



Current Molecular Epidemiology of Methicillin-Resistant *Staphylococcus aureus* in Elderly French People: Troublesome Clones on the Horizon

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Objective: In 2015, we conducted at 44 healthcare facilities (HCFs) and 21 nursing homes (NHs) a 3 month bloodstream infection (BSI) survey, and a 1 day prevalence study to determine the rate of carriage of methicillin resistant *Staphylococcus aureus* (MRSA) in 801 patients and 470 residents. We investigated the molecular characteristics of the BSI associated and colonizing MRSA isolates, and assessed cross transmission using double locus sequence typing and pulsed field gel electrophoresis protocol.

Results: The incidence of MRSA-BSI was 0.040/1000 patient-days (19 cases). The prevalence of MRSA carriage was 4.2% in patients ($n = 39$) and 8.7% in residents ($n = 41$) ($p < 0.001$). BSI-associated and colonizing isolates were similar: none were PVL-positive; 86.9% belonged to clonal complexes 5 and 8; 93.9% were resistant to fluoroquinolones. The *qacA/B* gene was carried by 15.8% of the BSI-associated isolates (3/3 BSI cases in intensive care units (ICUs)), and 7.7% of the colonizing isolates in HCFs. Probable resident-to-resident transmission was identified in four NHs.

Conclusion: Despite generally reassuring results, we identified two key concerns. First, a worrying high prevalence of the *qacA/B* gene in MRSA isolates. Antiseptic measures proved crucial to prevent healthcare-associated infections, our findings raise questions about the potential risk associated with chlorhexidine use in *qacA/B*⁺ MRSA carriers, particularly in ICUs. Second, NHs are a weak link in MRSA control. MRSA spread was not controlled at several NHs; because of their frequent contact with the community, conditions are favorable for these NHs to serve as reservoirs of USA300 clone for local HCFs.

Keywords: *Staphylococcus aureus*, MRSA, elderly, carriage, bloodstream infection, *qacA/B*