Poster #: 16

Title of Abstract: CT Model-Based Iterative Reconstruction: Pearls, Pitfalls, and Practical Solutions.

Institution: M.D. Anderson Cancer Center

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Modality: CT

Organ System: Multi

Intro: N/A

Purpose: N/A

Methods Used: N/A

Results of Abstract: N/A

Discussion: N/A

Scientific and/or Clinical Significance? PURPOSE To provide an overview of model-based iterative reconstruction (MBIR, GE Healthcare), its unique requirements and its significant impact on reducing noise and facilitating dose reduction. To review the various CT image artifacts, limitations, and potential solutions related to MBIR. CONTENT ORGANIZATION A. Overview of exhibit B. Background of MBIR C. Advantages of MBIR - Impact on noise and dose reduction D. Unique requirements of MBIR - networking, server cooling requirements, increased processing time. E. Pitfalls of MBIR and potential solutions 1.Concentric ring artifact from motion 2.Breast shield artifact 3.Challenges of lean patients/paucity of intraabdominal fat 4.Truncation artifact associated with large patients 5.Impact of pitch on MBIR image quality at same dose 6.Transient ghosting artifact F. Challenges of working with automatic tube current modulation to maximize dose savings with MBIR G. Summary H. References Major Teaching Point MBIR has tremendous promise for reducing CT radiation dose, however, there are challenges that one must be aware of; these can be overcome by a variety of creative solutions detailed in this exhibit.

Relationship to existing work To increase the general fund of knowledge related to MBIR, while highlighting specific issues and solutions related to this reconstruction technique.

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