

GE Healthcare



Discovery\* CT750 HD  
Great care by design



At GE Healthcare, imagine  
lie at the heart of every  
than 30 years, we've done  
that enhance the ways  
and treat disease. Better  
us to render the inner  
greater fidelity and detail  
than before.

ination and knowledge  
thing we do. For more  
esigned CT systems  
clinicians diagnose  
er tools have enabled  
world of the body with  
ail—and at lower dose

The Discovery\* CT750 HD is designed to deliver up to 50%<sup>1</sup> lower dose, helping assure patients with faster, more confident diagnoses.



Filtered Back Projection (FBP)

1. In clinical practice, the use of ASiR may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

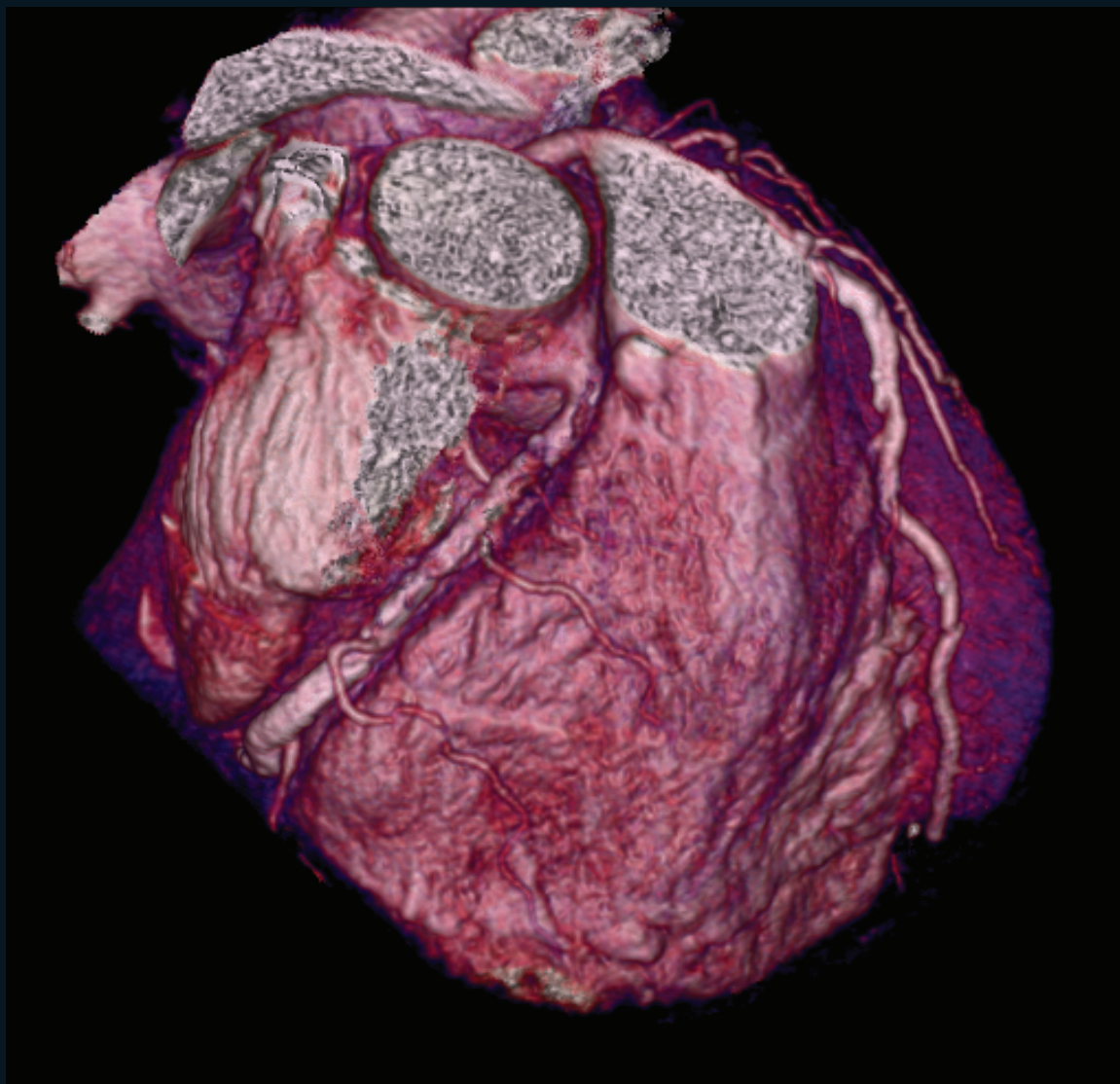
ASiR dose reduction was measured on a standard 20cm water phantom. The test involved maintaining constant pixel standard deviation as the mA was reduced at 120 kVp.



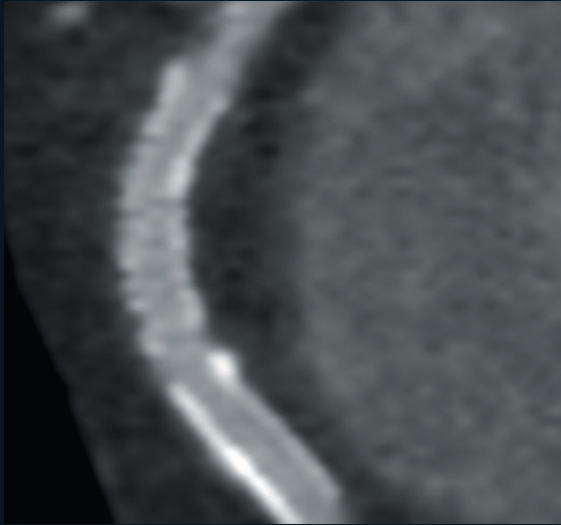


ASiR\* (Adaptive Statistical Iterative Reconstruction)

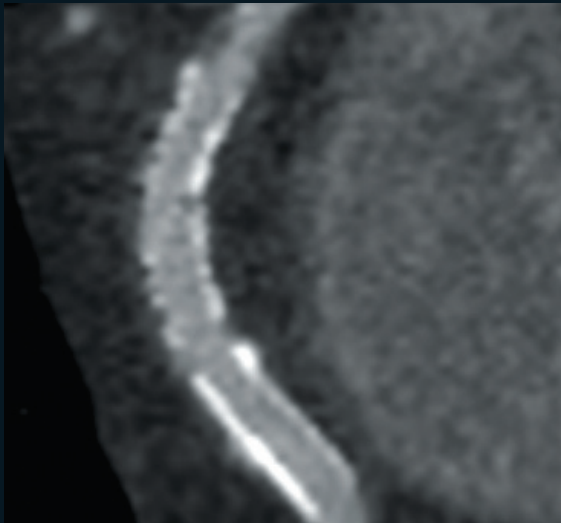
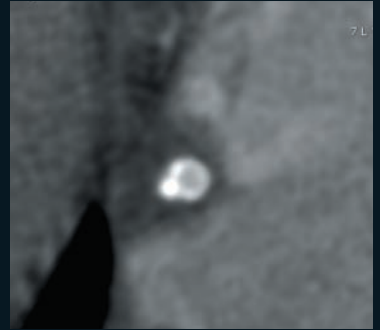
The Discovery CT750 HD offers the highest available cardiac spatial resolution in the industry at<sup>1</sup> 18.2 lp/cm.



