Background: Although immunization is practiced in many countries, *C. diphteriae* plays a role as potential lethal re-emerging infectious diseases. The increase of global traveling and the presence of re-emerging of *C. diphteriae* epidemic strains are a threat to non immunized persons. Microbiological diagnosis of *C. diphteriae* 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. diphteriae*. The objectives of this study were to validate the performance of: 1) the viability of the ATCC strain of *C. diphteria* 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. diphteria* 13812 spiked in both ESwab™ and Transystem™. From a fresh culture of the *C. diftheriae* strain, dilutions of 0.5:100 – 0.5: 1,000 – 0.5: 10, 000 were 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 dilution 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. diphtheriae was better up to 48 hours at both 4°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. diphtheriae up to 48 hours at 4°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. diphtheriae.