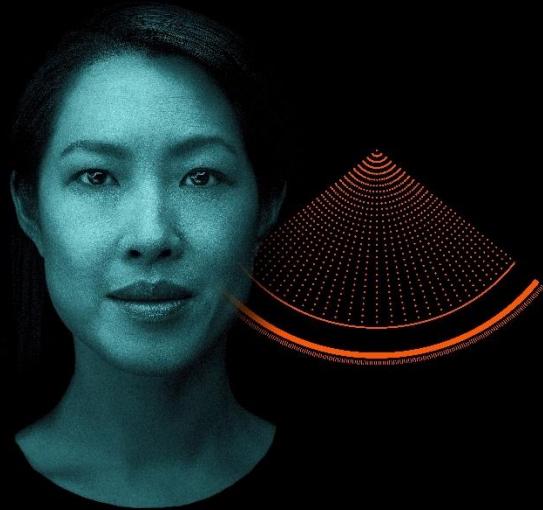
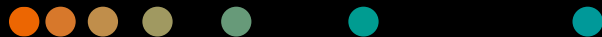


Assessment of emphysema on x-ray equivalent dose photon-counting detector CT

NAEOTOM Alpha Publication Summary



Photon-counting is NAEOTOM



Key findings of the case study



"X-ray dose scans exhibited a significantly lower computed tomography dose index than low-dose scans [...]."



"Inter-reader agreement between low- and x-ray dose for visual emphysema scoring was excellent ($\kappa = 0.83$). Visual emphysema scoring consensus showed good agreement between low-dose and x-ray dose scans ($\kappa = 0.70$), with significant and strong correlation (Spearman $\rho = 0.79$)."



"Further, deep learning emphysema severity estimations showed higher agreement ($\kappa = 0.65$) and correlation (Spearman $\rho = 0.64$) with visual scoring for low-dose scans than LAV predictions ($\kappa = 0.48$, Spearman $\rho = 0.45$)."

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LAV: Low attenuation volume

PCD-CT: Photon-counting detector CT

NAEOTOM Alpha is not commercially available in all countries. Its future availability cannot be guaranteed. The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Because there is no "typical" hospital and many variables exist (e.g., hospital size, samples mix, case mix, level of IT and/or automation adoption) there can be no guarantee that other customers will achieve the same results.

*"The severity of emphysema can be reliably estimated using visual scoring on CT scans performed with x-ray equivalent doses on a PCD-CT. A deep learning algorithm demonstrated good agreement and strong correlation with the visual scoring method on low-dose scans. However, both the deep learning and LAV algorithms overestimated emphysema extent on x-ray dose scans. Nonetheless, x-ray equivalent radiation dose scans may revolutionize the **detection and monitoring of disease in chronic obstructive pulmonary disease patients.**"*