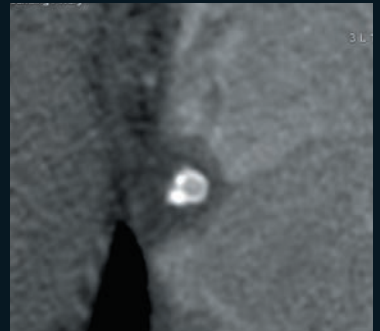
1. Based upon internal test data comparing Discovery CT750 HD cardiac half-scan spatial resolution to data from "Advanced CT Scanners for Coronary Angiography", ImPACT Report CEP10043, March, 2010, available at <http://www.impactscan.org>



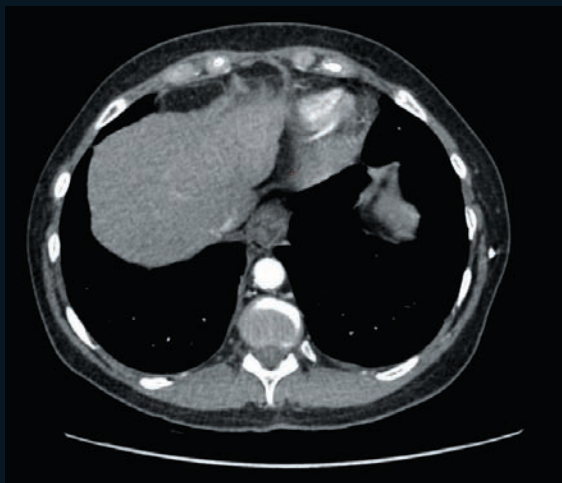
Standard Resolution



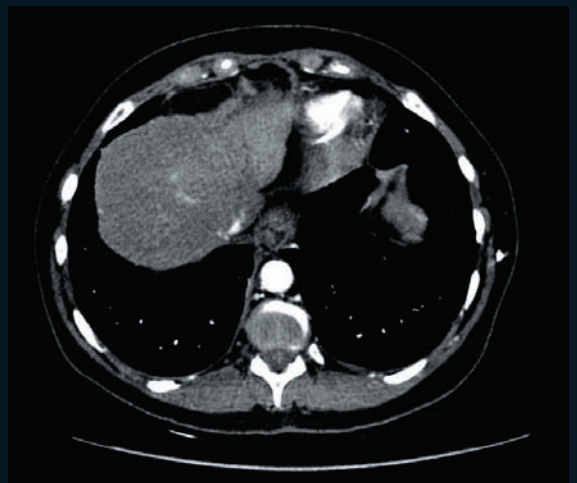
HD Resolution



Powered by our proprietary CT scintillator material, the Discovery CT750 HD features Gemstone<sup>\*</sup> Spectral Imaging. At temporal registrations speeds of up to 165 times faster than the nearest competitor, GSI is the first quantitative dual energy on the market.

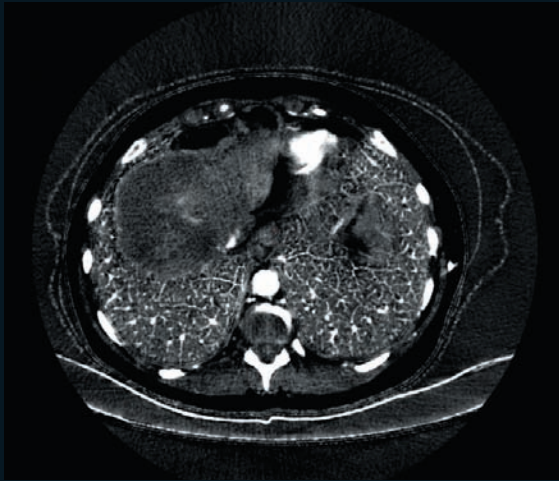


Conventional 140 kVp

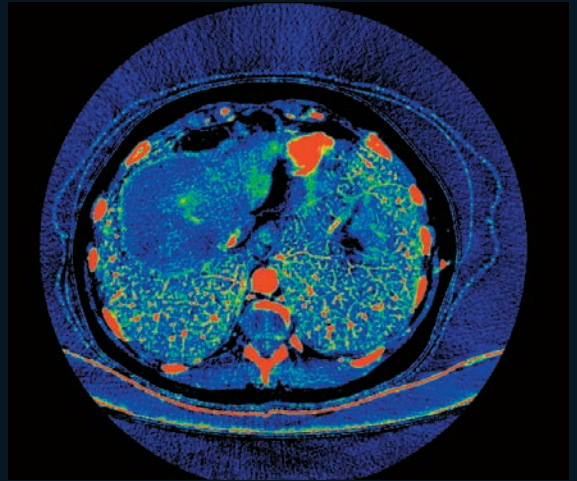


Spectral 50 keV





Grayscale quantitative MD iodine image

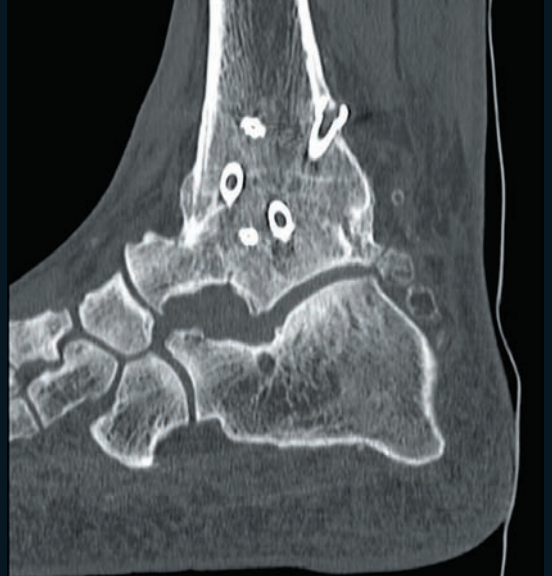
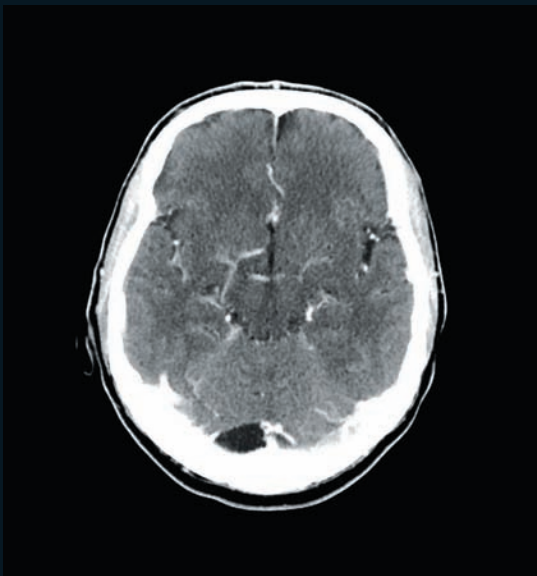
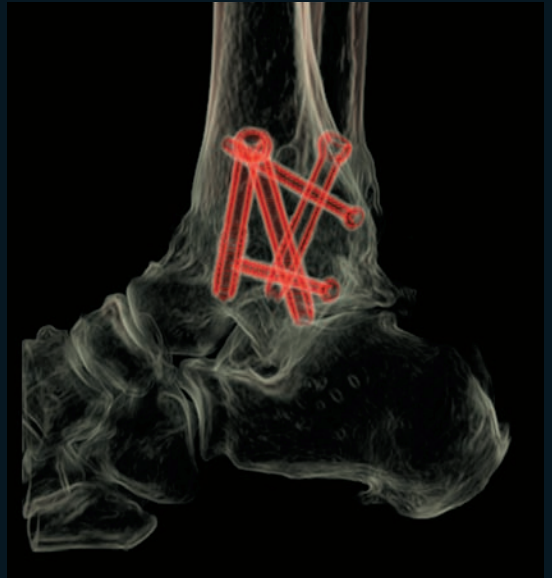
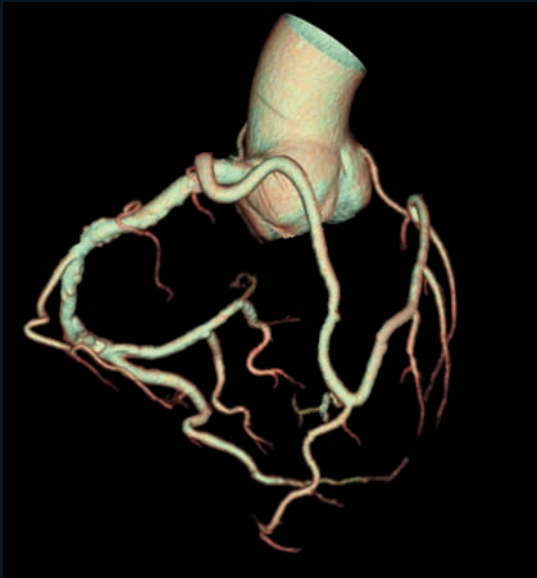


