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Surveillance systems for nosocomial infections: Principles and challenges

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Nosocomial Infections (NIs) are considered to be serious public health problems around the world. The NI-related burden is unknown because of lack of access to reliable data, lack of surveillance systems and the complexity of corresponding NI outcomes. Health care systems use different approaches for monitoring NIs. Generally, surveillance methods are categorized under the umbrellas of active, passive and sentinel surveillance methods. At present, hospitals implement passive surveillance approaches because of feasibility and low cost. However, the quality of this methodology is in question; under reporting and lack of timeliness are the main challenges. In contrast to the passive approach of NI surveillance systems, active ones do not face the challenge of real-time detection of hospital-acquired infection and provide high quality data on the trends and burdens of NIs. This approach needs extensive resources. Lessons learnt from the implementation of passive approaches to NI surveillance, especially in low and middle income countries, have revealed the necessity of implementation of integrated sentinel surveillance methods using active approaches at selected hospitals/health care facilities. Selecting representative hospitals can contribute to an appropriate understanding of NI-related burden.

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A study of antibiotic susceptibility of clinical strains of *Pseudomonas aeruginosa* in University Hospital Center in Batna, Algeria

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Pseudomonas aeruginosa is an important opportunistic pathogen that plays an important role in hospital and causes a wide spectrum of nosocomial infections that can lead to sepsis, pneumonia, endocarditis and urinary tract infections. The development of resistance of *P. aeruginosa* to antibiotics is increasing globally due to the overuse of antibiotics. This study examines the antibiotic resistance in clinical isolates of *P. aeruginosa* that was carried out in the Central Bacteriology Laboratory, University Hospital Center in Batna from January 2015 to December 2015. All samples received in the laboratory were processed according to Clinical and Laboratory Standards Institute (CLSI, 2014) guidelines. Identification of *P. aeruginosa* was done by conventional (Api 20 NE) techniques and antimicrobial susceptibility pattern to 14 antimicrobial agents was determined by disc diffusion method and total of 199 patients with mean age of 24.15±22.15 (50.25% males and 49.75% females). The resistance was seen with Levofloxacin 21.6%, Ceftazidime 9.55%, Piperacillin 38.68%, Colistin 6.03%, Gentamicin 30.15%, Ciprofloxacin 9.04% Aztreonam 8.54% and Imipenem was 14.07%. The most frequent mechanisms of resistance were OprD2 (2.01%) and metallo- β -lactamase M β L (1%). The most affected departments were: Burned (29.14%), Neurosurgery (17.58%) and the Medical-ICU (11.55%). Specimens' frequency according to the isolation rate was: Pus (53.77%) and cerebrospinal fluid (12.56%). In the present study Aztreonam, Ceftazidime, Ciprofloxacin and Colistin were found to be the most effective drugs against *P. aeruginosa*.

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