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**Title:** Molecular Characterization of Hyper Variable Region (hvr) of mecA Gene Polymorphisms in Staphylococcus aureus isolates among health care workers of Tehran University of Medical Sciences hospitals by PCR Method

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**Abstract:** Background: Staphylococcus aureus is one of the common Pathogens that capable of causing a wide range of human diseases. It has overcome most of the therapeutic agents that have been developed in the recent years. The most notable example of this phenomenon was the emergence of methicillin resistant Staphylococcus aureus (MRSA). MRSA originates from the introduction of a large mobile genetic element called staphylococcal cassette chromosome mec (SCC mec). The 20- to 50-kb mec DNA includes the mecA gene. The genomic distance between mecA and IS431 is highly variable, and this region is called the hyper variable region (HVR). Nasal S. aureus carriage seems to play a key role in the pathogenesis of infection. The health care workers identified as link in the transmission of MRSA between patients. Molecular typing of MRSA isolates is a powerful technique to discriminate among them. The aim of this study was to determine the variety of mecA-hvr S. aureus isolated from health care workers.

**Method:** A cross sectional study was performed on 261 from nasal swabs (Health care workers) isolates from Tehran University of Medical Sciences hospitals. Then all of these isolates were identified with biochemical tests. Susceptibility to antibiotic was determined by agar disc diffusion method. Methicillin-resistant Staphylococcus aureus isolates were investigated for the variability of hvr of mecA gene by PCR method.

**Results:** In this study of the 261 health care staff isolates referred from five acute hospitals, 70 (26.8%) were found to be S. aureus. Of these 29 (11%) were MRSA and have mec-hvr. Molecular typing of the 70 S. aureus from nasal carriers isolates by hvr-PCR method illustrate five hvr types.

**Conclusion:** According to this study discrimination of nasal colonization of MRSA in health care workers based on hvr typing might be useful for investigation the link of MRSA particularly in hospitals. Therefore, recognition of nasal colonization of mecA gene and patterns of hvr in health care workers by molecular method might be useful for investigation of MRSA transmission particularly in hospitals.

**Staphylococcus aureus, HVR of mecA gene, Health care workers**

**Presentation:** Poster