Colored quantitative MD iodine image

In the arterial phase images, you can visualize an early contrast uptake, especially on iodine and low keV images.

In addition to its specialized applications, the Discovery CT750 HD makes an excellent scanner for routine imaging by improving the clarity of the image while lowering patients' dose.





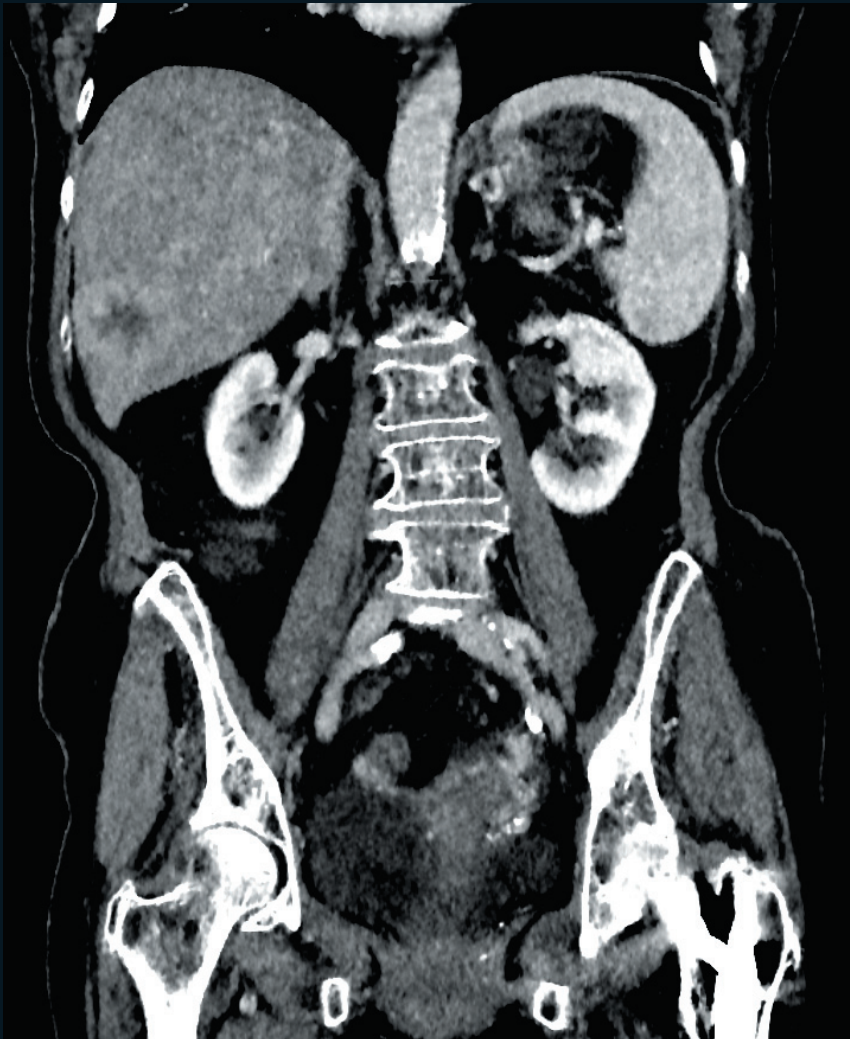
And with our breakthrough Veo image reconstruction technology, the Discovery CT750 HD can acquire images at under 1 mSv with profound clarity.



FBP

In clinical practice the use of Veo may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physician should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.





Veo image, 0.61 mSv, DLP 36.02

Obtained by EUR-16262 EN, using an abdomen factor of  $0.015 \cdot \text{DLP}$  and a pelvis factor of  $0.019 \cdot \text{DLP}$



# The low-dose innovator

You and your patients continue to demand lower dose—but not at the expense of image quality. The Discovery CT750 HD delivers on both imperatives—precise imaging for a confident diagnosis and enhanced patient care.









"We decided to implement ASiR on 100% of our exams and achieved excellent results. As such, ASiR has become a key component in our campaign for low dose CT. The community response from both our patients and physicians was greater than we ever expected, and UW is now viewed as the go-to place for low dose CT"

**William P. Shuman, M.D.**  
*University of Washington Medical Center*



"With the Discovery CT750 HD we have been able to reduce drastically the dose in coronary CTA, while improving image quality. We routinely scan patients at less than 1 mSv and still achieve high diagnostic quality."

**Jean-Nicolas Dacher, M.D., Ph.D.**  
*Rouen University Hospital*



"With the Discovery CT750 HD, we have been able to significantly reduce radiation dose while, at the same time, improving image quality. Our patients are benefiting from the dose reduction in every exam we perform, all without compromising diagnostic quality. With this dramatic dose reduction our practice has grown our referral base, and patients are asking to be scanned on the Discovery CT750 HD."

**David A. Dowe, M.D.**  
*Atlantic Medical Imaging*



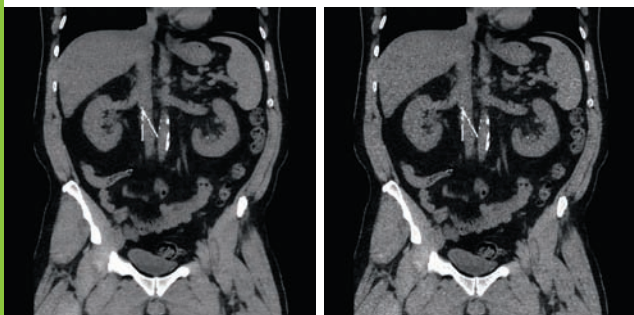
ASiR may reduce dose by up to 50%<sup>1</sup> by allowing the use of lower mA protocols—and with high definition image quality across all anatomies—the Discovery CT750 HD can reach any part of the body, any age patient, and any application that demands the leading edge of CT clarity.

1. In clinical practice, the use of ASiR may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

ASiR dose reduction was measured on a standard 20cm water phantom. The test involved maintaining constant pixel standard deviation as the mA was reduced at 120 kVp.

