

USE OF COPAN LIQUID MEDIA TRANSPORT SWABS FOR THE GEN-PROBE GROUP A STREPTOCOCCUS DIRECT TEST

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ABSTRACT

The Gen-Probe Group A Streptococcus Direct Test is used to detect the presence or absence of group A streptococci directly from pharyngeal specimens. The package insert for this assay includes a list of swabs which have been specifically qualified for use with this assay. Because this assay utilizes a specific relative light unit cutoff of 4500 to differentiate between positive and negative test results, it is important that the swab used to collect the patient specimen be qualified for use in the assay. The purpose of this study was to compare Copan Liquid Amies swabs and Copan Liquid Stuarts swabs with one of the currently qualified swabs, the Becton Dickinson Culturette swab, for use in the Group A Streptococcus Direct Test. Paired Culturette and Copan swabs were collected from patients and tested in the same batch run of the Group A Streptococcus Direct Test. To date, 380 Copan Amies (130 total positive results; prevalence 34.2%) and 318 Copan Stuarts (97 positive test results; prevalence 30.5%) have been tested in parallel with Culturette swabs. Discrepancies were resolved by culture of the pledgets. There were no significant differences between the sensitivities and specificities of the Culturette swab and either the Copan Amies or Copan Stuarts swabs; however, a trend towards significance ($p=.034$) favoring the Copan Amies swab was observed. We found the Copan swabs easier to use because, unlike the Culturette swabs, there is no ampule to crush. In addition, it was easier to wring out the Copan swabs than the Culturette swabs after the swabs were placed in the assay extraction buffer. In conclusion, both the Copan Liquid Amies and Liquid Stuarts swabs are acceptable alternatives to the currently qualified swabs for use in the Gen-Probe Group A Streptococcus Direct Test.

INTRODUCTION

The Gen-Probe Group A Streptococcus Direct Test is used to detect the presence or absence of group A streptococci directly from pharyngeal specimens. The package insert for this assay includes a list of swabs which have been specifically qualified for use with this assay. Because this assay utilizes a specific relative light unit cutoff of 4500 to differentiate between positive and negative test results, it is important that the swab used to collect the patient specimen be qualified for use in the assay. The purpose of this study was to compare Copan Liquid Amies swabs and Copan Liquid Stuarts swabs with one of the currently qualified swabs, the Becton Dickinson Culturette swab, for use in the Group A Streptococcus Direct Test.

MATERIALS AND METHODS

Paired Culturette (Becton Dickinson Microbiology Systems, Cockeysville, MD.) and Copan (Copan Diagnostics Inc., Corona, CA.) swabs were collected from patients presenting to PennState Geisinger Health System clinics. Clinicians were instructed to collect either a Culturette swab and a Copan Amies swab or a Culturette swab and a Copan Stuarts swab at the same time. Paired swabs were tested within 24h of collection in the same batch run of the Group A Streptococcus Direct Test in the PennState Geisinger microbiology laboratory at the Geisinger Medical Center, Danville, PA. For specimens with discrepant results, the pledgets were aseptically removed from the holders, placed into Todd Hewitt broth (Remel, Lenexa, Kansas), and subcultured to TSA plates w. 5% sheep blood and SSA plates (Remel). Colonies of Betahemolytic streptococci were identified using standard microbiology techniques.

RESULTS

- To date, a total of 698 swabs have been tested. Results are summarized in Table 1.
- There were no significant differences in sensitivity or specificity between the swabs tested. However, a trend towards significance ($p=.034$) favoring the Copan swabs over the Culturette swabs was observed.
- The Copan swabs were easier to use because, unlike the Culturette swabs, there is no ampule to crush.
- The Copan swabs were also easier to wring out in the Gen-Probe extraction buffer, apparently because of the tighter winding of the swab fibers on the sticks.

CONCLUSIONS

- Copan Stuart swabs were equivalent to the Culturette swabs for all performance characteristics.
- Copan Amies swabs were more sensitive than Culturette swabs, although statistical significance was not achieved. Specificity for both swabs was 100%.
- Copan swabs are easier to use for this assay than Culturette swabs because there is no ampule to crush, and the Copan swabs are easier to wring out than the Culturette swabs.
- Both Copan Amies and Copan Stuart swabs are acceptable alternatives to Culturette swabs for use in the Gen-Probe Group A Streptococcus Direct Test.

Table 1 Comparison of Gen-Probe Group A Streptococcus Direct Test Results Performed with Different Swab types.

SWAB	No. of Results				Sensitivity (%)	Specificity (%)	Predictive Value of	
	True Positive	False Negative	True Negative	False Positive			Positive Result	Negative Result
Copan Amies	129	1	250	0	99.2	100.0	100.0	99.6
Culturette	123	7	250	0	94.6	100.0	100.0	97.3
Copan Stuarts	94	3	221	0	96.9	100.0	100.0	98.7
Culturette	93	4	221	0	95.9	100.0	100.0	98.2
Copan Amies & Stuarts	223	4	471	0	98.2	100.0	100.0	99.1
Culturette	219	11	471	0	95.1	100.0	100.0	97.7