P0578
Poster Session II
Automation of diagnostics

VALIDATION OF OPTIMAL SAMPLE VOLUME/LOOP/STREAKING/PATTERN AND FLEXIBILITY TO CUSTOMIZE SOLUTIONS FOR WALK AWAY SPECIMEN PROCESSOR (WASP) USERS.

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Objectives: Traditionally, bacteriology clinical specimens are manually streaked using swabs and/or different sizes loops. With the introduction of automation in the Microbiology laboratories and the requirement to use samples in liquid phase, it is important to validate automated streaked of liquid samples using 1ul, 10 ul and 30ul loops to guarantee good colonies isolation. It is important to have a flexible system to accommodate customers' requests in terms of volume or streaking patterns for different sample types.

Study's objectives were: 1) to validate the optimal size/volume loop and streaking pattern with good colonies separation for Urine samples in Uriswab, swab samples in ESwab, Stool samples in FecalSwab and Sputum samples in SLSolution 2) demonstrate the flexibility of WASP automation to deliver customized solutions.

Methods: Spiked samples, prepared with single and mixed bacteria with high/low, equal, and low/high concentrations from 0.5 McF to countable dilutions. Uriswab samples (USP), with *E. Coli and S. aureus*, ESwab samples (ESP) with *MRSA and S. pyogenes*, FecalSwab samples (FSP) with *E. Coli* and *salmonella* and SLSolution samples (SSP) with *P.aeruginosa* and *K.pneumoniae***.**

USP, ESP, FSP, and SSP samples, spiked with 3 ascending dilutions of 2 bacteria were randomly loaded on the WASP and streaked on 3 different agar plates amongst blood, choc, UTI, TSA, XLD, and MacConkey. Loops, 1ul, 10ul, and 30ul, and appropriate streaking patterns selected from standard, optional and customized solutions were used to prepare dedicated WASP protocols. Inoculated plates were incubated at 35^0C; plates reading and image acquisition was done at 0 time and after 18-24 hrs incubation and images were recorded on the WASPLab server. 50 replicates were done for each sample.

Results: USP samples gave the best colonies separation with the 1 ul loop and all the streaking patterns, while the 10 ul loops gave the best colonies separation with the Single Streak type 7 streaking pattern. ESP samples gave the best colonies separation with the 10 ul and 30 ul loops and the 4Qtype6, 4Q type 4 and 5Q type 1 even with high bacteria loads.

The FSP samples gave best colonies separation with the 4 quadrant type 6 pattern. Optimal colonies separation was found in the customized streaking pattern with modified sample deposition.

Conclusions: It was demonstrated that the WASP can reliably and accurately produce isolated colonies in samples with all mixed concentration of bacteria according to the loop size and streaking pattern. Automated WASP seeding, and WASPLab plates image recording system supports quality in the microbiology laboratory. The results obtained in this study are stored in a library to monitor the WASP streaking performance and to help new WASP user select the optimal loop size and streaking patterns for their laboratory.