

Comparison of methicillin-resistant *Staphylococcus aureus* (MRSA) among healthcare workers at Teaching Hospital, Jaffna and the community.

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Introduction and Objectives: Methicillin-resistant *Staphylococcus aureus* (MRSA) remains a significant public health concern, causing a range of infections from mild skin conditions to severe systemic diseases in both hospital and community settings. Healthcare workers (HCWs) are particularly at risk due to frequent patient contact, while emerging community-associated strains increasingly affect healthy individuals. This study compared nasal and hand carriage rates of MRSA among HCWs in selected units at Teaching Hospital, Jaffna and the community. It also sought to evaluate antibiotic susceptibility (ABS) patterns and identify associated risk factors.

Method: An analytical cross-sectional study was conducted from February to May 2025. It included 107 HCWs from selected units at Teaching Hospital, Jaffna (ICUs, surgical/medical wards, operation theatres, dialysis, and neonatal units) and 107 individuals from the community. Community participants were university students who were permanent residents of Jaffna and not involved in clinical hospital work. A convenient sampling method was used. Nasal and hand swabs were collected and inoculated into 7.5% NaCl broth. After overnight incubation, the broth was subcultured onto blood agar and MacConkey agar and incubated overnight. *S. aureus* was identified based on colony morphology, Gram staining, catalase and coagulase tests. MRSA was identified using the cefoxitin (30 µg) disc diffusion test. ABS was assessed using the disc diffusion method, and vancomycin susceptibility was confirmed using MIC. Associations were analysed using Chi-square and Fisher's exact tests.

Results: MRSA colonisation was detected in 4 (3.7%) HCWs and 5 (4.7%) community members. In HCWs, 3 (2.8%) nasal swabs and one (0.9%) hand swab were positive. In the community, 4 (3.7%) nasal swabs and one (0.9%) hand swab were positive. No significant association was found between MRSA colonisation and group, swab site, or evaluated factors ($p > 0.05$). All MRSA isolates were sensitive to vancomycin. Resistance to cefoxitin (100%) and erythromycin (77.78%) was observed. Clindamycin (66.67%), ciprofloxacin (77.78%), and gentamicin (77.78%) showed high susceptibility.

Conclusion: The findings emphasise the presence of MRSA in both healthcare and community settings and point out the need for targeted awareness programmes, particularly in universities, to promote responsible antibiotic use and strengthen preventive strategies.

Keywords: MRSA, healthcare workers, community, antibiotic resistance

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