

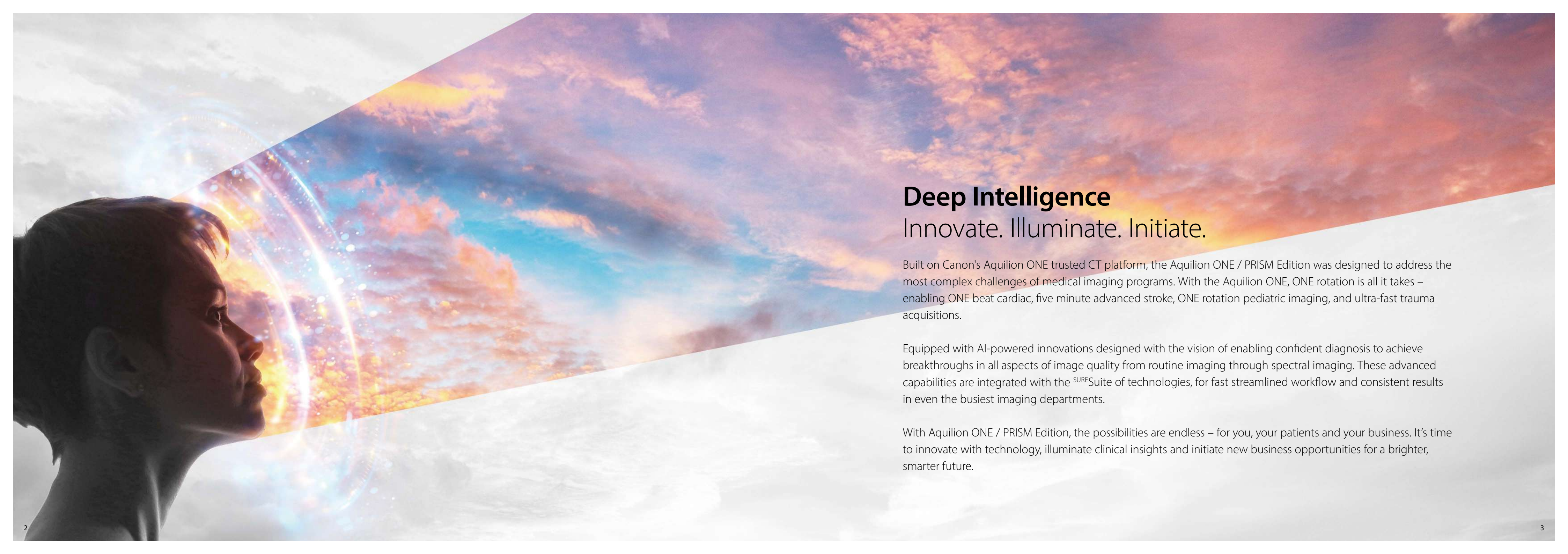
Canon



Aquilion ONE

PRISM Edition

Deep Intelligence



Deep Intelligence

Innovate. Illuminate. Initiate.

Built on Canon's Aquilion ONE trusted CT platform, the Aquilion ONE / PRISM Edition was designed to address the most complex challenges of medical imaging programs. With the Aquilion ONE, ONE rotation is all it takes – enabling ONE beat cardiac, five minute advanced stroke, ONE rotation pediatric imaging, and ultra-fast trauma acquisitions.

Equipped with AI-powered innovations designed with the vision of enabling confident diagnosis to achieve breakthroughs in all aspects of image quality from routine imaging through spectral imaging. These advanced capabilities are integrated with the ^{SURE}Suite of technologies, for fast streamlined workflow and consistent results in even the busiest imaging departments.

With Aquilion ONE / PRISM Edition, the possibilities are endless – for you, your patients and your business. It's time to innovate with technology, illuminate clinical insights and initiate new business opportunities for a brighter, smarter future.



Innovate with technology

Powered by three Canon Altivity brand technologies – Precise IQ Engine (PIQE), Advanced intelligent Clear-IQ Engine (AiCE) and Deep Learning Spectral Reconstruction – we have created sharper cardiac images, clearer low dose lung screening and low noise spectral imaging.

powered by  **Altivity**

Welcome to the age of AI-assisted CT

Advanced intelligent Clear-IQ Engine (AiCE) – Deep Learning Reconstruction

AiCE is an innovative approach to CT reconstruction that uses Deep Learning technology to match the spatial resolution and low-noise properties of advanced model-based iterative reconstructions.

Trained using vast amounts of high-quality image data, reconstructed with an advanced model-based iterative reconstruction (MBIR) algorithm, AiCE distinguishes true signal from noise to deliver exceptional images without compromising on dose.

Furthermore, AiCE can be seamlessly integrated into your routine exam protocols to reconstruct images at a speed fast enough to keep pace in a busy clinical setting while delivering up to 81% reduced dose levels compared to conventional reconstruction technology (Filtered Backprojection).

- Low Noise
- Natural Image Texture*
- Sharp High Contrast Resolution
- Clear Low Contrast Detectability



* Natural defined as similar to FBP compared to MBIR



Hybrid IR



AiCE

“Advanced Deep Learning Reconstruction of clinical images using AiCE heralds a new era in CT. It enables phenomenal patient dose reduction, up to 90% below the National Diagnostic Reference Levels, at the same time as providing extremely high-quality clinical images and all in a rapid time frame suitable for everyday clinical use.”



Dr. Richard Hawkins
Mid Cheshire Hospitals NHS
Foundation Trust,
UK

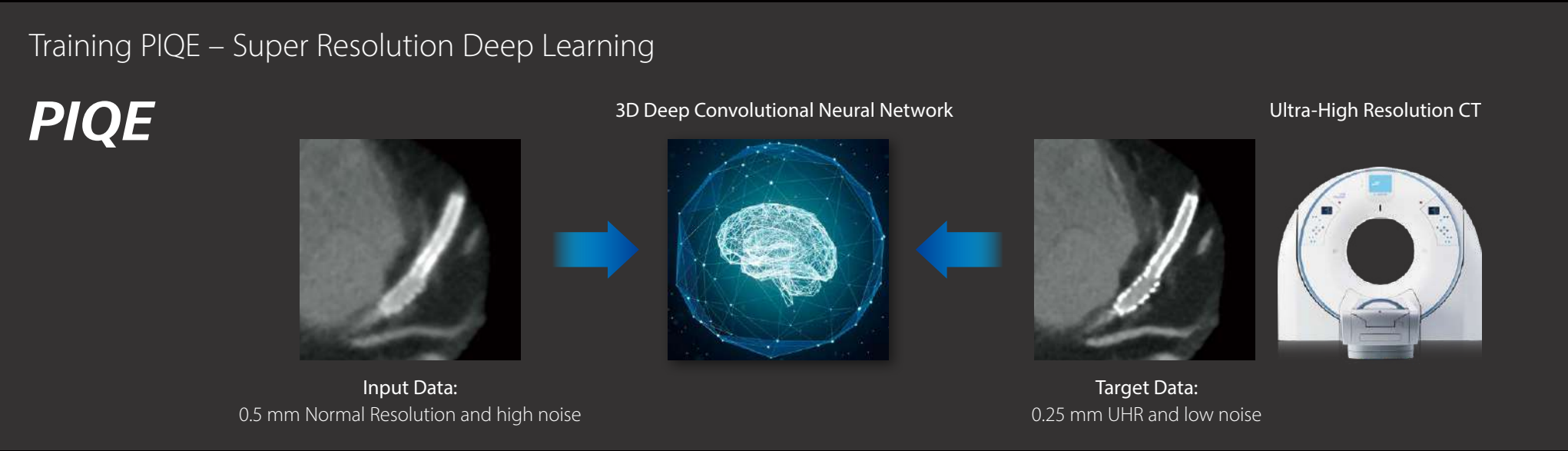


Introducing super resolution Deep Learning Reconstruction technology for CT

Overcome the challenges of coronary artery visualization in stents and heavily calcified vessels by combining the power of one beat cardiac and AI enhanced image sharpness with PIQE (Precise IQ Engine). PIQE super resolution Deep Learning Reconstruction is designed to fully utilize the maximum resolution of the detector to deliver sharp cardiac images without compromising on noise, temporal resolution or dose.

Trained with Ultra-High Resolution CT (UHR) Precision CT data

PIQE harnesses the power of Canon's 0.25 mm Precision detectors to train the Deep Learning neural network. This next generation, 3-dimensional neural network allows PIQE to maximize the spatial resolution from ECG gated volumetric scans to provide a new standard in cardiac CT image quality.



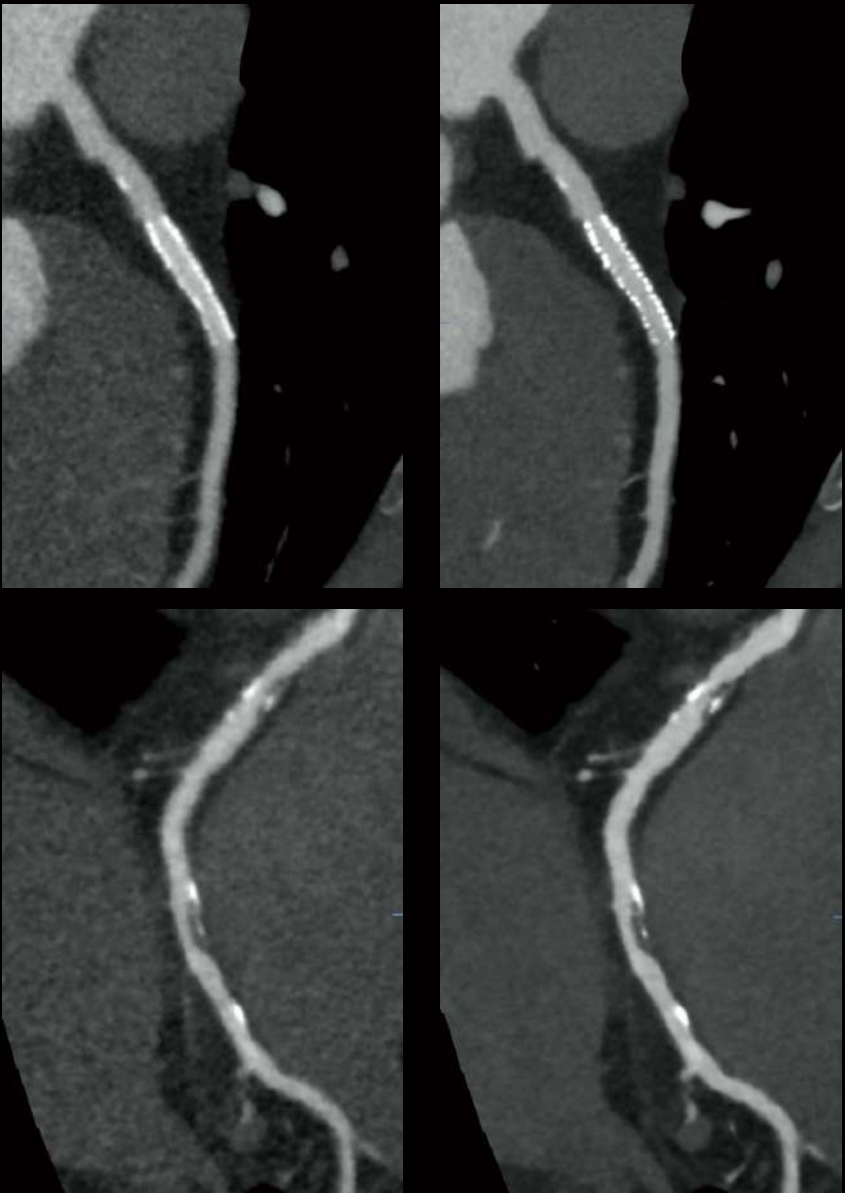
A new standard in cardiac clarity

PIQE provides improved spatial resolution¹ and 45% reduced noise² for improved in-stent visualization with clear depiction of vessel lumen to evaluate neointimal hyperplasia and in-stent restenosis. The high contrast to noise properties of PIQE exams also provide better evaluation in heavily calcified coronary arteries with no loss of low contrast detectability² – and these benefits are provided without any additional dose.

