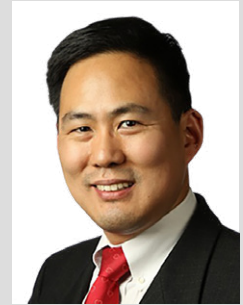


Resolution of a CT at a dose closer to that of a chest X-ray

“Demonstrating the equivalent image quality of SilverBeam compared to conventional chest CT is an important step in validating new technology. In this example the SilverBeam scan is performed with 94% less dose, and that is a gamechanger for following up lung cancer with CT.”

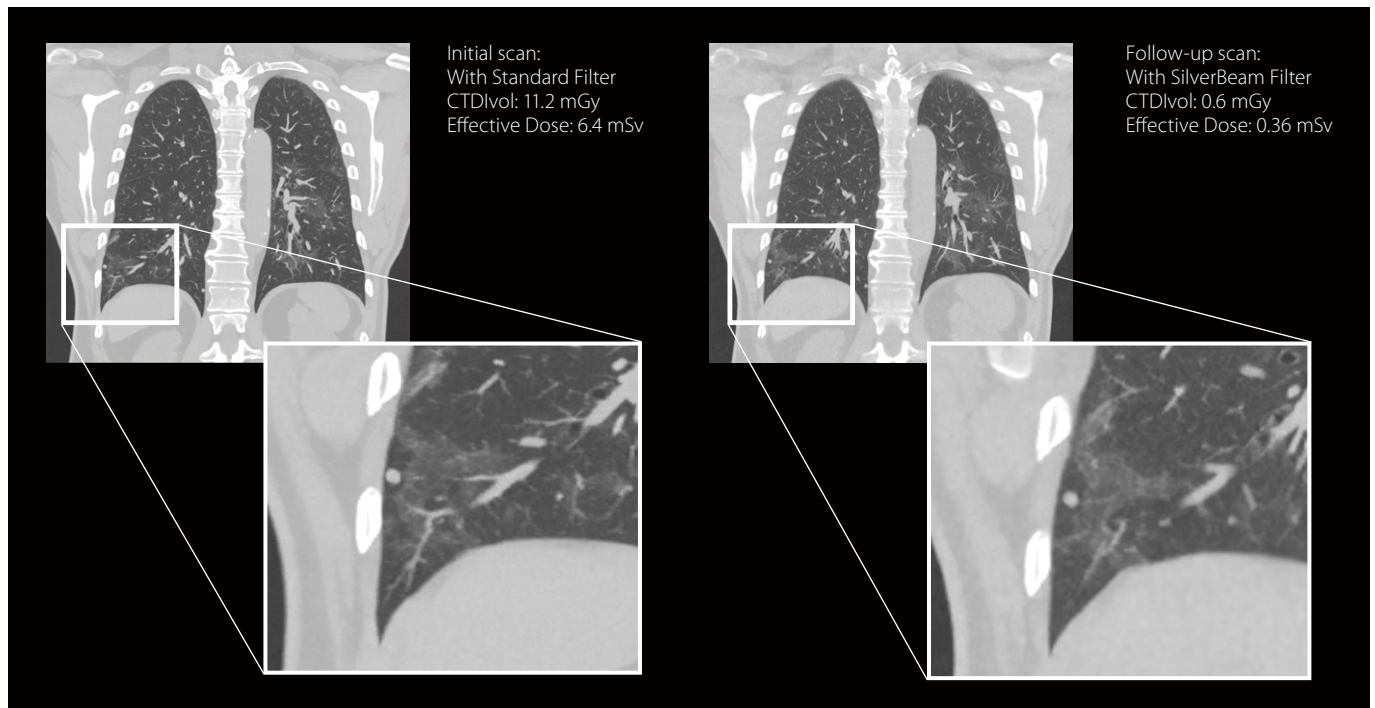


Dr Marcus Chen, MD
NHLBI, National Institutes of Health, USA

Patient history

This 67-year-old man with a known pulmonary nodule presented for a 3 month low dose chest CT to monitor the disease progression.

