

Dose optimization through patient orientation and centering in pelvic radiography

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Ommission of gonadal shielding during radiographic pelvic exams in an effort to prevent repeated imaging is not uncommon in clinical practice. The purpose of this study is to examine if methods within the immediate scope of every radiologic technologist's capabilities, specifically centering and orientation, can be applied as a means to reduce patient dose without compromising the diagnostic integrity of the images. We imaged an anthropomorphic pelvic phantom in opposing orientations with the same variety of centering points multiple times, recording each corresponding entrance exposure and exposure index. Means values were calculated and analyzed. Image quality was assessed with blinded expert opinions for selected images. Adjustments to centering generated both increases and decreases to patient dose, up to 37% and 17% respectively. However a significant 50% reduction is achieved when the femurs are located over the AEC cells instead of the pelvic ala, or the reverse of what is employed in the clinical environment. Standard deviation values of each position show more dose stability as well. Unfortunately expert opinions on image quality for all images were both inconsistent and lacking diagnostic criteria, rendering this study inconclusive; nevertheless further investigation into current orientation practice is deserved as the ability to substantially decrease exposure levels clearly exists.

Biography

Nicole Clifford is currently a student of The University of Texas MD Anderson Cancer Center bachelor degree plan of the Diagnostic Imaging Program. Nicole Clifford has returned to expand her education following years of employment in the airline and distribution logistics industries. Her passion for uplifting those in need drew her to this career path and to MD Anderson, an institution known worldwide for the values of caring, integrity, and discovery in the battle against cancer.

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