Canon

Aquilion Serve SP

Simply performs.

Simply performs.

As workloads continue to grow and resources remain stretched, the Aquilion Serve SP is ready to support your team with the high-quality, low-dose imaging you expect, while increasing efficiency, consistency, and throughput. Combining the power of Canon Medical AI-enabled technologies with a completely redesigned workflow that makes scanning easier than ever, the Aquilion Serve SP is designed to meet all your clinical needs with superior performance.

Aquilion *Serve* SP

Delivering clinical results with innovative solutions

Optimizing workflow with INSTINX*

Now every operation is more intuitive and can be learned faster than ever before. This ease of use contributes to work satisfaction, time savings and flexible allocation of resources. Every detail of the workflow has been thoroughly researched, refined, and tested at our customer sites around the world. Canon Medical introduces INSTINX, a total workflow experience redesigned from the ground up to set new standards in efficiency and consistency.

INSTINX
Instinctive user experience

Referral

Pre Scan

Scan

Post Scan

Diagnosis
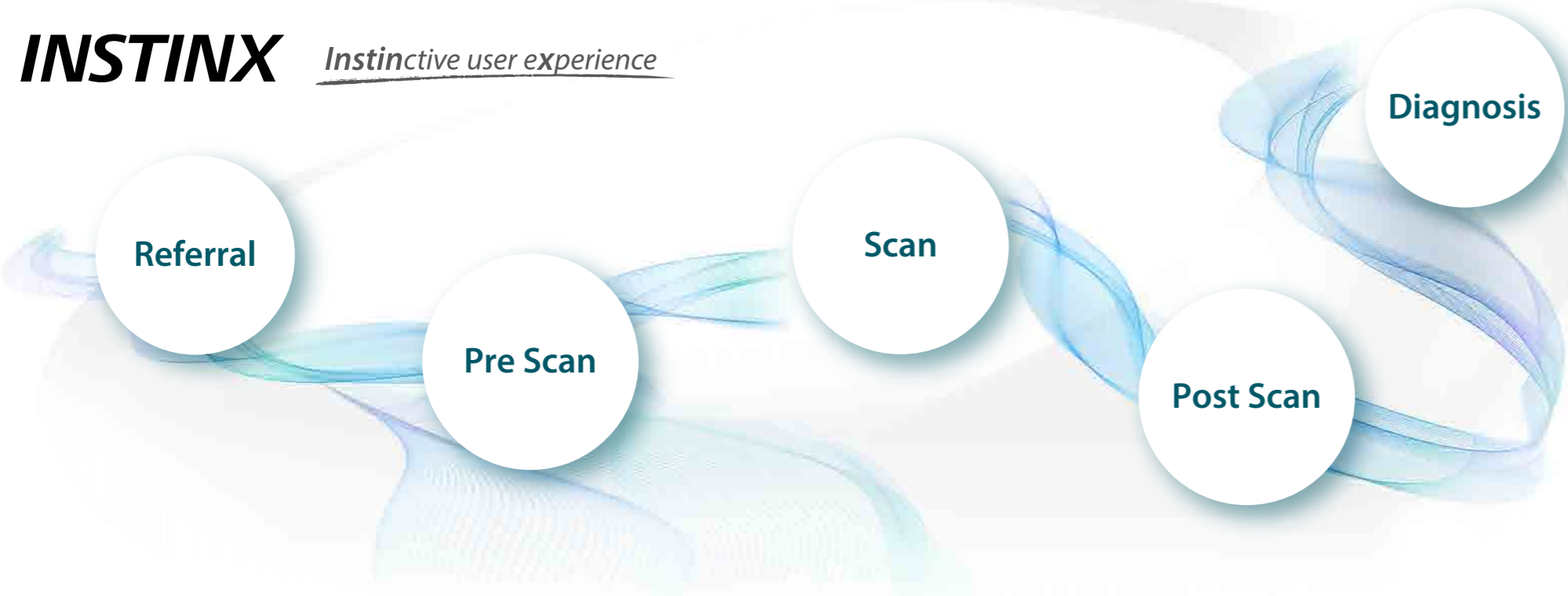
* INSTINX is a brand concept developed to highlight the new standards in efficient and consistent workflow made possible with Canon's technology.

Advanced intelligent Clear-IQ Engine (AiCE)

Fully integrated into a patient-centric workflow, AiCE protocols are acquired at reduced dose and produce images that are sharp, clear and distinct. Harnessing the power of Deep Learning neural networks, AiCE has an outstanding ability to boost signal and reduce noise.

Original

AiCE
Integrated Intelligence

Workflow Redesigned

Make CT exams easier and faster with INSTINX. The Aquilion Serve SP employs AI-assisted automation and a highly intuitive user experience for consistent results across operators.

INSTINX - A patient-centric end-to-end CT workflow

Quick patient positioning

Intuitive, AI-assisted operations

Consistent, high-quality results

Quick patient positioning

Position patients quickly with Aquilion Serve SP's built-in positioning cameras and lateral slide. The intuitive touch panel operation ensures you can keep your focus on the patient. The flared gantry design and 80 cm bore provide easy access for emergency or interventional examinations, and may help reduce claustrophobia for patients.

Patient positioning

Easy patient positioning and patient monitoring provided by dual built-in cameras.

Gantry touch screen controls

Touch panels put you in control. In conjunction with the gantry cameras, the touch panel enables one touch patient positioning and displays ECG and scan countdown for operator safety.

80 cm

Open gantry design with large bore

Easy access from the front or rear of the gantry makes Aquilion Serve SP the ideal choice for imaging trauma patients and when performing interventional procedures.

**85 mm**   **85 mm**

Lateral slide*

Scanning a large volume of patients throughout the day takes a lot of effort from your team. Let the Aquilion Serve SP do the heavy lifting for you with smart technology. The Tech Assist Lateral Slide feature can reduce the risk of injury to patients or technologists by mechanically moving the table left or right ensuring isocenter positioning at the touch of a button.

* Option

Intuitive, AI-assisted operations

3D Landmark Scan

Take the guesswork out of the scan planning with the axial image preview provided by the 3D Landmark Scan, an ultra-low dose helical scan using SilverBeam Filter that replaces traditional 2D scout views at no additional dose.
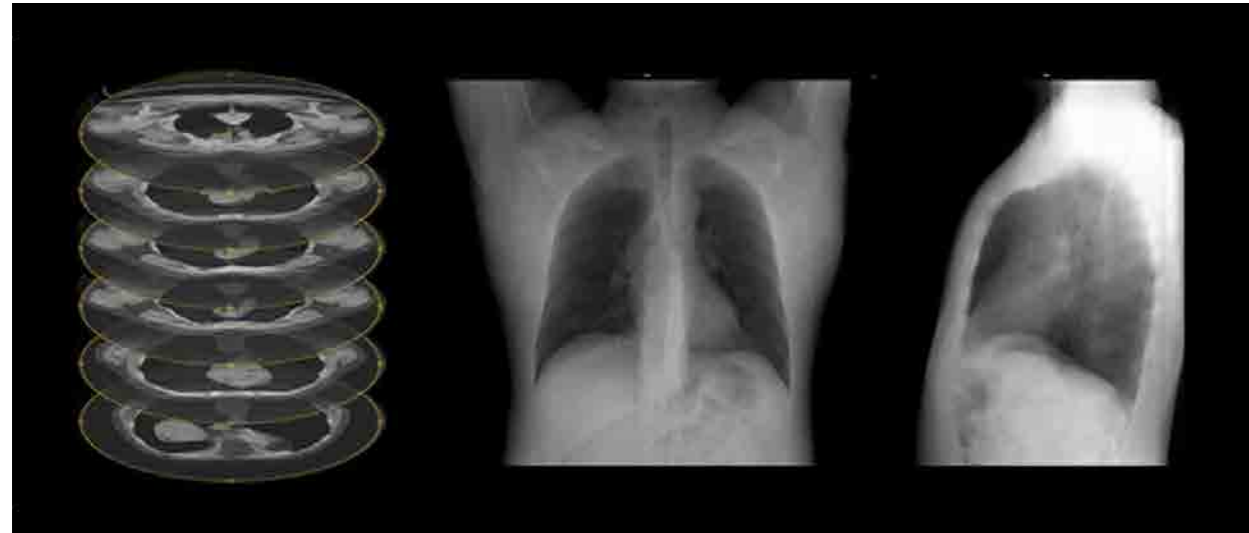
3D scan planning with axial thin slice and full anterior and lateral projection views

Clinical Benefits

Higher quality
- Confidently verify the scan range and FOV for any case – with axial image preview.

Reduced dose
- No need to acquire a test bolus slice – just scroll and select the exact location for ROI trigger placement.

Less time
- Set up interventional procedures directly with the 3D Landmark Scan axial images.

Automatic Scan Planning

Enjoy fully automatic scan planning for all routine exams to save time, reduce workflow steps and ensure consistent results for all patient exams. The scan planning step in INSTINX is performed once within the protocol setup using a human avatar encoded with anatomical start and end positions for all routine exams. These same landmarks are identified in the patient's 3D Landmark Scan data using AI-enabled Anatomical Landmark Detection (ALD) technology to provide highly accurate and fully automatic scan planning.

