Comparison of Cytology Proficiency Testing-Glass Slides vs. Virtual Slides. *Acta Cytologica* 2004;48(6): 788-794.

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STUDY DESIGN

To compare performance, a sample of 111 individuals (pathologists = 52, cytotechnologists = 59) from participating instate laboratories were administered two proficiency tests. The annual test of the Maryland Cytology Proficiency Testing Program was administered to individuals in their laboratory following normal work practice (i.e., using microscopes and equipment with which they were familiar). The other test was CytoView II, a computer-based test composed of virtual slides captured from the Maryland Cytology Proficiency Testing Program's glass slides, which test administration personnel transported to the individual's laboratory and administered using one of two laptop computers. Analysis of variance was used to compare the performance on the two tests and the effect of various potential confounding variables. The slides were evaluated by comparing the performance average for each glass slide to the matching virtual slides. All data analysis was performed at the 95% confidence interval.

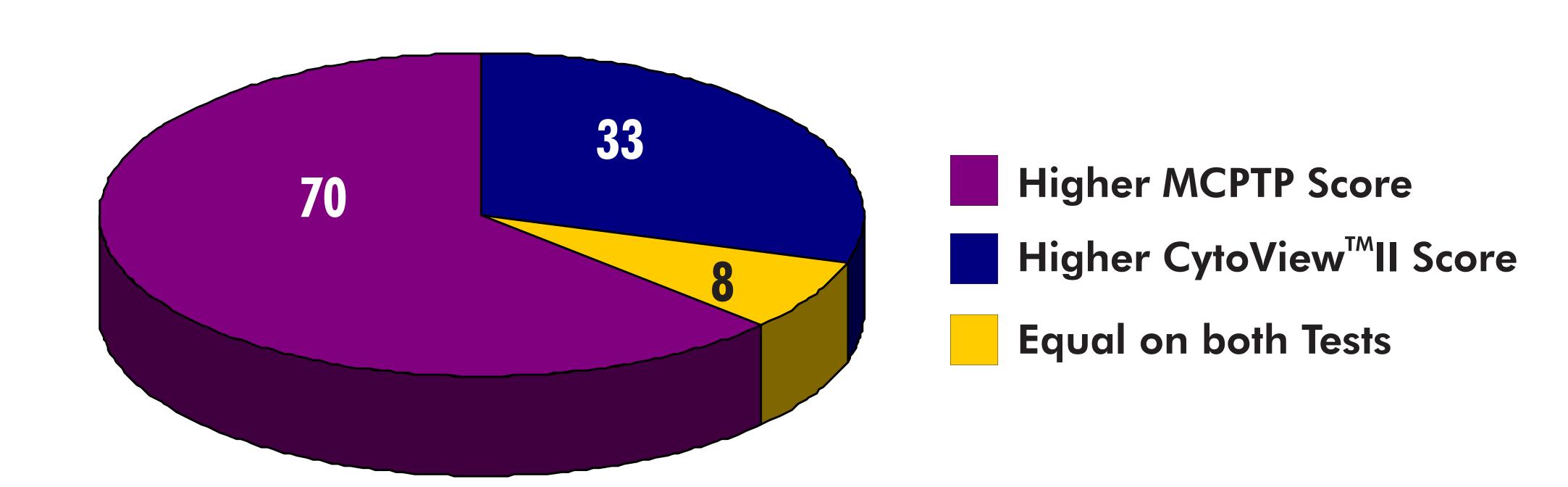
RESULTS

The mean score of the individuals (n=111) on MCPTP was 99.2% (SD=2.2; range=90-100%). The mean score of the individuals (n=111) on CytoView II was 96.8% (SD=5.8; range=70-100%). No individual scored less than 90% on the glass slide test (pass rate=100%). Eight individuals (pathologists=3, cytotechnologists=5) scored less than 90% on the CytoView II (pass rate=93.8%). Comparison of individual's performance on the two tests was found to be significantly different. When virtual slides that did not attain a 90% consensus were excluded from the scoring, a comparison of individual pass rate for the glass slide test (100%) and computer-based test (99.1%) was not significantly different

OBJECTIVE

To compare proficiency testing in gynecologic cytology using glass slides and virtual slides*