# A better path forward

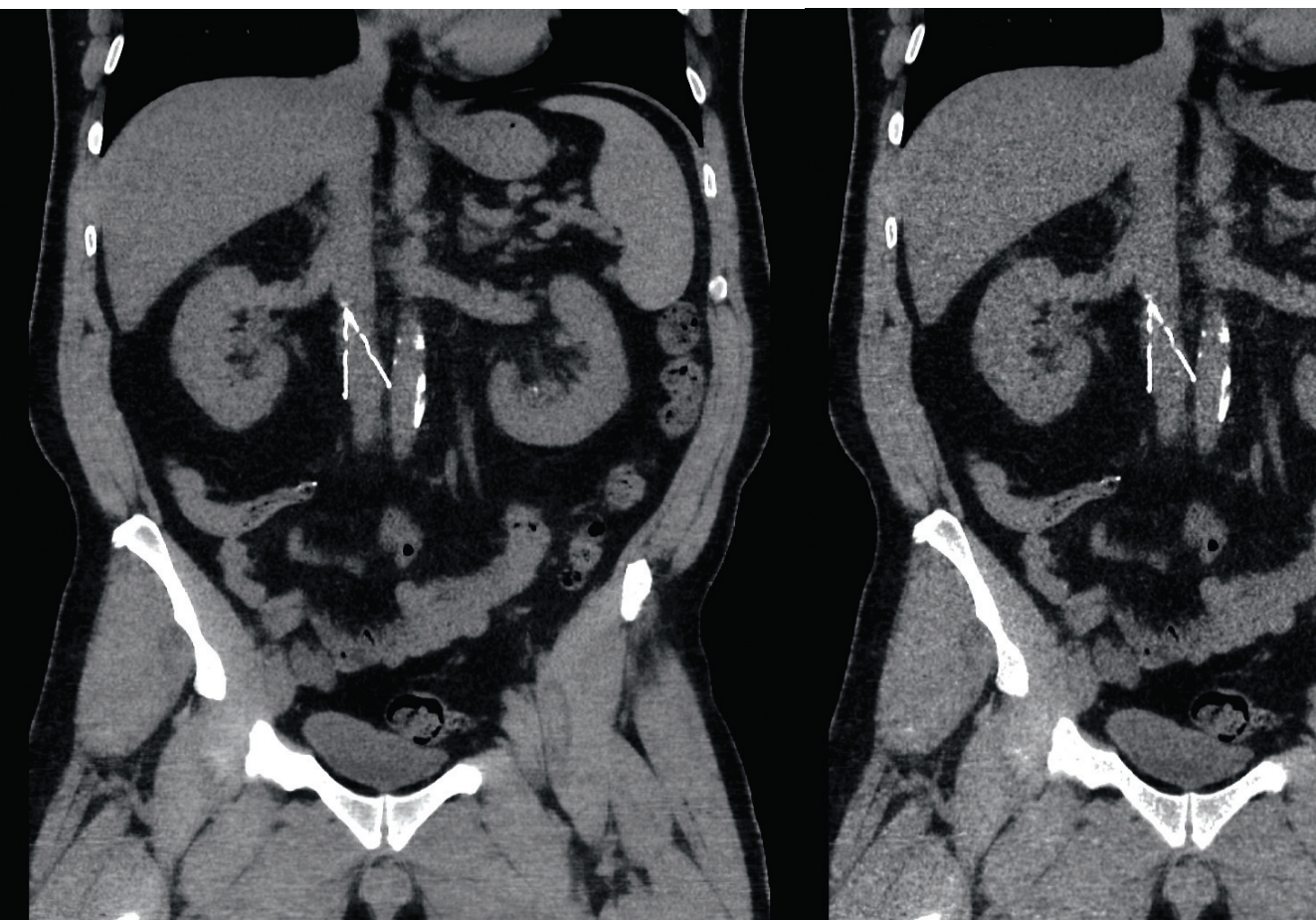
Incremental reductions in dose can go a long way toward supporting improved care, but the highest standard can only be achieved through breakthrough innovation in image reconstruction.



Low dose kidney stone protocol at 83 mAs

## Leading the way with image reconstruction

Typically, lowering dose has increased noise and image artifacts, creating an unfortunate trade-off between higher image quality and lower dose. In order to overcome this obstacle, GE developed an industry exclusive high definition approach to image reconstruction—Adaptive Statistical Iterative Reconstruction (ASiR).



ASiR provides exceptional image quality by improving low contrast detectability (LCD) and suppressing noise without degrading anatomical integrity. It overcomes the limitations of the conventional CT reconstruction approach known as filtered back projection and arrives at an optimal image using an advanced iterative computation. As a result, the Discovery CT750 HD is capable of significant dose reduction with no loss of diagnostic image quality. Since its introduction in 2008, ASiR has earned positive mention from clinicians in peer-reviewed journals, in dozens of abstracts, and at multiple conferences. Millions of patients' exams make ASiR the proven choice for image reconstruction.

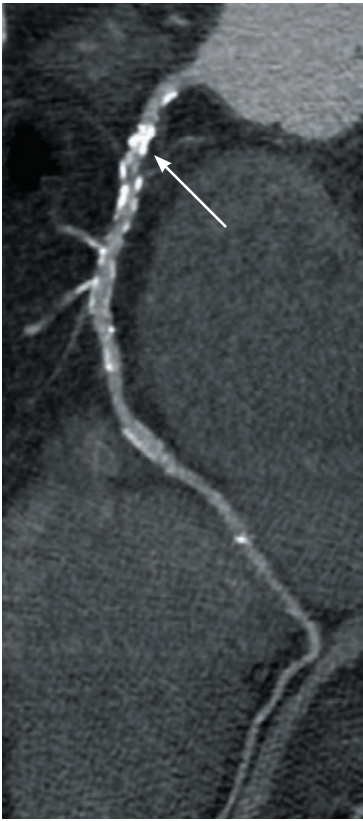
# The industry leader in

The Discovery CT750 HD has the industry leading Cardiac CT spatial resolution. At 18.2 lp/cm, the system provides up to 66% greater spatial resolution than comparable systems.



