AbstractID: 7331 Title: Image Quality and Dose in Large Bore CT

Purpose: As large bore CT scanners are becoming more prevalent in the marketplace, so have questions about the image quality and dose associated with these scanners. The aim of this work is to compare the image quality and dose characteristics of a large bore 16-slice CT scanner with a standard 16-slice CT scanner.

Methods: Two CT scanners, a large bore CT (Aquilion Large Bore, Toshiba) and a standard 16-slice CT (Aquilion 16, Toshiba) were compared with respect to noise, spatial resolution, CT number accuracy, and low contrast. The technique factors on the large bore were adjusted to yield the same dose as a standard abdominal protocol on a standard 16-slice scanner. Noise was measured on a 24cm water phantom, spatial resolution via the Fourier transform of bead, CT number via several known materials contained in a 32cm diameter phantom, and low contrast via a traditional low contrast phantom. Dose was measured via standard CTDI measurements.

Results: The large bore required an increase in mAs of approximately 30% to yield the same dose as a standard 16-slice scanner. After this adjustment was made, the image quality metrics for both scanners were identical.

Conclusion: The large bore CT in this study yielded the same image quality in all four categories as the standard 16-slice protocol.

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