



Summary brief

14 September 2021

High drug resistance to PABS in sputum samples from an intensive care unit in Nepal

PABS stands for *Pseudomonas* (P), *Acinetobacter* (A), *Burkholderia* (B) and *Stenotrophomonas* (S)

Reference: Ghimire R, Gupte HA, Shrestha S, Thekkur P, Kharel S, Kattel HP, Shrestha PS, Poudel N, Shakya S, Parajuli S, Mudvari A, Edwards J. PHA. AMR Supplement

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Key Messages

- We found a high prevalence and resistance of *Pseudomonas*, *Acinetobacter*, *Burkholderia* and *Stenotrophomonas* (PABS) among the patients admitted in the Intensive Care Unit (ICU) with positive isolates in sputum culture. They can grow in any favorable conditions where other organisms do not grow.
- PABS was commonly found in bacterial isolates. Resistance to at least one antibiotic was more than half of the isolates.
- Patient specific data from medical records such as previous hospitalization, underlying comorbidities, previous antimicrobial therapy, number of sputum samples during ICU stay and reason for admission were frequently incomplete, limiting further exploration of possible associated risk factors.
- These groups of bacteria have emerged as important nosocomial pathogens. They have the ability to grow in any adverse condition. It results in increased hospital stay and mortality due to high levels of antimicrobial resistance requiring close monitoring of these pathogens.
- Hospital management committee should improve the medical record system which will help to obtain the patient specific data. This detailed information can be a guide for further analysis and add evidence.

What is the problem and why is it important?

Critically ill patients admitted to ICUs are highly vulnerable to infections caused by PABS species due to repetitive invasive procedures and these species can grow in any favorable conditions where other organisms can not grow. There is a burden of lower respiratory tract infections (LRTIs) caused by PABS in ICU settings where these organisms frequently contribute to multi drug resistance. If we do not know the resistance pattern of these organisms, it can lead to negative treatment outcomes including septicaemia and even death. Therefore, it is important to

PABS can grow everywhere in the environment

Pseudomonas can even survive in the soap

PABS can cause serious healthcare-associated infections.

determine the burden of PABS and its resistance pattern among the patients admitted in ICU.

How did we measure it?

We conducted this study in Tribhuvan University Teaching Hospital (TUTH) of Kathmandu, Nepal. We used laboratory records of all patients admitted to ICU with positive bacterial isolates (104) in sputum samples from April 2018 to April 2019.

What did we find?

- We observed a high prevalence of PABS species with high levels of resistance to at least one antibiotic.
- Out of all positive bacterial isolates, 64% were positive for PABS. *Pseudomonas* accounted for 31%, *Acinetobacter* 30%, *Burkholderia* 1% and *Stenotrophomonas* 3%.
- Resistance to at least one antibiotic was 81% among *Pseudomonas* and 97% among *Acinetobacter*.
- Clinical outcomes were not available for 25% of patients.

Implications

- If there is high prevalence of PABS in nosocomial infections and its resistance to antibiotics then it results in increased morbidity and mortality of the patient.
- The Infection Prevention and Control Committee should look for the source of infection and implement and strengthen IPC measures in the hospital to reduce and prevent PABS infections.
- The Drug and Therapeutic Committee should monitor the prevalence of PABS and its resistance pattern periodically and encourage the researchers to do more research on PABS and its resistance pattern.
- The Hospital Management Committee should improve the medical records system by reinforcing an electronic medical record system. This can help in obtaining patient specific data that can guide further analysis and provide additional evidence.