Molecular typing of antibiotic-resistant *Staphylococcus aureus* in Nigeria

S.M. O’Malley, F.E. Emele, F.O. Nwaokorie, N. Idika, T.C. Smith

**Introduction**
Nigeria is the most populous country in Africa, with over 160 million people. The high population growth rate, coupled with poor living conditions, is a potential factor for widespread infection; highly virulent antibiotic-resistant *Staphylococcus aureus*, such as methicillin-resistant strains (MRSA), is a major concern in such a densely populated community. Information on drug-resistant strains of *S. aureus* in Nigeria is limited but indicates that this harmful bacterium, including antibiotic-susceptible strains, exists in hospital settings. This made it necessary to determine the molecular profile of *S. aureus* isolates from Nigeria.

**Methods**
A total of 73 biological samples (40 throat, 23 nasal, and 10 wound swabs) were collected from patients and healthcare workers in five health institutions in Lagos and Owerri, Nigeria. The samples were promptly analyzed for *S. aureus* by standard microbiological techniques at the Nigerian Institute of Medical Research, Lagos. Positive isolates were subjected to genetic and antimicrobial susceptibility assessment at the Center for Emerging Infectious Diseases, University of Iowa, USA.

**Results**
Of the 73 samples, *S. aureus* was isolated from 38 (52%); 9 (24%) of the isolates carried the Panton Valentin leukocidin gene (PVL) while 15 (42%) of the isolates possessed methicillin-resistance genes (*mecA*). Antibiotic susceptibility testing showed that thirty-two isolates (84%) were resistant to tetracycline, 29 (76%) resistant to TMP/SMX, 16 (42%) to oxacillin, 7 (18%) to levofloxacin, 5 (13%) to erythromycin, and 5 (13%) to gentamycin. Notable *spa* types included t064 (11/38, 29%), 8 of which were positive for *mecA* gene, and t355 (10/38, 26%), of which 5 were positive for PVL.

**Conclusion**
Based on the results, it could be concluded that virulent and antibiotic-resistant *S. aureus* is a problem in clinical settings in Nigeria. This tends to alert the need for judicious antimicrobial prescribing and proper enlightenment of the population on the dangers of antimicrobial abuse in self-medication.