

Copan ESwab, an LBM device, Allows Rapid Strep A Antigen and Confirmatory culture from the Same Sample

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Background

Many Strep A rapid antigen tests are available for the detection of group A β -hemolytic streptococcus pharyngitis.

The sensitivity of rapid test has typically been lower than most accurate culture methods, therefore it's advised to collect an additional sample for culture.

The Copan Eswab, a tube with 1 ml of liquid Amies and a flocked swab, is a Liquid Based Microbiology (LBM) device, that can be used for Gram stain smears preparation and culture with manual and automated streaking methods with the WASP (Walk Away Specimen Processor).

Clinical specimens collected with Eswab, have one ml of homogeneous samples suspension that can be used with multiple testing methods including Strep A rapid antigen with immunochromatographic kits and culture confirmation without the need to collect an additional specimen.

Objectives

The objectives of this study were:

- 1) Evaluate the performance of ES with Strep A rapid tests.
- 2) Determine the optimal method for ES samples that gives a positive or negative without interference.

Materials & Methods



The 0.5:10, 0.5:100, and 0.5:500 dilutions of a fresh culture of an ATCC strain of *S. pyogenes* were prepared in PBS and 100 μ l were used to spike ESwab collection kits and kit swabs in order to determine the sample volume and the best testing method suitable for each kit.

Clinical ESwab specimens (n=220) were used to confirm the in vitro validation.

The following Strep A rapid antigens kits were used:

- BD Check Group A Strep A and Directigen EZ Group A Strep A tests;
- Meridian Immunocard STAT Strep A test;
- Genzyme OSOM Strep A and OSOM Ultra Strep A tests;
- Quidel QuickVue Dipstick, QuickVue In-Line, and Quidel QuickVue+ Strep A tests;
- Ultimed Strep A dipstick test and Ultimed Strep A cassette test.
- BioStar Acceva Strep A Rapid Kit;
- Binax NOW Strep A Rapid Kit.
- Clearview Strep A kit;

All kits were tested as per package insert method and using both Flocked swab of the ESwab spiked samples and 200 μ l of ESwab sample.

Twenty clinical specimens were tested with each Strep A antigen kit using the flocked swab of the ESwab sample and for culture confirmation, 30 μ l of each sample were plated in blood agar on the WASP.

Results

The same results were obtained when testing the ESwab kits, spiked with the ATCC strain of *S. pyogenes*, with both the testing method as per package insert of each rapid antigen kit and by using the flocked swab of the ESwab kit.

Testing 200 μ l of ESwab sample gave the same results but the reaction lines were less intense in color.

ESwab clinical specimens positive for Strep A with the rapid antigen kits were all confirmed by culture.

Additional positives, missed by the Strep A rapid antigen kits, were detected by culturing the ESwab sample.

No interference was detected when using the ESwab with each individual rapid antigen kit.

Conclusions

In this validation was demonstrated that clinical specimens collected in Copan ESwab are compatible with all Strep A rapid antigen kits and detected all positives.

Additional positives were found by culture, that were missed by the rapid kits, for the diagnosis of *Streptococcus* pharyngitis.

ESwab clinical specimens are allowing both rapid antigen testing and culture confirmation from the same specimen collected.

Strep A Rapid Kits

