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**Control/Tracking Number:** 2023-EE-6094-RSNA

**Activity:** Education Exhibits

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**Photon-counting detector CT in comparison to energy-integrating detector CT: Optimization and implementation of a non-contrast enhanced chest protocol for all patient sizes**

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**Abstract:**

**\*Teaching Points:** o To demonstrate how to measure the diagnostic image quality (IQ) of a photon-counting detector (PCD) CT protocol o To learn how to assess and evaluate IQ of a PCD-CT protocol compared to energy-integrating detector (EID) CT o To provide tips and learn how to adjust the imaging protocol for a specific task and patient size

**\*Table of Contents/Outline:** With the introduction of PCD-CT in clinical practice, question rises how the IQ relates to the IQ of EID-CT scanners, and what the possibilities are for further dose reduction and/or image quality improvements. This exhibit provides you with knowledge on how IQ could be determined and evaluated by objective and subjective measures. o What is image quality and how can it be evaluated? • Objective IQ quantified by noise, contrast, resolution and combined into the detectability index (d') • Subjective IQ assessed by radiologists with 5-point Likert Scale o Effect on IQ and dose (phantom study examples) • Determination of your site reference standard • Determination of differences in scan and reconstruction parameters between scanners (EID-CT and PCD-CT) • Influence of scan and reconstruction parameters • Effect of differences in patient size • Effect of dose adjustment o Guidelines on protocol adaptation • How to find the right balance between IQ and dose • Tips and tricks in adaptation of current EID- and PCD-CT protocols • Tips for utilizing the full potential of a PCD-CT

**Category (Complete):** Physics -> PHRDMIP - Radiation Dose: Dose Measurement, Image Quality, Protocols

**Format Preference (Complete):** My exhibit is computer-based electronic poster and must be in a slide-show format.

**Questions (Complete):**

**Disclosure of "Off-Label" usage:** No, I do not intend to discuss off-label uses

**Attestation of Original Content:** Yes

**Publication Policy:** No, the content of my exhibit has not been published or submitted for publication.

**Primary Author:** Not Applicable

**2nd Format Opportunity:** No, I am not interested in presenting in a second format.

**Attached Files:** Supporting slides (PDF, 561367 bytes)

**Status:** Complete

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