EV0589
ePoster Viewing
Laboratory automation

Transition from transystem to liquid-based microbiology (ESwabTM) specimen's collection devices for WASP and WASPLab clinical specimens processing

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Background: Copan Transystem consists of a plastic tube with Amie's agar-gel or a sponge with liquid Amies and has been the traditional specimen's collection devices for bacteria culture. Copan associated the invention of FLOQswab™ to the development of the Liquid Based Microbiology (LBM) concept. ESwab™ is an LBM device for the collection of clinical specimens for bacterial culture and consists of a 1 ml tube of liquid Amies and flocked swabs. The LBM concept was developed to enable automated bacteriology specimens processing. The transition from Transystem to ESwab™ with WASP™ automation requires appropriate validation since different inoculation methods are required: Transystem by direct swabbing, ESwab™ by volumetric system. The objectives of this study were to:

1) Quantitatively evaluate the volume of ESwab™ that corresponds to Transystem swabbing for bacteria culture inoculation.
2) Qualitatively compare cultured plates and Gram-smears of ESwab™ spiked clinical specimens processed by WASP™ versus Transystem manually processed.

Material/methods: 1) ESwabs™ and Transystems were spiked with 100uL of a freshly prepared countable suspension of *E.coli*, *S.aureus*, *C.albicans* and *P.aeruginosa* strains. Transystem were seeded with manual swabbing on the first quadrant in blood agar plates while ESwab™ was loaded on WASP™ and seeded on blood agar plates with 30ul loop and 5QT1 streaking-pattern. After plate incubation in WASPlab™, numbers of colonies were counted.
2) ATCC strains were used to spike throat, nasal and vaginal swabs specimens collected with ESwab™ and Transystem from volunteers. Vaginal samples were spiked with 10uL each (10^7 CFU/ml) of *E.coli and* (10^9 CFU/ml) of *C.albicans.* Nasal and throat samples were respectively spiked with 10uL (10^7 CFU/ml) of *S.aureus,* and *S.pyogenes.* All Transystems were seeded manually, swabbing the first quadrant in agar plate and preparing the gram smear, while all ESwab™ were loaded on WASP™ using 30ul loop for smear preparation and for seeding appropriate agar plates with a 5QT1 streaking pattern. All plates were transferred to WASPLab™ and incubated at appropriate conditions. Plate were recorded after 24h and interpreted.
Results: In the quantitative analysis the CFUs obtained from ESwab™ streaking by WASP™ were comparable to manual Transystem. In the qualitative analysis, ESwab™ samples plated by WASP™ had the same results as manual Transystem. ESwab™ WASP streaked plates had more isolated colonies than manual Transystem. The WASP™ prepared Gram-smears slides were well distributed and stained with more elements than the Transystem.
Conclusions: The quantitative data obtained demonstrated that 30ul ESwab™ sample is the optimal volume to use with WASP™ in comparison to manual Transystem. The qualitative data obtained from ESwab™ plates and Gram-smears processed by WASP™ automation had the results outcome than Transystem, but the colonies quality, distribution and Gram-smears were better with ESwab™ samples processed in WASP™.