Protocol preset　　　　3D Landmark Scan　　　　Automatic Scan Plan

Anatomical Landmark Detection
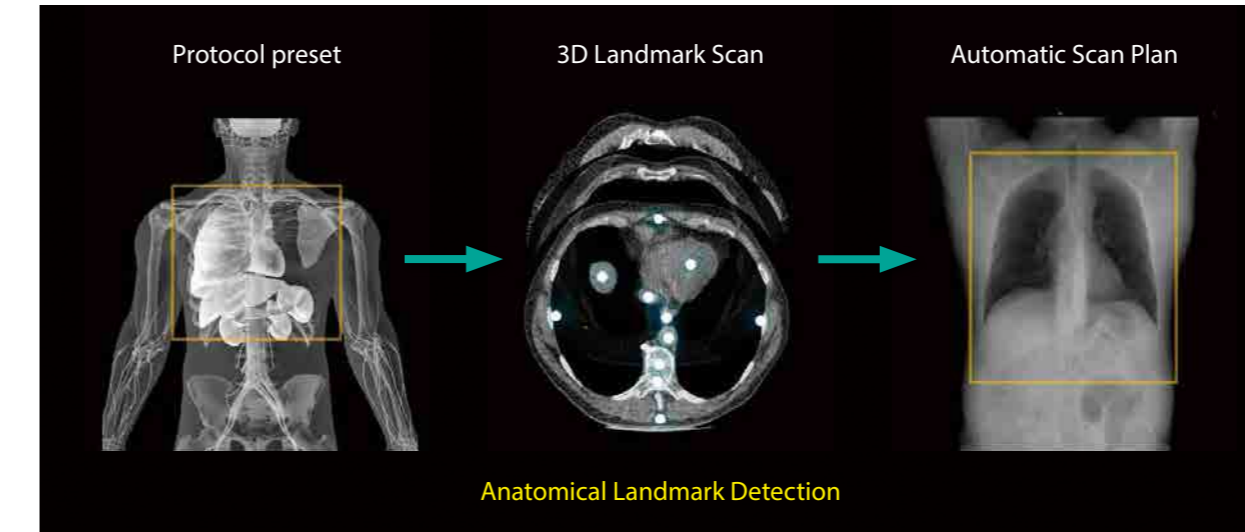
INSTINX moves the scan planning step into the protocol – and reproduces this exactly for each patient.

40% reduction
in workflow steps

Consistent, high-quality results

Seamless transition to advanced image analysis

Vitrea Advanced Visualization* seamlessly integrates with Aquilion Serve SP, providing powerful post-processing analysis via advanced visualization tools.
Vitrea is loaded with a suite of post-processing applications providing advanced image analysis in an easy-to-use, semi-automated design.


Multi Modality Viewer	Musculoskeletal	Circle of Wills	Vascular Aorta	Runoff	Larynx Airway	Subtraction Viewer	Auto MPR Brain	
Brain Perfusion 2D with Bayesian	Brain Perfusion 4D	Liver Analysis	Colon Analysis	Multi-Chamber Functional Analysis	Fat Measurement	Lung Analysis	Lung Density Auto MPR Brain	Image Denoising	Open Rib
Endovascular Stent Planning	TAVR planning	EP planning	Dental Option	iCAD VeraLook CT Colon CAD	MeVis Visia CT Lung CAD	VScore	Cardiac Analysis	Cardiac Functional Analysis	SUREPlaque
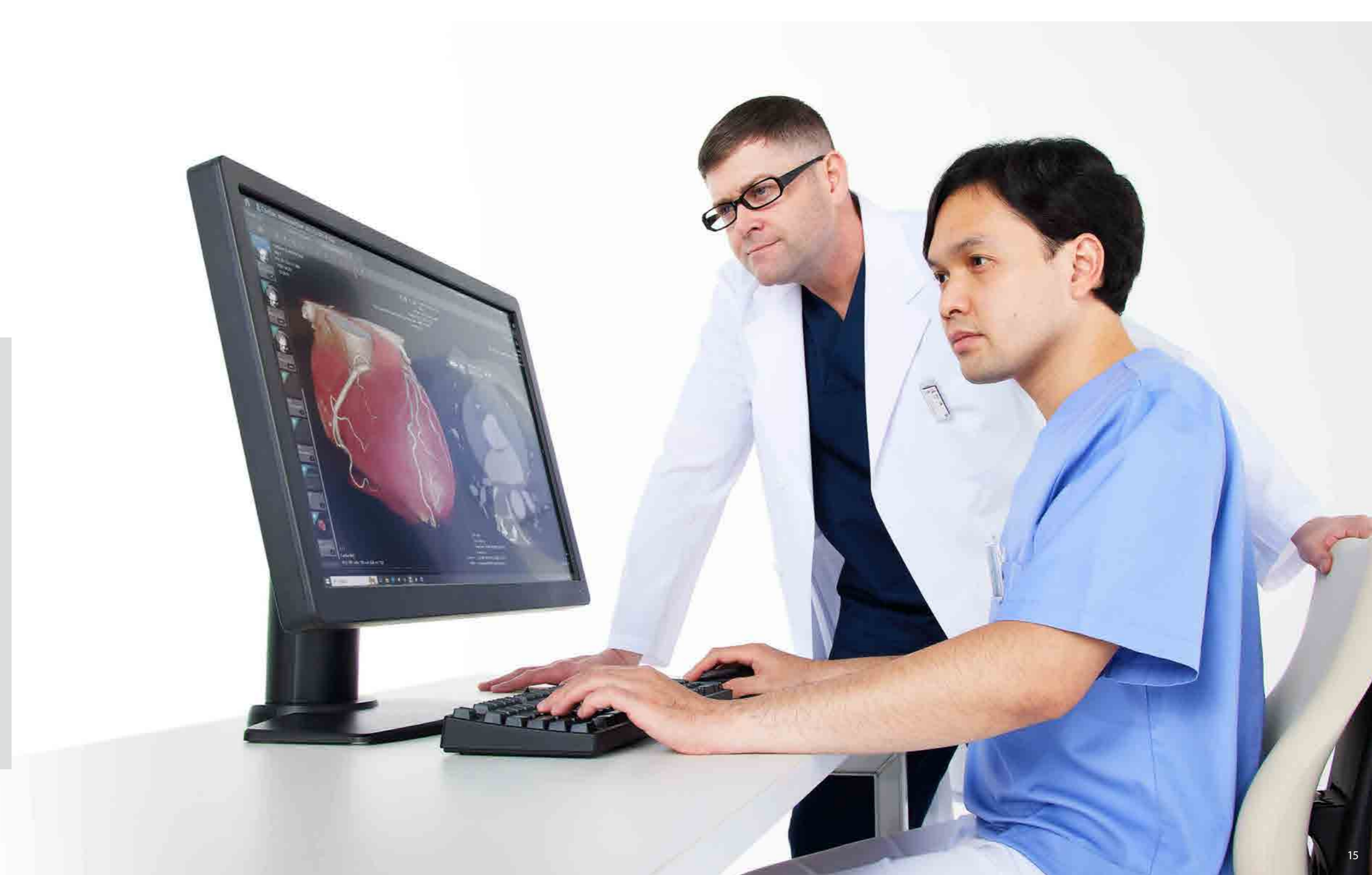
* Vitrea is a separate Canon product available for purchase.
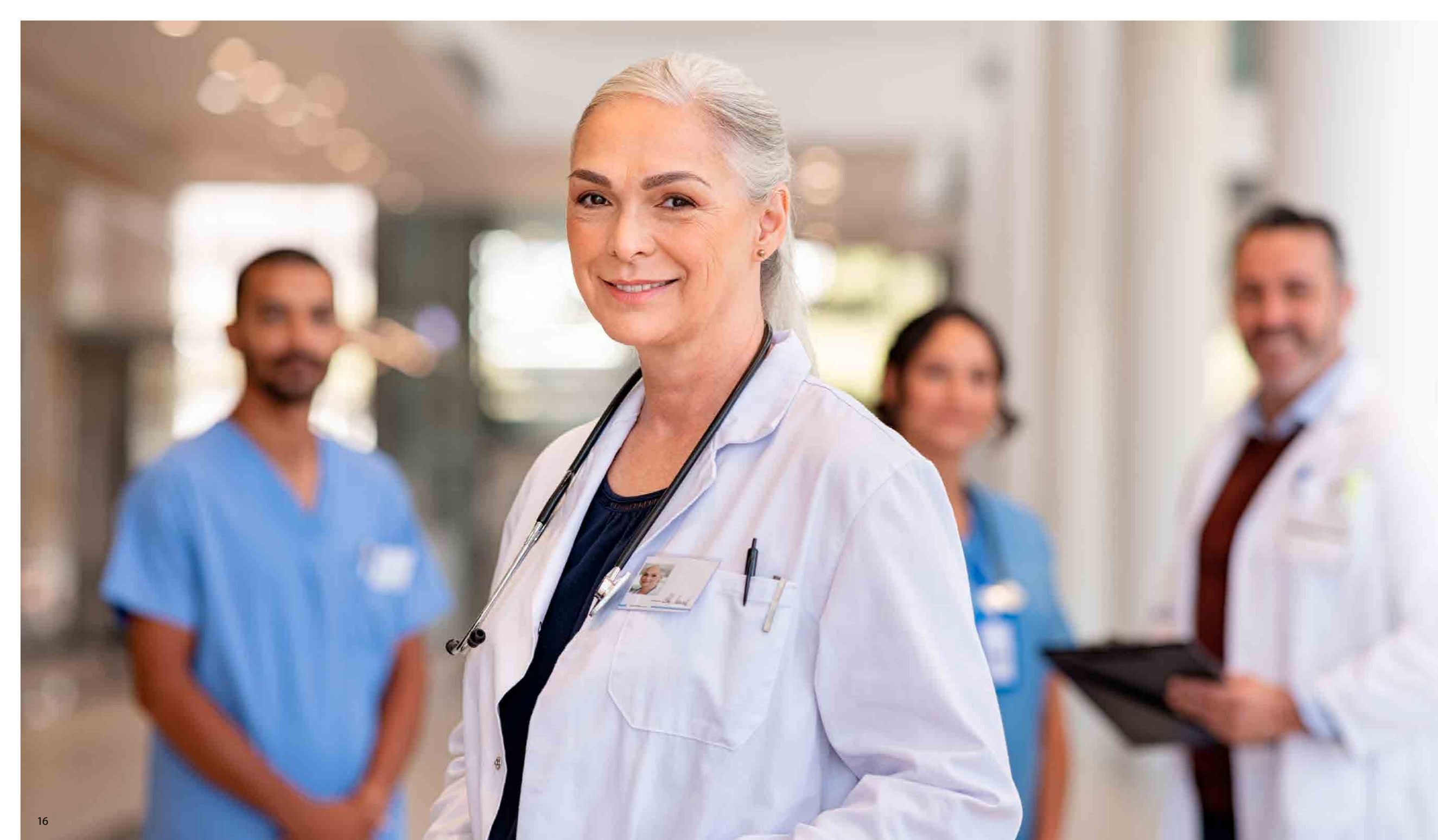
Boost Clinical Confidence

