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Technical note: Optimization of flocked swabs handling for automated processing

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ESwab® (Copan Italia SpA, Brescia, Italy) consists of a pre-labeled polypropylene screw-cap tube with 1 ml of Liquid Amies transport medium and a specimen collection swab which has a tip (regular or minitip) flocked with soft nylon fiber. Due to the flexibility of the shaft of minitip swabs, the capture cap feature is not applicable, as the broken applicator may not firmly fit into the cap, thus manufacturer suggests to use sterile forceps to extract the applicator from the tube or from the cap if the swab has been partially captured. In processing eSwab® with automated systems this point is crucial because the flexibility of the shaft of minitip swabs may interfere with the automation processes.

A 0.5 McFarland (1.5 x 108 CFU/ml) of *Escherichia coli* (ATCC 25922) was prepared in 0.85% saline. The suspension was further diluted 1:10 to achieve a concentration of 1.5 x 104 CFU/ml and the inoculum was 100µl. Triplicate swabs were inoculated into its respective transport system for 10 min (T1), or 30 min (T2) or immediately discarded (T0). In duplicate, 100 µl samples were used to quantify the organisms in each of the dilutions on TSA with 5% sheep blood agar. The recovery was overlapping at T0, T1 and T2.

This preliminary proof of concept study evaluates the possibility of discarding the collection swab immediately at point of care and this procedure seems to not interfere with bacterial recovery. In our opinion this approach could simplify all handling procedures and avoid the utilization of tweezers to extract applicator, thus reducing risk of contamination. Moreover the immediate discarding the collection swabs of all types of applicator shafts (minitips and regular tips) should make possible to standardize the subsequent steps on automated platforms. Further studies should be performed by manufacturer to optimize the procedure for laboratory users.

Biography

Manuela Avolio is MD in Clinical Microbiology and Virology. She works from 2007 at Clinical Microbiology and Virology Laboratory, Department of Laboratory Medicine at Pordenone Hospital, Italy. Among her principal fields of interest are the application of new technologies in clinical microbiology and the use of instrumentation to automate the front-end processing and workup of specimens submitted to a laboratory for analysis. She has published more than 20 papers in reputed journals.

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