Comparison of Individual (N=111) Performance on MCPTP and CytoView TM II

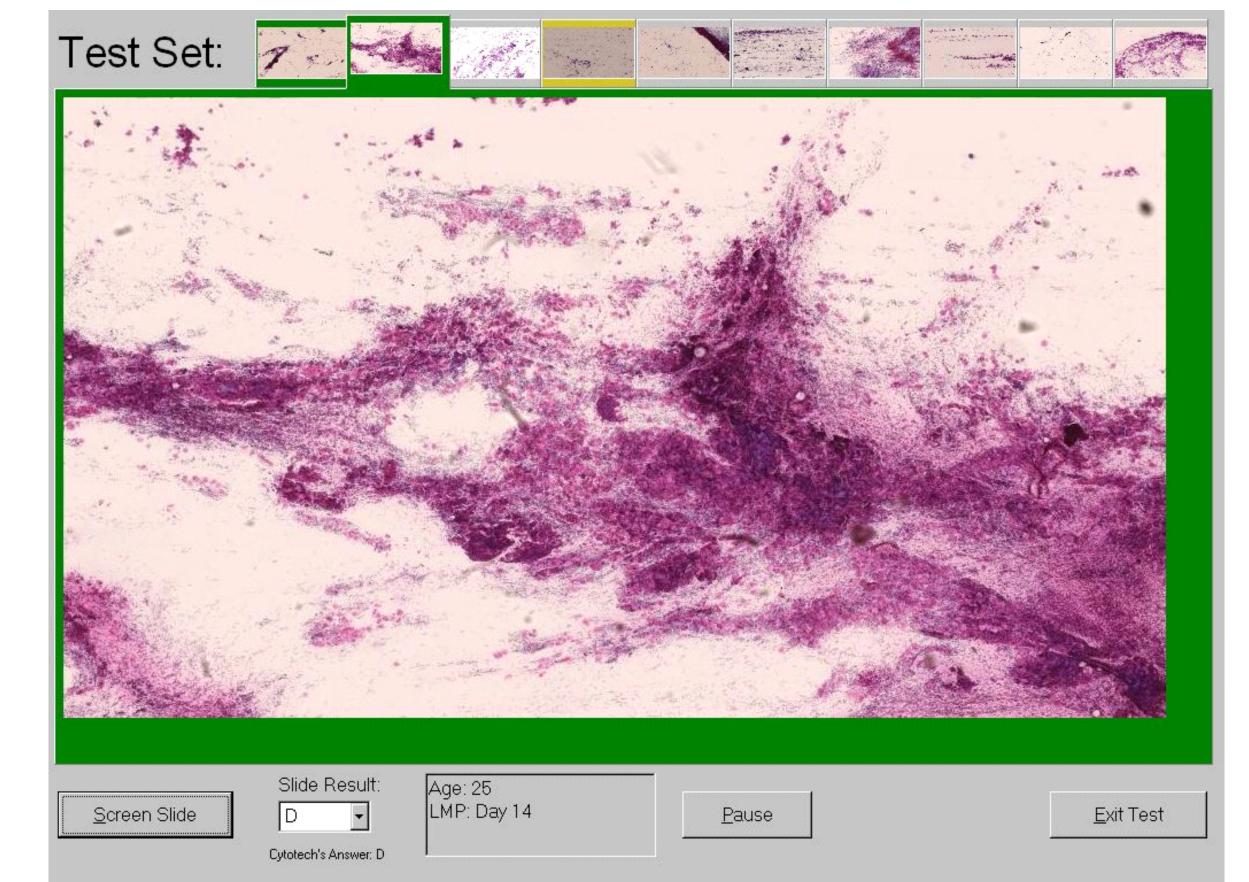


Comparison of Individual Scores Grouped by Test Type

CB Score 70 80 85	Solo Path O O	Path O O 3	Tech 1 3	GS Score 70 80 85	Solo Path O O	Path O O	Tech O O
90 95 100	1 2 0	5733	7343	90 95 100]	1 1 45	

