

Abstract of Master Thesis

No.1

Course	Health Innovation (MSc)	Name	Ruben Groen
Thesis Title	Application of microscope-based scanning software (Panoptiq) for the interpretation of cervicovaginal cytology specimens		

Abstract of Master's Thesis

Objective : Digital pathology is a form of telemedicine that has been increasingly gaining the attention of pathologists worldwide. It has the unique advantage of digitising histology glass slides into digital slides, enabling better medical consultation and education services. However, the application of digital cytology is relatively unexplored. The microscope-based scanning software, Panoptiq™, enables the operator to combine low-power panoramic digital images with embedded high-power Z-stacks at regions of interest with a significantly smaller image size than that obtained by whole slide scanning. This study aimed to evaluate the feasibility of the use of Panoptiq™ in the digital interpretation of cervicovaginal cytology specimens in comparison with the conventional light microscope.

Method : One hundred liquid-based cytology slides were selected sequentially. The dotted slides were reviewed and scanned where all dotted areas were further scanned by a high-power objective with Z-stacks. The cases were reviewed by four pathologists and a cytotechnologist using conventional light microscopy and digital cytology images acquired by Panoptiq™ and interpreted based on Bethesda classification system. The washout time was set as three weeks. The Cohen's Kappa coefficient was calculated to measure the agreement between the two modalities. Finally, an evaluatory questionnaire was distributed to measure image quality, confidence level and previous user experience in digital diagnostic reading

Result : Digital cytology showed an inter-modality agreement of three observers who had sufficient training in digital pathology at concordance rates between 81 and 90% with Kappa values between 0.76 and 0.86, while the other two observers who did not have sufficient training in digital pathology had lower agreement at a concordance rate between 56% and 57% with Kappa values between 0.41 and 0.44. According to the questionnaire, previous user experience in digital modality viewings might affect the pathologists' interpretive capability.

* The abstract, containing the objective, method, result and conclusion should not exceed c.1000 words (300-500words/page, double sided on A4 paper)

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No.2

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<p>Conclusion : The microscope-based scanning software, Panoptiq™, is feasible for interpretation of cervicovaginal cytology specimens but requires adequate training for both cytotechnologist and pathologist.</p>			

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