Robust for all patients, One beat CTA examinations with PIQE offer:

- Sharper anatomical detail
- Reduced calcium blooming
- No additional dose
- Isophasic Uniformity

¹ In clinical practice, the use of PIQE may increase spatial resolution (super resolution), depending on the clinical task, patient size, anatomical location, and clinical practice.
² Compared to AIDR 3D



AIDR 3D

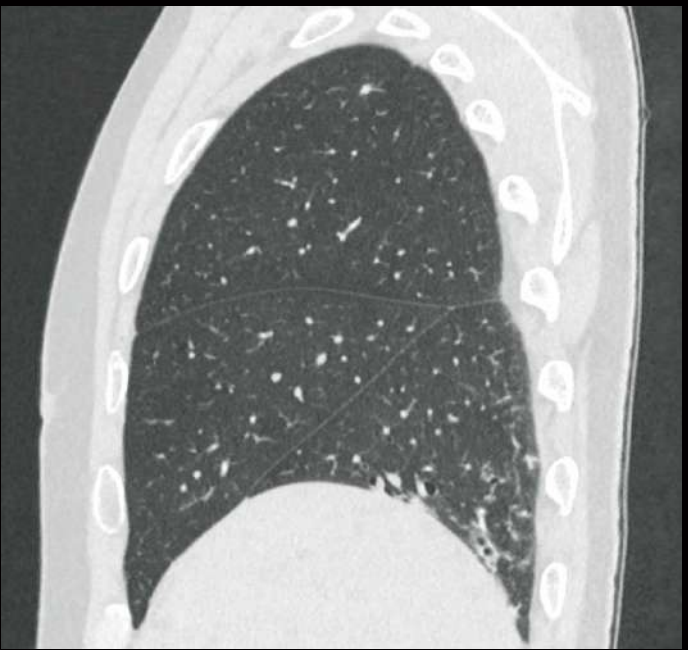
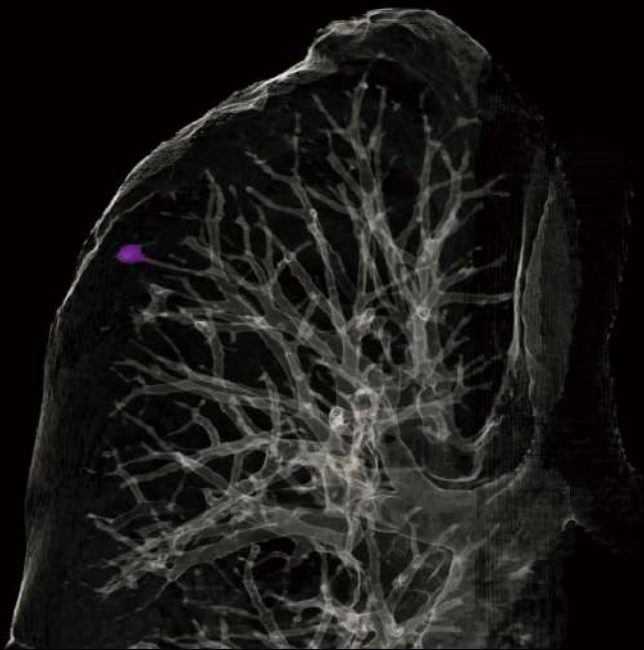
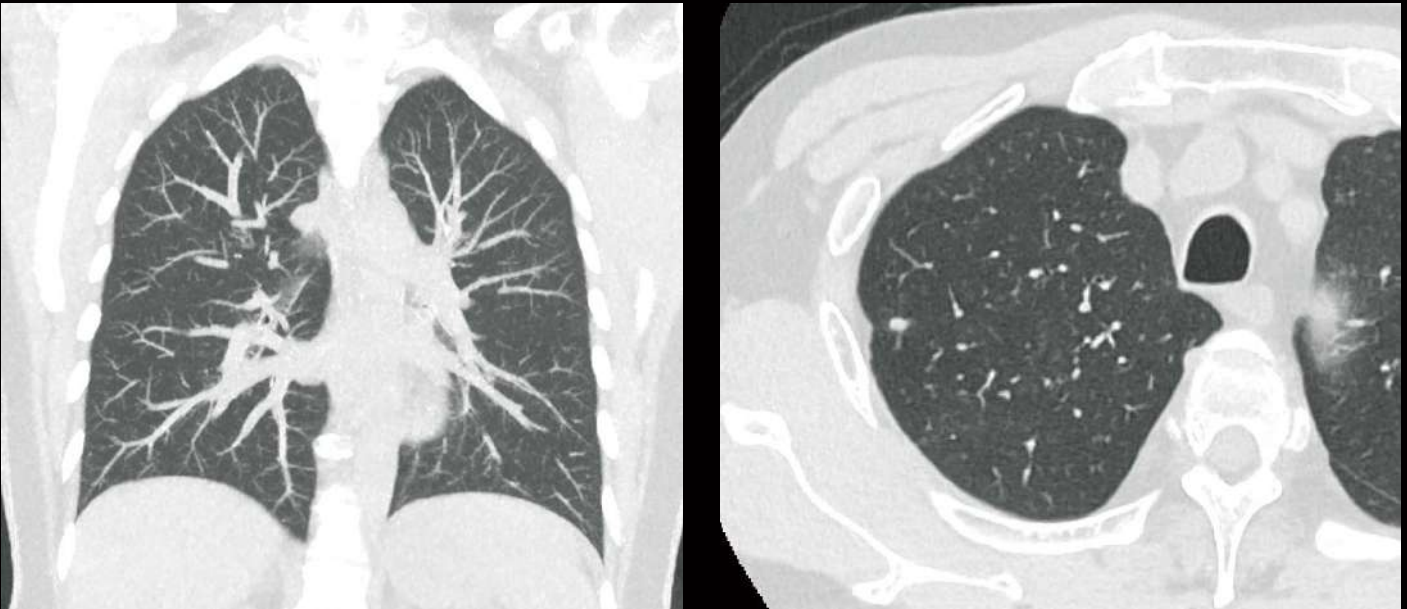
PIQE

The detail of a CT at the dose closer to an X-ray exam: SilverBeam Filter

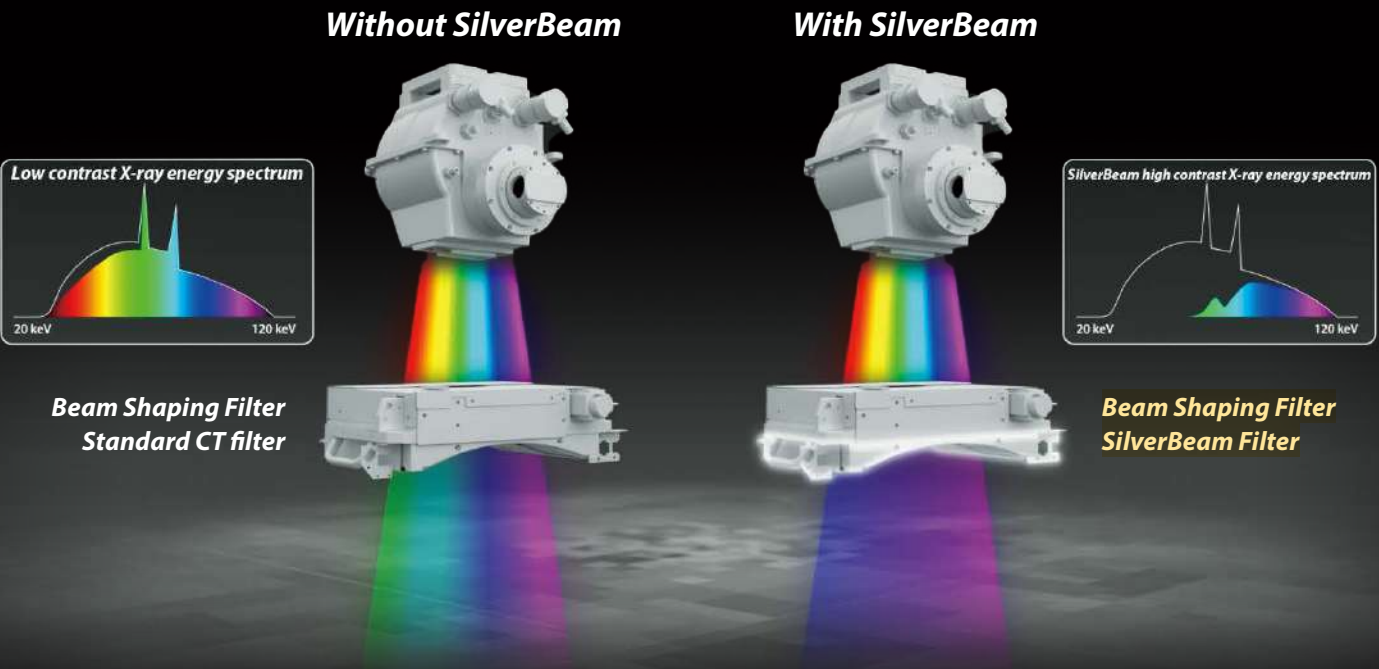
SilverBeam, a beam-shaping energy filter, leverages the photon-attenuating properties of silver to selectively remove low energy photons from a polychromatic X-ray beam, leaving an energy spectrum optimized for lung cancer screening.

Designed to work in combination with AiCE, SilverBeam delivers AI-enhanced, high-quality, low-noise CT lung cancer screening images at the radiation dose closer to a typical chest X-ray exam.

SilverBeam with AiCE can be used to confidently set up a lung cancer screening service in your hospital.



Solitary nodule in the right upper lobe in this 0.5 mSv low dose chest scan performed with SilverBeam



Deep Learning Spectral imaging*

Canon's Deep Learning Spectral CT system has been designed to take your imaging capabilities to a whole new level.

Not only does it harness the temporal benefits of rapid kV switching with patient-specific mA modulation, it combines them with a Deep Learning Reconstruction that delivers excellent energy separation and low-noise properties.

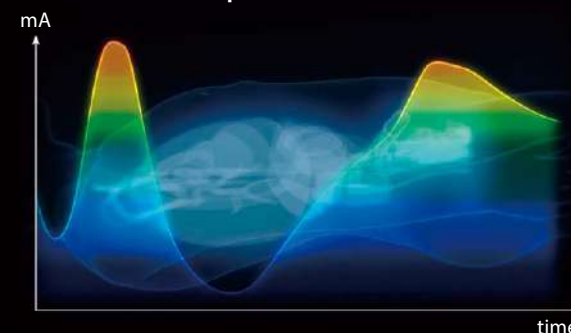
What's more, its fully integrated end-to-end workflow is easy to use and can be conveniently incorporated into your routine protocols.

16 cm Volume Spectral scanner

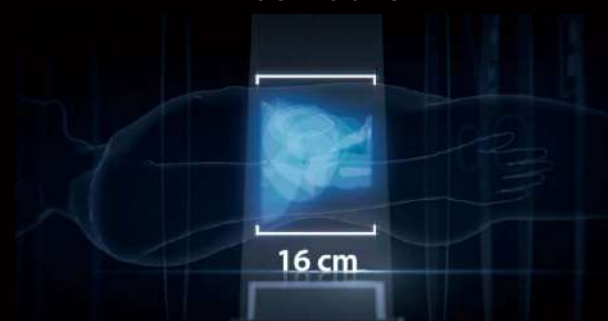
Rapid kV switching



Patient Specific mA modulation



16 cm volume



* Option

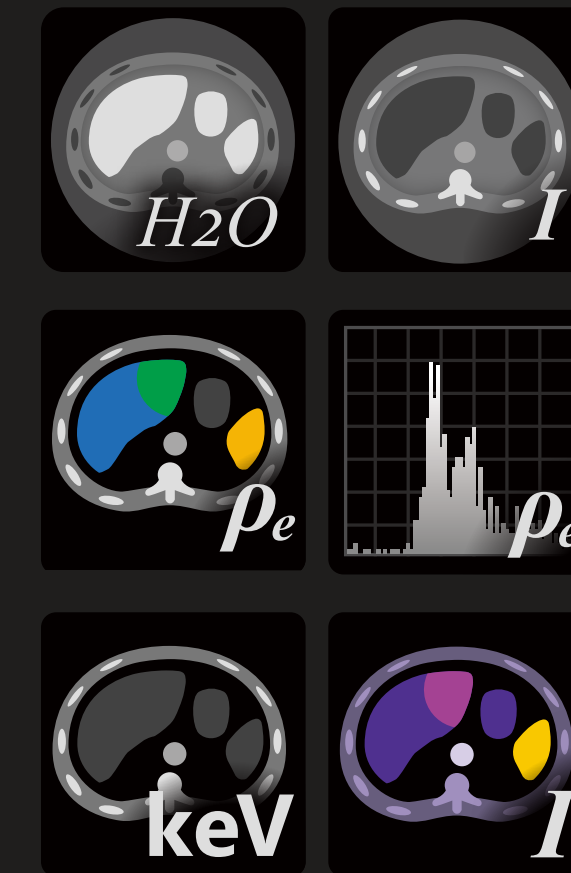
Spectral Deep Learning Reconstruction



Full Spectral Transformation

The advantage of Deep Learning Spectral Reconstruction is its ability to transform multi-energy raw data sets into two full high and low energy separated sinograms. This provides excellent energy separation for Spectral analysis with the high resolution and low noise properties you would expect from a routine diagnostic CT exam.

