobacter* spp, *E.coli*, *Enterobacter* spp, *K.pneumoniae*, *P.aeruginosa*, *P.mirabilis*, *P.valgaris*) at Khartoum hospitals during 2015 to 2016. Ethical approval was obtained from Al Neelain University Ethical Review Board.

Results: The general prevalence of MBL genes by multiplex PCR assays among 200 Gram-negative clinical isolates was 69(34.5%). 27(27%) and 42 (42%) were positive for both blaIMP and blaV-IMMBLs genes among carbapenems sensitive and resistant isolates respectively. There was statistically significant association between the antimicrobial susceptibility and the presence of MBLs genes, (p.value = 0.026).

Verona integron metallo beta lactamase (VIM) was the most frequent genes (53.6%) out of 69 MBLs detected genes, while it was (36.2%) for imipenemase (IMP).

Statistically significant association was found between antimicrobials susceptibility and blaIMP and blaVIMMBLs genes (p.value = 0.021).

Conclusion: In this study, the presence of blaIMP and blaV-IMMBLs genes was one of the major mechanisms mediating carbapenems resistance, while their presence among carbapenems sensitive isolates suggesting the occurrence of silent genes.

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Occupational Study of the Prevalence of Intestinal Parasitic Infections amongst Labors in Al Ain and Abu Dhabi



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Background: United Arab Emirates is a multicultural country and approximately 65% of the population are expatriates from low- and middle-income developing countries that have a high burden of intestinal parasitic infections (IPI).

Aim: The primary aim is to estimate the prevalence of, and factors associated with IPI in an occupational sample of expatriates in Al-Ain and Abu Dhabi.