



Reading virtual slide using web viewers. Results of subjective experience with three different solutions

Marcial García-Rojo¹, Antonio José Gallardo², Lucía González¹, Carlos Peces², Cristina Murillo¹, Jesús González¹, José Sacristán²

1 Hospital General de Ciudad Real. Calle Tomelloso s/n. 13005 Ciudad Real, Spain

2 Information Technologies Department of the Regional Health Care Services of Castilla-La Mancha (SESCAM). Calle Huérfanos Cristinos 5, 47071 Toledo, Spain

marcial@cim.es, ajgallardo@sescam.jccm.es, cpeces@sescam.jccm.es

Abstract

Background: Virtual slides are viewed using interactive software which enables the user to simulate the behaviour of a conventional optical microscope, like adjusting magnifications and navigating to any portion of the image. Nowadays, information about the performance and features of web-based solutions for reading slides in real environments is still scarce. The objective of this study is analyzing the subjective experience of pathologists with virtual slides, comparing the time needed to read slides using different web viewers and different network connections.

Methods: Eight slides were randomly selected (4 biopsies, and 2 cytologies) from Hospital General de Ciudad Real (HGCR) archives. Three different virtual slide web viewing solutions were analyzed: Aperio web server, Olympus NetImage Server, and Aurora mScope. Five pathologists studied to time needed to access images of each virtual slide, selecting a panoramic view, 10 low magnification fields, and 20 high magnification fields.

Results: Aperio viewer is very efficient in overview images. Aurora viewer is especially efficient in lower magnifications (10x). For larger magnifications (20x and 40x) no significant differences were found between different vendors. Olympus was found to be the most user-friendly interface. When comparing Internet with intranet connections, despite being slower, users also felt comfortable using virtual slides through Internet connection.

Conclusions: Available web solutions for virtual slides have different advantages, mainly in functionalities and optimization for different magnifications. Pathologist should select the solutions adapted to their needs.

Keywords: Virtual slide, web viewer, Internet, network bandwidth, speed.

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