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**Title:** A study of antibiogram assay, risk factors and etiology of ventilator associated pneumonia (VAP) in a tertiary care hospital of Pakistan

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**Body:** Background: Ventilator associated pneumonia (VAP) is a kind of nosocomial infection among the patients upon mechanical ventilation; resulting in high mortality rate among individuals admitted in Intensive Care Units (ICU). Objective: The objective of this study was to determine the etiology, trends of antibiotic resistance and other risk factors contributing towards the severity of VAP in an ICU of a tertiary care hospital in Pakistan. Methods: For the purpose, a total of 250 suspected cases of VAP were selected during 2010-2012 after following Clinical Pulmonary Infectious Score Chart. The samples of tracheal aspirates processed for evidence of microbes. Antibiogram assay was conducted using variety of commercially available antibiotics. Other parameters/risk factors contributed towards high mortality/deterioration were also observed. Results: A total of 167(66.8%) VAP patients admitted in ICU were identified. in the study. The isolates were Staphylococci, Streptococci, Acinetobacter, Pseudomonas, Klebsiella, Escherichia, fungi etc. Most of the isolates found resistant (>40%) to Augmentin, Gentamycin, Cefazolin, Ceftriaxone, Ceftazidime, Doxycycline, Tetracycline, Clindamycin and Ciprofloxacin. Maximum antimicrobial activity was observed for Meropenem, Tobramycin, Amikacin, Fucidin, Linezolid, Vancomycin and Tazocin. Tygecycline being superior to others. High mortality (69.5%) was observed in VAP cases. Major factors contributed towards mortality were the length of ventilation, age, treatment failure, organ deterioration and underlying illness. Conclusions: This study indicate poor infection control and emergence of resistant microbes.