Employing the latest technologies and applications to enhance image quality and support diagnostic speed and accuracy, Aquilion Serve SP has your clinical needs covered. From routine to complex imaging, Aquilion Serve SP is a scanner that can do it all.
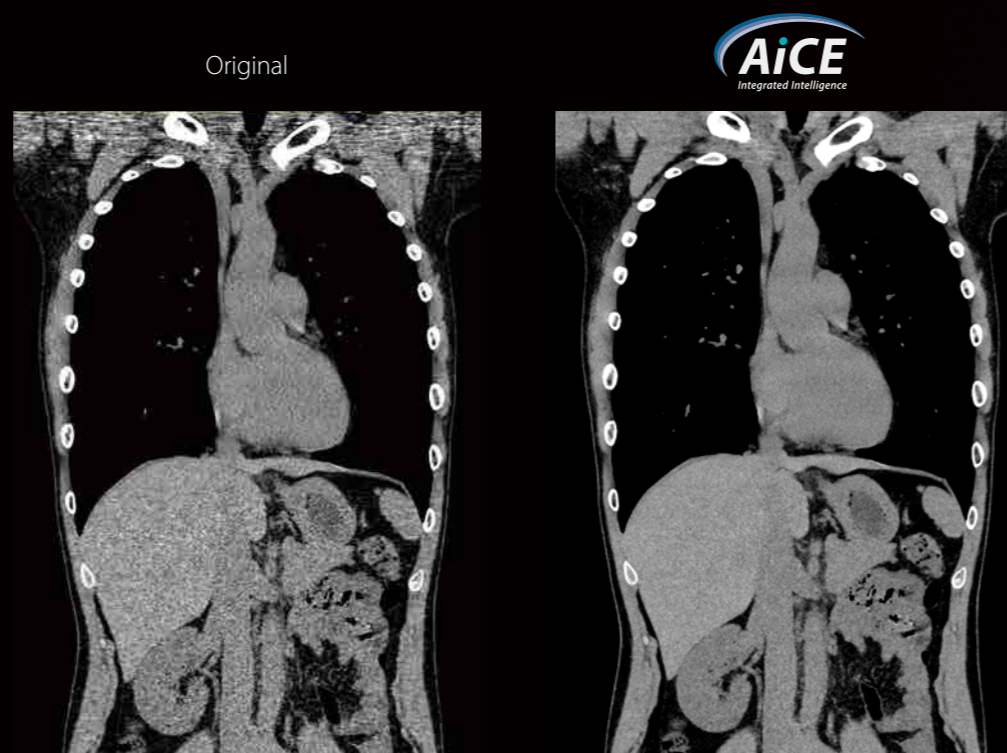
AI-assisted image reconstruction: sharp, clear and distinct images

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.

AiCE is available for all body regions providing sharp, clear and distinct images for a more confident diagnosis.

- Low Noise
- Natural Image Texture*[1]
- Twice the high contrast spatial resolution*[2]
- Clear Low Contrast Detectability
- Reduced dose for body imaging*[3]

AiCE
Integrated Intelligence

Original

AiCE
Integrated Intelligence

"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

*1 Natural defined as similar to FBP compared to MBIR
*2 AiCE Body Sharp compared to AIDR 3D Body Sharp at 10% MTF measured using the
    Teflon sensitometry module of Catphan600.
*3 Compared to FBP

* Personal experience only. Performance referenced has not been confirmed via rigorous
  clinical studies.

# High-quality results, no matter the patient or condition

Simplify complex protocols, provide consistent quality results and improve workflow for all operators with Canon Medical's unique imaging solutions, including Subtraction CT (SCT), ^{SURE}Cardio for fully automatic parameter selection and fast, high-quality, worry-free metal imaging.
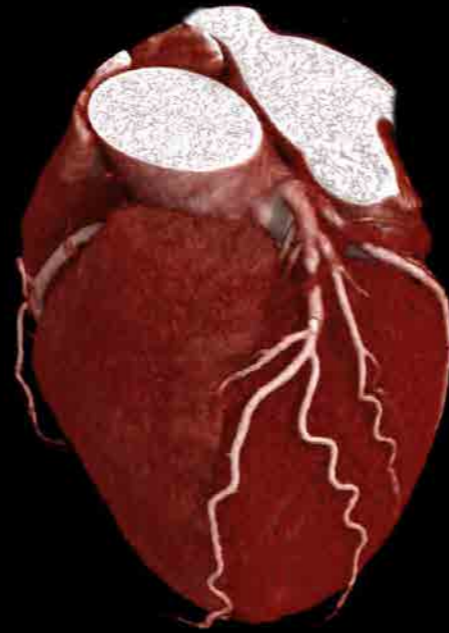
Angio SCT*†
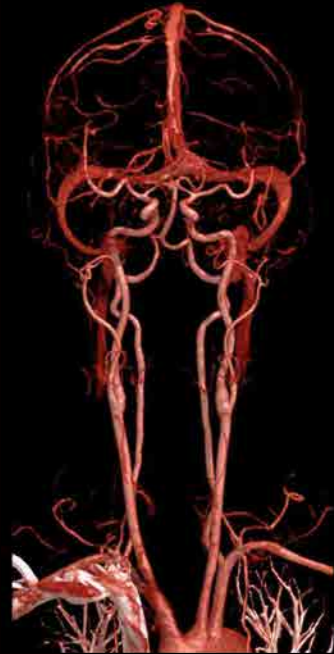
Excellent visualization in CTA with true subtraction of bone and calcification, automatically processed and sent to your PACS.

Iodine Mapping SCT*
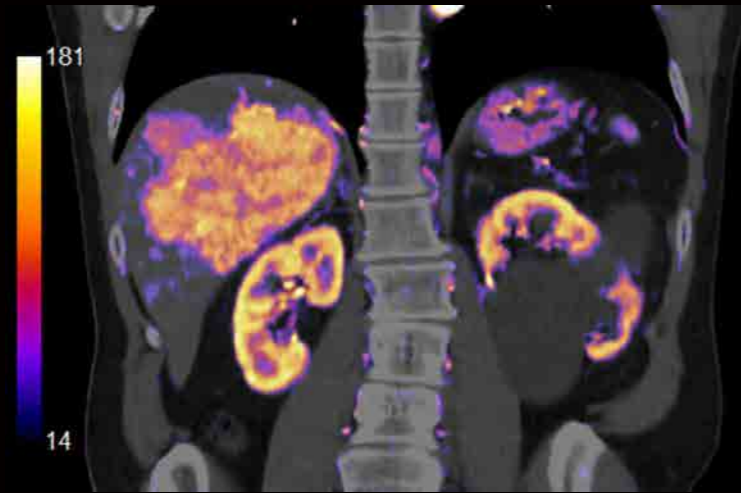
Enhanced diagnostic confidence with color blood flow maps for any routine multiphase examination.

^{SURE}Cardio*†

^{SURE}Cardio Prospective helical acquisition can adapt to your patients' heart rate automatically even overcoming unexpected arrhythmia.

