Standardization of Urine samples processing on Copan WASP®

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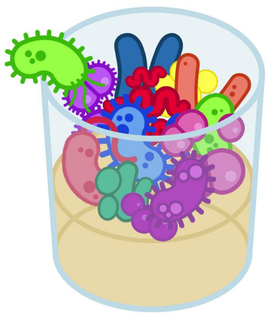
Background:

Urines are the largest number of specimens submitted to microbiology laboratories for bacterial culture. One of the main challenges is to ensure sample's stability during transportation to prevent overgrowth of normal bacterila flora and support pathogens viability. Copan UriSwab® (US) is a collection and transportation device for urine specimen compatible with WASP™.



The study objectives were:

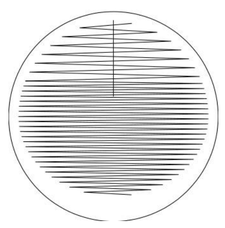
- Compare US performance with BD Vacutainer (VC) at time 0 and after 24h storage.
- Evaluate the compatibility of both devices with WASP® using a novel streaking pattern

Vacutainer (VC) UriSwab® (US)

Methods:

Clean catch urines (n=84) were used for this study. Vacutainer and US were prepared using the manufacturer's indications. Both devices were processed on **WASP®** at time 0 and after 24h storage at RT using the 10 µL loop and the single streak type 8 **(SST8)** on chromID CPS Elite plates. Inoculated plates were incubated in **WASPLab®** incubator (35°C ±2, O_2 for 18h). Samples with a concentration ≥10,000CFU/mL were defined as positive and a semiquantitative indication was assigned using an "abacus" obtained streaking *E. coli* 10-fold dilutions. Colonies from positive plates were identified using MALDI-TOF technology.

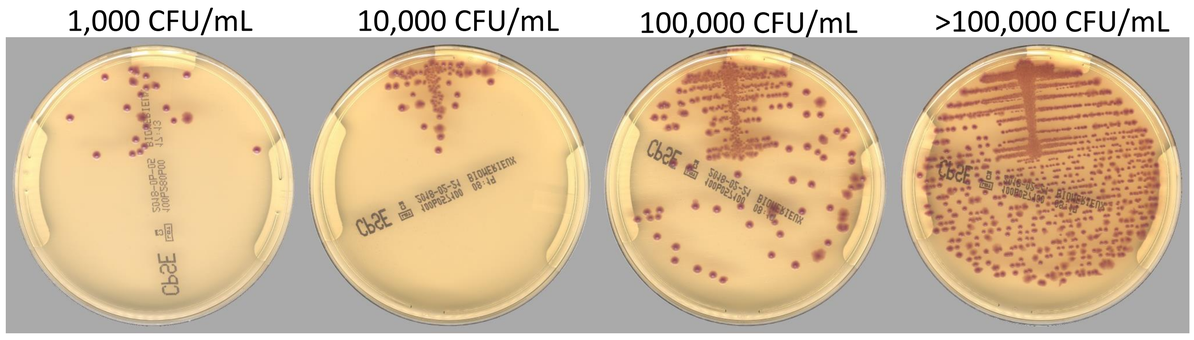
Plates at T=0 from US were analyzed to evaluate the performance of the **WASP®** using the new streaking pattern: if the plate showed more then 5 isolated colonies for all the isolates grown, the plate was defined as well isolated and could be used for futher analysis (ID+AST).



Results:

Abacus obtained streaking *E. coli* 10-fold dilutions on chromID CPSE Elite

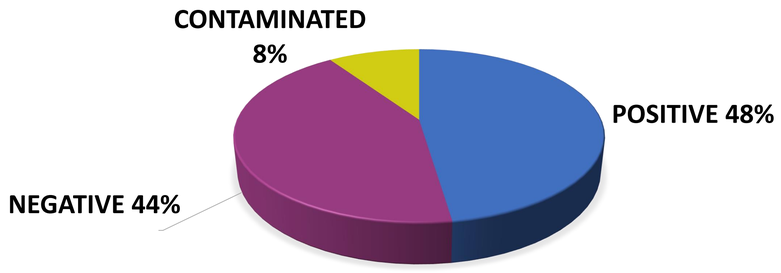
1,000 CFU/mL 10,000 CFU/mL 100,000 CFU/mL >100,000 CFU/mL



