

03. Antimicrobial Resistance Patterns Of Staphylococcus Aureus In Bloodstream And Wound Infections

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Background: Staphylococcus aureus is a common cause of bloodstream and wound infections in both community and hospital settings. Rising antimicrobial resistance, particularly methicillin-resistant S. aureus (MRSA), limits treatment options and increases the importance of monitoring local resistance trends. The aim of this study is to compare the antimicrobial resistance rates of S. aureus isolates recovered from bloodstream infections and wound infections at the University Hospital St. Marina-Varna in 2025. **Methods:** A retrospective cross-sectional study used S. aureus isolates collected at the University Hospital St. Marina-Varna in 2025. A total of 235 non-duplicate isolates were included: 75 from blood cultures (BSI group) and 160 from wound swabs or tissue specimens (wound infection group). Using the disc diffusion method following current EUCAST/CLSI guidelines, twelve antimicrobial agents were tested: penicillin, cefoxitin (as a surrogate for methicillin resistance/MRSA), gentamicin, erythromycin, clindamycin, ciprofloxacin, tigecycline, tetracycline, trimethoprim-sulfamethoxazole, vancomycin, teicoplanin, and linezolid. Antimicrobial susceptibility testing was performed, and resistance rates were compared. Resistance rates were analysed descriptively and compared between the two groups **Results:** Resistance rates among BSI isolates (n = 75) and wound infection isolates (n = 160) are summarized in Table 1. Penicillin resistance was the most prevalent finding in both groups (68.0% and 76.2%, respectively). MRSA (cefoxitin resistance) was detected in 9.3% of BSI and 13.8% of wound isolates. Macrolide (erythromycin) and lincosamide (clindamycin) resistance was notably higher in the wound infection group (40.0% and 38.1%) compared with the BSI group (28.0% and 28.0%). Resistance to aminoglycosides (gentamicin) was slightly higher in BSI isolates (16.0% vs. 10.6%). All isolates remained susceptible to tigecycline. Vancomycin and teicoplanin resistance were absent in BSI isolates but detected in 1.25% of wound isolates (n = 2 each). One wound isolate (0.6%) showed linezolid resistance. Trimethoprim-sulfamethoxazole resistance was low in BSI isolates (2.7%) and absent in wound isolates. **Conclusion:** High penicillin resistance and MRSA prevalence were seen in both groups. Wound isolates demonstrated greater macrolide and lincosamide resistance, whereas all isolates remained susceptible to tigecycline. Low glycopeptide and linezolid resistance in wound isolates highlights the need for resistance monitoring and management. **Keywords:** Staphylococcus aureus, Methicillin-Resistant Staphylococcus aureus, bloodstream infection, wound infection.

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Antimicrobial	BSI (n=75) Resistant, n (%)	Wound (n=160) Resistant, n (%)
Penicillin	51 (68.0%)	122 (76.2%)
Cefoxitin (MRSA marker)	7 (9.3%)	22 (13.8%)
Gentamicin	12 (16.0%)	17 (10.6%)
Erythromycin	21 (28.0%)	64 (40.0%)
Clindamycin	21 (28.0%)	61 (38.1%)
Ciprofloxacin	3 (4.0%)	7 (4.4%)
Tigecycline	0 (0.0%)	0 (0.0%)
Tetracycline	8 (10.7%)	18 (11.2%)
Trimethoprim-sulfamethoxazole	2 (2.7%)	0 (0.0%)
Vancomycin	0 (0.0%)	2 (1.2%)
Teicoplanin	0 (0.0%)	2 (1.2%)
Linezolid	0 (0.0%)	1 (0.6%)

Table 1. Antimicrobial resistance of S. aureus isolates by infection source (2025)

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