Brain perfusion*†
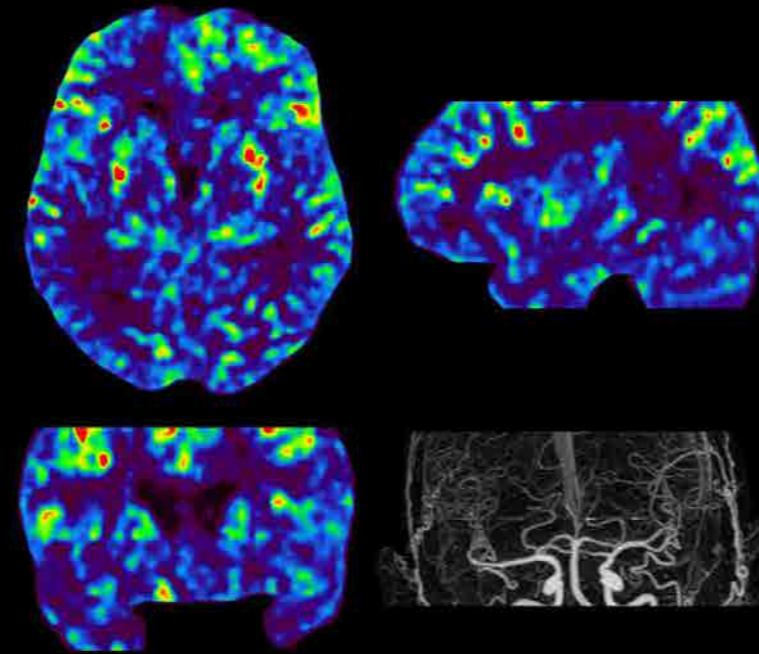
8 cm brain perfusion in just a one-minute scan, fast, accurate results with Vitrea's Bayesian post processing algorithm.

Single Energy Metal Artifact Reduction (SEMAR)
Worry Free metal imaging

Original CT image

With SEMAR + AiCE
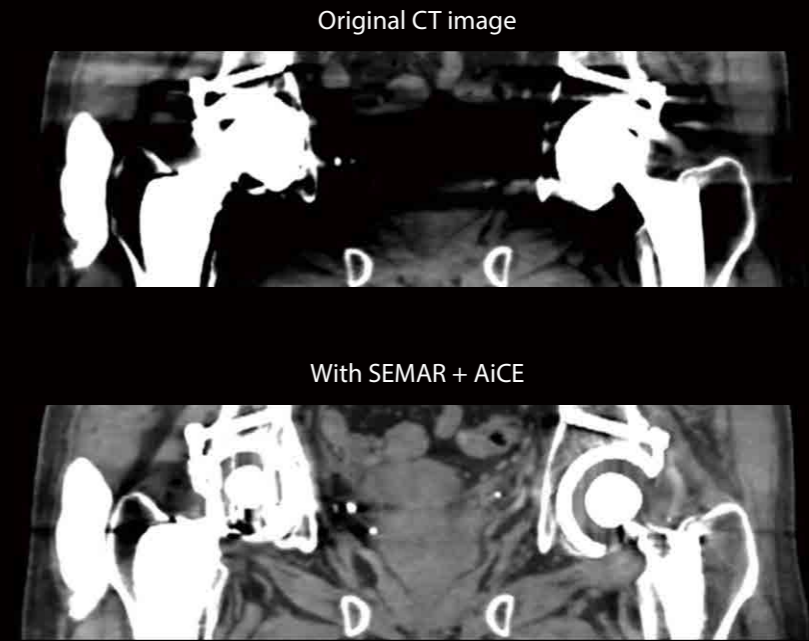
Dose-neutral SEMAR utilizes a sophisticated reconstruction technique to reduce artifacts caused by metal and thus improves visualization of the implant, supporting bone and adjacent soft tissues for clearer and more confident diagnoses.

* Option
† Vitrea image

Robust cardiovascular imaging—
Automated, adaptive and easy

Cardiac

The combination of 0.35 second gantry rotation and the dose efficiency of AiCE enables quality cardiac examinations. Perform both calcium scoring and CTA with the intelligent ^{SURE}Cardio engine that is coded with the experience of thousands of cardiac examinations, ensuring scan and exposure parameters adapt exactly to your patients in real-time.

Prospectively gated ultra helical*

Combining the advantages of helical scanning with ECG narrow phase exposure, ^{SURE}Cardio Prospective offers excellent z-axis uniformity, short scan times, and the low-dose advantages delivered by prospective ECG scanning.

^{SURE}Cardio Prospective: Faster scan for reduced contrast requirements and superior temporal uniformity.

Continuous

Real-time adaptive exposure

When detecting arrhythmia or an irregular heartbeat, the ^{SURE}Cardio engine compensates in real time by adapting the exposure window to provide a diagnostic examination.


Continuous

* Option

ECG gating only when you need it

Variable Helical Parameters (vHP) 3 phase* allows TAVR scans to be performed in a single acquisition, seamlessly transitioning from a standard helical scan to ECG gating through the heart then back to standard speed helical scanning to below pelvis.

The scan is performed with a single contrast injection and one breath hold.

Upper Chest
Non-Gated

Heart
ECG-Gated

Abdomen
Non-Gated
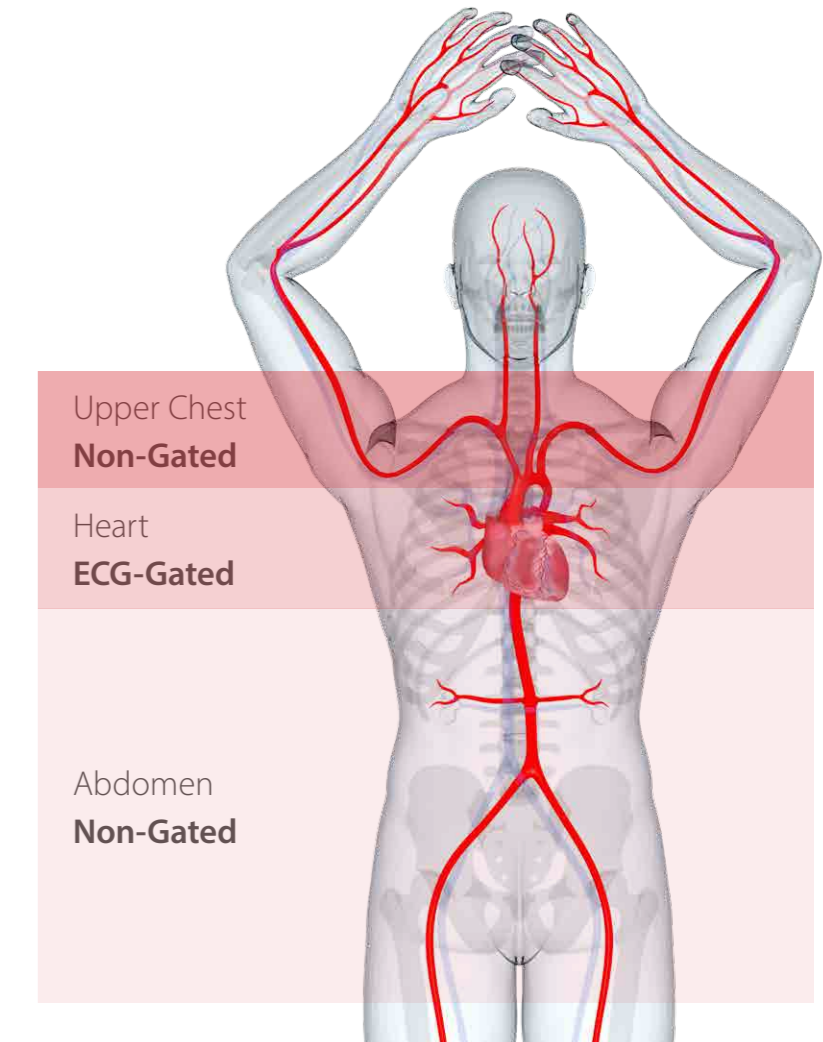
* Option

Oncology Imaging— Intelligent solutions for cancer visualization and treatment planning

Aquilion Serve SP empowers you to visualize, stage and track tumors with Iodine Mapping SCT* available for every routine multi-phase exam. Aquilion Serve SP's 80 cm aperture, 4D respiratory gated scanning*, and powerful advanced imaging applications provide the tools needed for early visualization and treatment planning to intervention and treatment response verification.

Iodine Mapping SCT*

Iodine mapping SCT, enhances your diagnostic confidence in daily oncology reporting by automatically creating an iodine map for any single source, single energy, multiphase protocol.

CT Guided Intervention*

The touch panel provides more control and flexibility to the radiologists with an aim to provide faster, safer procedures.

Extended FOV*

Easy patient access with 80 cm bore and full 80 cm extended FOV reconstruction offers flexible patient positioning for radiotherapy simulation scans.