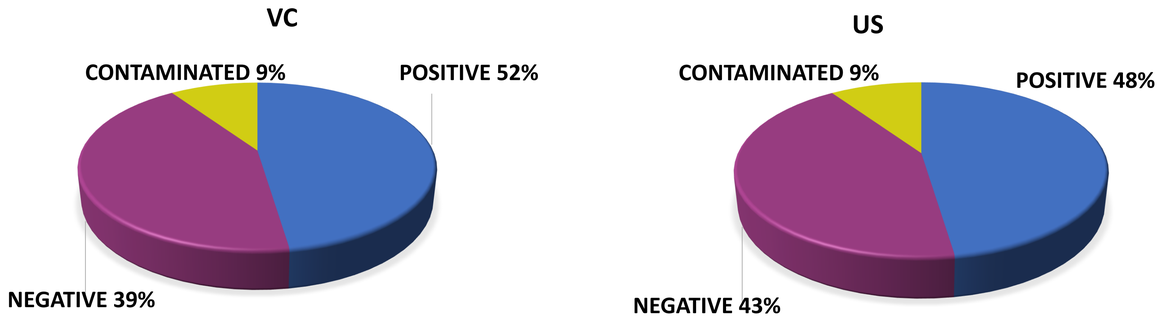
Results:

At time 0, 40 positive, 37 negative and 7 contaminated samples were reported and no discrepant results were observed between the interpretation of both culture plates from samples stored in US and VC devices. Samples maintained in transport devices for 24h provided an agreement respectively of 96% and of 92% compared to time 0.

Distribution of results at T0 for US and VC



Distribution of results at T24 for US and VC



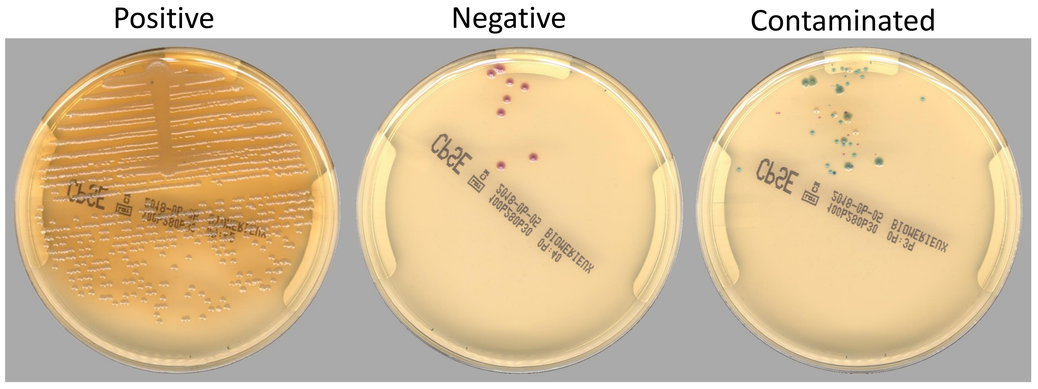
Discrepant results

T24 US	T24 VC	Notes
NEG	POS	Overgrowth *E. faecalis* in VC system
CONT	CONT	Overgrowth *E. faecalis* in both systems
NEG	POS	Overgrowth *E. faecalis* in VC system
NEG	POS	Overgrowth *E. faecalis* in VC system
NEG	NEG	Missing of *S. mitis/oralis* for both systems
POS	POS	Overgrowth *E. faecalis* in both systems

Legend:

NEG: Negative; POS: Positive; CONT: Contaminated

Positive Negative Contaminated



WASP Performance in isolation of Urine Samples with SST8

81/84 (**96,4%**) of plates showed enough isolated colonies to work up.

Conclusions:

Both preservation systems guarantee a good performance in maintaining bacterial viability and the new streaking pattern allows to obtain enough isolated colonies to perform ID and AST.

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