An extensive suite of Spectral analysis applications*

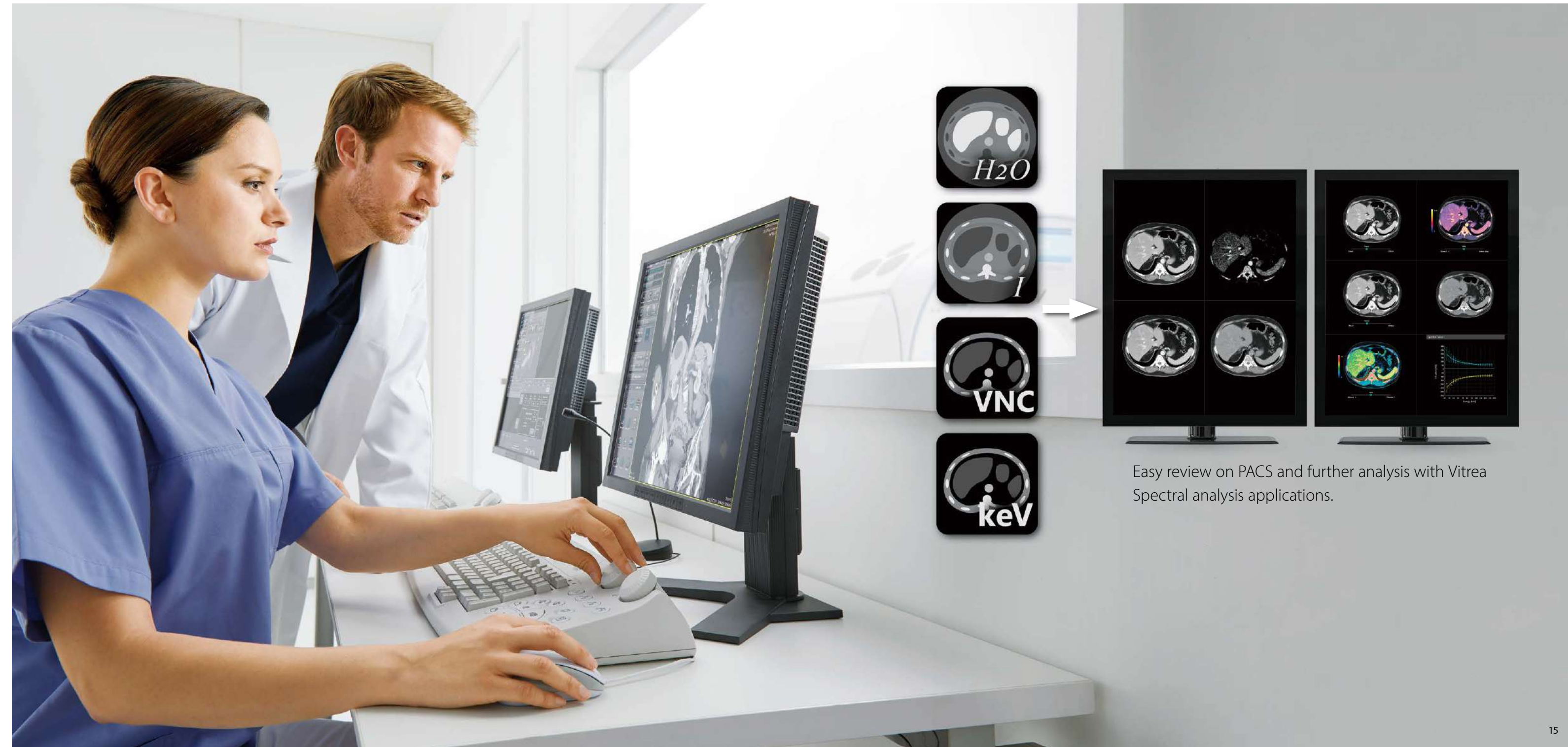


* In combination with Vitrea Advanced Visualization

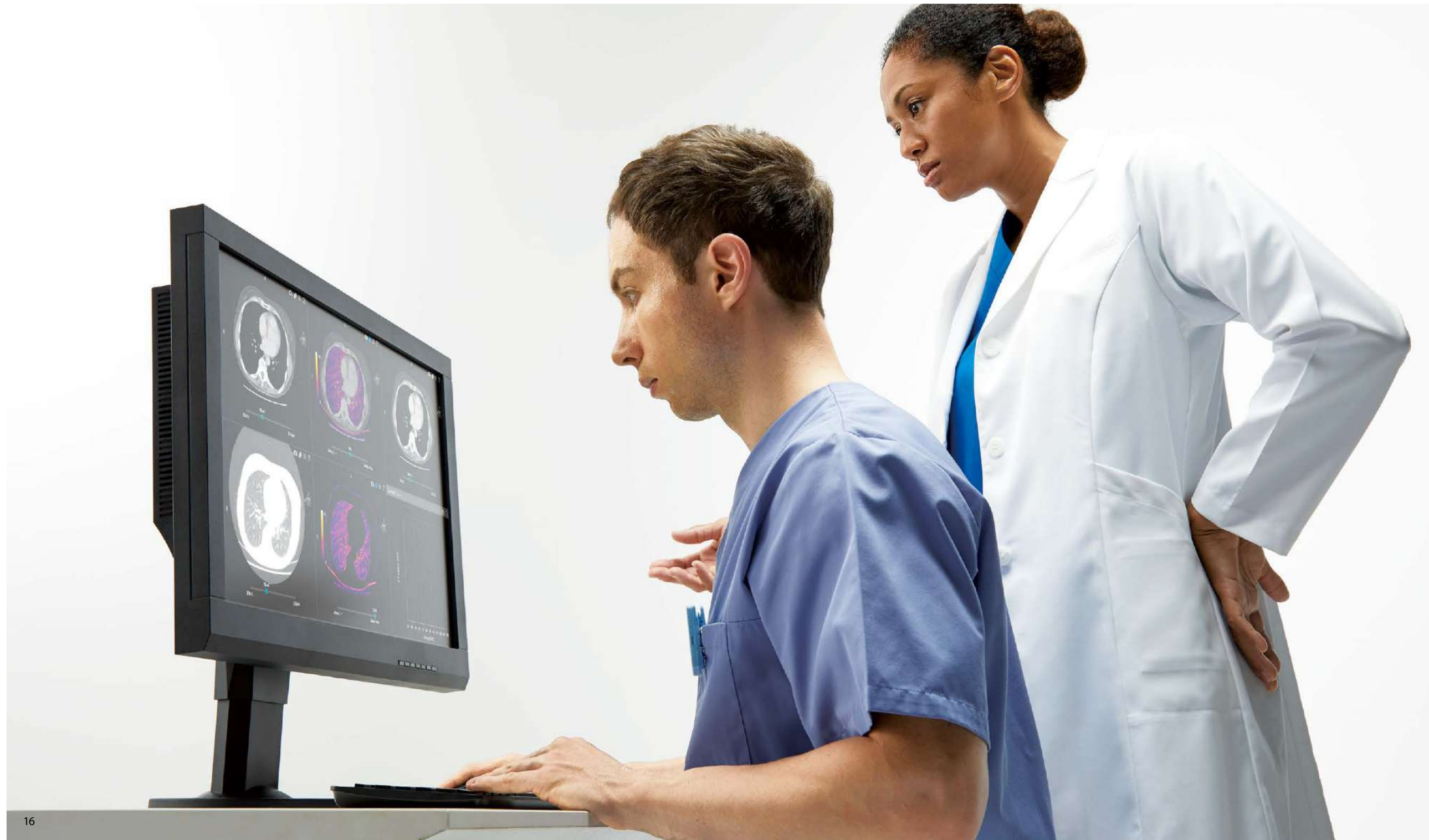
A smart and fast Spectral solution

Aquilion ONE / PRISM Edition with Deep Learning Spectral automatically reconstructs monochromatic images, material-specific reconstructions and iodine maps, to ensure you can get the images you need for all spectral exams.

Images are delivered directly to your reading station for easy review, and with our range of new Vitrea applications, your team can analyze comprehensive Spectral data, including quantification and multi-layered images, for a detailed and confident diagnosis.



Easy review on PACS and further analysis with Vitrea Spectral analysis applications.



Illuminate clinical insights

Access all the information you need to make a clear, confident diagnosis that enables every patient to start the right treatment journey for them.

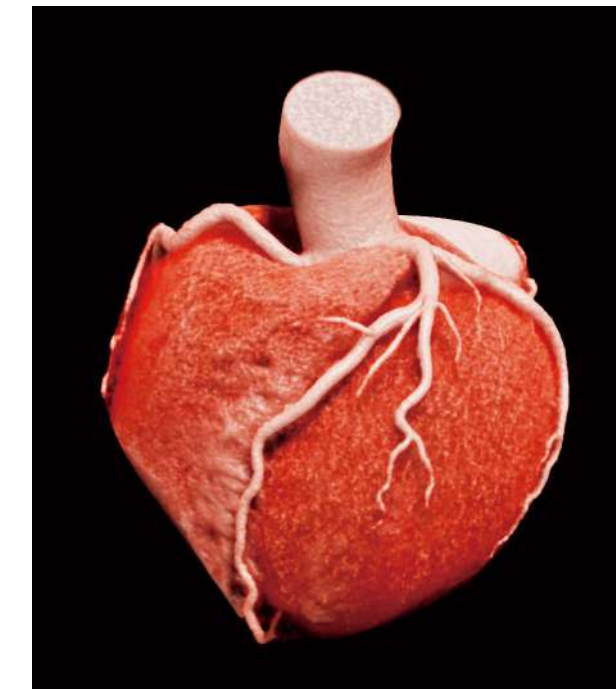
ONE rotation is all it takes



Don't miss a beat with our cardiac CT solutions

The Aquilion ONE / PRISM Edition's 16 cm wide area detector significantly improves your ability to obtain high-quality images consistently across patients.

With just one rotation, you can acquire an entire heart in a fraction of a second – all with less dose and great z-axis uniformity.



Technology that gets to the heart of the matter

Canon's range of ^{SURE}Cardio technologies* has been designed to help you feel even more sure of your patient's diagnosis with robust, automated cardiac images.

^{SURE}Cardio delivers clear, accurate images while enhancing workflow by automatically selecting the optimal scan and reconstruction parameters. This ensures high diagnostic image quality at a radiation dose tailored to each patient.

^{SURE}Exposure cardiac automatically selects the kV and mA based on your patient's size, as determined by the scanogram.

Real-Time Beat Control monitors the patient's heart rate in real-time and controls the exposure timing depending on the scan mode selected.

The Arrhythmia Detection Algorithm recognizes irregular cardiac rhythms and controls scan exposure in real-time to ensure a diagnostic study.

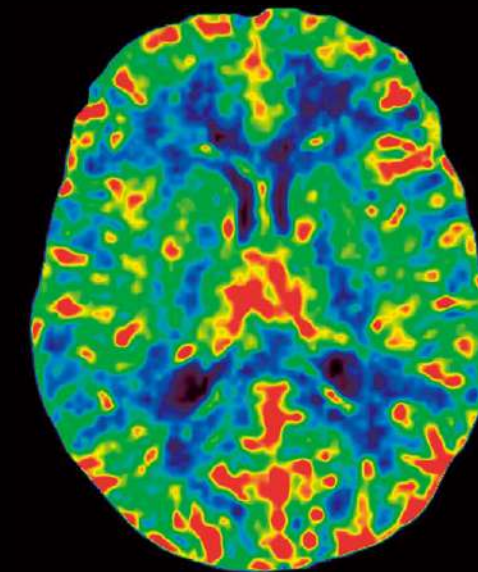
phaseXact is our fully automated phase selection software that automatically determines the optimal cardiac phase for motion-free reconstruction. Phase selection is performed in the raw data domain and requires no operator intervention.

ECG Gated Single Energy Metal Artifact Reduction (SEMAR): SEMAR technology improves the visualization of cardiac devices such as pacemaker leads and the adjacent soft tissues for clearer and more confident diagnosis.

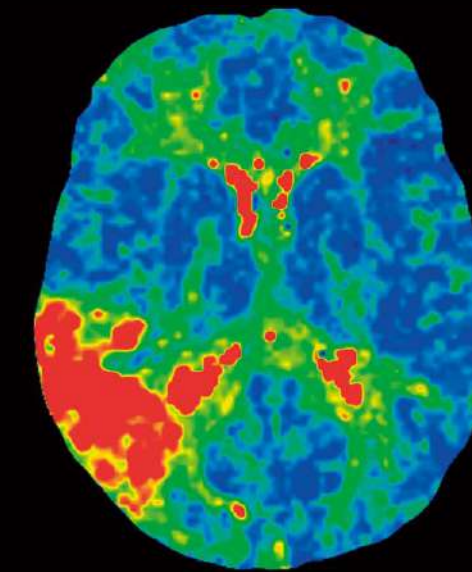
When time is brain, every second counts

The Aquilion ONE / PRISM Edition provides a comprehensive stroke evaluation platform that offers whole brain perfusion imaging and 4D digital subtraction angiography of the intracranial circulation in just one minute.

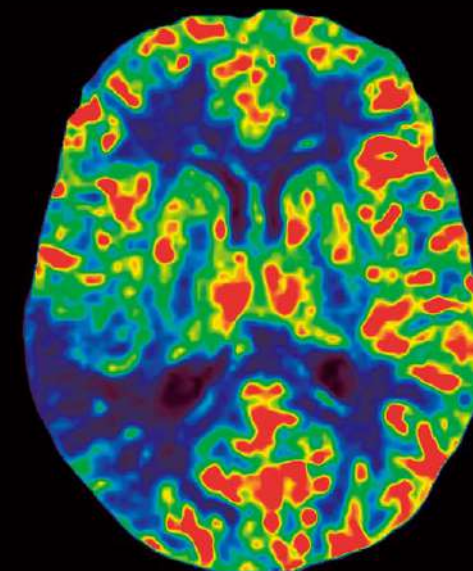
After the scan, within the time it takes to get a patient out of the CT room, Canon's 4D brain perfusion software evaluates flow and perfusion defects ensuring you have all the diagnostic information you need to make the appropriate treatment decision in under five minutes.



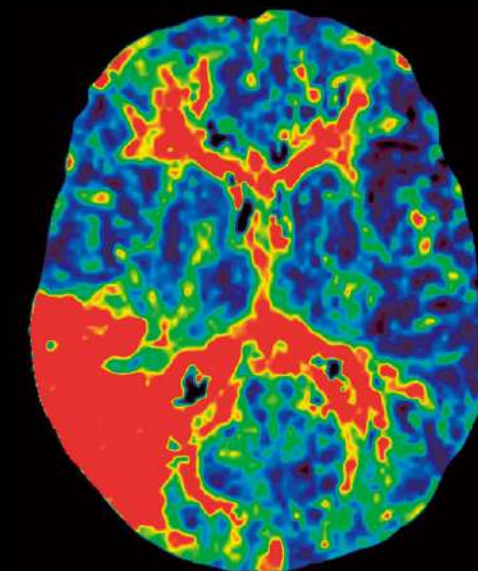
CBV



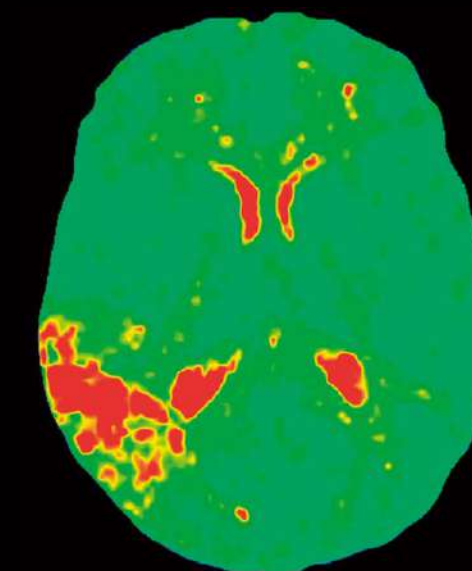
TTP



CBF



MTT



Delay

Simple and streamlined CT Guided Interventions*

Conduct faster, more focused interventional procedures with our new interventional interface that enables one-handed operation thanks to ergonomically designed controls and a versatile touchscreen tablet.

Plus, with Canon's iterative reconstruction you now have real-time access to the high-quality, low-dose images you need to increase the speed and safety of all your interventional procedures.



"The new CTF controller is easy to use and provides faster workflow."

Ewoud Smit MD, PhD
Radiologist
Radboud University Medical Center,
Nijmegen, the Netherlands



Speed, quality, low dose – you can have it all

Variable Helical Pitch (vHP) 3 phase* allows three scans to be performed in a single acquisition, seamlessly transitioning between scan parameters optimized for each body region.