Arterial Phase

Venous Phase

Dose where you need it
vHP 3 phase* – Optimal Exposure
Chest, Abdomen, Pelvis scan

Chest
Low Dose

Liver
High Dose

Pelvis
Standard Dose
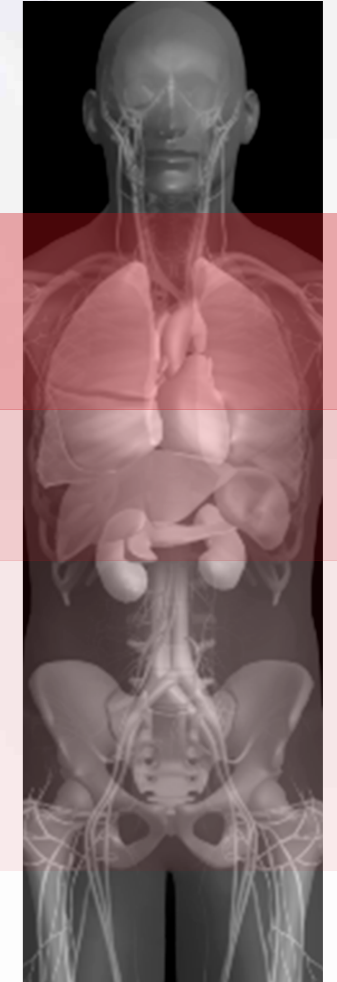
Variable helical parameters (vHP) allow 3 scans to be performed in one, seamlessly transitioning between scan parameters that are optimized for each body region to ensure high quality images at low dose, important for patients undergoing regular follow up scans.
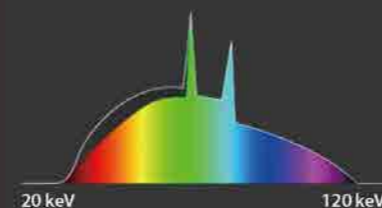
* Option
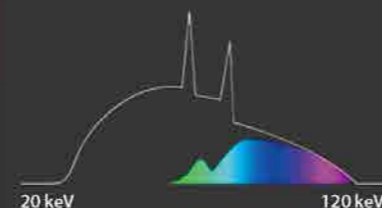
High-quality lung cancer screening at low dose: SilverBeam Filter

Experience high-quality CT lung cancer screening at low dose with the SilverBeam Filter. Designed to work in combination with our AiCE Deep Learning Reconstruction, it delivers the sharpness and clarity required for a confident diagnosis at low dose.*
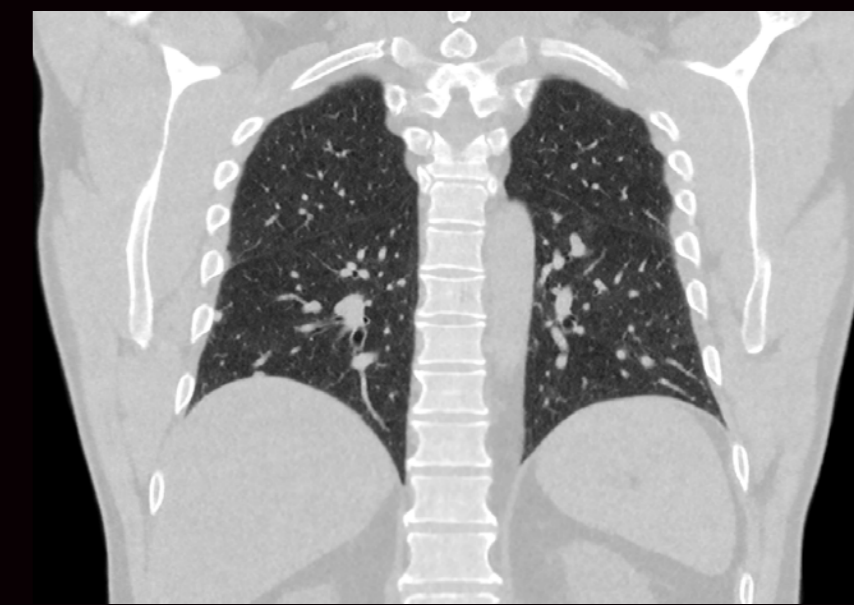

20 keV   120 keV

SilverBeam Filter
Optimizes beam energy for Lung Cancer Screening

20 keV   120 keV

SilverBeam + AiCE reconstruction

+

AiCE DLR identifies signal from noise, removing noise and enhancing signal

High-quality, low dose lung cancer screening case at 0.3 mSv

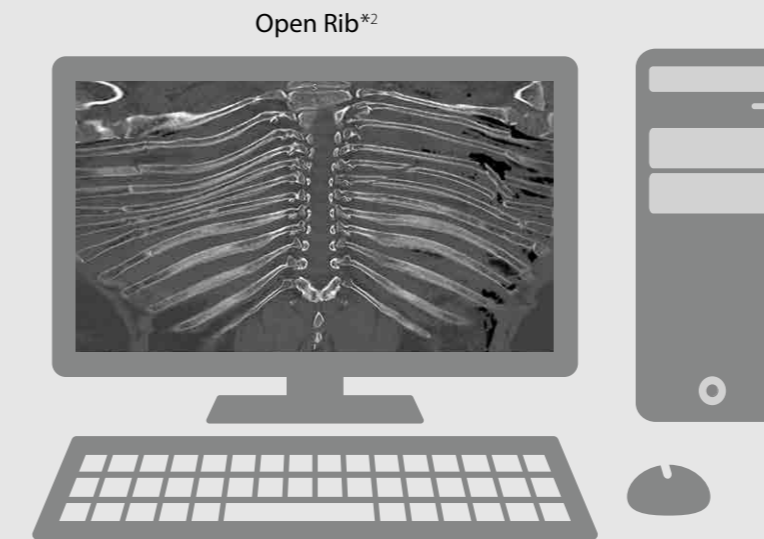* Sharpness and noise performance were established in phantom-based bench testing.

Trauma Imaging
— High pressure situations require fast throughput

Emergency CT examinations are usually performed in the presence of the acute care team, whose entire focus is ensuring that the patient remains stable while obtaining a rapid diagnosis. This is a high pressure environment, especially for inexperienced technologists. With easier positioning, automated scan planning, and fast image reconstruction even the most junior operators can confidently and efficiently produce high-quality results.
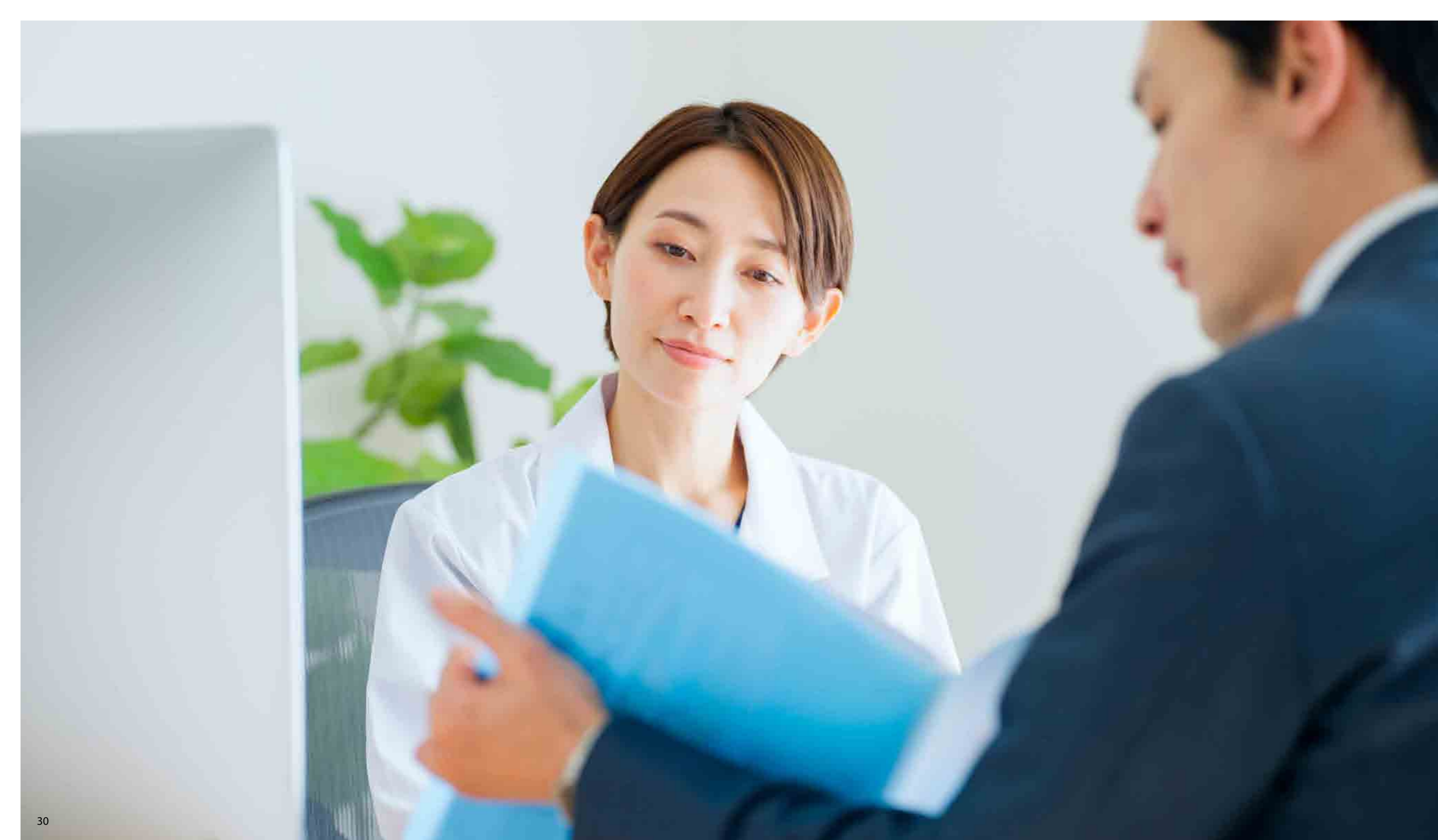
80 cm bore
80 cm reconstruction FOV*[1]

