



## Antimicrobial resistance of blood culture isolates from patients attending Goroka Provincial Hospital, Papua New Guinea

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### Abstract text

**Background:** Bloodstream infection (BSI) due to antibiotic-resistant bacteria remains a global healthcare concern. Little information is available in Pacific Island countries, including Papua New Guinea. Blood culture-based antimicrobial resistance surveillance of BSI in patients receiving clinical care at Goroka Provincial Hospital, Papua New Guinea has been introduced with support from Fleming Fund Country Grant.

**Methods:** We analysed demographic, clinical, and bacterial identification and antimicrobial susceptibility testing data from blood specimen collected between April 2022 and July 2023. Data were retrieved from the Senaite Laboratory Information Management System and analysed using WHONET and R statistical software.

**Results:** Among the 1,276 patients screened for BSI, 51% (646) were male, and the median age was 19 years (IQR 6-33). Out of the total (n = 1276) blood specimens processed, 141 (11%) were positive for bacterial pathogens. *Salmonella enterica* serovar Typhi (72, 51%) and Methicillin-resistant *Staphylococcus aureus* (14, 10%) were the most frequently isolated bacteria and showed high susceptibility to conventional first-line antibiotics (93–100%). *Salmonella* Typhi isolates (43%) were resistant to chloramphenicol. Patients with *S. Typhi* did not differ significantly in age compared to patients presenting with BSI as a result of other bacteria, including MRSA ( $p > 0.05$ ). However, the isolation rate of *S. Typhi* and MRSA was significantly high in the paediatric ward (93%) and the emergency ward (15%), respectively ( $p < 0.05$ ).

**Discussion:** *Salmonella enterica* serovar Typhi, resistant to chloramphenicol, was the predominant cause of bloodstream infection, especially among infants and children <10 years of age, posing a threat to patient management. There is a need for routine surveillance to monitor the spread of these resistant strains.