Implementation of WASP™ automation for blood culture confirmation

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The diagnosis of bloodstream infections (BSIs) is one of the most critical functions of clinical microbiology laboratories. Among the bundles of the Surviving Sepsis Campaign under “Diagnosis” is stated to take at least 2 sets of blood culture before antimicrobial therapy. Clinicians expect to be notified by the laboratory every time a blood culture becomes positive which it may represent life-threatening infections. It is an important duty of the microbiologist to optimize the workflow around this sample with the aim of providing the results (Gram up to antimicrobial susceptibility testing AST) in the shortest time as possible.

Since 2008 we have implemented a new work flow by introducing the WASP™ automation for processing clinical specimens. All laboratory protocols have been gradually improved along the time. Recently we decide to also process positive BCs on the WASP™.

Objectives:
- Implement a WASP™ protocol for the preparation of Gram smears and culture set up for all positive BC bottles;
- Compare manual to WASP™ automation processing of positive BCs.

Results: The number of mono-microbial and mixed BCs are reported in the table 1. Microscopic examination; Good agreement between Manual and Automated smears was observed. Some manual smears are usually overloaded and the microscopic observation can be challenging particularly in mixed BCs observation (figure 1).

Culture: plates seeded by WASP™ had well isolated colonies and usually did not require a subculture. Indeed, 6 mixed BCs from manual seeding required a subculture onto specific selective media.

Conclusion:
An automated work protocol has a clear impact on quality and traceability. The same barcode, associated to the plates and to the slides, allows traceability of each BCs and avoiding misidentification of slides. The introduction of BCs on WASP™ has significantly reduced manual work, has improved the quality of BCs, and globally reduced the time to reporting. In fact, well isolated colonies avoid sub-culture from mixed blood. An additional advantage is that you can use the same tube to perform any additional assay: from MALDI TOF direct identification to any additional molecular assay test (Film Array as well as Real time PCR to confirm the presence carbapenemase producer (eg. Carbapenemases Producing Enterobacteria CPE). Take home message is “improved the quality of your work and save the time for faster results.”