Isolation of Methicillin-Resistant Staphylococcus *aureus* Strains from cell-phone, hands and nostrils of hospital staffs working on four teaching hospitals in Sabzevar city, North-east of Iran

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Staphylococcus aureus is known as one of the main bacterial causes of health care associated infection, which produce different syndromes with great morbidity and mortality among patients worldwide.

Methicillin-resistant *Staphylococcus aureus* may produce different syndromes with great morbidity and mortality among patients in the community and hospitals which known as nosocomial infections. In the current study, we aimed to investigate prevalence of methicillin-resistant *Staphylococcus aureus* and its antibiotic susceptibility pattern in healthcare workers attending on the four university hospitals of Sabzevar city, Iran and secondly assess the characteristics of *SCCmec* types and risk factors for this carriage on infected people. Four samples were taken by sterile swabs from nostrils, hands and cell-phones of 600 participant and *Staphylococcus aureus* strains were identified via traditional assays in the laboratory. Antibiotic susceptibility testing of isolates was performed according to the standard protocols. Additionally, amplification of *mec*A gene was performed to confirm methicillin-resistant strains through PCR assay. SCC*mec* typing was performed by a mul- tiplex PCR assay among MRSA isolates.

A total of 2400 samples were collected and *Staphylococcus aureus* was detected in at least one sample of 287 cases (47.8%, CI 95%: 42.4- 53.7), in total. Additionally, the overall prevalence of methicillin-resistant *Staphylococcus aureus* strains was calculated to be 9.0% (54 of 600) which demonstrated 18.8% of *Staphylococcus aureus* isolates. *Staphylococcus aureus* colonization was significantly higher in male than in female participants (OR=1.3). Moreover, the prevalence of *S. aureus* was found to vary significantly between participants of studied hospitals.

SCC*mec* type I and III were the most prevalent SCC*mec* types in isolates. The present study showed that the rates of *Staphylococcus aureus* and methicillin-resistant *Staphylococcus aureus* isolates in health care workers attending on hospitals of north-east of Iran is relatively high and

some programs such as constant monitoring as well as curing of infected cases are needed to interrupt transmissions routes and control the dissemination of the infection.

Keywords: *Staphylococcus aureus*, Methicillin-resistant *Staphylococcus aureus* (MRSA), Health Care Workers