Cardiac CT

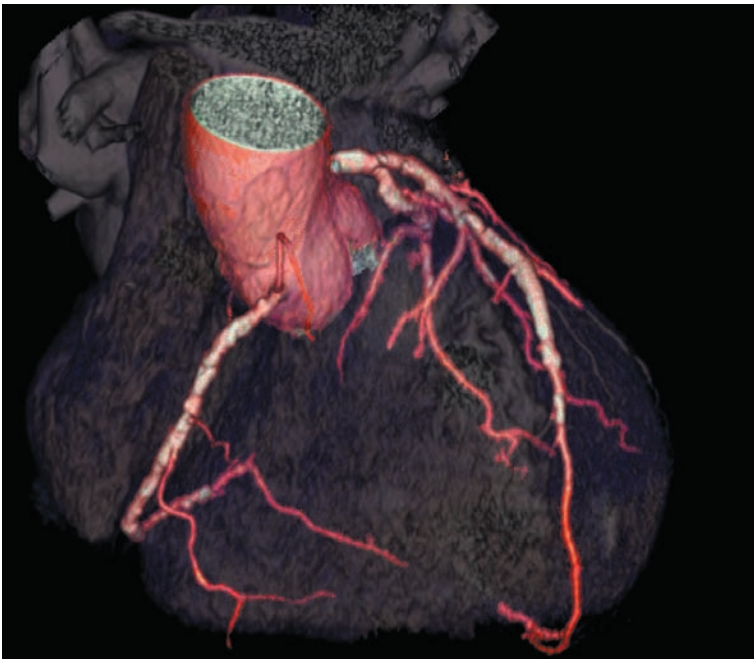




Standard Resolution

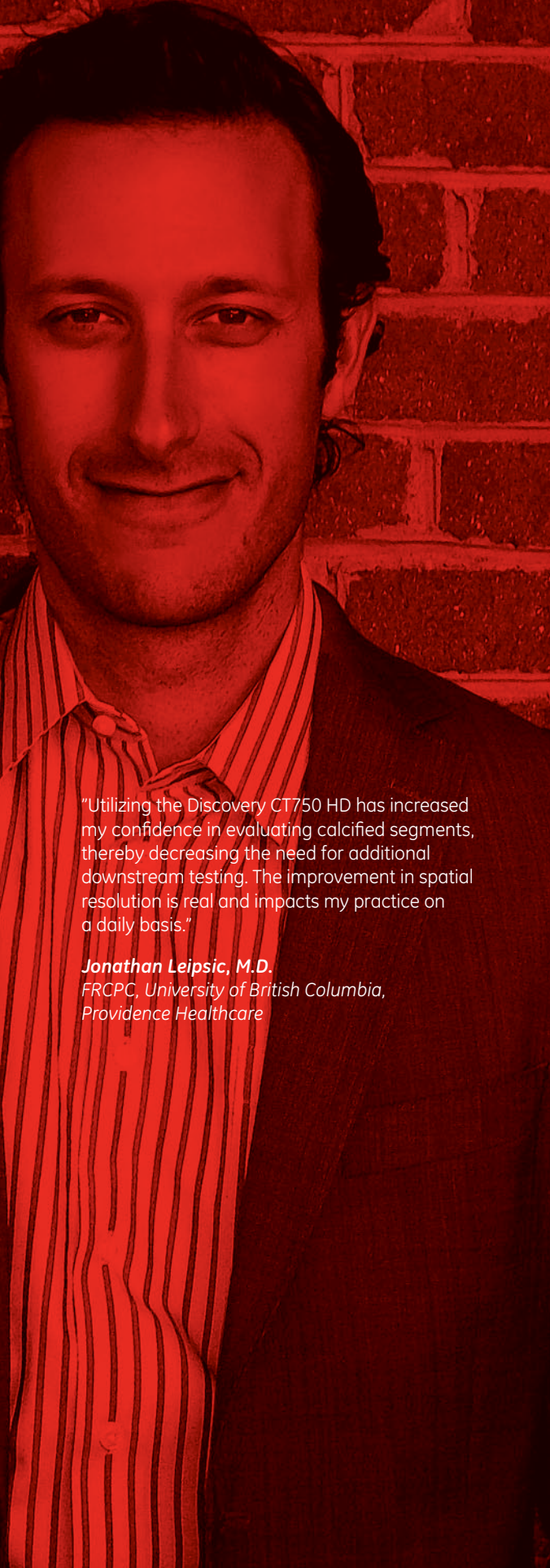


HD Resolution



The improved resolution of the Discovery CT750 HD displays reduction in calcium blooming compared to standard resolution, enabling an accurate diagnosis.





"Utilizing the Discovery CT750 HD has increased my confidence in evaluating calcified segments, thereby decreasing the need for additional downstream testing. The improvement in spatial resolution is real and impacts my practice on a daily basis."

**Jonathan Leipsic, M.D.**  
FRCPC, University of British Columbia,  
Providence Healthcare



The Discovery CT750 HD delivers improvements in spatial resolution that can help you accurately quantify stenosis in coronary vessels.

"In the multicenter ERASIR study<sup>1</sup> of more than 500 patients that examined the effect of ASiR on radiation dose, we noted a 27% reduction in dose for patients undergoing coronary CT angiography. In the second independent study,<sup>2</sup> using a combination of SnapShot imaging, reduced tube voltage and ASiR, we have observed in 449 patients an average dose of 1.3 mSv in unselected patients undergoing CT angiography."

**James Min, M.D.**  
Co-director of Cardiac Imaging  
Director of Cardiac Imaging Research  
Cedars Sinai Heart Institute



1. Estimated Radiation Dose Reduction Using Adaptive Statistical Iterative Reconstruction in Coronary CT Angiography: The ERASIR Study, *AJR*:195, 2010 Sept; 195(3):655-60

2. Effect of Standardized Quality-Improvement Protocol on Radiation Dose in Coronary Computed Tomographic Angiography, *Am J Cardiol*, 2010 Dec 1; 106(11):1663-7

## Low dose cardiac imaging with excellent IQ

# at less than 1mSv

SnapShot Pulse and ASiR\* enable low dose not only for Coronary CT but across cardiovascular exams, enabling cardiac CT of less than 1mSv.

Using SnapShot Pulse imaging and ASiR, the Discovery CT750 HD achieves a dose reduction of greater than 83% compared to gated helical acquisition.<sup>3,4,5</sup>

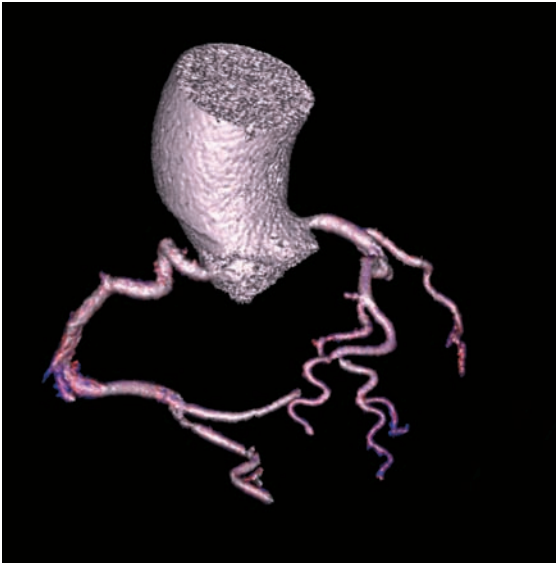
Acquisition protocols are easily adapted to the clinical needs of the individual patient for optimal diagnostic results at low dose. Intelligent system design helps to manage high and unstable heart rates in prospective and retrospective modes.

3. In clinical practice, the use of ASiR may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

4. Dose reduction was measured on a standard 20cm water phantom comparing a SnapShot Pulse prospective gated axial acquisition at 120kV/300mA and 50% ASiR to a cardiac helical acquisition 120kV/500mA without ASiR both with a 224mm scan coverage.

5. In clinical practice, the use of SnapShot Pulse may reduce cardiac CT patient dose depending on the clinical task and patient heart rate. A consultation with a radiologist should be made to determine the appropriate acquisition mode and scan settings to obtain diagnostic image quality for the particular clinical task.





0.57 mSv<sup>6</sup> Cardiac CTA is achievable utilizing ASiR image reconstruction on the Discovery CT750 HD. Even at this ultra-low dose level, the Discovery CT750 HD can visualize vessels as small as 1mm in coronary CTA exams.

6 Obtained by ICRP using a chest factor of 0.014\* DLP

7 May J et.al. Low-risk chest pain patients in the emergency department: Negative 64-channel cardiac CT angiography may reduce length of stay and hospital charges. AJR 2009; 192(S5): A1.

**5** HOURS

VS.

**25.4** HOURS

### Assessing chest pain in the ER with the Discovery CT750 HD.

A traditional cardiac diagnostic pathway can take between 12 and 36 hours, utilizing a significant amount of hospital time, personnel, and resources. With the Discovery CT750 HD system, unless the scan indicates an occlusion with greater than 75 percent stenosis, patients may avoid additional diagnostic cardiac procedures—all while decreasing the time to diagnosis and increasing throughput and efficiency in your care environment.

GE's Discovery CT750 HD produces remarkably clear, quality cardiac images that have the potential to streamline the care process, freeing clinical staff to care for more patients. A recent study has reported that a diagnostic work up of a single set of enzymes and an ECG along with a cardiac CT angiography (CCTA) takes an average of only 5 hours to rule out coronary artery disease, compared to an average of 25.4 hours with standard care workup.<sup>7</sup> That means your hospital can save both time and resources.