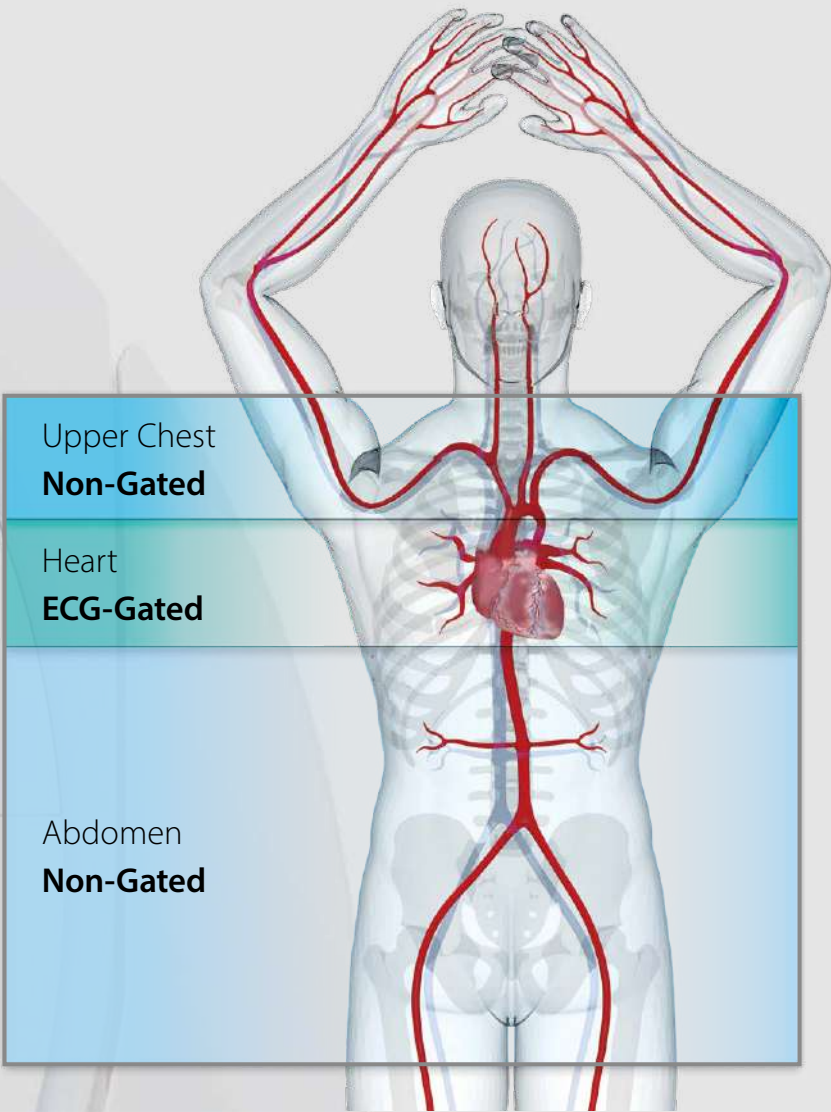
vHP 3 phase has potential for optimizing contrast media* and lower radiation dose by providing the flexibility to seamlessly transition:

- Between ECG Gating on and off during a cardiac scan
- Between dose and image quality during a CAP scan
- Between fast and detailed pitch during a trauma scan

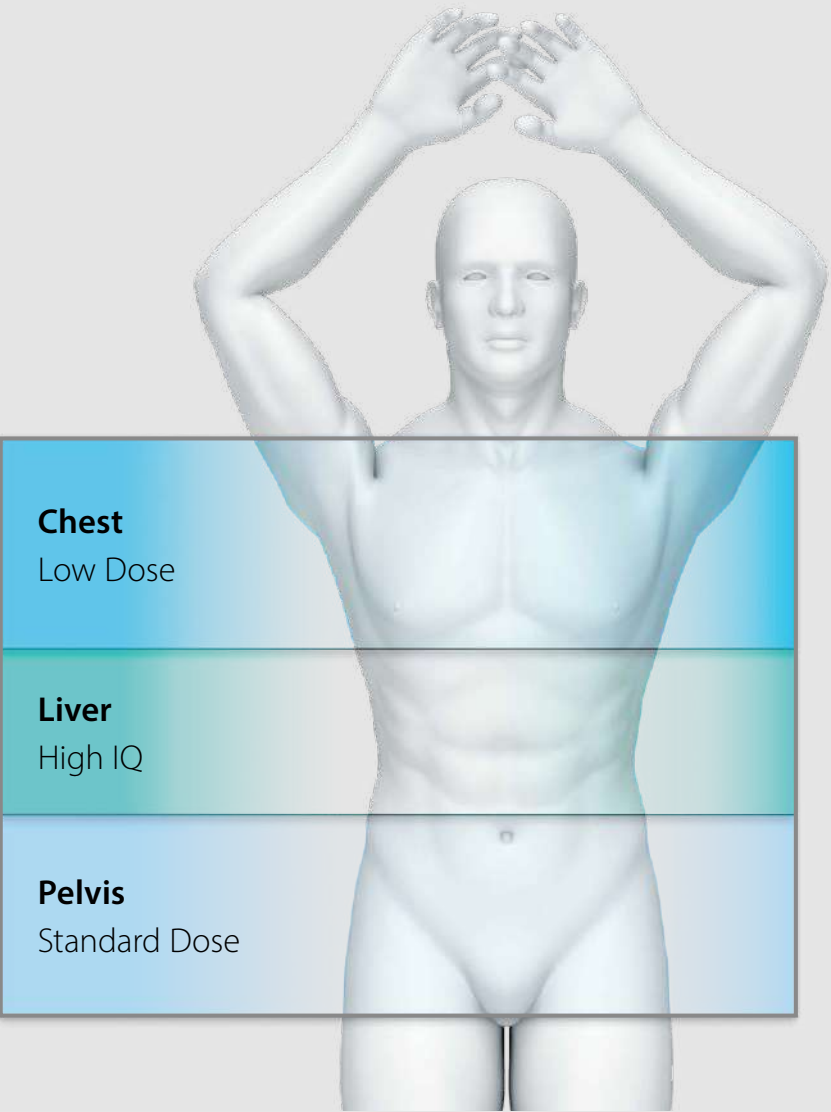
Additionally, AiCE provides high-fidelity images through the entire scan range, overcoming the challenges of image reconstruction through the transition zones. With three scans in one, the single series reconstruction enables several studies to be interpreted simultaneously for faster reading.

* Optimization of injected dose is only recommended within the dosing ranges that appear in approved drug labeling.

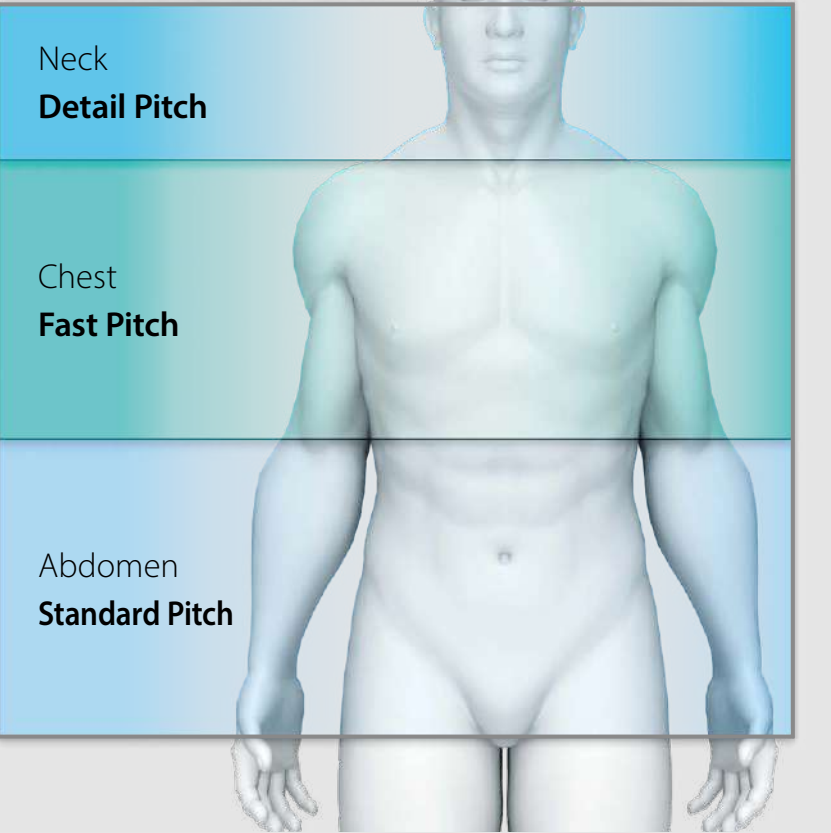
vHP 3 phase – Optimal Gating Cardiovascular scan



vHP 3 phase – Optimal Exposure Chest, Abdomen, Pelvis scan



vHP 3 phase – Optimal Speed Trauma scan



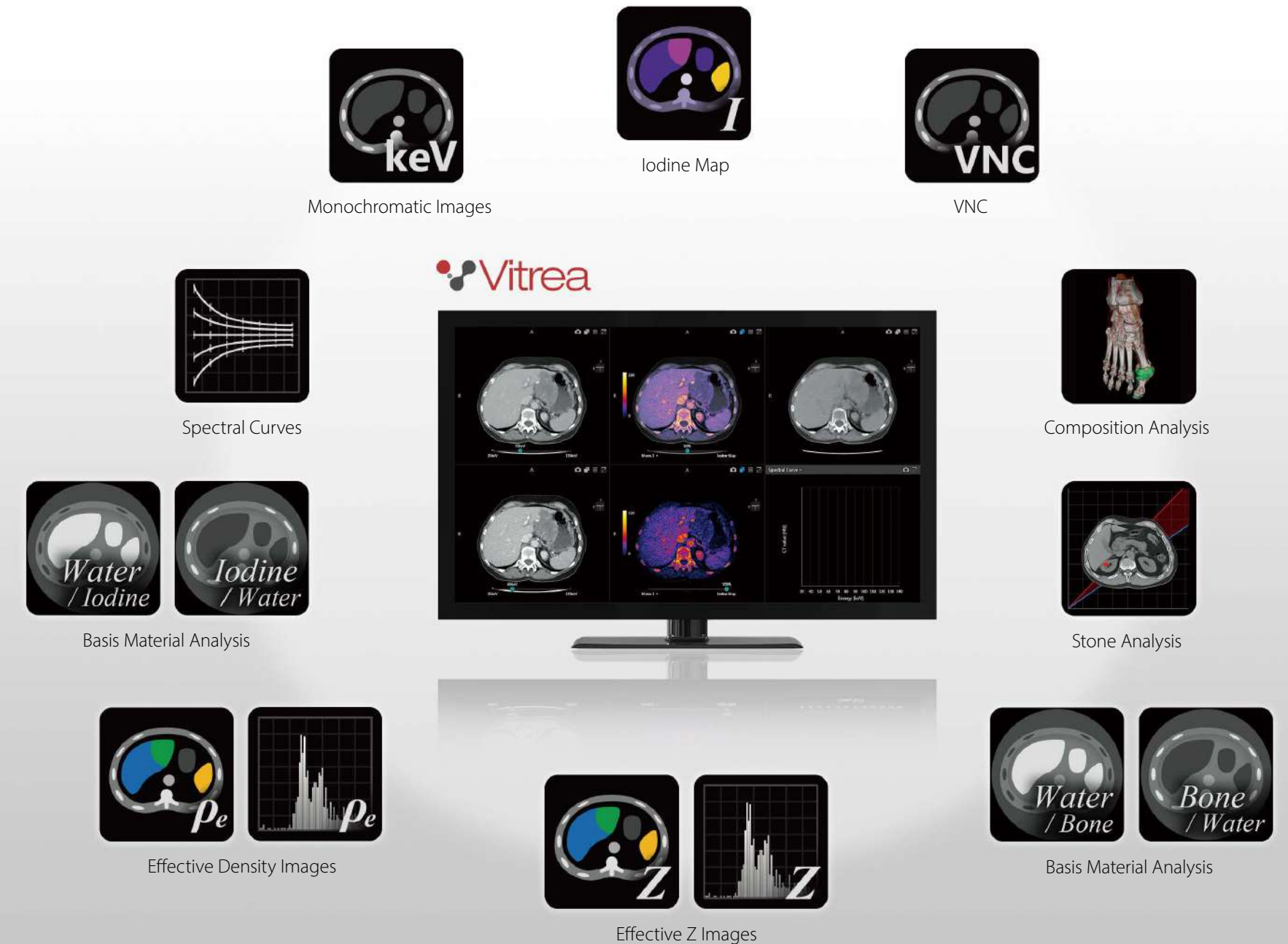
* Option

Expand your spectrum with our latest healthcare IT solutions

Vitreia Advanced Visualization*

Review Spectral data quickly and easily with a range of applications that simplify your workflow and provide clinically relevant features and outputs for every patient.

- Create effective monochromatic images for 166 energy levels ranging from 35 keV to 200 keV.
- View quantitative color-coded iodine distribution maps that show the iodine uptake in anatomical structures.
- Characterize and differentiate tissue with Effective Z and Electron density information at your fingertips.
- Differentiate between uric acid and non-uric acid urinary stones to make better-informed treatment decisions.
- Visualize and quantify the presence of monosodium urate in anatomical structures.



* Vitrea is available as an option.

