

EVALUATION OF THE COPAN BC+™ FOR THE AUTOMATED MANAGEMENT OF POSITIVE BLOOD CULTURES: MICROSCOPE SLIDES AND SUBCULTURES PREPARATION

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OBJECTIVES

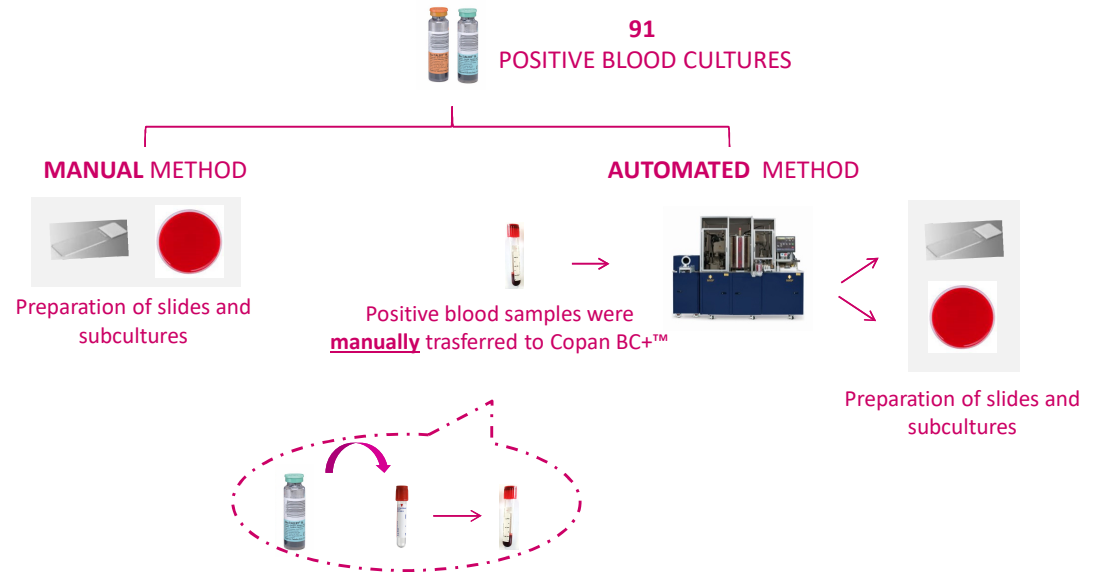
The pre-analytical and analytical phase of Microbiology Laboratory has undergone a major change over the last few years through the development of robotic systems, capable of automating many activities. The use of WASPLab™ (COPAN ITALIA, Brescia, Italy) in our Laboratory allowed for a better standardization of the management of different samples. Blood cultures are not easy to manage in an automatic way. The aim of the study was to introduce and evaluate the performance of an automatic method for the preparation of slides and subcultures from positive blood culture by the means of a new device: Copan BC+™ (COPAN ITALIA, Brescia, Italy).

METHODS

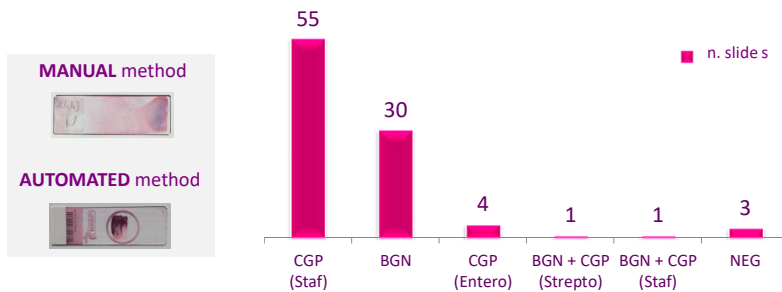
A total 91 positive blood cultures were included in this evaluation at the Microbiology Laboratory of Niguarda Hospital, Milan, Italy. Copan BC+™ is a device allowing to aspire a specific aliquot of blood (2.5 mL). All samples were manually transferred to the Copan BC+™ and loaded onto the Wasplab™ System. The automated system streaked 10 µL of blood on agar plates (blood agar and Mac Conkey) and then prepared one smear for microscopic examination. The results were compared with those obtained by the routine manual method using the same protocol as for the automated method. The plates were incubated at 35° C for 16-48 hours.

RESULTS

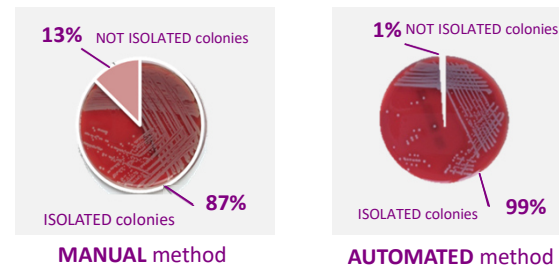
Our data demonstrate that the quality and interpretation of microscopic examination, prepared with automated method are comparable in 100% of cases (91/91) with the traditional method. The quality of the inoculum and the presence of isolated bacterial colonies were considered to assess the reliability of the automated method. The routine manual method achieved isolated colonies in 79/91 cases (87%). The automated procedure, instead, achieved a better quality in isolation of bacterial colonies. In fact, in 90/91 samples (99%) it was possible to obtain isolated colonies, whereas in 1 sample (1%) the growth was too abundant.



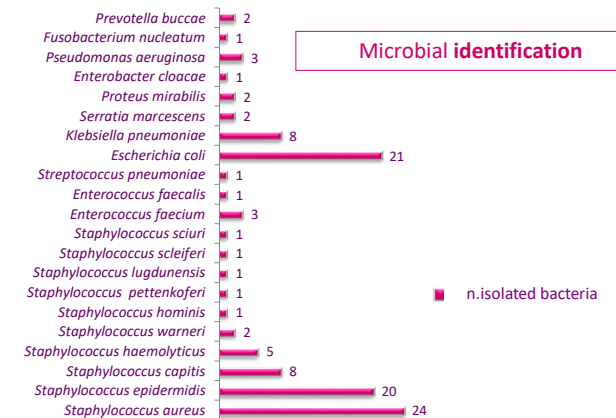
Quality and interpretation of microscopic examination



Quality isolation of bacterial colonies



Microbial identification



CONCLUSION

This work demonstrated that Copan BC+™ is an innovative device to manage positive blood cultures in an almost all-automated way. The quality of smear and the microscopic examination were comparable to the traditional method, thus confirming the reliability of the automated method. Moreover, the automated method allowed for a better achievement of isolated bacterial colonies, also improving safety for the operator during the transfer of blood cultures in Copan BC+™. On the base of these results, we decided to manage the positive blood cultures by the WaspLab™ System using the Copan BC+™ device, allowing for a better tracking of the sample and standardization of the workflow.