



STUDENTŲ MOKSLINĖS VEIKLOS TINKLO LXXVIII KONFERENCIJA

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MUPIROCIN SUSCEPTIBILITY OF *STAPHYLOCOCCUS AUREUS* CLINICAL ISOLATES: A 2025 STUDY IN VILNIUS HOSPITALS, LITHUANIA

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Background and aim. *Staphylococcus aureus* (*S. aureus*) is a common pathogen responsible for a wide range of infections, ranging from mild skin and soft tissue infections to severe diseases such as pneumonia and sepsis. Methicillin-resistant *Staphylococcus aureus* (MRSA) has become a major public health concern, with an estimated 2% of the population carrying it, a figure that is steadily increasing. Mupirocin is a topical antibiotic commonly used to treat superficial skin infections and to eradicate MRSA colonisation of the nasal cavity. However, the increasing use of mupirocin has led to the emergence of mupirocin resistant *S. aureus* in many countries.

Methods and materials. *S. aureus* strains from Hospital A and Hospital B were collected in 2025 and stored at Vilnius University Faculty of Medicine. The isolates were tested for mupirocin susceptibility using the E-test (gradient method), disc diffusion with 5 µg and 200 µg discs, and real-time PCR (RT-PCR) for detection of *mupA* and *mupB* genes.

Results. A total of 468 clinical isolates from Hospital A (n = 163) and Hospital B (n = 305) were tested for low and high-grade mupirocin resistance. Specimens were obtained from skin and soft tissues (68.8%), blood (12.8%), respiratory tract (9.4%), urine (3.4%) and other sources (5.6%). Two *mupA* gene-positive isolates were detected by RT-PCR. However, despite the presence of the gene, the isolates obtained from skin and soft tissue samples did not exhibit phenotypic resistance in either the E-test or disc diffusion. The remaining isolates showed no evidence of mupirocin resistance by any of the methods used; this was confirmed by inhibition zones of ≥14 mm in disc diffusion and low minimum inhibitory concentrations (MICs) measured by the gradient strip test.

Conclusion. No phenotypically resistant strains were identified in the clinical specimens provided, despite the *mupA* gene target being detected by RT-PCR.

Keywords. Mupirocin; susceptibility; MRSA; *Staphylococcus aureus*.