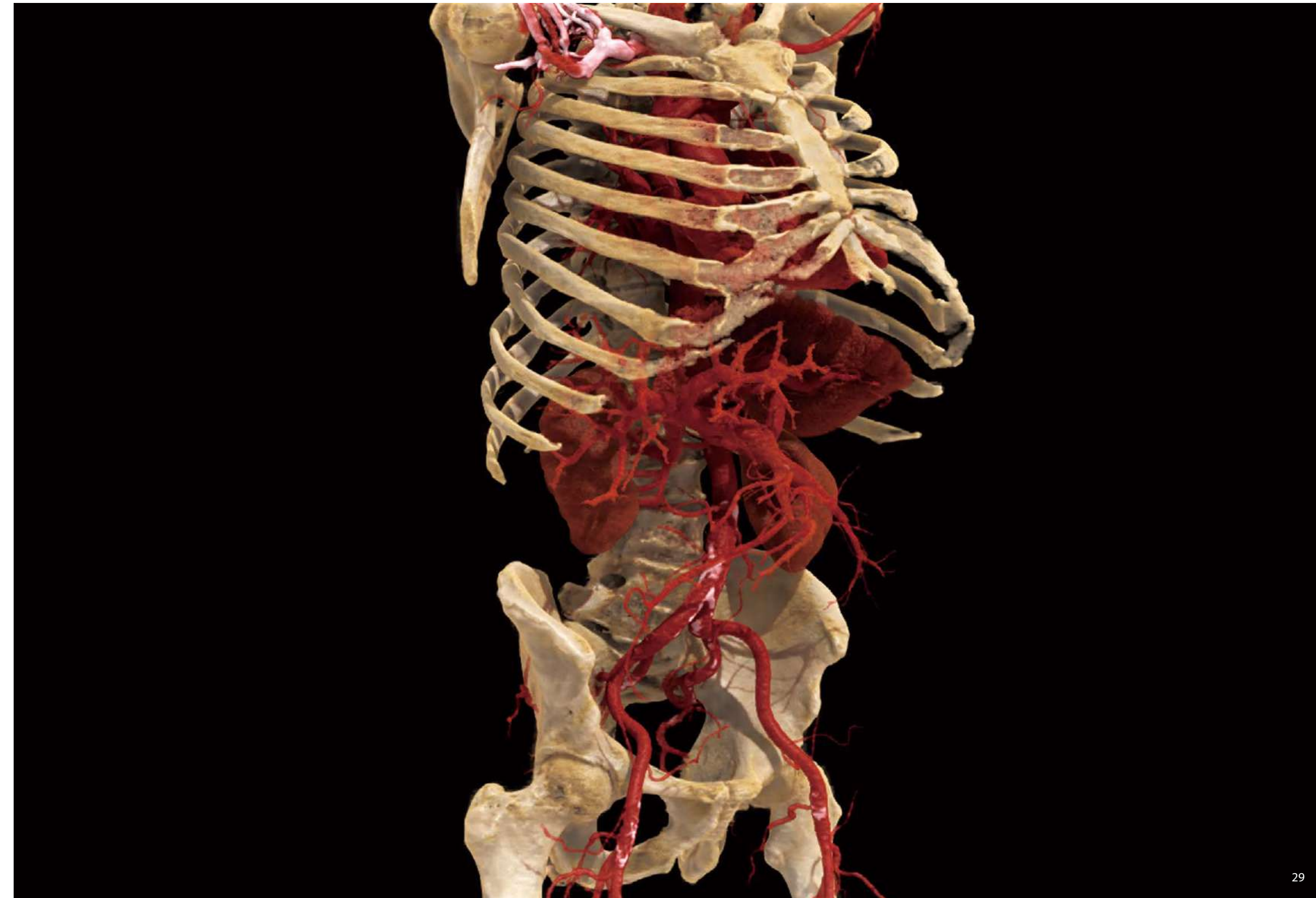
The new standard in advanced visualization

Global Illumination Rendering

Discover a new standard of visualization with Canon's smart 4D rendering technique that helps you get a more photorealistic view of human anatomy.

It's simple-to-use and integrates seamlessly into your Vitrea workflows for easy sharing and collaboration across your patient's care team.

- Real-time image manipulation enables you to quickly segment and edit anatomy without disrupting your clinical workflow.
- Incredible photorealistic images can enhance your presentations and help you showcase your hospital's work to the rest of the world.
- Compared with traditional volume rendering, Global Illumination provides exquisite detail and depth perception for an improved understanding of anatomical structures.
- Global Illumination is an invaluable tool for clinicians who rely on imaging technology, particularly oncologists, surgeons, and forensic pathologists.





Initiate business opportunities

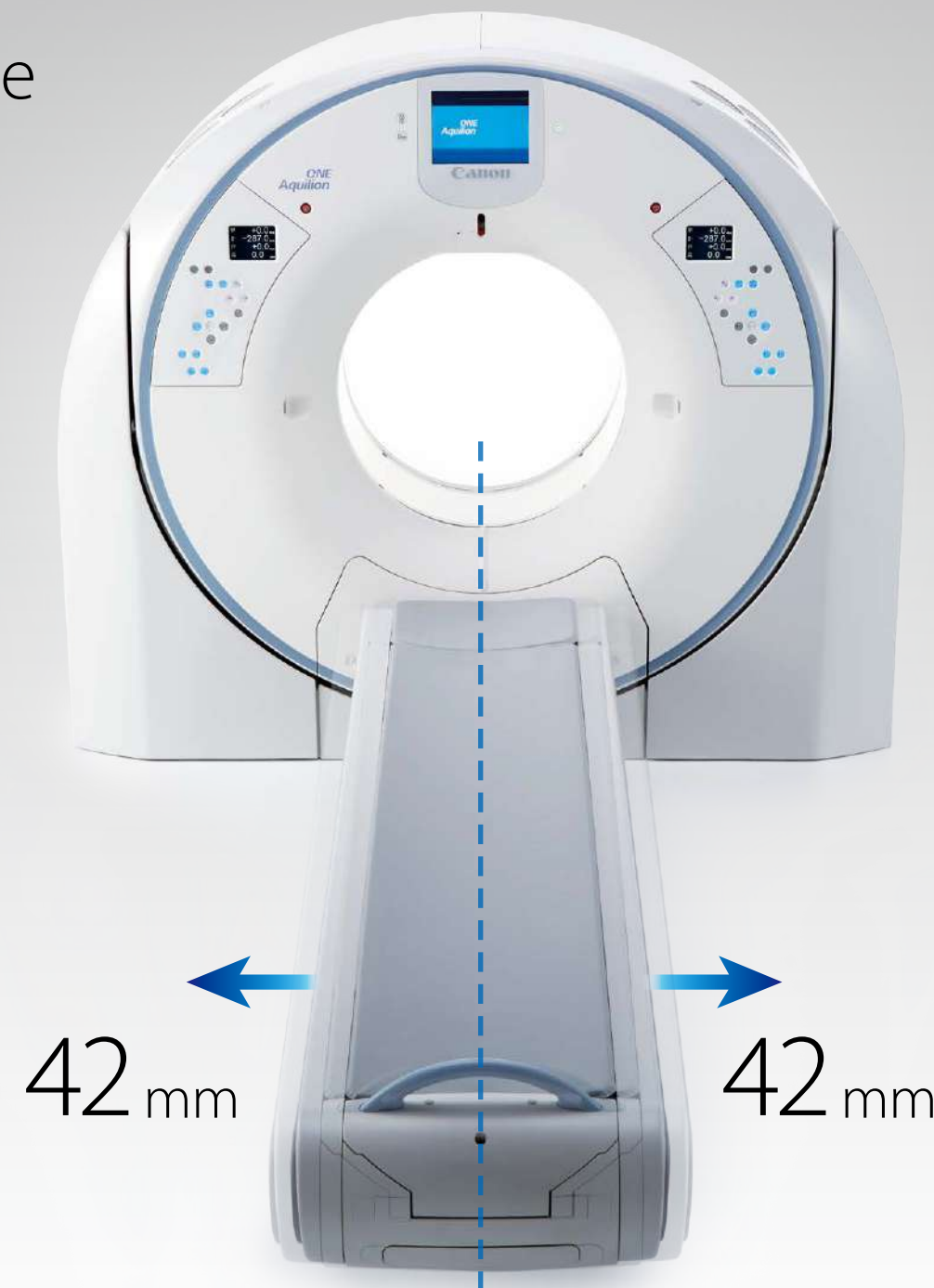
Stand out with a CT solution that optimizes your workflow, improves the patient experience, and helps you save time and money every step of the way.

Safer and simpler for everyone

Without a doubt, scanning lots of patients throughout the day takes a lot of effort from your team. But with Aquilion ONE / PRISM Edition, you can now expedite the process with smart technology that does the heavy lifting for you.

Lateral slide*

Reduce the risk of injury to your patients or technologists with a tech assisted lateral slide that mechanically moves the patient left, or right to the desired position at the touch of a button.



* Option



Quick and convenient access

The Aquilion ONE / PRISM Edition's shorter flared gantry gives you easy access from the front or rear of the tunnel, making it the ideal choice for treating patients who have experienced trauma, or are undergoing interventional procedures.

Clinical workflow that works for you

Aquilion ONE / PRISM Edition comes with a range of smart features and functions that make every stage of the scan process time-efficient and straightforward.

Now, whether you're setting up a patient, conducting the scan or reviewing results, you'll be able to rely on fast, flexible, and automated technologies that make life easier for everyone.

Before the scan

Make sure your patients are set up for a picture-perfect image.

- Area finder*
- SUREPosition technology
- Unique flared gantry for patient comfort



During the scan

Optimized dose and easy injection make the whole process safer.

- SUREkV
- SUREExposure
- Injector Synchronization

After the scan

Boost your efficiency with smart tools that tailor the image to your needs.

- AiCE
- SEMAR
- Iodine maps
- Spectral Analysis
- Perfusion and DSA
- PIQE



A CT exam with the ease of plain film X-ray

Simple scans covering 16 cm or less can now be done without the complexity of traditional scan planning. With Aquilion ONE / PRISM Edition, you can now set the field of view and scan range directly at the gantry – bypassing the usual scanogram and saving valuable time when it matters most.



Designed to fit most clinical environments

At just 19 m²*, Aquilion ONE / PRISM Edition is one of the smallest and most space-efficient Spectral CT systems in the market. Installation is easy, and it can fit into most standard CT rooms.



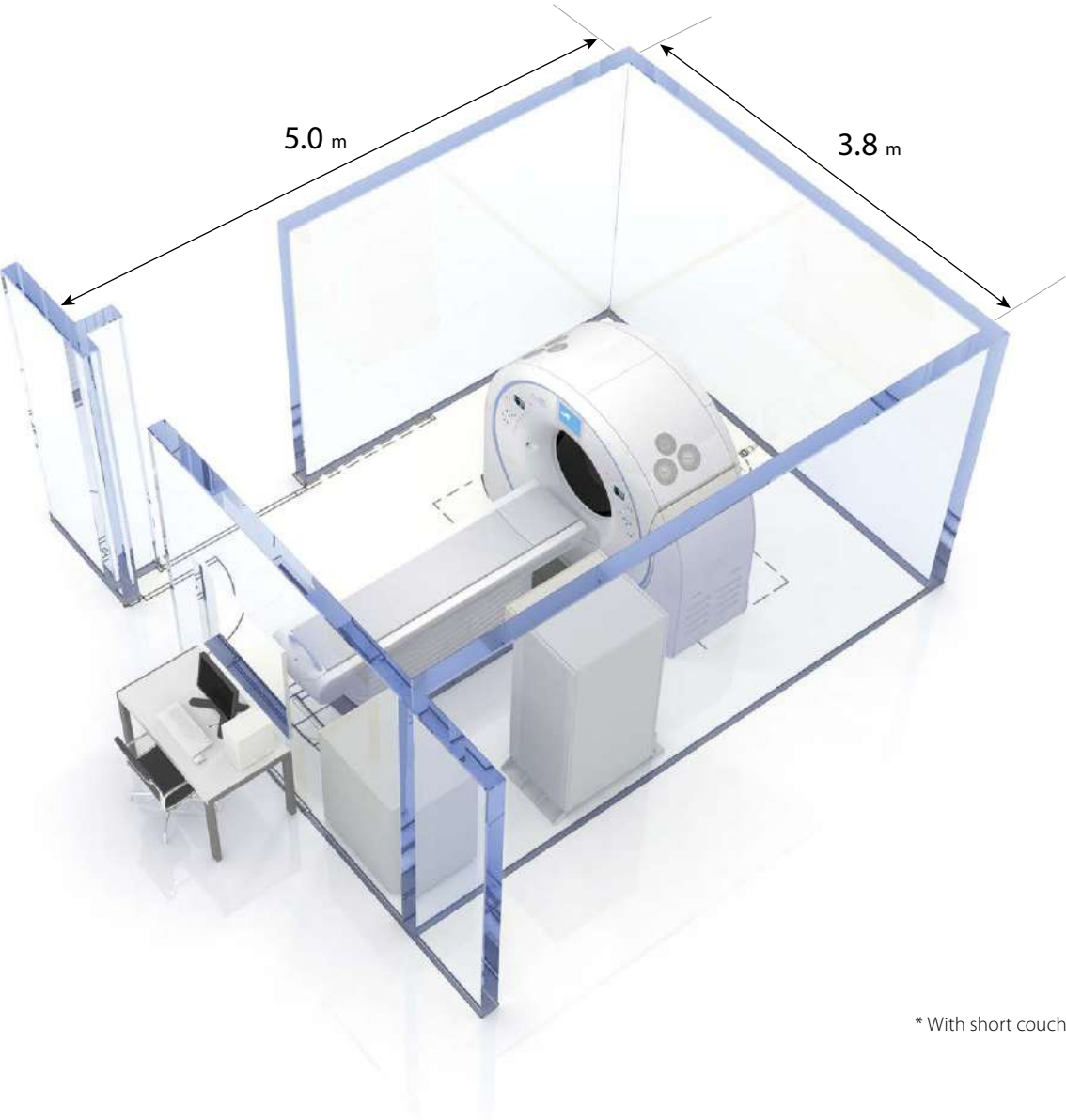
19 m²

Installation Space



125 kVA

Power Capacity



* With short couch

Scalable for your business needs

Canon's workflow solutions are dynamic and scalable enough to meet a whole range of needs – whether you're a smaller clinic or well-established enterprise.

Our IT solutions are modular, so you can pick and choose the configurations that work for you, and you can even open them up to remote users, so you're not confined to a single setting.