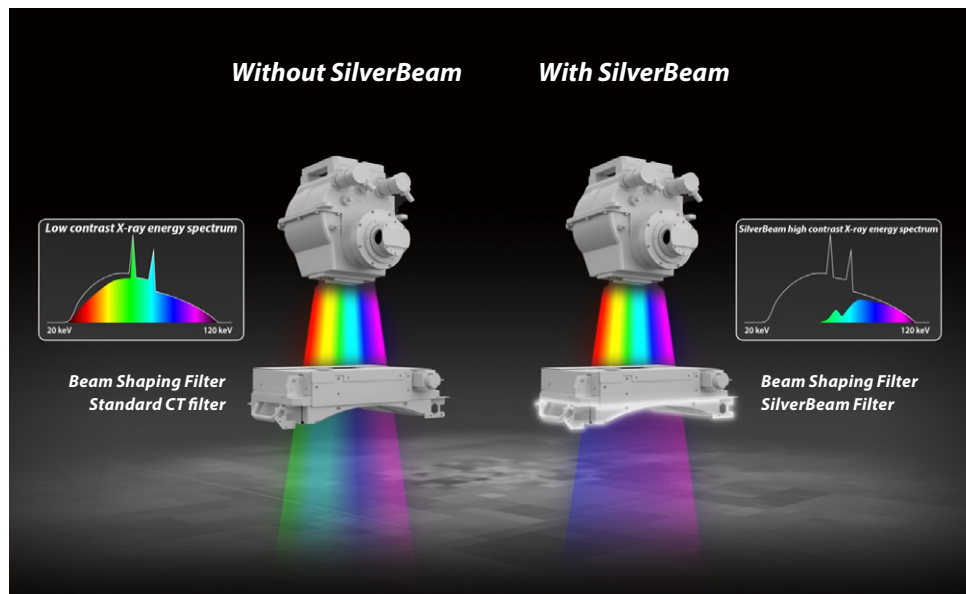
Results



The initial scan was performed with a radiation dose of 6.4 mSv using the standard filter. The follow-up scan was performed with the SilverBeam Filter and resulted in a radiation dose of 0.36 mSv. Both scans were reconstructed with Advanced intelligent Clear-IQ Engine (AiCE). The image quality of the SilverBeam scan is comparable to the scan performed with the standard filter but with significantly lower radiation dose. The pulmonary nodule has not increased in size. A follow up low dose scan in 3 months was recommended.

Technology

SilverBeam, a beam shaping energy filter, leverages the photon-attenuating properties of silver to selectively remove low energy photons from a polychromatic X-ray beam, leaving an energy spectrum optimized for low dose lung cancer screening. Designed to work in combination with AiCE, SilverBeam delivers AI enhanced, high quality, low noise CT lung images at low radiation doses.



Conclusion

SilverBeam Filter combined with AiCE delivers high quality images of the lungs at a dose closer to a chest X-ray. In this case 94% dose reduction was achieved for the SilverBeam scan compared to the initial scan with standard filter, while maintaining nodule conspicuity.

At a radiation dose approaching that of a chest X-ray, and without the image quality trade-offs of conventional CT at such ultra-low doses, the SilverBeam filter with AiCE can help you enhance your lung cancer screening service.

CANON MEDICAL SYSTEMS CORPORATION

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Acquisition

Scanner Model: Aquilion ONE / PRISM Edition
Scan Mode: Ultra Helical
Collimation: 0.5 mm × 80

Standard CT Chest

Exposure: 120 kV, ^{SURE}Exposure
Rotation Time: 0.5 s
Dose Reduction: AiCE
CTDI vol: 11.2 mGy
DLP: 455.8 mGy·cm
Effective Dose: 6.4 mSv
k-factor: 0.014

SilverBeam CT Chest

Exposure: 120 kV, 80 mA
Rotation Time: 0.5 s
Dose Reduction: AiCE
CTDI vol: 0.6 mGy
DLP: 25.7 mGy·cm
Effective Dose: 0.36 mSv
k-factor: 0.014*

* American Association of Physicists in Medicine (AAPM) Report 96, 2008.

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