A broader  
Spectrum of

Gemstone Spectral Imaging is a revolutionary feature exclusive to the Discovery CT750 HD. Today, it is expanding the information available for clinical diagnosis and workflow in the following key areas: characterization of small lesions, beam hardening reduction, kidney stone characterization, optimization of contrast and virtual non-contrast like imaging. Tomorrow, its broad applications and unprecedented level of detail have the potential to completely re-define diagnostic imaging.





# Gemstone Spectral Imaging

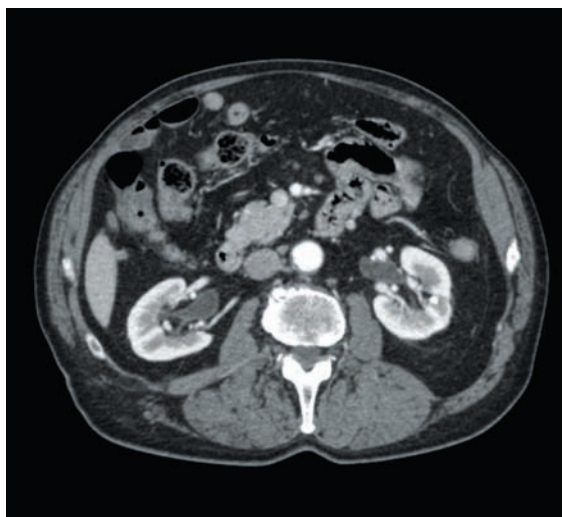
Gemstone Spectral Imaging (GSI) is a unique dual energy technique that uses rapid kV switching and Gemstone Detector technology to acquire and generate material density data. This data can be used to separate materials and derive monochromatic spectral images using a projection-space reconstruction algorithm.

## Material Separation

GSI provides information about the chemical composition of body materials. This capability enables the user to easily separate calcium, iodine and water to aid in the characterization of pathology.

## Virtual noncontrast-like imaging

Gemstone Spectral Imaging can subtract iodine from images to generate a virtual noncontrast-like image. Note the kidney stone is obscured in the IV contrast image, but visualized in the water density image.



70 keV Spectral

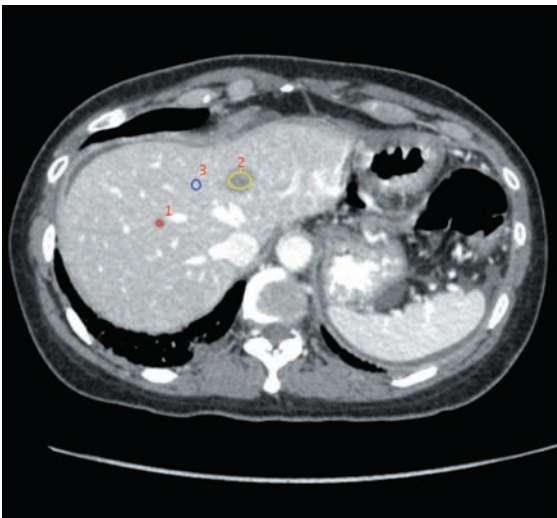


MD Water

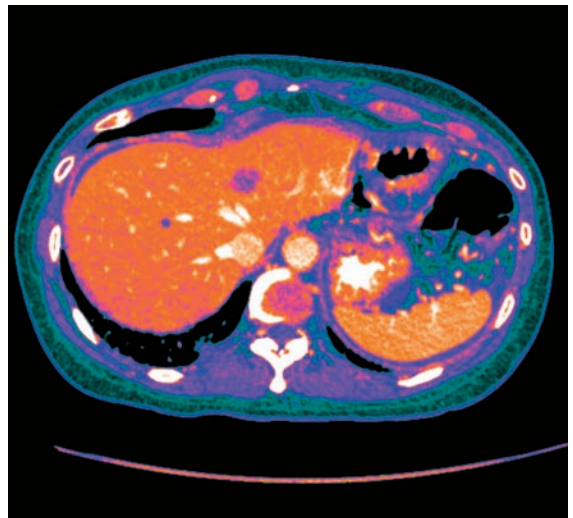


## Quantitative Lesion Characterization at 50cm FOV

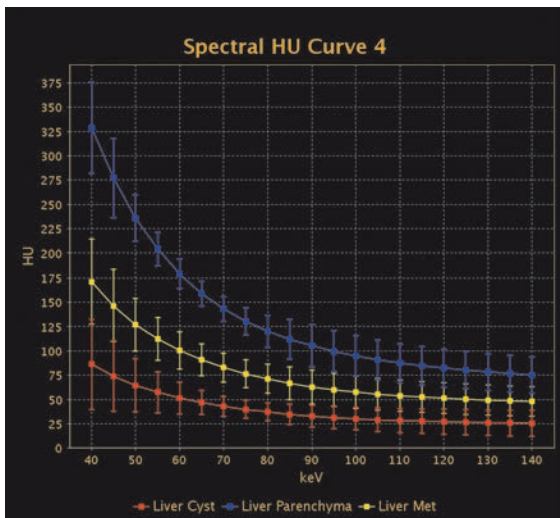
Spectral Imaging's potential to enhance lesion characterization is seen here with the two lesions displayed on the images. Utilizing GSI and viewing the images at lower spectral energy, the lesion is more conspicuous, and the differentiation of the non-enhancing cyst and enhancing lesion is well depicted on the spectral curves, normalized to the liver parenchyma.



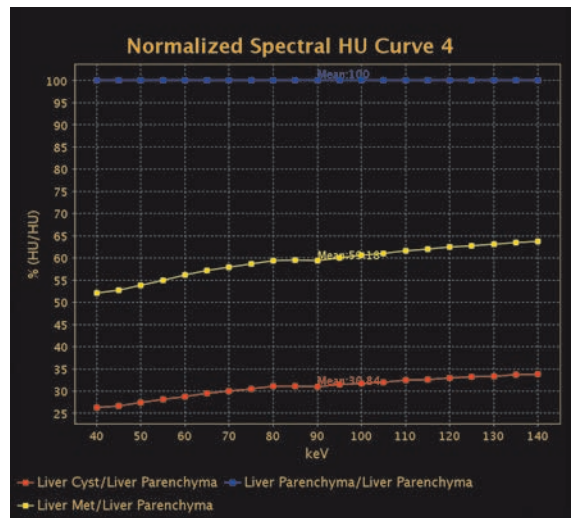
70 keV Spectral



70 keV Spectral color



Spectral Hounsfield unit curve



Normalized Spectral Hounsfield unit curve



“With Gemstone Spectral Imaging we can more easily obtain high quality images on the femoral arteries in patients with metallic hip prostheses. This capability is particularly important when planning a transcatheter aortic valve implantation (TAVI).”

**Jean-Nicolas Dacher, M.D., Ph.D.**  
*Rouen University Hospital*

“Traditionally, CT provided an excellent depiction of the pulmonary vessels, thrombi and emboli. However, it could not give us information on the severity of pulmonary embolism obstruction or perfusion deficit defects. With the GSI-generated iodine maps, I can clearly see the severity of perfusion deficit. GSI is a very effective technique that eliminates the need for additional scans to gather functional information on lung perfusion.”

**Valentin Sinitsyn, M.D., Ph.D.**  
*Moscow Federal Center of Medicine*



“About 40% of our routine spine exams involve metal instrumentation. Reducing artifact for these exams is an important benefit that GSI provides. Spectral CT generates virtually pristine images in these most challenging circumstances where traditional techniques often fail.”

