

Analysis of Transmission of Methicillin-resistant *Staphylococcus Aureus* in an Intensive Care Unit by Pulsed-field Gel Electrophoresis

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Abstract : The relationship between the carriage of nasal methicillin-resistant *Staphylococcus aureus* (MRSA) by medical staff and the detection of MRSA in intensive care unit (ICU) patients was studied by a prospective comparison of the pulse-field gel electrophoresis (PFGE) patterns of MRSA bacterial isolates. Nasal cultures were obtained from medical staff both at the beginning and the end of the study. One hundred and twenty-nine consecutive patients were screened by a nasal swab at the time of ICU entry and weekly thereafter until either discharge or death. Extra-nasal samples were taken when infection was suspected. Isolated MRSAs were classified into 12 PFGE types. More than half of the nasal MRSA carriers (16 of 27) and more than three-quarters of the patients with extra-nasal MRSA isolates (15 of 19) had identical PFGE types. Furthermore, the PFGE types of all 14 isolates from extra-nasal sites of the carriers were identical to the nasal isolates. The most prevalent strains did not appear to be transmitted to the ICU patients by staff nasal carriers. However, other strains were readily transmitted from staff carrier to patients. The strain difference in transmissibility may explain why there continue to be conflicting reports regarding the involvement of nasal carriage of MRSA by medical staff and outbreaks in patients.

Key words : Methicillin Resistant *Staphylococcus Aureus*, Intensive Care Unit, Transmission, Pulsed-Field Gel Electrophoresis, Mupirocin