Enhanced Recovery of Low-Inoculum Methicillin-Resistant Staphylococcus aureus (MRSA) by the Novel Flocked ESwab Compared to a Conventional Swab, the M40 Transystem

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ABSTRACT

Background: Colonization with MRSA is a risk factor for subsequent infection, and is associated with horizontal transmission. Nasal carriage serves as the most easily accessible and cost-efficient method for MRSA screening. Unlike most conventional agar-based media, the recently introduced ESwab (E. Copan Diagnostics, Inc., Modena, CA, USA) is a flocked swab marketed to enhance MRSA detection. This study was designed to compare the recovery of low-inoculum MRSA by two swab systems using three methods: direct swab plating by a conventional swab and ESwab; liquid transport using a conventional swab and ESwab. Since the ESwab adsorbs bacteria to its flocked fibres, the ESwab was anticipated to be more efficient in recovering MRSA when present in low inoculum.

METHODS

Using the CLSI M40 Roll Plating Method, swabs were seeded in triplicate with 100 µL aliquots of 21 MRSA strains, comprising a community-acquired strain (ATCC 33530) and 20 clinical isolates, including 10 of the 11 Panton-Valentine Leukocidin (PVL) toxin-associated (HA-MRSA) strains, which had been previously characterized for Panton-Valentine leukocidin (PVL). In this study, all of the PVL-negative (HV-MRSA) strains were used. Prolongation of swab storage was associated with an increase in CFU counts (p < 0.05) in both swab systems (Figure 2). Each isolate was suspended in sterile saline and the suspensions were serially diluted from 1 * 10^3 to 1.5 * 10^7 CFU/mL, which may contribute to its persistance in at risk patient populations.

RESULTS & DISCUSSION

In this study we sought to determine if the ESwab had an advantage over its conventional counterpart in picking up MRSA when present at very low levels. The efficacy of recovering low inoculum MRSA was of great importance and clinical relevance, and the testing of the ESwab was anticipated to enhance MRSA detection, control and containment of the spread of MRSA.

We recommend the use of the ESwab to maximize the likelihood of recovering MRSA when present in a low inoculum in specimens from patients colonized or infected by the organism. The ESwab’s ability to be used or stored for additional testing when needed is an advantage. The ESwab is superior to the conventional M40 Transystem in recovering the organism.

REFERENCES


ACKNOWLEDGMENTS

We thank Dr. Charles Farhat and Ms. Joy Haing, Sunnybrook Health Sciences Centre, for kindly providing the MRSA clinical strains for this study and Betty Preyong and Tommy U. Alpha Laboratories, for excellent technical and plate reader assistance. This work was supported mainly by Copan Diagnostics Inc, and in part by Starplex Scientific Inc and BioHit Ltd.

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