

# Comparison of Viability Performance of a New Flocked and Foam Swab Transported in E-Swab Liquid Amies Medium at Ambient Temperature.

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**Background:** The objective of this study was to perform a quantitative evaluation of a new nylon research (B) and regular (C) flocculated swab and foam (D) swabs from (Puritan Medical Products) to regular (A) flocculated swabs (Copan Diagnostics) using the E- swab device containing modified liquid Amies medium. At present Puritan Medical Products does not have a transport delivery system (media based), as a result we utilized the E-swab system to minimize the variables for comparison.

**Method:** A viability study was performed in triplicate at room temperature (RT) using the following ATCC strains: *Neisseria gonorrhoeae* (NG), *Haemophilus influenzae* (HIN) and *Streptococcus pyogenes* (SP). Using a 0.5 McFarland suspension for each organism/swab, viable counts were performed at 0, 24 and 48 hrs according to the CLSI M40A roll plate method. From this working suspension, five 1:10 serial dilutions were prepared: 1:10, 1:100, 1:1000, 1:10,000 and 1:100,000 representing  $1.5 \times 10^7$ ,  $1.5 \times 10^6$ ,  $1.5 \times 10^5$ ,  $1.5 \times 10^4$  and  $1.5 \times 10^3$  CFU/mL, respectively. Using an Eppendorf repeater pipette, 100µl volumes of each organism suspension were transferred into wells of a round bottom microtiter plate. Each swab type was immersed into 100 µl of the organism suspension and allowed to absorb for 15 seconds with gentle twisting, and then inserted into the E-swab tube. The shaft of the foam swabs did not have a score to break off, thus were cut off at the length of the tube and the tube cap screwed on.

Each organism/dilution was removed from the transport device after 15 minutes. The E-swab tube, including the swab, were vortexed prior to ringing the swab. The swabs were discarded and the tubes vortexed again for 5 seconds. 100µl of the suspension were pipetted on to dried agar surface, streaked and incubated at 37°C in a CO<sub>2</sub> incubator for 24 hours. Colonies were counted and averaged for three swabs for each time point and dilution.

Average colony counts at 24 and 48 hrs for each specific dilution and organism were compared to the 0 hr inoculated swabs, for the same dilution and organism.

**Results:** For HIN, all four types of swabs were acceptable at 24 hours, but none met the M40A acceptable criteria at 48 hours. However Puritan flock swab (C) did perform better than the other three at 48 hours. For SP, (A), (B) and (C) were acceptable at 24 hours with (B) and (C) having double the colony counts compared with (A). Only (B) was acceptable at 48 hours. For GC, only (A) was acceptable at 24 hours.

**Conclusions:** The overall performance of the Puritan flocked and foam swabs were comparable to the flocked swab from Copan. Further studies are warranted using more isolates, both clinical and reference. The general design of the shafts might be a factor in the performance of both Puritan flock swabs (B and C). Both are thinner and more flexible at the neck than Copan flock swab (A) and the Puritan foam swab (D).