

P2100 Evaluation of different screening methods to detect MRSA contamination: swabs, gauzes, and polywipes

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Background: Methicillin-resistant *Staphylococcus aureus* (MRSA) can survive for long periods on inanimate objects, and therefore environmental surfaces constitute an important reservoir for dissemination. However, there is no standardized method for the detection of MRSA from environmental surfaces. The aim of the present study was to evaluate different screening methods to detect environmental MRSA contamination.

Materials/methods: A total of 447 samples were obtained from inanimate surfaces at a hospital in Luanda, Angola and a hospital in São Tomé and Príncipe, by three different methodologies: (i) sterile swabs moistened in saline solution; (ii) sterile cotton gauzes moistened in Tryptic Soy Broth; (iii) commercial premoistened sterile sponges (polywipes). After a broth enrichment step, all samples were plated onto Tryptic Soy Agar and chromogenic selective media for *S. aureus* and for MRSA. The *S. aureus* isolates were characterized by PFGE, *spa* typing, MLST, and SCC*mec* typing.

Results: Comparing the three screening methods, gauzes were the most effective (13 MRSA out of 98 samples; 13.3%), followed by polywipes (1/98; 1.0%) and swabs (2/251; 0.8%). Moistened gauzes were the most sensitive method ($p < 0.00001$) while screening with swabs was the least efficient ($p = 0.00002$). The majority of the MRSA isolates (75%) belonged to the main clonal types previously found among patients and healthcare workers in the same hospitals: ST5-IVa ($n = 7$; 44%) and ST88-IVa ($n = 5$; 31%).

Conclusions: The finding of MRSA on environmental surfaces is dependent on the screening methodology. Moistened gauzes followed by a broth enrichment step proved to be a very sensitive methodology.