

**PREVALENCE OF *PSEUDOMONAS AERUGINOSA* AMONG THE
INDOOR PATIENTS OF NATIONAL INSTITUTE OF
NEUROLOGICAL AND ALLIED SCIENCES AND ITS
ANTIBIOTIC SUSCEPTIBILITY PROFILE**

**A
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(MEDICAL)**

**BY
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ABSTRACT

The use of broad-spectrum antibiotics and immunosuppressive drugs, along with the availability of invasive procedures or instrumentations has led to the rise in patients with impaired immune defenses worldwide, thereby leading to an increase in nosocomial infections especially by Gram-negative organisms such as *Pseudomonas*. Thus a six month cross sectional study was undertaken with an objective to determine the hospital based prevalence of *Pseudomonas aeruginosa* in clinical specimens of suspected patients admitted for more than 48 hours at the National Institute of Neurological and Allied Sciences (NINAS) hospital, Kathmandu, Nepal. A total of 1146 clinical specimens were collected from 301 inpatients and were identified by conventional microbiological method and antibiogram was performed by Kirby- Bauer disc diffusion method and Clinical Laboratory Standard Institute (CLSI) guidelines. The overall prevalence of *P. aeruginosa* was 18.5% (212/1146) of which 28.8% (61/212) showed polymicrobial growth. The prevalence of *P. aeruginosa* was found to be highest in respiratory specimens (36.4% in sputum and 29.7% in tracheal specimens). Among the total 212 isolates, 48.6% (n=103) were from the patients of ICU and 51.4% (n=109) were from patients of Non ICU wards. Imipenem was found to be the most effective drug against most of the clinical isolates followed by Piperacillin/Tazobactam. Isolates exhibited maximum resistance to Cefepime (93.9%) followed by Cefotaxime (90.1%). The study showed statistically significant association ($P < 0.05$) between the sex of the patients and infection status, while no association was found ($P > 0.05$) between the MDR isolates and the wards. The prevalence of Multi-drug resistant *P. aeruginosa* was 85.4%. Most of MDR isolates were obtained from tracheal aspirates. The study showed alarming condition of MDR *P. aeruginosa* in the hospitalized patients indicating need of surveillance for MDR and timely intervention for control.

Keywords: *Pseudomonas aeruginosa*, MDR, Prevalence

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LIST OF ABBREVIATIONS

ADP	-	Adenosine diphosphate
ARDS	-	Acute Respiratory Distress Syndrome
AST	-	Antibiotic Sensitivity Test
BA	-	Blood Agar
BHI	-	Brain Heart Infusion
BSI	-	Blood Stream Infections
CA	-	Cetrimide Agar
CAP	-	Community Acquired Pneumonia
CA-UTI	-	Catheter Associated Urinary Tract Infection
CDC	-	Centers for Disease Control
CF	-	Cystic Fibrosis
CLSI	-	Clinical Laboratory Standard Institute
CNS	-	Central Nervous System
CSF	-	Cerebrospinal fluid
CVP	-	Central Venous Pressure
ESBL	-	Extended Spectrum –Lactamase
GI	-	Gastrointestinal
HAP	-	Hospital Aquired Pneumonia
HCW	-	Health Care Worker
ICU	-	Intensive Care Unit
IFN	-	Interferon
LPS	-	Lipopolysaccharide
LRTI	-	Lower Respiratory Tract Infetion
MA	-	MacConkey Agar
MDR	-	Multi-drug Resistant
MDRO	-	Multi-drug Resistant Organism
MHA	-	Muller Hinton Agar
MR	-	Methyl Red
NA	-	Nutrient Agar

NB	-	Nutrient Broth
NI	-	Nosocomial Infection
NINAS	-	National Institute of Neurological and Allied Sciences
NNIS	-	National Nosocomial Infection Surveillance
PAE	-	Post Antibiotic Effect
RND	-	Resistance-Nodulation-Division
RTA	-	Road Traffic Accident
RVD	-	Right ventricular Dysfunction
SIM	-	Sulphide Indole Motility
TNF	-	Tumor Necrosis Factor
TPD	-	Tetramethyl p-Phenylene Diamine dihydrochloride
TSI	-	Triple Sugar Iron
UTI	-	Urinary Tract Infection
VAP	-	Ventilator Associated Pneumonia
VP	-	Voges Proskauer
WHO	-	World Health Organisation