Comparison of Eswab and Amies Gel Swab for Transport and Recovery of Anaerobic Organisms

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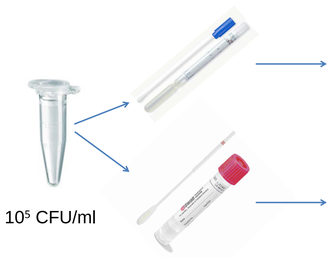
Introduction

Appropriate collection and transport of specimens containing anaerobic organisms is critical to maximize recovery of these organisms in the clinical laboratory. We compared the Eswab and walk-away specimen processor (WASP) (Copan Diagnostics, Murrieta, CA) to standard swabs in Amies gel (AG) (BD, Franklin Lakes, NJ) for the recovery of commonly encountered anaerobic organisms. Specifically, we examined the difference in recovery rate of various anaerobic bacteria following 4, 24, and 48 h hold at either 4°C or 25°C.

Method

A saline suspension of 10e5 CFU/ml was made for 10 commonly encountered anaerobic organisms. Eswab and AG were used to sample each suspension and were then held at 4°C or 25°C for 4, 24, or 48 hours before being inoculated to solid media manually (AG) or by WASP (Eswab). Colonies were enumerated following incubation.




Swab eluted in 0.5 mL saline, then 100 uL plated by technologist

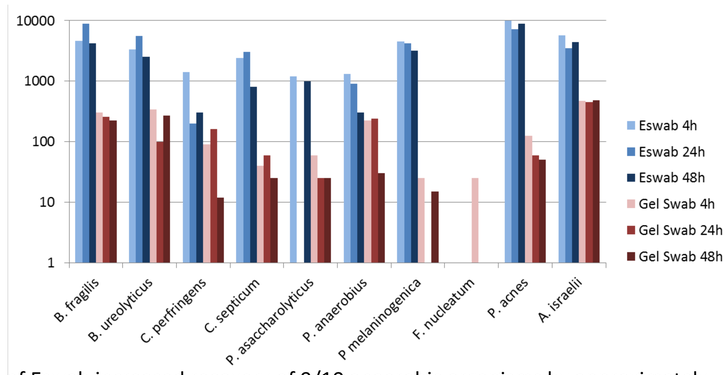

10 uL plated by WASP

*CFU/mL recovered normalized for different inoculum and elution volumes

Conclusions

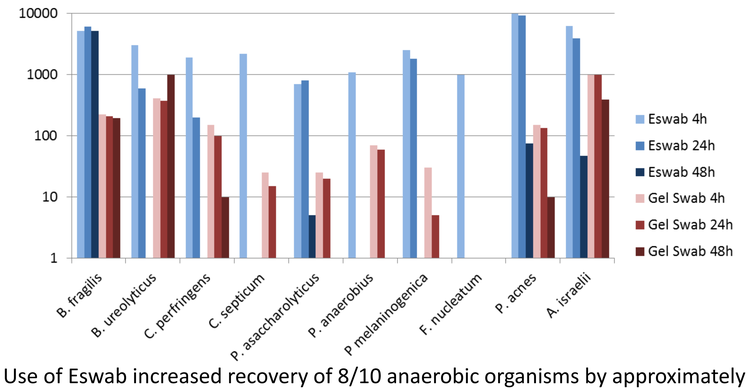
- Eswab is superior to Amies gel swab for the preservation and recovery of most anaerobic organisms when held up to 48 h at 4°C.
- Recovery of anaerobic organisms (CFU/mL) is unchanged for up to 48 h using Eswab if specimens are held at 4°C
- Recovery of anaerobic organisms (CFU/mL) using either Eswab or Amies gel is reduced if held at 25°C for > 24 h
- Use of Eswab enables automated plating when coupled with the Walk Away Specimen Processor (WASP)