**Lawrence N. Tanenbaum, MD, FACR**  
*Mount Sinai School of Medicine*

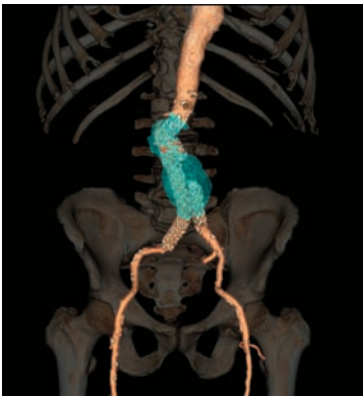
Gemstone Spectral Imaging is delivering real diagnostic results today. Tomorrow it has the potential to be used as a routine scan acquisition mode, taking the possibilities even further.

## Enhancing image quality with monochromatic spectral image

Exclusive to the Discovery CT750 HD, the spectral image is created as though it comes from a single energy (keV) source. Individual spectral images can be derived from 101 user-selectable energy levels. This approach enables image contrast optimization, accurate CT numbers and up to a 50% reduction in common beam hardening artifacts—features that together aid in a fast, confident diagnosis.

Utilizing lower energy spectral images allows for better contrast differentiation, thereby accentuating subtle contrast differences.

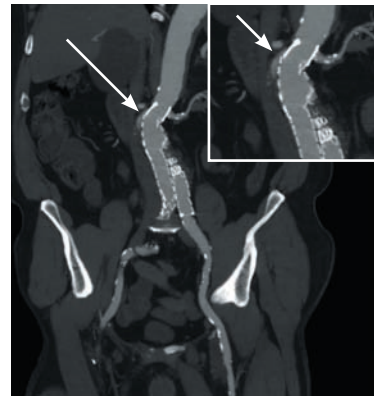
In the study below, due to the patient's impaired renal function only 60cc of contrast was utilized. With GSI's capability to review different levels of monochromatic energy levels for better iodine conspicuity, the endoleak was visualized.



VR images



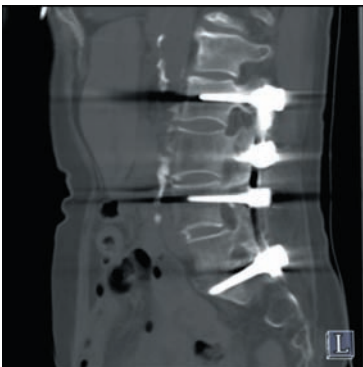
VR images demonstrating thrombus



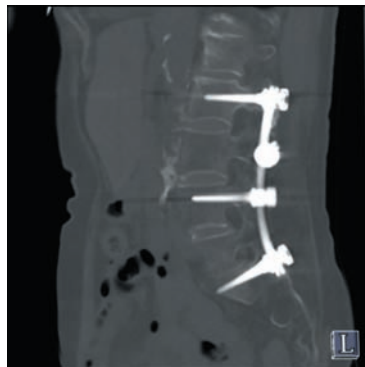
Curved view demonstrating endoleak visualization

## Beam hardening reduction

Reducing visually obstructive beam hardening artifacts will reveal important underlying anatomical information for a complete diagnosis.



Conventional CT



93 keV Spectral image



93 keV VR Spectral image

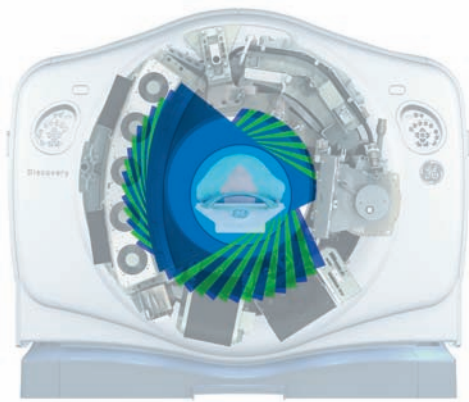


## How it works

Central to spectral image acquisition is the Gemstone detector's ability to differentiate between two different energy levels from view to view (as illustrated by the blue and green data sets below). Both high and low energy data sets are acquired simultaneously to improve image registration for material separation throughout the full 50cm field of view.

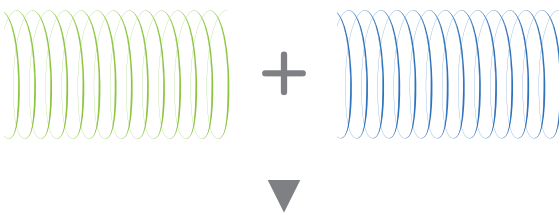
Using known attenuation curves, the material specific difference in attenuation enables an easy classification of the elementary chemical composition of the scanned tissue. This creates the ability to generate material density images.

Spectral images are derived from the material density images and depict how the object would look if the X-ray source produced only photons at a single energy.



140 kVp raw data

80 kVp raw data



1,968 views reconstruction

# Quicker Diagnosis

equals

# Reduced Hospital Cost


Painful episodes of renal-related conditions result in more than one million patient visits to emergency departments annually.<sup>1</sup> Reducing the time spent on imaging, additional testing, and waiting for results has the potential to decrease both length of stay and overall costs to the hospital. This is critical, as hospitals are paid a fixed amount per admission regardless of the number of services provided.

Using GE's Discovery CT750 HD with Gemstone Spectral Imaging (GSI), a single contrast-enhanced CT may provide information to evaluate the presence or absence of a renal lesion. With the same exam data, GSI can create a "virtual non-contrast like image" that can provide information to assess for kidney stones. GSI also has the ability to help characterize renal stones without a urinalysis—meaning treatment can start earlier, minimizing in-patient stay time. GSI can also help physicians characterize lesions, reducing the need for additional testing in patients with symptoms whose CT results indicate a renal mass.

1. Brown J. Diagnostic and treatment patterns for renal colic in US Emergency Departments. *International Urology and Nephrology* 2006; 38: 87-92.



C  
i



Leading edge clarity requires innovation throughout the image chain—and across every variable of image development. The Discovery CT750 HD introduces significant enhancements to four areas that define CT image quality: resolution, low contrast detectability, noise reduction and artifact reduction. Combined, they set a new standard in diagnostic imaging; enabling greater degrees of insight, broader applications and new benchmarks of care.

Confidence  
in the details



# The leading edge of care

For more than 20 years, GE's scintillator material has been the industry standard—the foundation for CT imaging excellence. Now, with the introduction of the Discovery CT750 HD, an even higher standard has been set.



- Definition, clarity and confidence at a much lower dose
- Extended coverage with Volume Helical Shuttle
- Gemstone Spectral Imaging—an entirely new path for diagnostic imaging
- Cardiac imaging—the highest spatial resolution in the industry at 18.2 lp/cm

The Discovery CT750 HD is capable of extending the boundaries of detectability and driving breakthrough diagnostic applications. With technologies and features that set new benchmarks for image clarity, high-definition CT opens the door to new non-invasive diagnostic capabilities and innovative techniques for challenging conditions.

## The Detector

The Gemstone detector sets new benchmarks for CT speed, recovery and performance.

Primary Speed,  
100X FASTER

The exclusive garnet structure enables high definition imaging during sub-second scanning and fast kV switching.