Scalable Vitrea solutions to grow with the needs of your organization



Control Room



Reading Room

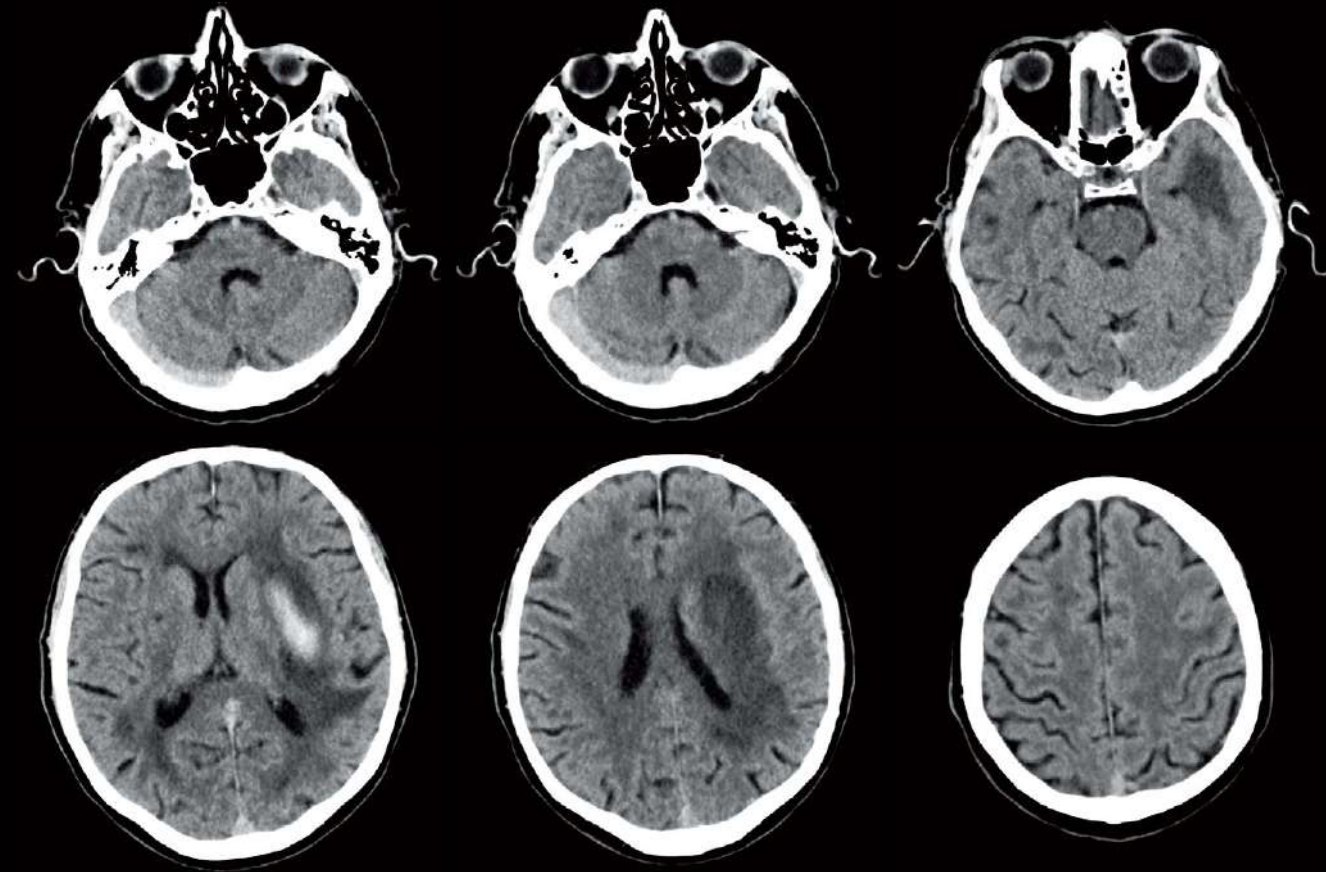


Hospital-wide

Neuro

powered by  **Altivity**

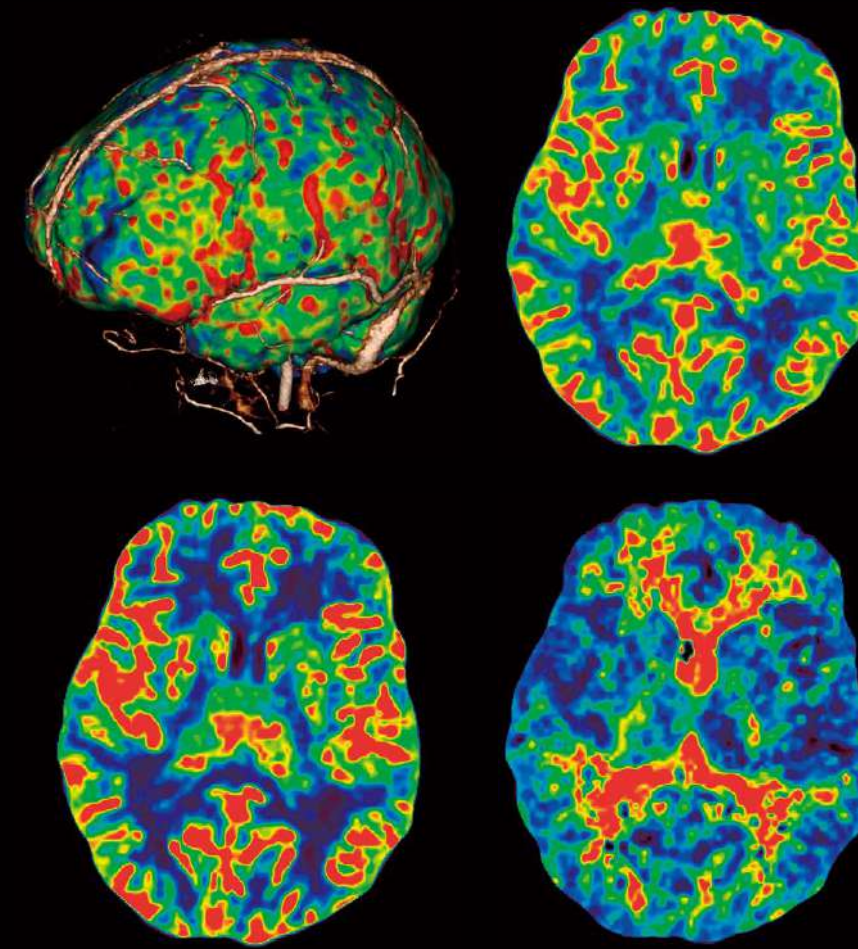
 **AiCE**
Integrated Intelligence



Excellent gray/white differentiation and fine grain size with AiCE.



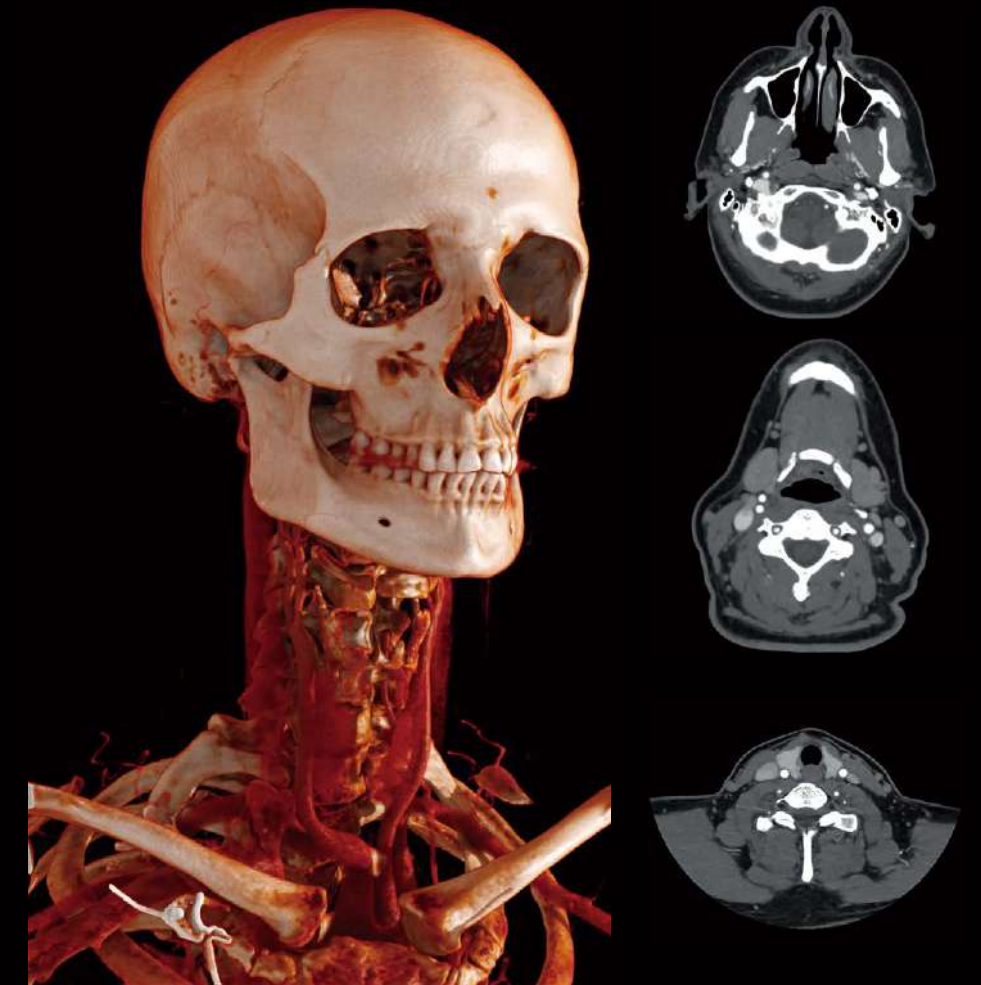
Global Illumination



Whole Brain perfusion with Bayesian algorithm

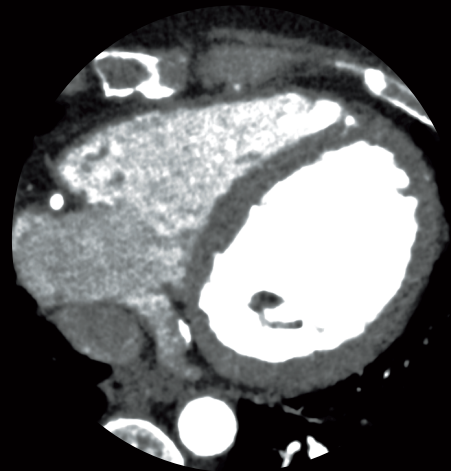
powered by  **Altivity**

 **AiCE**
Integrated Intelligence

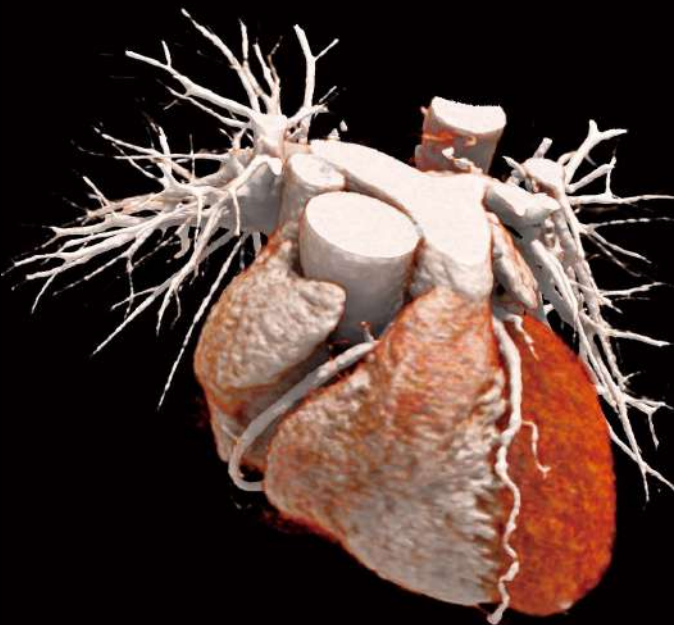


Carotid CTA reconstructed with AiCE. Superb Global Illumination rendering and noise free axial images.

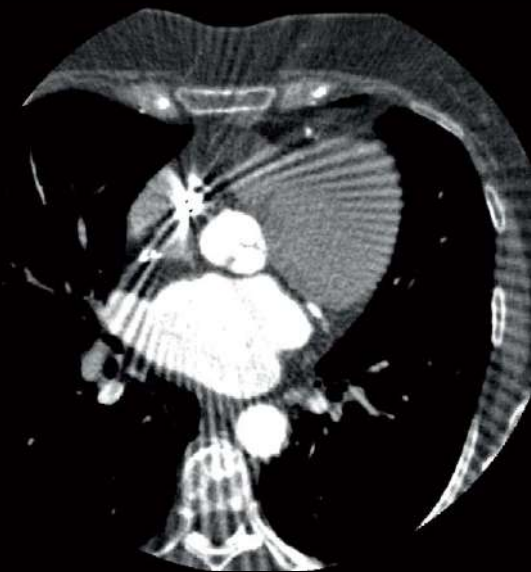
Cardiac



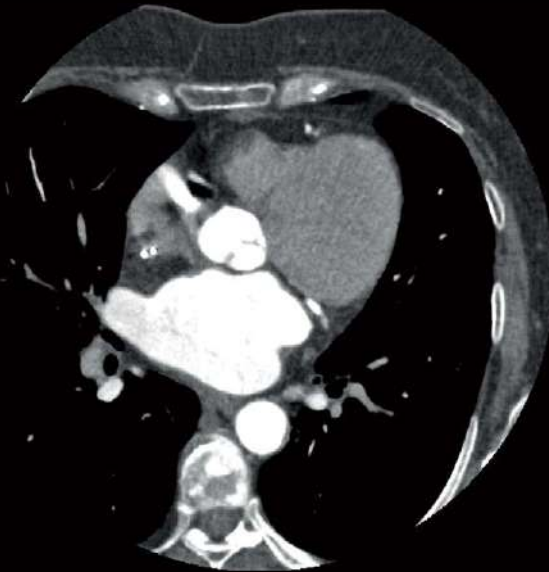
Low Dose Cardiac with AiCE, 0.8 mSv.