Figure 1. Eswab vs. Amies Gel 4°C



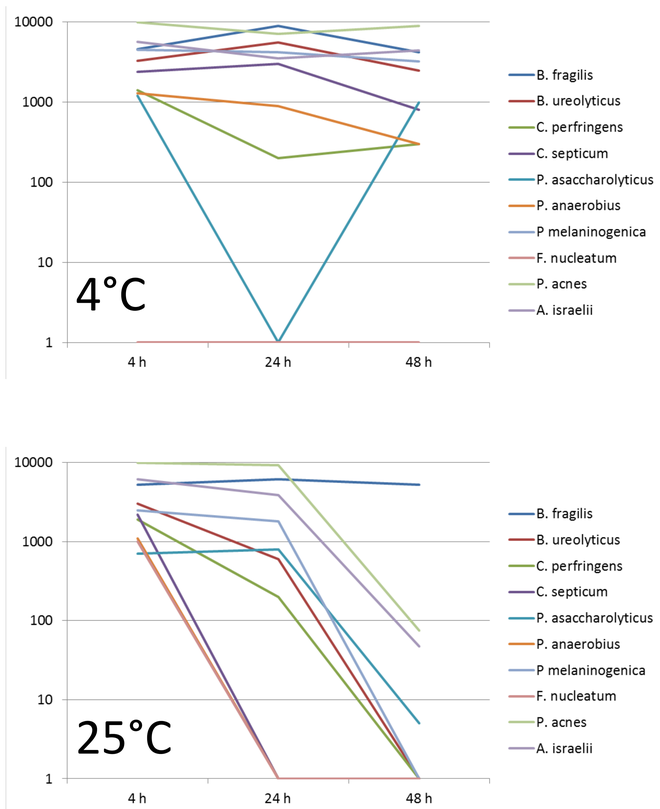
Use of Eswab increased recovery of 9/10 anaerobic organisms by approximately 10-100 fold as compared to Amies gel swab at 4, 24, and 48 h.

Figure 2. Eswab vs. Amies Gel 25°C



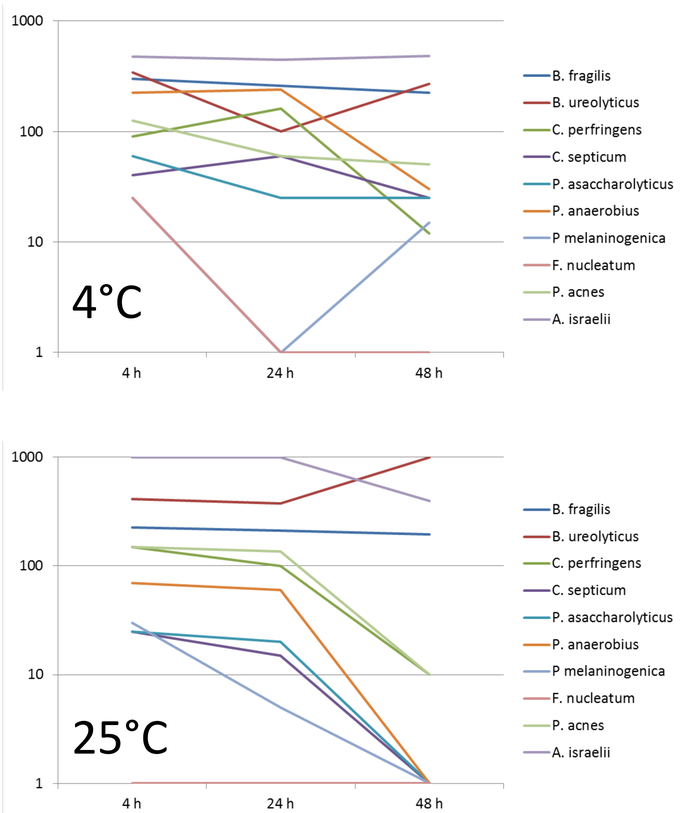
Use of Eswab increased recovery of 8/10 anaerobic organisms by approximately 10-100 fold as compared to Amies gel swab at 4 and 24 h.

Figure 3. Effect of temperature on recovery using Eswab



Recovery of all 10 organisms is similar following 4 and 48 h hold when kept at 4°C (top), however; recovery of 9/10 organisms dramatically decreases after 24 h hold at 25°C (bottom).

Figure 4. Effect of temperature on recovery using Amies Gel



Recovery of 6/10 organisms is similar following 4 and 48 h hold when kept at 4°C (top). Recovery of organisms is further diminished (3/10 similar) after 24 h hold at 25°C (bottom).