0.35 s rotation

85mm   **85**mm

Quick Patient Positioning

Protocol preset   3D Landmark Scan   Automatic Scan Plan

Anatomical Landmark Detection
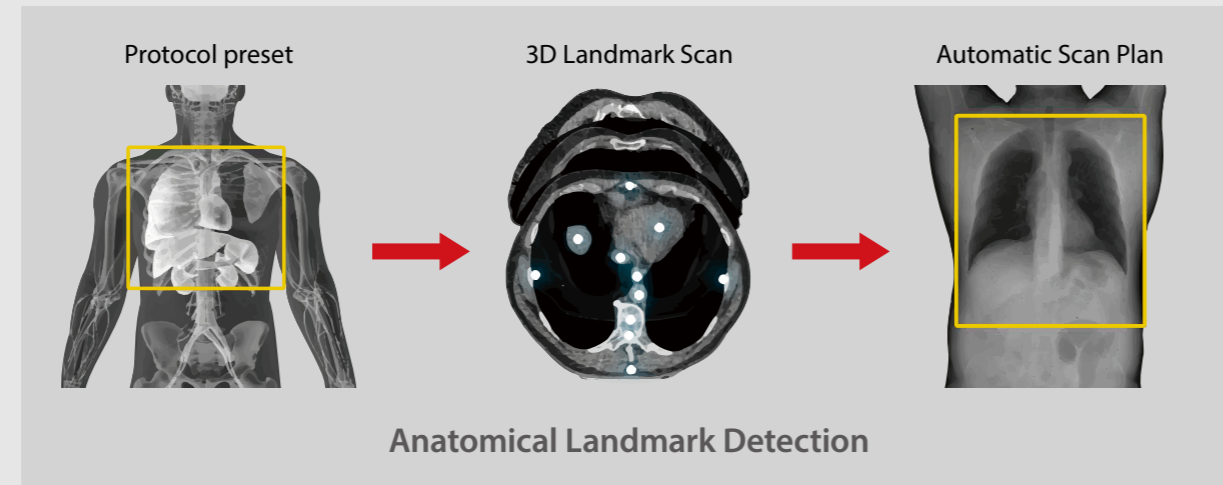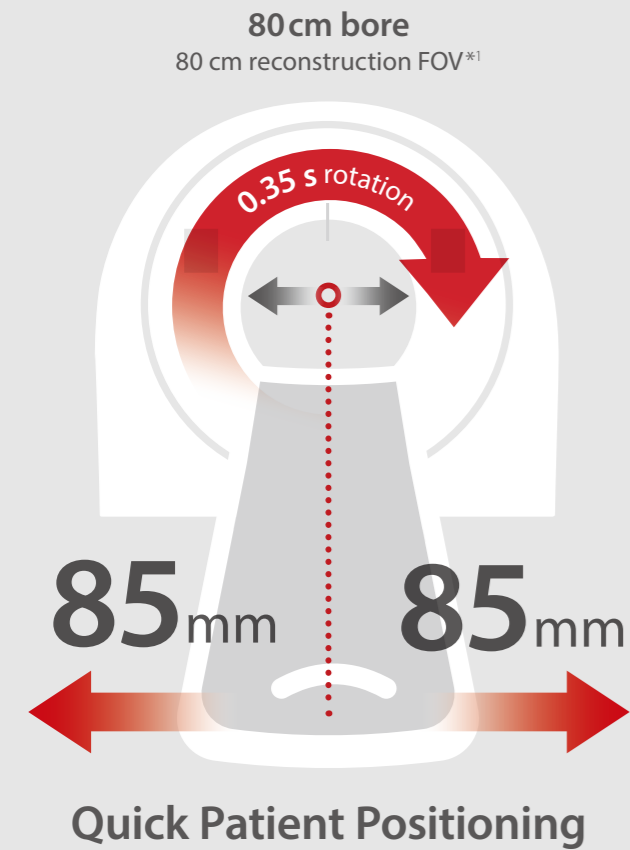
Intuitive, AI Assisted Operations

Open Rib*[2]

Consistent High-Quality Results

*1 With eFOV
*2 Open Rib is available on Vitrea Advanced Visualization

Maximize your investment

With its powerful performance and updated workflow experience, Aquilion Serve SP quickly demonstrates its value to clinical teams looking to reduce scan times, simplify training, and keep energy costs and infrastructure requirements to a minimum. Let Serve SP take your team's productivity to the next level.

Efficient and productive performance

The highly productive Aquilion Serve SP offers optimized patient throughput, consistent results and impressive uptime that can meet the needs of multiple departments and expand your clinical capacity.

From the moment the Aquilion Serve SP arrives on your premises, the productivity is immediately apparent with shorter setup time, shorter training requirement for the staff and ease of scanning.
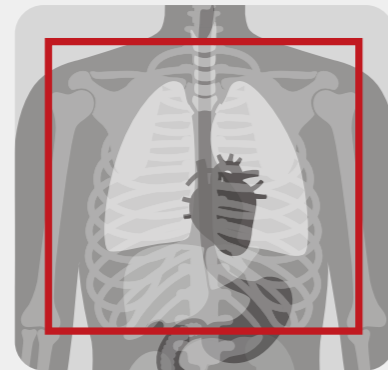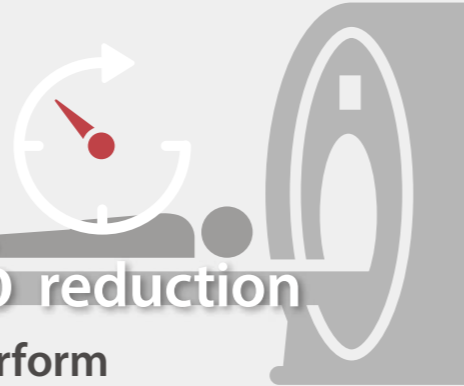
40% reduction
in workflow steps

More consistent scan planning between technologists and **reduction in the number of clicks** with ALD*1

Easy to learn operations

24% **reduction**
in time to perform scan planning with ALD*1

97%
ALD accuracy for automatic scan planning *2

Aquilion Serve SP intuitive and automated workflow solution drives faster throughput and higher productivity while ensuring a level of consistency that is the hallmark of any successful diagnostic imaging business.

The time saved due to workflow provides opportunities to serve more patients and reduce the burden on overloaded staff members. At the same time, the ease of use and consistency support flexibility in staff allocation.

"As the INSTINX software is so intuitive and easy to operate, training time is significantly reduced."

"After a fortnight of applications training, around 10 of our radiographers were happily performing scans with the system. That's unusual for that number of people in that short time. Everybody just took to it so intuitively. It is great news if we can shorten training time. There are 28 radiographers here who have all got to learn to use it. It makes that process simpler."

Mr. Matthew Benbow
Superintendent Radiographer of CT and MRI,
Royal Bournemouth Hospital, UK

*1 Based on a study performed at Hakujyuji Hospital, Japan with 40 cases, 10 technologists comparing manual scan planning on Aquilion ONE with automatic scan planning on Serve for body examinations.
*2 Based on an ALD evaluation of 240 3D Landmark scans (40 Head, 200 Body) 3D landmark scan data. Cases in which the relevant anatomic landmark(s) were not present (9) were excluded. 97% accuracy is based on results within +/- 1 cm of target start, end, and FOV position, confirmed by two experienced CT Technologists.

Save space, energy, and time

Aquilion Serve SP is designed to enhance efficiency, including by reducing environmental impact. The compact, eco-friendly design minimizes energy consumption as well as infrastructure requirements.

## Reduce infrastructure requirements

Aquilion Serve SP saves space with the smallest footprint in its class. Despite a large 80 cm gantry aperture, it is surprisingly compact. Its space-saving dimensions contribute to easy installation and allow use in most standard CT rooms.

Reduce energy consumption

Aquilion Serve SP incorporates a host of innovative adaptive power management technologies, helping you decrease energy consumption and reduce running costs while minimizing your environmental footprint.

Reduce idle time and maintenance

Aquilion Serve SP's soft, round design makes it easy to clean and disinfect the surfaces of the system. Further, its new minimal-click installation reduces software installation time and minimizes downtime during maintenance and upgrades.

