

178 Comparison of Liqui-PREP™ and the ThinPrep® Pap Test for Liquid-Based Cervical Cytology Preparation time.

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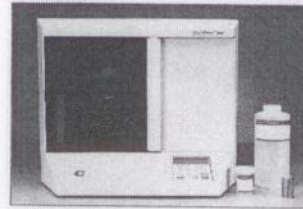


Introduction/Purpose:

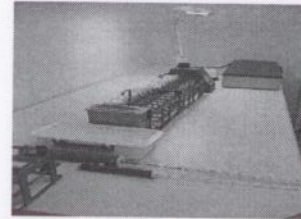
In a laboratory processing approximately 200 liquid-based cervical specimens per day. Studies were performed to compare the processing times of the ThinPrep Pap Test (Cytoc Corp., MA) and the Liqui-PREP Cytology Screening system (LGM International Inc., FL.)

Materials and Methods:

Previous workflow analysis demonstrated that for one ThinPrep 2000 processor, the mean processing time per specimen was 5 minutes. In order to maximize time and efficiency, two (2) ThinPrep 2000 processors were used to justify a single full time equivalent (FTE) dedicated to ThinPrep preparations. Processing time included accessioning (labeling, etc.) and hands-on preparation time (up to staining and cover slipping). This approach allowed one technologist to efficiency alternate ThinPrep processing between the two (2) instruments. The Liqui-PREP liquid-based cytology system was similarly optimized for workflow efficiency and throughput. Briefly, the Liqui-PREP technology is based upon centrifuging all cervical cells collected in a buffered alcohol fixative into a pellet in a graduated plastic centrifuge tube, which is re-suspended in a semi-liquid gel (Cellular Base Solution) and plated onto a clean microscope slide. This simple procedure was batched to take advantage of economies of scale and to reduce individual specimen



ThinPrep 2000 Processor (2x)



Liqui-PREP workstation



Standard slides are dipped in alcohol to clean, air dry



Organize and label collection vials, centrifuge tubes and slides



Dispense 4 ml of Cleaning Solution



Vortex Preservative vial to dislodge cells from brush head



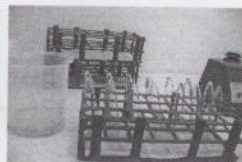
Pour specimen onto Cleaning Solution. Note ALL of the specimen is processed, no residual remains.



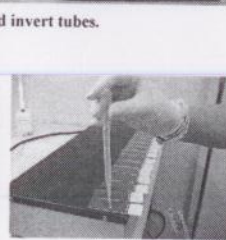
Load centrifuge, 10 min @1,000g



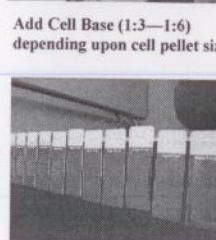
Pour off specimen and invert tubes.



Vortex cell pellet with Cell Base



Place ~50 ul onto slide,



Dries ~20-30 minutes, ready to stain

manipulation. Following the manufacturers package insert, we customized the procedure to fit work flow through our laboratory. Basically, specimen handling steps were reduced with an appropriately sized centrifuge (Juan C3 centrifuge, 28 head swing-bucket), test tube racks and disposable pipettes for sample preparation, organization, reagent additions and cell transfer. Operationally, we decided to treat all specimens with the manufactures optional sample "Cleaning Solution" to further reduce handling and reprocessing steps later on.

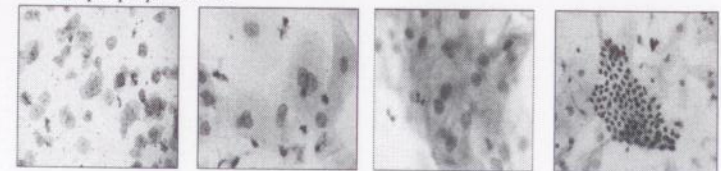
Results:

	Slides/hour (minutes/slide)	Slides/6 hours	FTE	Capital	Depreciation costs per slide (3 year)
ThinPrep (2) TP2000	20 (3.0 min.)	120	1	\$75,000	\$1.25
Liqui-PREP	40 (1.5 min)	240	1	\$10,000	\$0.05

Conclusion:

- 1) The manual Liqui-PREP system has substantially less overall preparation time then the Cytoc ThinPrep Pap Test.
- 2) The Liqui-PREP Cytology system produces liquid-based slides of high diagnostic quality.
- 3) In addition, the Liqui-PREP fixative lyses red blood cells eliminating the ancillary specimen handling used to remove excess blood in the Cytoc process (e.g. acetic acid treatment.)
- 4) The lower cost per test plus significantly lower capital outlay provides additional rational for moving to this new LBC technology.

Sample preparations:



Normal (within limits)

ASCUS

LSIL

HSIL

ORP081

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