INTRODUCTION: The objective of this evaluation was to assess the acceptability of Puritan’s liquid Amies transport tubes (Puritan Medical Products Co., Maine, USA) for use on Copan’s automated WASP equipment (Copan Diagnostics Inc., Brescia, Italy) specifically designed for the automated processing of liquid transport tubes purchased from Bio-Med Unlimited Ltd. Choc and BAP agar plates were obtained from Oxoid. Results of which have been presented in a previous study.

The purpose of this evaluation therefore, was to determine if the instrument was able to differentiate similar brands in order to offer laboratories the flexibility of using other cost effective alternatives. Puritan Transport System kits were provided by Puritan Medical Products Co. LLC. Copan’s E-Swabs kits and 0.85% physiological saline tubes were purchased from Bio-Med Unlimited Ltd. Choc and BAP agar plates were obtained from Oxoid Canada and test organisms were obtained from: NG ATCC 43069, HIN ATCC 10211, SPY ATCC 19615, SPN ATCC 6305, BFR ATCC 25285, FNU ATCC 25856, PMK ATCC 25845, PAN ATCC 27337, PAC ATCC 6919. MRSA ATCC 8610. (1) 36 transport devices per test isolate were unwarped, tubes removed from the sleeve, premade barcode labels attached to tubes and arranged in a rack. (2) 100µl aliquots of the working suspension were transferred into wells of a round bottom microtitre plate using an Eppendorf pipette. (3) Three Copan flocked swabs followed by three Puritan swabs were immersed into 100 ul of the organism suspension in the wells containing the inoculum. (4) All the swabs were removed and inserted into their respective transport device in the order they were placed in the wells. (5) The same procedure was followed for all four time periods (0, 2, 24 and 48 h) with each organism/device combination performed in triplicate. (6) Batches of the same dilution tubes were immediately placed on the WASP for processing/ inoculation onto choc or sheep blood agar plates and incubated in C02 and/or A02 for a minimum of 48 h to 72 h. RESULTS: MRSA: Both Pur and Cop swabs appeared to grow rapidly after 0 h baseline but Cop swabs seemed to grow more rapidly. SPN: Pur swabs had higher colony counts than Cop. NG: Pur had higher counts and grew at 24 h at the highest dilution; Cop had no growth at 24 h. HIN: Mixed counts but Pur appeared to do better overall. BFR: Pur had higher counts at 0 h, Cop had higher counts at 24 and 48 h. PME: Pur had higher counts at 2 h, no growth for both at 24 and 48 h. PAC: Pur had higher counts at 0, 2, 24 and 48 h. PAN: Same growth for both at 0 h, Pur higher at 2 h, no growth for both at 24 and 48 h. FNU: Pur had higher counts at 0 h, no growth for both at 24 and 48 h. CONCLUSIONS: Puritan’s transport tubes appear to be interchangeable with Copan’s tubes when using the WASP system and generally result in higher colony counts.

MATERIALS AND METHODS: (organisms, swabs and media) For this study Puritan Liquid Amies Transport System kits were provided by Puritan Medical Products Co. LLC and Copan Liquid Amies Transport System (E-Swabs) kits and 3.0ml 0.85% physiological saline tubes were purchased from Bio-Med Unlimited Ltd, Woodbridge Ontario. Chocolate agar plates and Blood agar with 5% sheep blood plates were obtained from Oxoid Canada. CLSI M40A QC recommended organisms were obtained from ATCC: Neisseria gonorrhoeae (NG) ATCC 43069, Haemophilus influenzae (HIN) ATCC 10211 Streptococcus pneumoniae (SPN) ATCC 6305 Bacteroides fragilis (BFR) ATCC 25285, Fusobacterium nucleatum (FNU) ATCC 25856, Prevotella melaninogenica (PME) ATCC 25845, Peptostreptococcus anaerobius (PAN) ATCC27337 propionibacterium acnes (PAC) ATCC 6919 and Methylccull resistant Staphylococcus aureus (MRSA) ATCC 8610.

INOCULATION PREPARATION: Each test organism was reconstituted from a lyophilized ATCC culture and subcultured twice to chocolate agar or 5% sheep blood agar plates. A fresh 18-24 hour culture of each bacterial strain, [48 h for anaerobes] was used to prepare inoculum suspensions that matched 0.5 McFarland turbidity standards (1.5 ×106 cfu/ml prepared in 0.8% sterile physiologic saline (pH 6.8-7.2) using a DeniChek™ turbidity meter (bioMérieux). From this working suspension 1:10 serial dilutions were prepared: 1:10, 1:100, 1:1,000, 1:10,000, 1:1,000,000, and 1:1,000,000,000 representing 1.5 ×102, 1.5 ×103, 1.5 ×104, 1.5 ×105 and 1.5 ×106 CFU/ml respectively. Three dilutions (1016, 1015, and 1014) were used for testing. From the serially diluted suspensions, duplicate plates of 100µl of, 1015, 1016 and 1017 dilutions were used as control. The DeniChek™ turbidity meter was first validated before actual testing by preparing five log10 serial dilutions in 3.0 ml saline tubes from the working suspension and plating out 100 µl in duplicate.

INOCULATION PROCEDURE: 36 transport devices per test isolate were unwarped, tubes removed from the sleeve, premade barcode labels attached to tubes and arranged in a rack. 100µl aliquots of the working suspension were transferred into wells of a round bottom microtitre plate using an Eppendorf pipette. Three Copan flocked swabs followed by three Puritan swabs were immersed into 100µl of the organism suspension in the wells containing the inoculum. Immediately starting with Copan swabs, all the swabs were removed and inserted into their respective transport device in the order they were placed in the wells. The same procedure was followed for all four time periods (0, 2, 24 and 48 h) with each microorganism/device combination performed in triplicate. Batches of the same dilution tubes were immediately placed on the WASP for processing/inoculation on choc or sheep blood agar plates and incubated in C02 and/or A02 for a minimum of 48 h to 72 h. Table 1.

CONCLUSION: The WASP equipment readily accepted the Puritan liquid Amies transport tubes and performed as well as E-Swabs tubes. The WASP equipment performed well the majority of the time but stopped working at random. There was a marked difference in the absorption by the two brands of flocked swabs. The results of which have been presented in a previous study. The results demonstrate that, in general, the colony counts are higher using the Puritan tubes than Copan tubes.

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