Global Illumination Rendering for photorealistic cardiac images



AIDR 3D



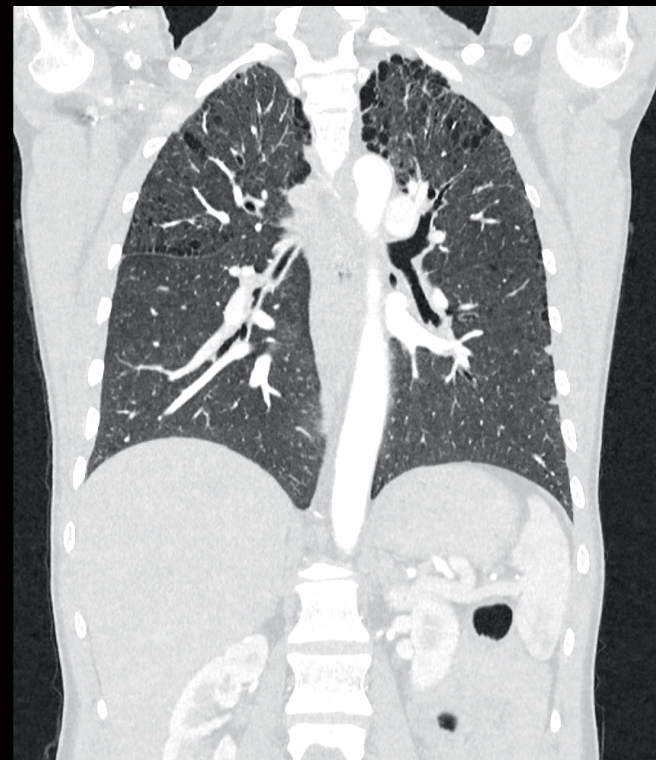
AiCE with SEMAR

Metal artifact reduction from a defibrillator lead with SEMAR

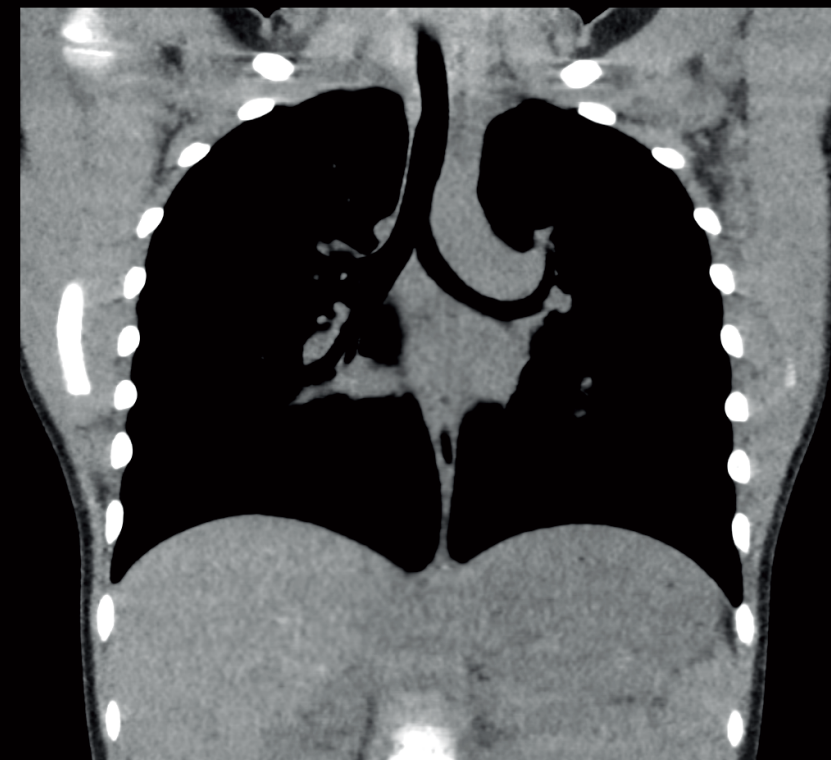
Chest

powered by  **Altivity**

AiCE
Integrated Intelligence

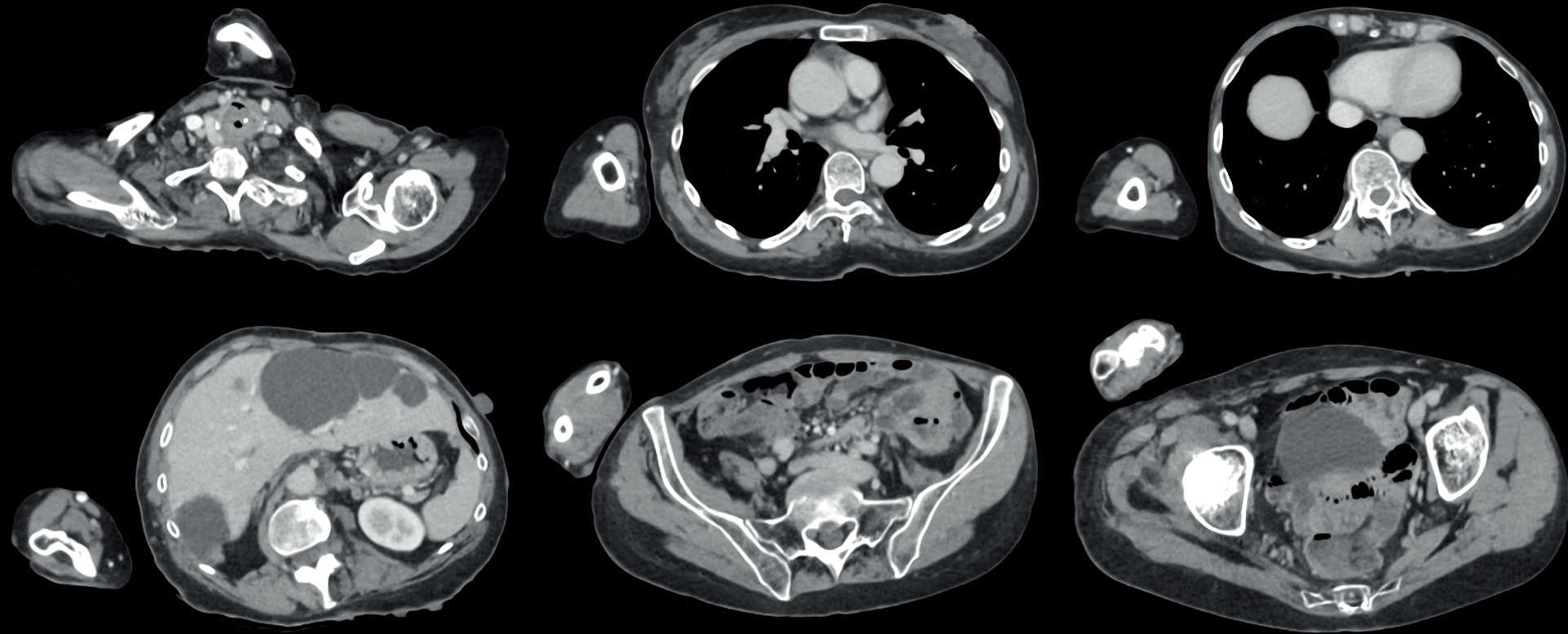


Routine low dose chest imaging with AiCE, 0.6 mSv.

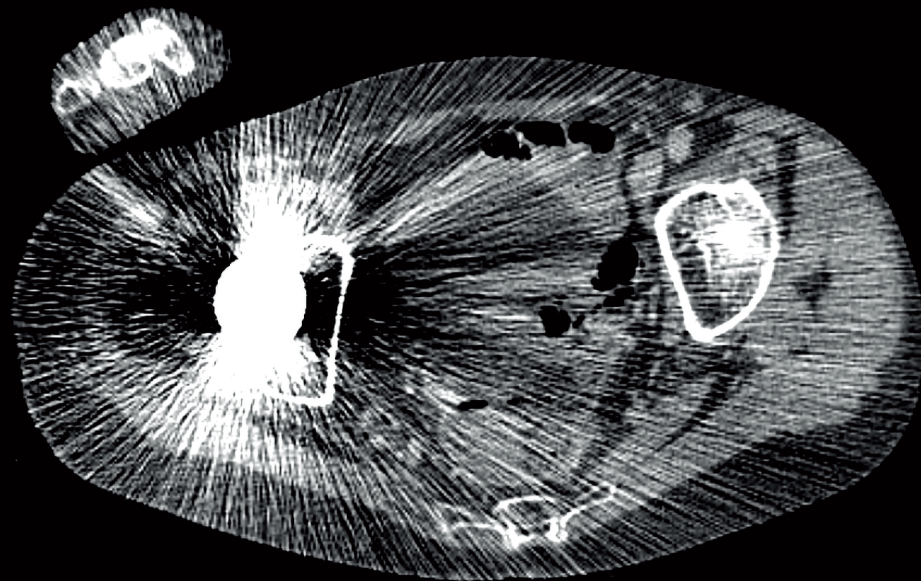


Ultra low dose chest scan on a 7 year old child with DLP, 2.7 mGy·cm.

Body



Excellent low noise images of the chest and abdomen with AiCE even with the arm down by the patient's side.



