



adding value to the diagnosis

Importance of selecting the proper urine cultures protocol: our WASP™ automation experience in microbiology

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RESULTS:

The data from the 250 samples tested in duplicate (manual 1 and 10 microliter loops and WASP 1 and 10 microliter loops), made us decide to use the 1 microliter loop, streaking pattern Single streak type 2.

Using the WASP™ 1 microliter loop for urine culture plating, we obtained 100% isolated colonies compared with 85% with 10 microliter loop.

The percentage obtained with manual method was 95% using 1 microliter loop and 83% with 10 microliter loop.

In the 7,000 urine samples tested on the WASP™ 4,203 (60.04%) were negative and 2,530 (36.14%) were found positive. In the positive urine culture 97% had only one pathogen while 3% had mixed pathogens.

A more accurate streaking was observed with the WASP™ method for mixed cultures with 3 or more pathogens (3.82%).

Not a single urine sample had to be repeated due to the overgrowth.

CONCLUSIONS:

All urine specimens, collected and transported in UriSwab™, were processed on the WASP™ using 1 microliter loop and Single streak type 2 pattern.

Since the introduction of the WASP™ we noted an increased number of isolated colonies using the 1 microliter loop.

Result turnaround time and easy reading of isolated colonies improved the urine cultures workup, significantly reduced the handling time for urine specimen processing and facilitated the laboratory workflow.

The Copan Walk Away Specimen Processor (WASP™) is an instrument for automated plating of microbiological specimens. The WASP™ (Copan Italia, Brescia, Italy) system includes software that allows selection of various inoculation protocols and streaking patterns. The WASP™ was acquired by our laboratory to facilitate the daily large number of specimen's inoculation and plating.

OBJECTIVES:

The objectives of this study were to assess:

1. Urine specimens processing performance quality in terms of inoculation loop/volume, streaking pattern, colonies separation or overgrowth.
2. Improvement of laboratory workflow and quality performance in results reporting.

METHODS:

This study included 7,000 urine specimens, all collected in UriSwab™ (Copan). Initially 250 samples were tested in duplicate.

The WASP™ samples, inoculated with 1 and 10 microliters loops with the streaking pattern "Single streak type 2," were compared to the current manual method according to laboratory SOPs using 1 and 10 microliters loops.

After the evaluation of both WASP™ and manually streaking the results were compared and was noted that cultures plated by the WASP™ were easier to read with more single colonies.

From that point all the urines specimens were loaded on the WASP™ and processed using the validated predefined protocol: 1 microliter loop, streaking pattern Single streak type 2, on Columbia Blood Agar with 5% sheep blood and Mac Conkey Agar (OXOID), and incubated overnight at 35° C ± 2 until adequate growth was present.

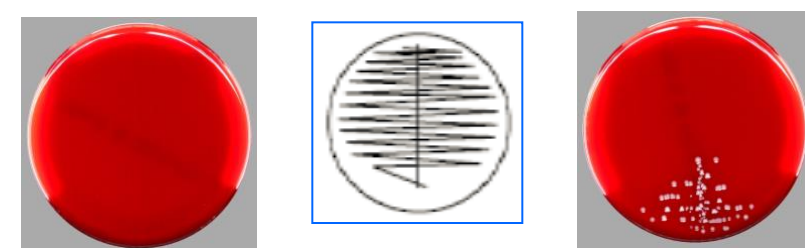
Copan UriSwab™ Urine sample collection device



Walk Away Specimens Processor (WASP™)



