

Clinical Research on Photon-Counting CT Begins with Radboud University Medical Center



Canon Medical Systems Corporation (hereinafter "Canon Medical"; President and CEO: Toshio Takiguchi; headquarters: Otawara, Tochigi, Japan) has completed the second installation of its Canon photon-counting CT (PCCT) system worldwide at Radboud University Medical Center (Chair: Dr. Bertine Lahuis; location: Nijmegen, the Netherlands), and clinical research began in late January. PCCT is expected to be the next generation of X-ray CT.



Radboud University Medical Center

Radboud University Medical Center is an academic medical center specializing in patient care, scientific research, teaching, and training. The center offers innovative medical care that is shaping the future of healthcare, focusing on its mission to make a significant impact on health care. The Department of Radiology at Radboud University Medical Center leads one of the best research groups in Europe, working with more than 150 researchers on advanced studies to provide patient care and improve health care.

Canon Medical entered into an agreement on joint clinical research with Radboud University Medical Center on November 14, 2023,^{*1} and clinical research aimed at early practical application of PCCT was started, led by Prof. Mathias Prokop, Chairman of the Department of Radiology at Radboud University Medical Center. The purpose of this research is to explore the clinical usefulness and potential of PCCT, such as ultra-low dose imaging and quantitative evaluation of contrast media, using image data acquired by PCCT.

Prof. Prokop commented, "The first clinical exams on our photon counting CT scanner were made in January and confirmed its improved spatial resolution. As a chest radiologist, I'm excited to see that our diagnostic abilities may be pushed past their current limits. Together with Canon, we plan to further explore the scanner's spectral imaging^{*2} features. By combining it with existing techniques like subtraction or perfusion imaging we'd like to venture into functional imaging as well."

PCCT is a diagnostic imaging system equipped with a next-generation detector (photon-counting detector)^{*3} that, compared to conventional X-ray CT systems, allows multiple energy collection. PCCT can identify multiple material compositions and is expected to improve diagnostic

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accuracy by providing images with superior quantitativity. In addition, with the higher resolution of PCCT, the detectability of lesions should be improved at even lower exposure doses than with conventional systems. Based on these advanced system capabilities, PCCT is expected to become a next-generation CT imaging technique with the capability to provide outstanding clinical value, and its clinical introduction is awaited at healthcare institutions around the world.

We will accelerate the development of PCCT by ensuring that the most suitable product is developed based on direct input from clinical practice. Through the early implementation of Canon PCCT, which brings together various technologies that Canon has cultivated over the years, Canon Medical will contribute to the further development of diagnostic imaging technology and the improvement of healthcare. With Canon's innovations and technology leadership, Canon Medical will aim for the No. 1 share in the global CT market.

A variety of our healthcare solutions will be exhibited at ECR 2024 (European Congress of Radiology) to be held in Vienna from February 28 to March 3, and a seminar by Radboud University based on the firsthand experience of using PCCT is scheduled on March 1.

Source & Image Credit: [Canon Medical Systems](#)

References:

*1: [Canon Medical Systems Accelerates Global Clinical Research to Realize Next-Generation Photon-Counting CT](#)

*2: A function of PCCT which allows images to be obtained based on X-rays with different energy levels. It is expected to enable the provision of diagnostic information, such as differentiation of materials and quantitative assessment, that exceeds what can be achieved with conventional CT.

*3: [Photon Counting CT | CT | Canon Medical Systems](#)

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