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

B. GANDHI1, T. MAZZULLI1,2

1Department of Microbiology, Mt. Sinai Hospital and University Health Network, and 2University of Toronto, Toronto, Canada

Revised Abstract

Background: The objective of this study was to evaluate the performance of four swabs: a flocked swab (A) (Copan Diagnostics Inc.) and a new HYDRAflock swab™ (B), a multicapped flocked swab (C), and a macroflocked swab (D) (Puritan Medical Products inc.) using the E-Swab® transport device containing modified liquid Amies medium.

Method: A viabilities study was performed at room temperature (B11) using the following ATCC strains: Neisseria gonorrhoeae (NG), Haemophilus influenzae (HI) and Streptococcus pyogenes (SP). Paenibacillus aerogenes (PA), Staphylococcus aureus (SA), Enterococcus faecalis (EF), Pseudomonas aeruginosa (PA), and Propionibacterium acnes (PA) representing aerobic and anaerobic bacteria. 40μl of a 5% McFarland standard for each organism and 10μl each for the E-Swab® plate were dispensed. After the working suspension, the 1.16% saline dilutions were prepared (1:100, 1:1000, 1:10000 and 1:100,000 representing 1.0, 0.1, 0.01, 0.001 and 0.0001 respectively). Using a Copan syringe, 10μl volumes of each suspension were transferred into wells of a round bottom microplate. Each swab type was immersed into 100 of the organism suspensions and allowed to sit for 30 seconds with gentle shaking, and then inserted into the E-Swab® for transport. After transport, the organism distribution was removed from the transport device after 15 minutes. The E-Swab® plates, including the swab, were vortexed prior to plating using the Copan plate washer and the plates were vortexed again for 5 second. 100μl of the plate suspension were spread-plated onto the agar plates. Colonies were counted and averaged for these swabs for each time point and dilution. Average colony counts at 24 hours for each specific dilution and organism were compared to the 1% on inoculated swabs, for the same dilution and organism.

Results: For HI, all types of swabs were acceptable at 24 hours, with less than the M4A acceptable criteria at 48 hours. For SA, CO, (B) and (D) were acceptable at 24 hours, with less than the M4A acceptable criteria for SA, CO and (D) at 48 hours. For SP, (A) and (B) were acceptable at (A); (B) and (C) were acceptable at 24 hours only. For (C), (D) and (C), 20% was acceptable (A), with less than 1% on swab A. For GC, POA, (D) and (E) were acceptable for each organism.

Conclusions: Unacceptable recovery was observed on the HI, PA, and all four swab types, with the HI swabs (B) and (D) for SP with swab (D) but not on swab (A) and (C). SNP swab (A).

Introduction

Following the publication of the Clinical and Laboratory Standards Institute (CLSI) M4A document “Quality Control of Microbiological Transport Devices” in 2003, swabs used as materials such as cotton (A) and polyester (B) were used to improve transport over the room and Dacron fibers used in standard applicator swabs because of their greater absorption and release capability and are used for preservation of anaerobic microorganisms. As the CLSI M4A document does not address the use of liquid based Amies medium as part of a new platform for swabs.

The objective of this study was to two fold: (1) to assess the recovery and seedling of seeded organisms from these new swab types and (2) to compare the performance of these swab types in transport compared to the E-Swab® transport device following the CLSI M4A recommendations with a slight modification by using 5% sheep blood for the anaerobe instead of brain heart infusion (BHI) agar.