Single streak Type 2 Streaking pattern and the 1 µl Loop

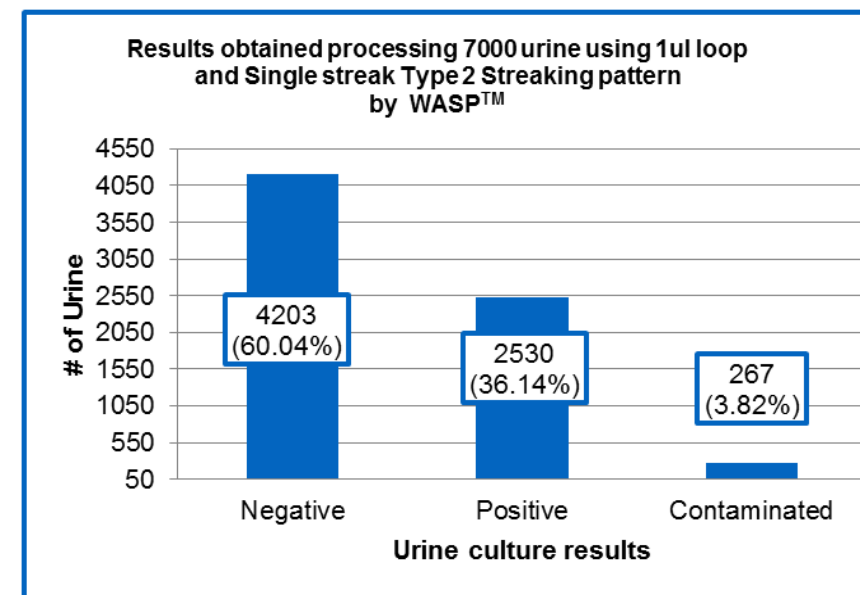
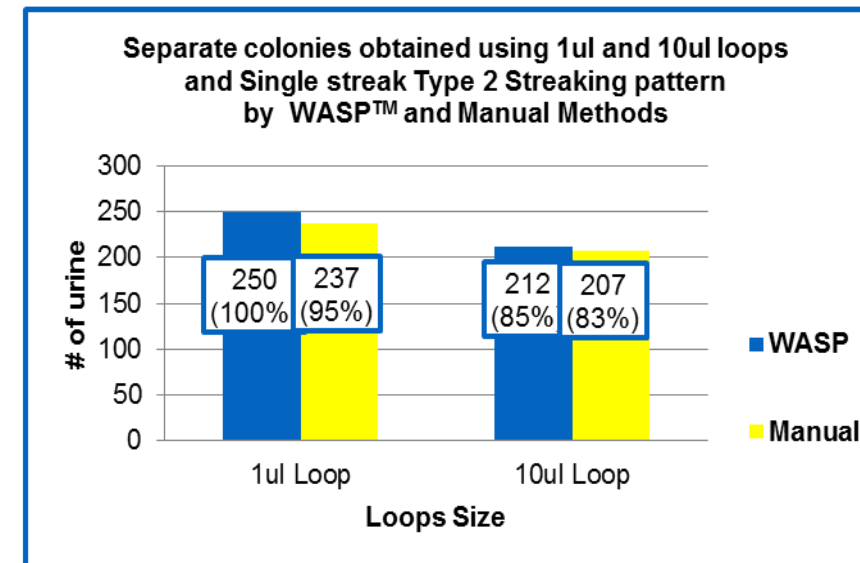


Negative samples

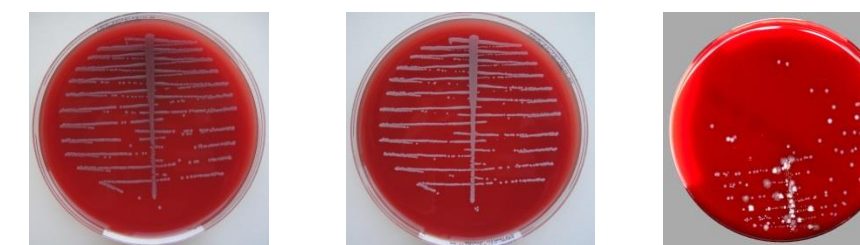
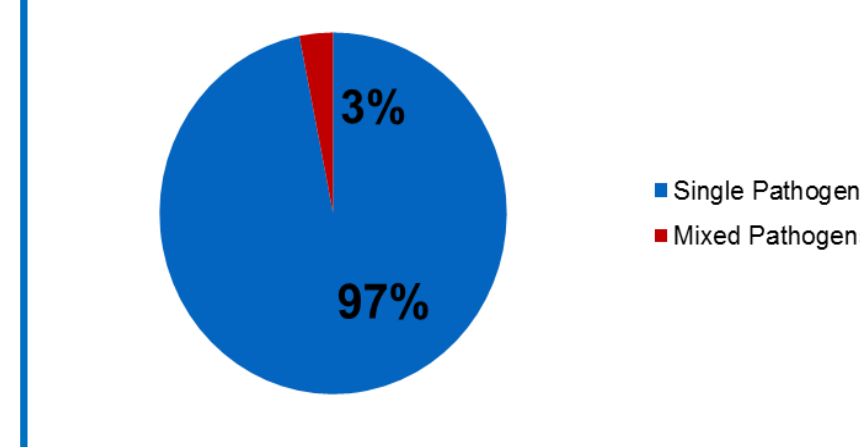
Samples with mixed cultures

Positive Culture samples

Results Graphs:



Positive Culture Pathogens Distribution



Positive culture samples