

# Escalation Of Antimicrobial Resistance in Tertiary Care Hospitals of Karachi

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## ABSTRACT

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**Background:** The ability of bacteria to change itself genetically and structurally making it unresponsive to antibacterial agents is known as antimicrobial resistance. This has created several complications in the treatment of infectious diseases rendering many initially developed antimicrobial agents ineffective. In this regard we have reported the antimicrobial resistance by analysing the antibiogram data from different tertiary care hospitals of Karachi

**Objective:** The aim of this study was to assess the antimicrobial resistance pattern in tertiary care hospitals of Karachi. The results could provide primary information to continue further investigations in order to develop national antimicrobial therapy guidelines.

**Methods:** This retrospective study involved antibiogram data from multiple tertiary care hospitals of Karachi which is available on Pakistan Antimicrobial Resistance Network (PARN) website. The data included antibiograms from 2016-2019 and was scrutinized to the most frequently observed microorganism and the anti-infective agents.

**Results:** Increased resistance was observed for penicillin (43.33% in 2016 to 80.5% in 2019) against gram +ve organisms (Staph. aureus) while a decent susceptibility was observed against vancomycin (0.6%). Gram -ve organism (E. coli, K. Pneumoniae & Enterobacter spp.) showed a higher and increasing mean resistance against Ceftriaxone (69.5% in 2016 to 79% in 2019) & Ciprofloxacin (49.3% in 2016 to 69.3% in 2019) Co-trimoxazole showed a slight decrease in resistance from 66.4% in 2016 to 64.6% in 2019. Amikacin (20.5%) and Piperacillin/tazobactam (29.8%) showed satisfactory susceptibility against gram -ve organisms.

**Conclusion:** The increased resistivity pattern for penicillin, ciprofloxacin and ceftriaxone may possibly be due to general prescribing of these agents for empiric therapy. This increase in antimicrobial resistance may render these agents completely ineffective in upcoming days.