494 cm

300 cm

189.5 cm
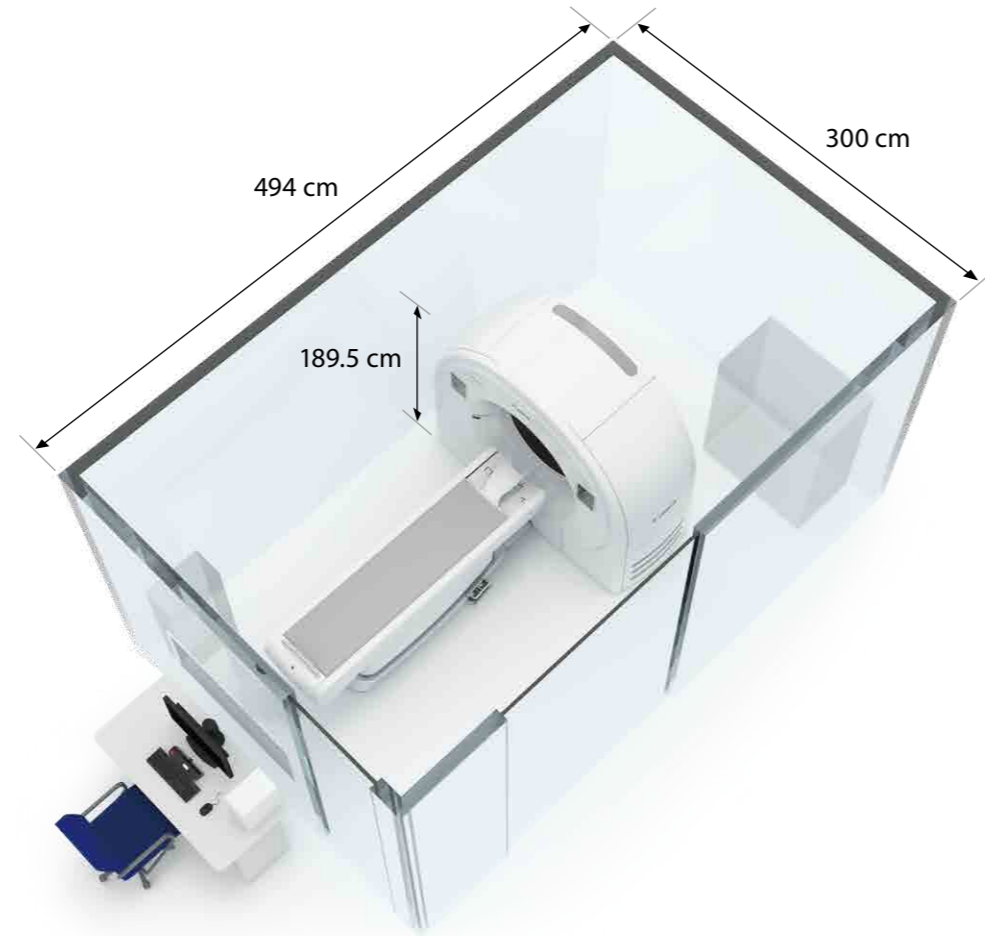
14.8 m² *1
Installation Space

110 kVA *2
Power Capacity

Superior Performance with Megacool X-ray tube

The Serve SP delivers superior performance with the highly reliable, time-tested, 7.5 MHU Megacool X-ray tube. This tube has a proven track record in over 5000 systems — it just works!

Automated Quality Assurance

Step by step quality assurance phantom scanning procedure and automatic analysis of CT number, Noise and MTF*2 provide robust and reproducible results regardless of the operator performing the procedure. Review results overtime to gain insights into your CT scanner's image quality and performance.
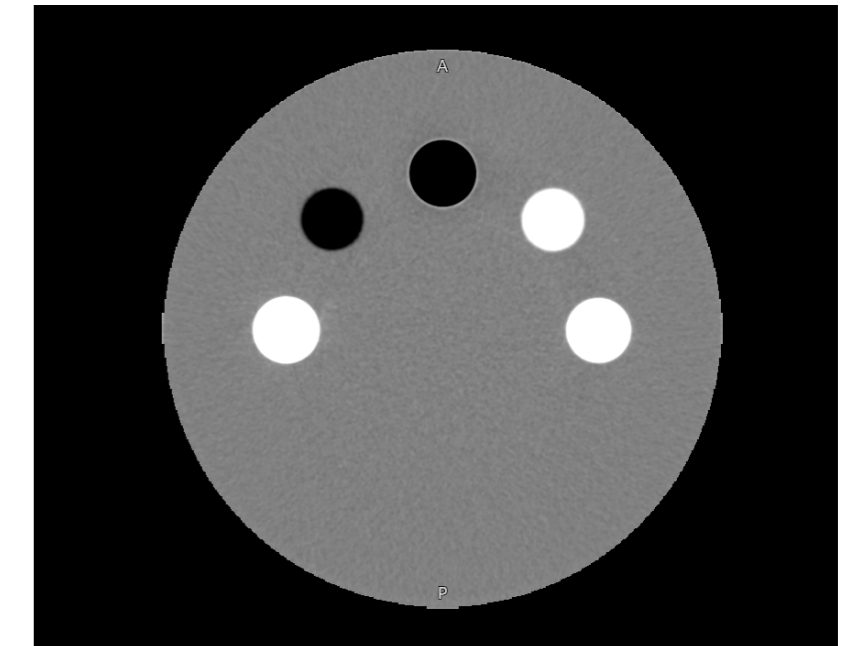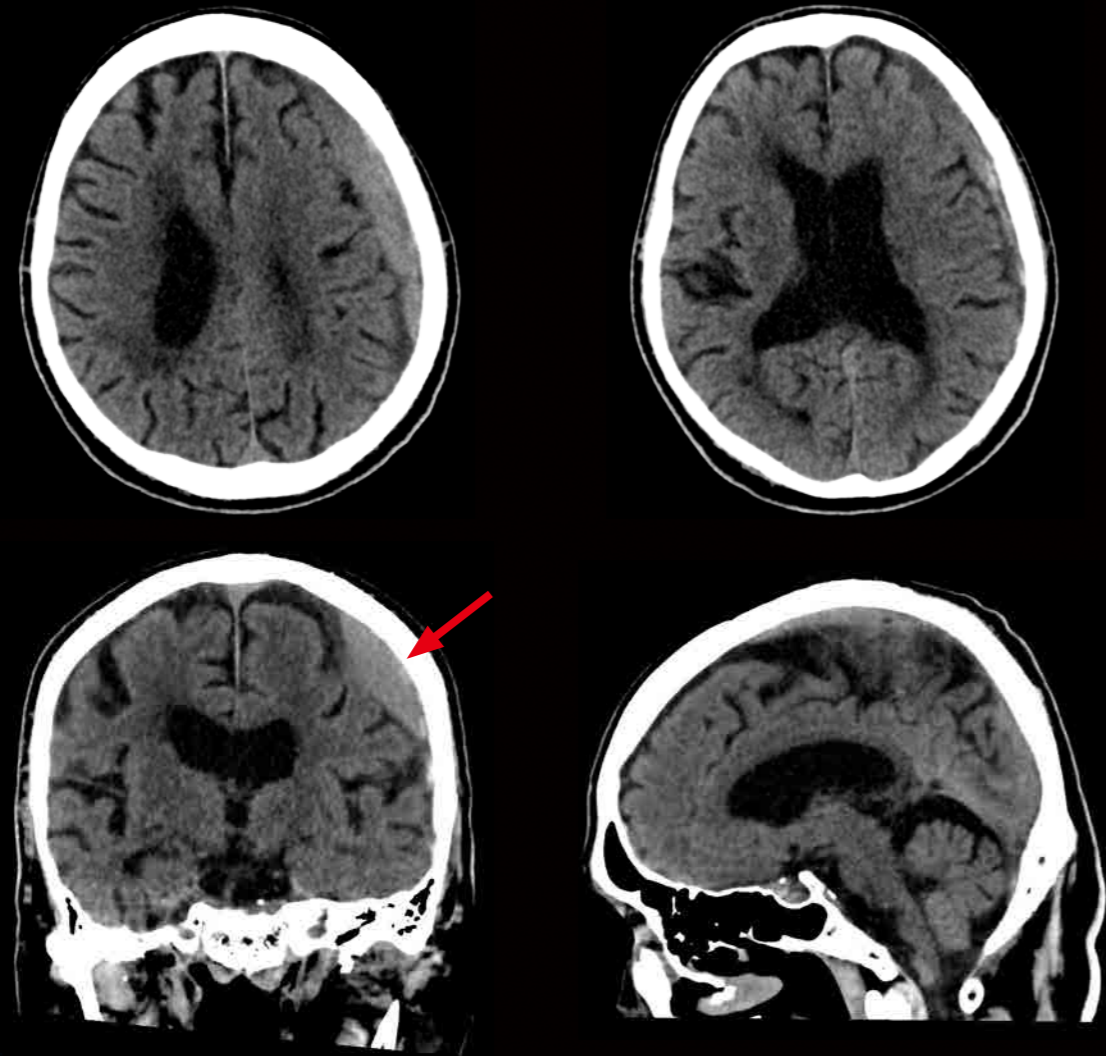
*1 With short couch
*2 Option
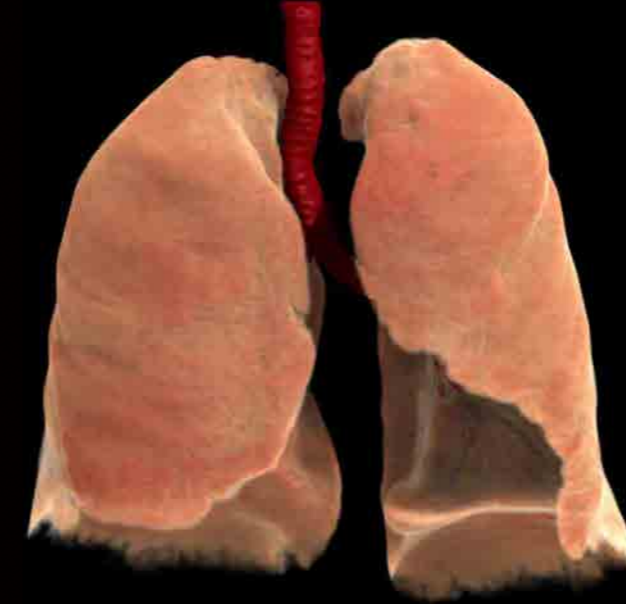
Approach toward an eco-conscious design

While our goal is to continue to bring innovative new products such as Aquilion Serve SP to the market each year, we do so in a conscientious way and with the intention of contributing to a sustainable global environment.

