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**Validation of Eswab for the collection and preservation of specimens processed on the WASP for the detection of *Corynebacterium* species including *C. diphtheriae***

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**Background:** Although immunization is practiced in many countries, *C. diphtheriae* plays a role as potential lethal re-emerging infectious diseases. The increase of global traveling and the presence of re-emerging of *C. diphtheriae* epidemic strains are a threat to non immunized persons. Microbiological diagnosis of *C. diphtheriae* is important for clinical management of sick patients and its contacts. Since the introduction of ESwab™, an LBM collection device and WASP™ automation in the bacteriology laboratory, it is important to validate its performance for the collection, transportation and preservation of clinical specimens for the detection of *Corynebacteria* species including *C. Diphtheriae*. The objectives of this study were to validate the performance of: 1) the viability of the ATCC strain of *C. diphtheria* 13812 stored in ESwab™ up to 48 hours at both 4°C and room temperature (RT). 2) the ESwab™ for the investigation of *Corynebacteria* species in clinical specimens collected in Eswab™ and processed on the WASP™.

**Material/methods:** First, culture stability of ESwab™ was compared to Transystem™ M40 using the ATCC strain of *C. diphtheria* 13812 spiked in both ESwab™ and Transystem™. From a fresh culture of the *C. diphtheriae* strain, dilutions of 0.5:100 – 0.5: 1,000 – 0.5: 10, 000 we prepared from a 0.5 McFarland suspensions; 100 ul aliquots of each dilution were used to inoculate sets of three ESwab™ and Transystem™ for each dilution. One set of each dilutions was used for zero time inoculation, two sets of each dilutions were used for 24 and 48 hours at 4°C and RT. At each testing time, ESwab™ samples were vortexed and 100 ul were plated in duplicate on Blood agar plates, while the Transystem™ swab was used to seed the entire plate. Plates were incubated at 35°C at aerobic

conditions for 48 hours. CFUs were recoded for each dilution and incubation time. Secondly, in the recent year, we monitored the detection of *Corynebacteria* species, from clinical specimens collected in ESwab™ and processed on the WASP™ by Gram smears and culture.

**Results:** Viability of the ATCC strains of *C.diftheriae* was better up to 48 hours at both 4<sup>0</sup>C and RT testing conditions with ESwab™ compared to the traditional Transystem™. From wounds, abscess and soft-tissue clinical specimens collected in ESwab™ processed on the WASP™, 12 strains of *Corynebacteria* species including 4 *C. amycolatum*, 2 *C. simulans*, 2 *C. striatum*, 3 *C glucuronolyticum* and 1 *C. jeikeium* were detected by Gram smears and in culture.

**Conclusions:** All the data obtained suggest that the Copan ESwab™ supports the viability of *C. diftheriae* up to 48 hours at 4<sup>0</sup>C and RT and is suitable for the collection and transport of clinical specimens processed on the WASP™ for the detection of *Corynebacteria* species including *C. diftheriae*.