

Comparison of Two Methods for Preparation and Reading of Gram Stains Prepared from ESwab Transport Media

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REVISED ABSTRACT

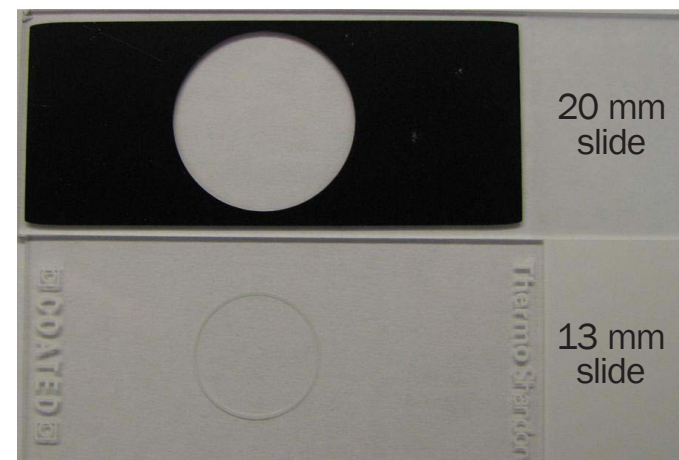
ESwabs (Copan Diagnostics) have been a significant innovation for clinical microbiology laboratories. Rather than having the specimen associated with the actual swab as is the case with traditional wound swabs, the specimen in an ESwab is associated with the liquid transport media. The introduction of ESwabs has necessitated the development of protocols for the optimal processing of ESwab specimens. We have previously determined that a single ~35 ul drop from an ESwab specimen is optimal for planting each piece of media used for culture. In this study, we compared two methods for the preparation and reading of gram stains prepared from ESwab specimens. To confine the specimen and provide consistency to the size of the area that was used for gram stain examination, we utilized two slides with different sized fixed circles, a 13 mm circle (area~132 mm²) and a 20 mm circle (area ~ 314 mm²). Using a 202C disposable pipet (Copan) that dispenses ~35 ul/drop, we dispensed one drop on the 13 mm circle and 2 drops on the 20 mm circles. Gram stain results were reported semiquantitatively as none, occasional, rare, few, moderate, or many per HPF for both PMNs and morphotypes. 200 ESwab specimens were evaluated. **PMNs:** 176 specimens had identical results with both slides while 19 specimens had fewer PMNs reported for the 13 mm circle and 5 specimens had fewer PMNs reported with the 20 mm circle. While more PMNs were detected with the 20 mm circle than were detected with the 13 mm circle, most differences in PMNs were slight. For example, for 10 specimens, rare PMNs were noted on the 20 mm circle and none on the 13 mm circle. **Morphotypes:** 81 specimens had no organisms reported on either slide. 148 morphotypes were reported from 119 specimens with 119 morphotypes reported in equal quantity for both slides, 17 in higher quantity on the 20 mm. slide and 12 reported in higher quantity on the 13 mm slide. For 3 specimens, rare orgs. were noted on the 13 mm circle and none on the 20 mm circle while for 5 specimen, rare orgs. were noted on the 20 mm circle and none on the 13 mm circle. In conclusion, there appears to be no significant advantage in using a 20 mm circle compared to a 13 mm circle for gram stain preparation and reading from ESwabs. Use of the smaller circle is also more cost effective.

INTRODUCTION

The introduction of ESwabs has necessitated the development of protocols for the optimal processing of ESwab specimens. We have previously determined that a single ~35 ul drop from an ESwab specimen is optimal for planting each piece of media used for culture. In this study, we compared two methods for the preparation and reading of gram stains prepared from ESwab specimens

MATERIALS AND METHODS

We compared two methods for the preparation and reading of gram stains prepared from ESwab specimens. To confine the specimen and provide consistency to the size of the area that was used for gram stain examination, we utilized two slides with different sized fixed circles, a 13 mm circle (area~132 mm²) and a 20 mm circle (area ~ 314 mm²). Using a 202C disposable pipet (Copan) that dispenses ~35 ul/drop, we dispensed one drop on the 13 mm circle and 2 drops on the 20 mm circles.



RESULTS

TABLE 1: Correlation of Quantity of PMNs between 13mm and 20mm slides

		13 mm Slide					
		None	Occ.	Rare	Few	Mod.	Many
20 mm Slide	None	132		1			
	Occ.		9	4			
	Rare	10	1	15			
	Few		4	2	7		
	Mod.				2	9	
	Many						4

TABLE 2: Correlation of Quantity of Microorganisms between 13mm and 20mm slides

		13 mm Slide					
		None	Occ.	Rare	Few	Mod.	Many
20 mm Slide	None	81		3			
	Occ.		4	3	6		
	Rare	5		16			
	Few		1	2	8		
	Mod.		1		6	8	
	Many				2		83

- 200 ESwab specimens were evaluated
- PMNs
 - o 176 specimens had identical results with both slides
 - o 19 specimens had fewer PMNs reported for the 13 mm circle
 - o 5 specimens had fewer PMNs reported with the 20 mm circle
- Morphotypes
 - o 81 specimens had no organisms reported on either slide.
 - o 148 morphotypes were reported from 119 specimens.
 - 119 morphotypes reported in equal quantity for both slides.
 - 17 in higher quantity on the 20 mm. slide.
 - 12 in higher quantity on the 13 mm slide

CONCLUSIONS

- There appears to be no significant advantage in using a 20 mm circle compared to a 13 mm circle for gram stain preparation and reading from ESwabs.
- Use of the 13 mm circle requires less time to read the slide and consequently is also more cost effective.