Based on a product development and design process that complies with IEC 60601-1-9 "Environmental product design for medical equipment", we are working on energy saving, resource saving, space saving, use of recycled materials, reduction of hazardous chemical substances, improvement of recyclability of products, reduction of packaging materials, and so on.

These efforts cover the entire product life cycle, from production to disposal. We are also working on eco-design, including innovations to increase the user efficiency of our products in order to improve the productivity of our customers' examinations.

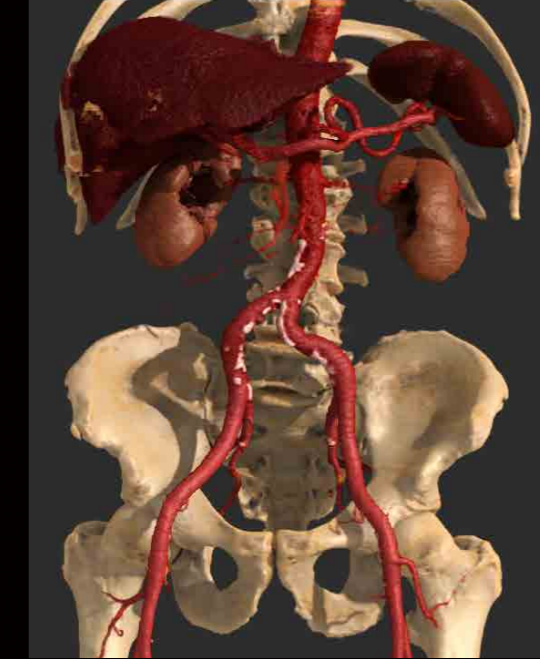Our products comply with ErP, REACH, and RoHS.

Product life cycle

- Development — Eco-conscious design
- Green procurement
- Production
- Transportation — Modal shift
- Service — Call center, Parts center
- Refurbishment — Reuse of parts
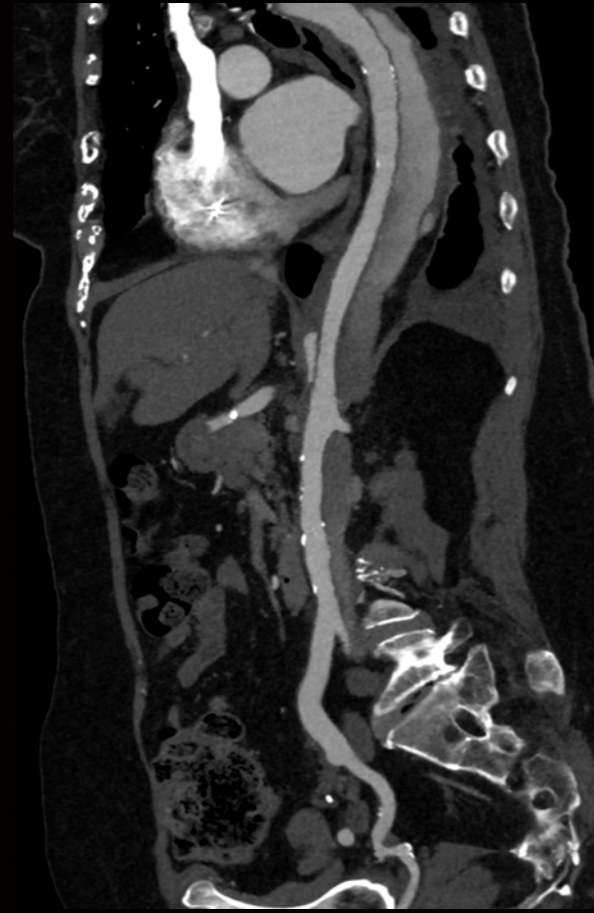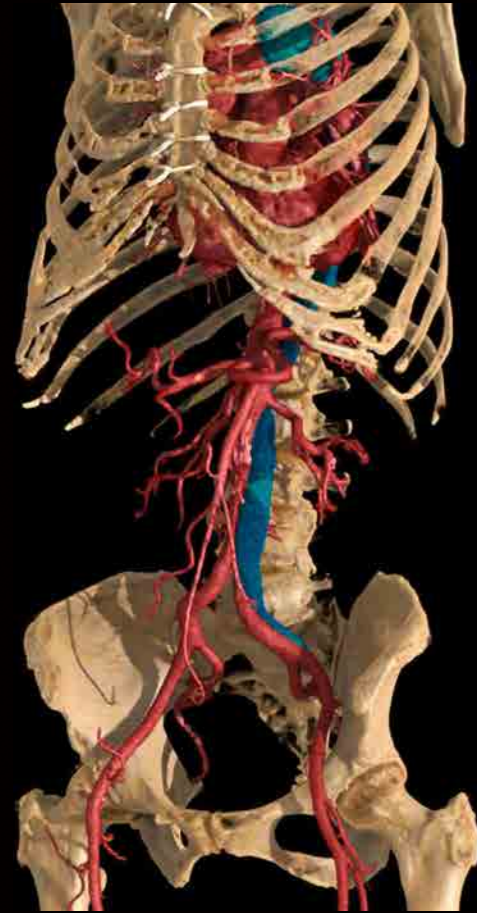- Discarded Products — Recycling

Clinical images

Subdural Hematoma seen in a routine brain scan
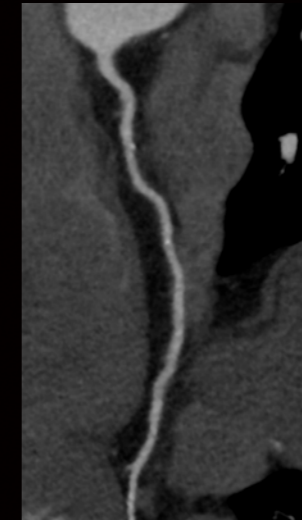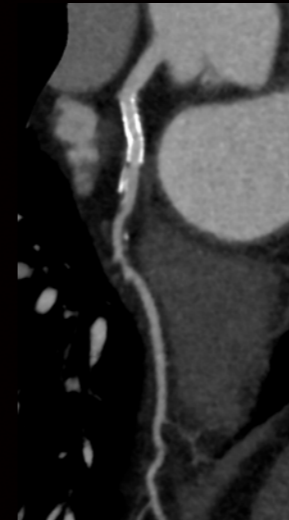

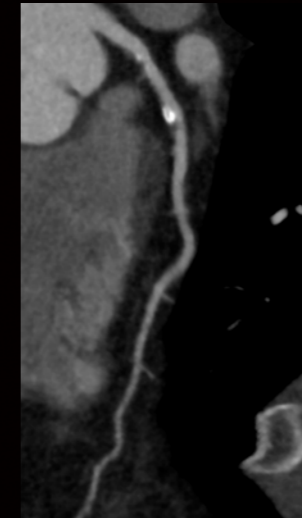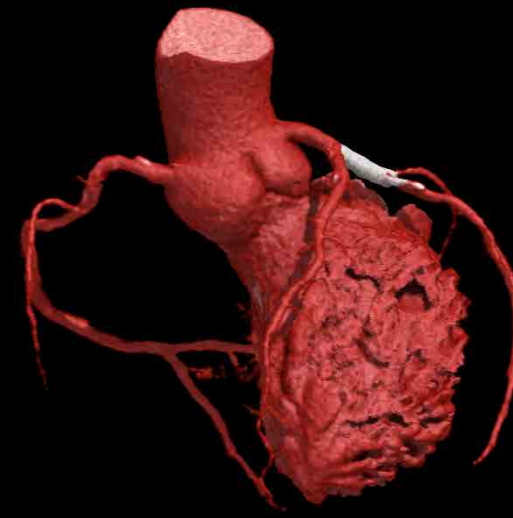SilverBeam chest scan at 0.4 mSv[†]

Arterial phase abdomen scan reconstructed with AiCE[†]

† Vitrea image

Clinical images

CTA chest and abdomen scan reconstructed with AiCE[†]

Cardiac CTA with AiCE shows a stent[†]

Ankle fracture reconstructed with AiCE

† Vitrea image

Main specifications		
Detector	PUREViSION detector	80 rows, 0.5 mm
X-ray Tube & generator		Megacool 7.5 MHU 72 kW
Gantry	Rotation time	0.35 s
	Bore size	80 cm
	Bore depth	28.8 cm
Patient couch	Load	220 / 315 kg*[2]
	Max. scan range	150-200 cm*[2]
Reconstruction speed	Helical	Max. 100 fps*[1]
Reconstruction	Iterative reconstruction	AIDR*[3] 3D Enhanced
	Deep Learning Reconstruction	AiCE*[1]
Installation	Power capacity	110 kVA*[1]
	Space	Min. 14.8 m^2 (short couch)

*1 Requires option license
*2 Depending on system configuration
*3 Adaptive Iterative Dose Reduction

Clinical results may vary due to clinical settings, patient preparation and other factors.

Due to local regulatory processes, some of the products included in the brochure may not be available in each country. Please contact your sales representative for the most current information.

The views and opinions expressed in this brochure are those of the clinicians and do not necessarily reflect the views of Canon Medical Systems Corporation.

Some images in this brochure are created by Vitrea Advanced Visualization Workstation.