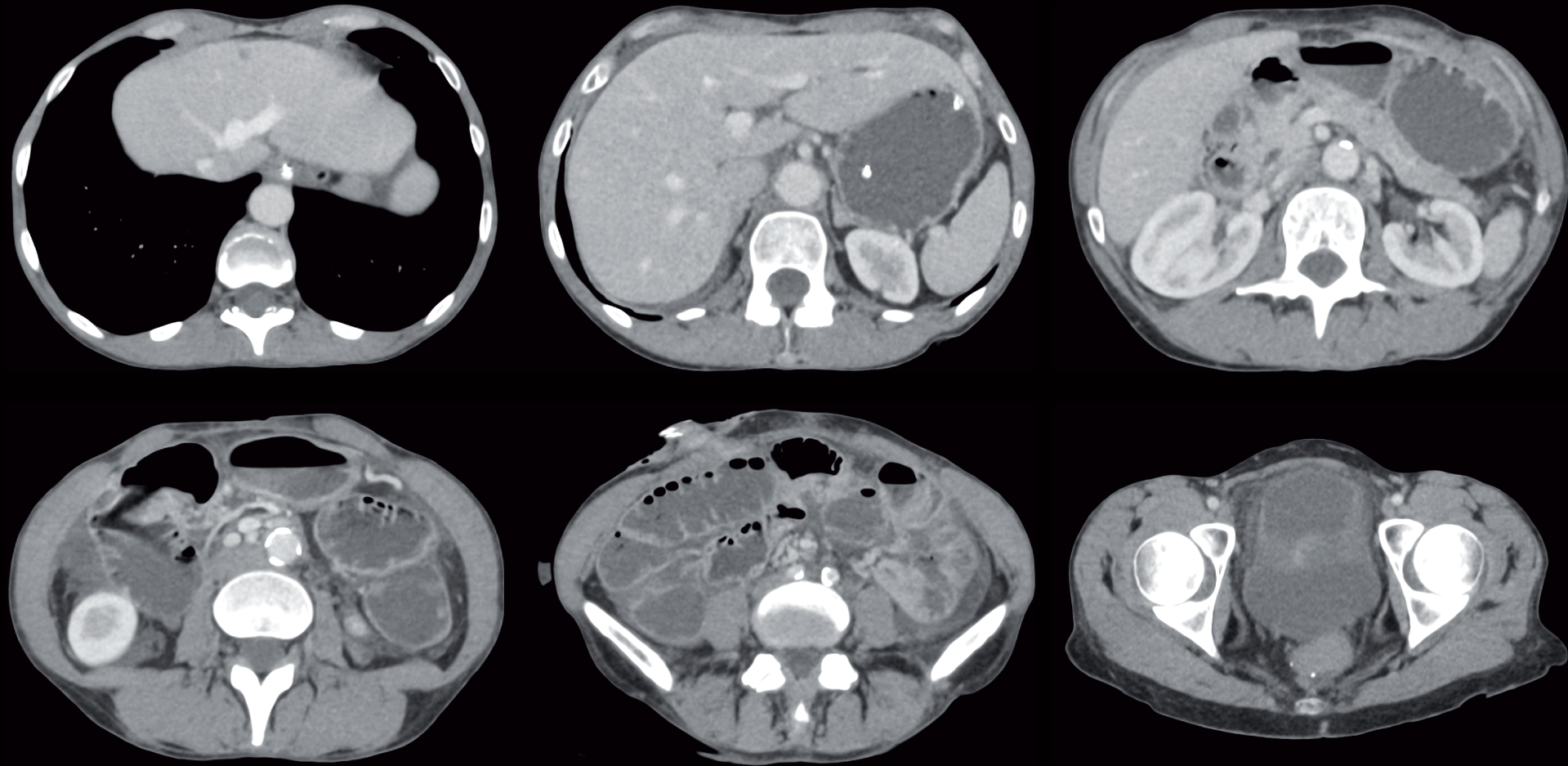
Original



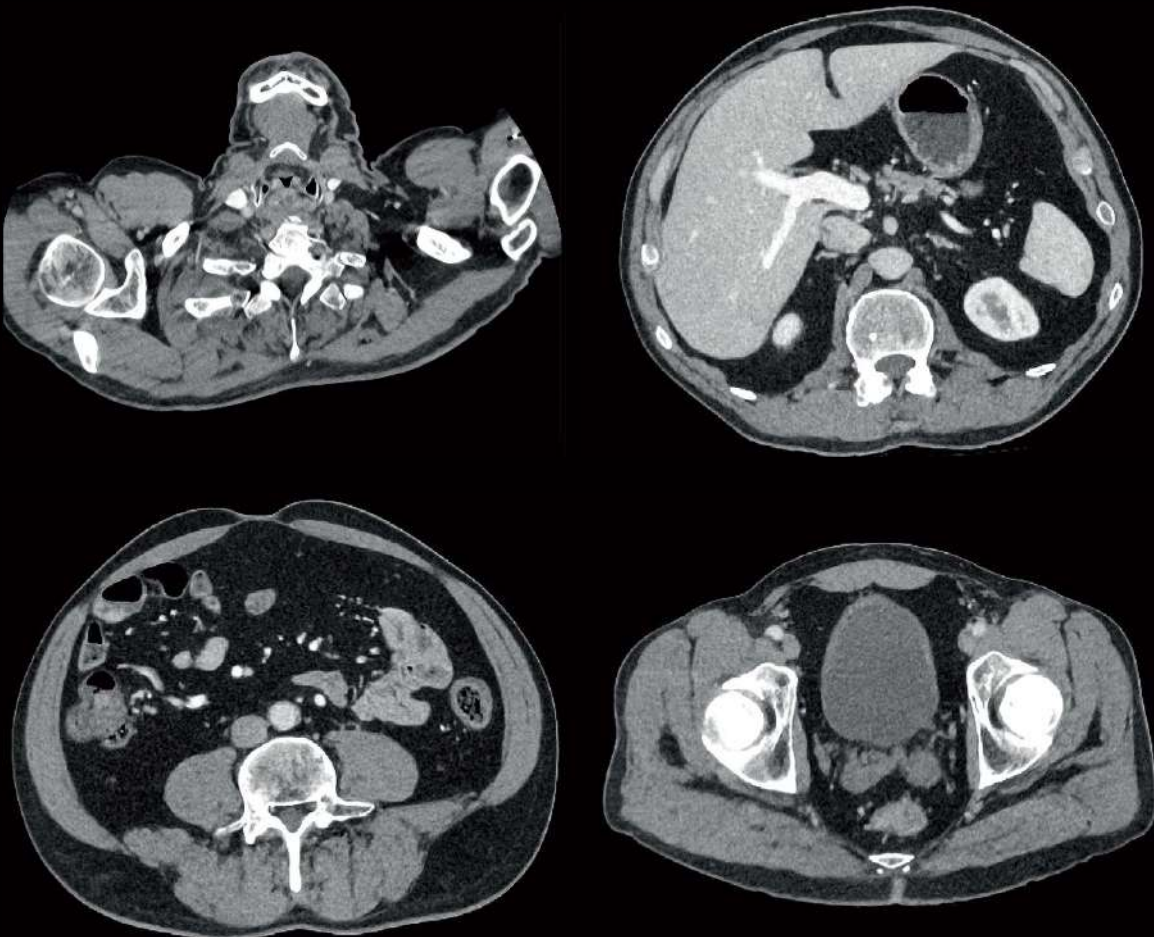
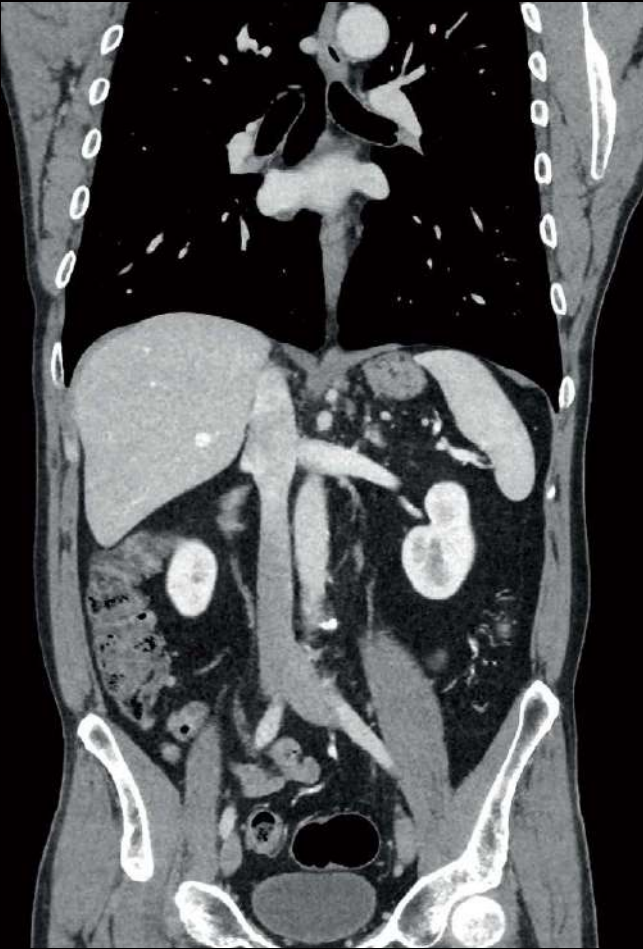
AiCE with SEMAR

Reduce metallic artifact, improving visualization of implants and the adjacent soft tissues for a clearer and more confident diagnosis.

Body



Low dose scan of the abdomen with AiCE, 1 mSv.

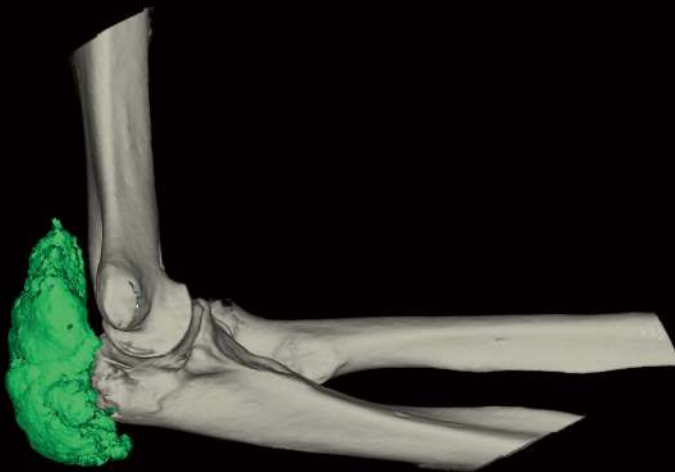
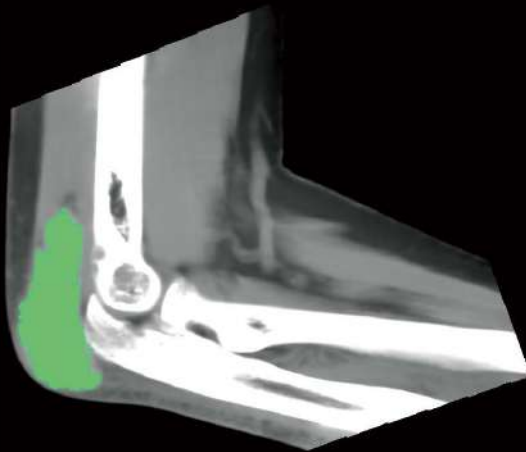


Low noise images of the chest and abdomen with 0.5 mm slices for improved visualization of small structures with AiCE.

Musculoskeletal



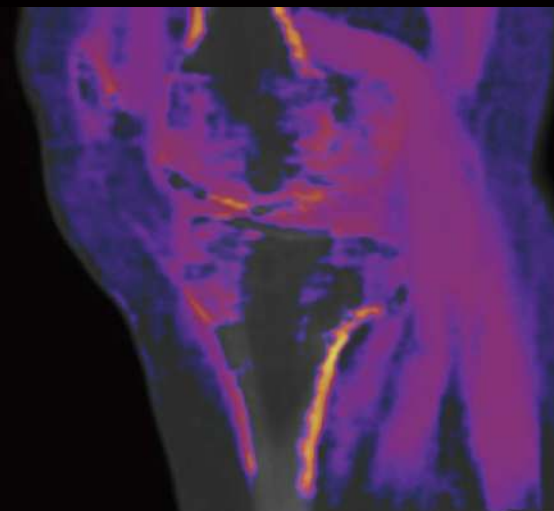
AiCE bone provides sharpness and detail



Material decomposition from Spectral can identify MSU deposits in the elbow

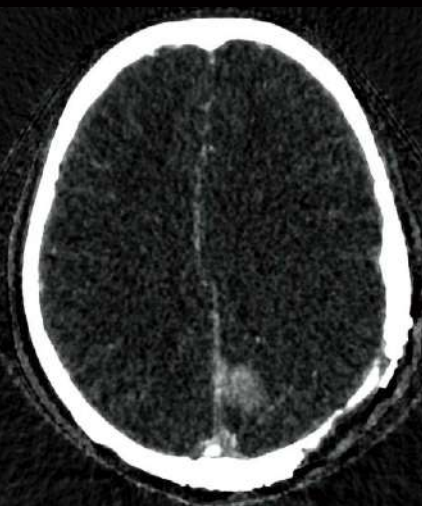
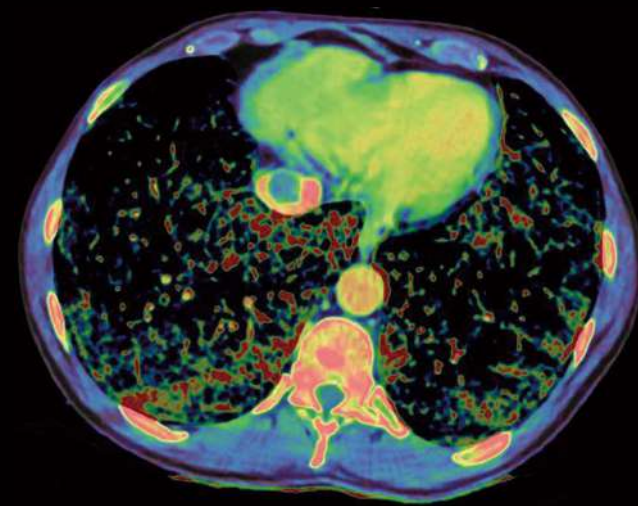
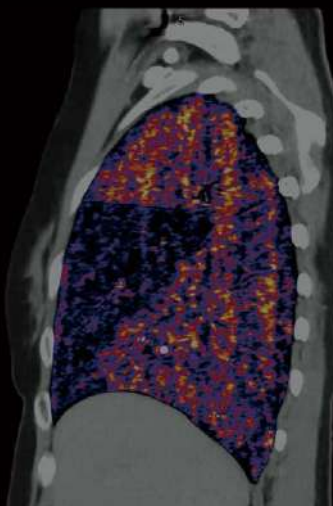
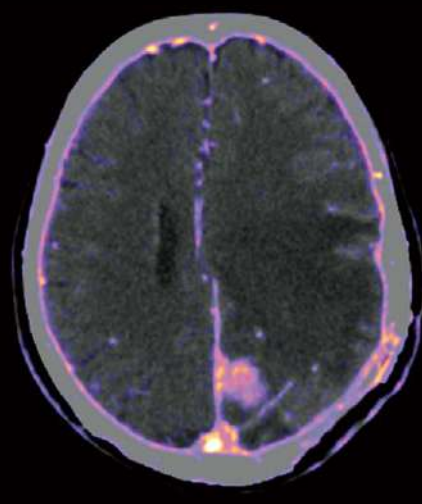
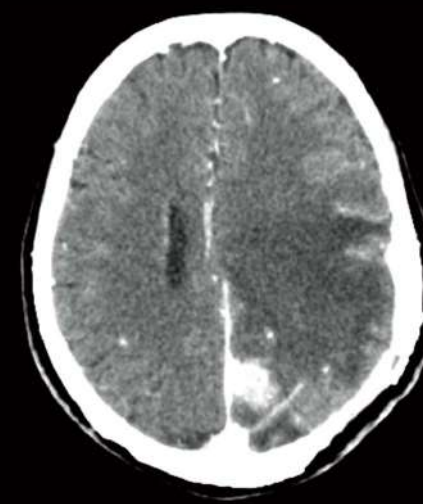
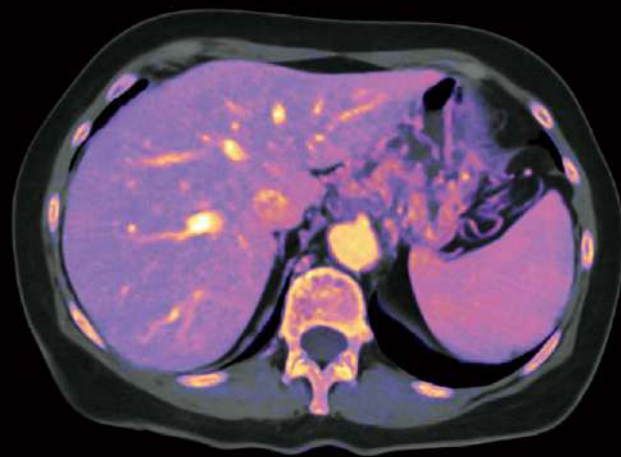


AiCE Bone, excellent sharpness and detail



Virtual bone marrow mapping images from Spectral

Spectral



Iodine maps demonstrate areas of reduced iodine uptake in the lungs

Iodine maps and virtual non contrast images provide additional diagnostic information.

Effective Z images provide additional diagnostic information to a standard monochromatic gray scale image.

Iodine maps and virtual non contrast images provide additional information in tumor diagnosis.



Main specifications		
Detector		PUREVISION detector
		320 rows, 0.5 mm
Gantry	Rotation time	Min. 0.275 s* ¹ , 0.35 s
	Bore size	78 cm
	Bore depth	38.7 cm
	Tilt	± 30°
Patient couch	Load	220 / 315 kg, 694 lbs* ²
	Max. scan range	150-200 cm* ²
Reconstruction speed	Volume	5 s
	Helical	Max. 80 fps
Reconstruction	Iterative reconstruction	AIDR* ³ 3D Enhanced
	Deep Learning Reconstruction	AiCE* ¹ , PIQE
Installation	Power capacity	125 kVA* ¹ , 100 kVA
	Space	Min. 19 m ² (short couch)

*¹ Option
*² Depending on system configuration
*³ Adaptive Iterative Dose Reduction



Altivity is a new approach to AI innovation. It is a multimodality, overarching brand for healthcare, which pulls together all the AI technology that Canon provides under one name.

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