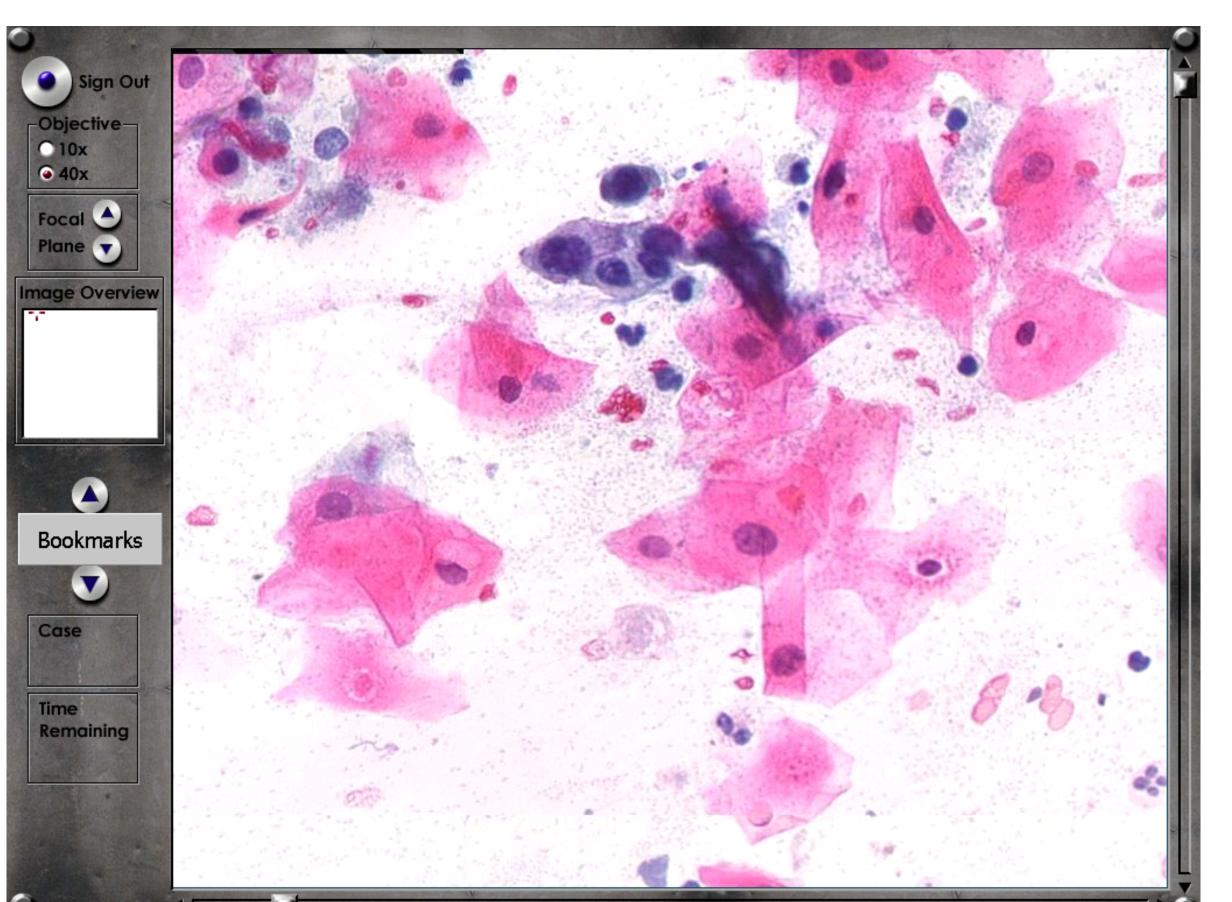
- Passing score is90% or above
- o n = 111

Figure 1: Test Set Menu Screen



Thumbnail virtual slides of the 10 virtual slides are displayed across the top, the participant has selected the second virtual slide which is displayed at 2X magnification while the slide is loaded in the microscope simulator screen.

Figure 2: Microscope Simulator Screen with bookmarked area shown at 40X



^{*}Definition of a virtual slide — for our purposes we refer to a tiled collection of 8,000 + digitally captured images, representing a 0.5 X 1.0 cm area of a glass slide, that have been stitched together to create a single image that can be scrolled along the x, y, and z axes at 10X and 40X magnification.

CONCLUSIONS

- Each slide (glass or virtual) must be field validated by cytotechnologists and pathologists.
- If field validation and CLIA referencing of virtual slides is comparable to glass slides, computer-based testing can be equivalent.

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