

Components of the virtual chain – the observer

ABSTRACT

Medical imaging systems and medical images should be assessed in terms of how well they fulfill their purpose, i.e., how useful they are in a given clinical process (task) performed by a physician (observer). Accordingly, medical images are best evaluated by means of observer studies: the better the observers perform the task using the images, the better the images. Currently, studies with real (human) observers still remain necessary in the process of final product validation. However, they are increasingly being replaced by virtual observers (mathematical models) in the stage of product development and early product validation, thereby greatly cutting the cost and time. This talk will focus on the virtual observers, the principles of the models as well as the methodology of the virtual observer studies. We will also look into the agreement between real and virtual observers and discuss the possibilities for using virtual observers as surrogates for humans.