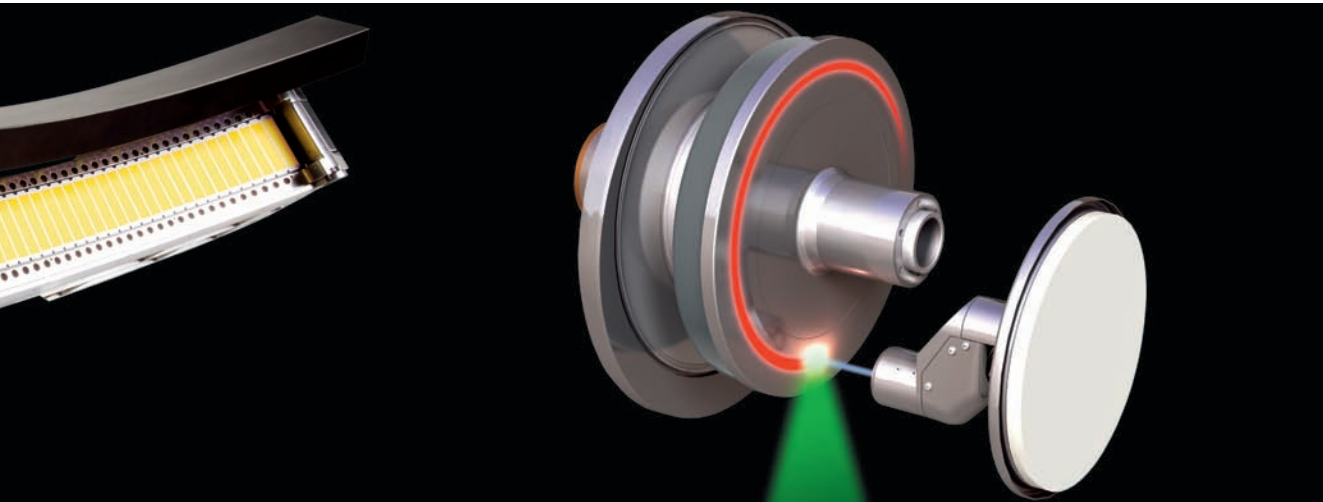
Afterglow performance,  
4X FASTER

Gemstone's recovery time is 4-times faster, delivering increased spatial resolution and significant artifact reduction

GE Gemstone 0.03 $\mu$ s  
GOS 3.0 $\mu$ s

GE Gemstone 0.001%  
GOS 0.004%

Gemstone is the essential innovation that drives the high definition breakthrough.



## The Data Acquisition System (DAS)

Volara\* DAS technology delivers improved signal performance and image quality.

A dramatic reduction in electronic noise

- Low noise, for outstanding image quality in high and low signal areas of the anatomy

Improved spatial resolution across entire field of view

- 2.5X more views per rotation to improve x & y resolution, and reduce artifacts

- 7.1 kHz sampling rate

## The Tube

The Performix\* HD Tube enables the visualization of more detail with dynamic focal spot control.

Power at your fingertips

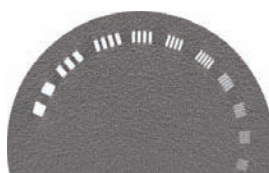
- Increased data sampling
- Ultra-fast kVp switching
- Up to 570mA on the small focal spot

## The Reconstruction

Critical to limiting dose, ASiR<sup>1</sup> on the Discovery CT750 HD, may also aid in delivering clarity via an increase in low contrast detectability of up to 40% and further artifact suppression. And with Veo, clinicians can achieve previously unheard of image quality at doses lower than ever before—a bold step into the future of high-definition CT imaging.



Non-HD CT  
Less than 1,000 views per rotation



Discovery CT750 HD  
2,496 views per rotation

1. In clinical practice, the use of ASiR and Veo may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

LCD was measured using the Statistical LCD technique, which is based on an analysis of the pixel standard deviation on the uniform section of the CatPhan (R) 600 phantom. The improvement is demonstrated at 120kVp, when comparing ASiR images acquired with 40% lower mAs to full dose FBP images.

# Highly-detailed spatial resolution

Increasing spatial resolution by up to 33% across the entire body provides you with a clarity and range of vision you've never had before. With unprecedented detail, the Discovery CT750 HD delivers imaging enhancements that advance the way caregivers diagnose illness and disease.

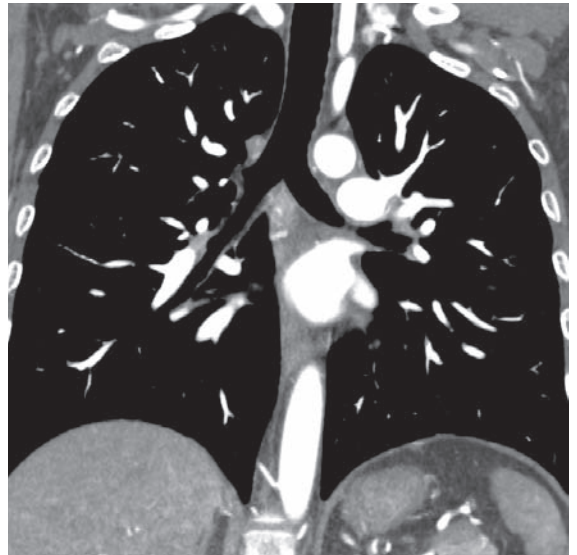
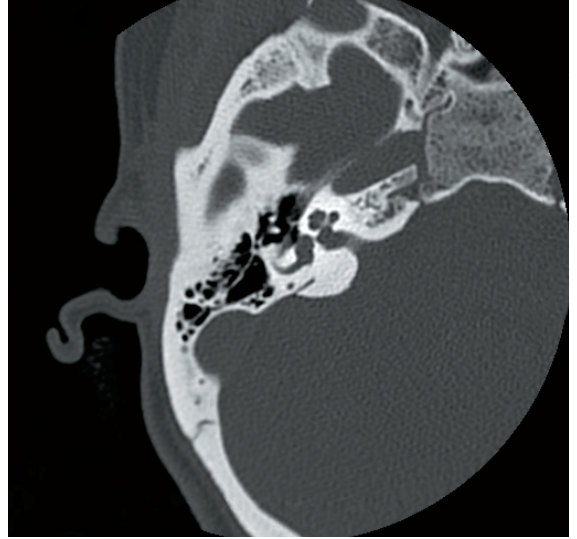
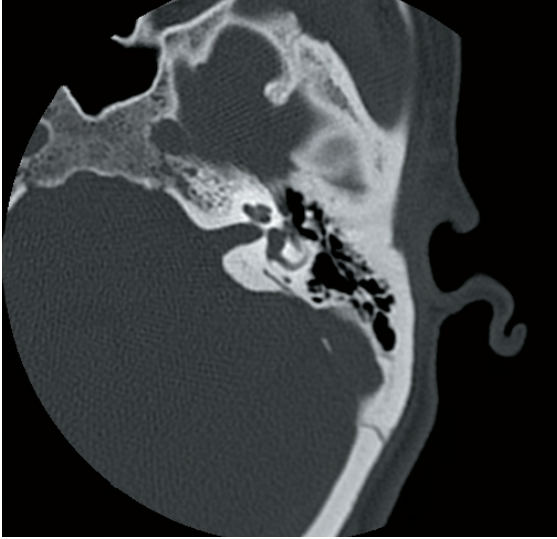




## Excellent Routine Imaging with 128-Slice mode

GE Healthcare utilizes a unique combination of conjugate ray acquisition and overlapped reconstruction technology to acquire 128 individual samples, resulting in 128 overlapped images.

This series of overlapped images may enable improved visibility of small objects. Combining higher sampling density and information from 128 samples of projection, the conjugate reconstruction technique improves small object visualization.



Chest CT in 2.2 seconds

## The high definition standard

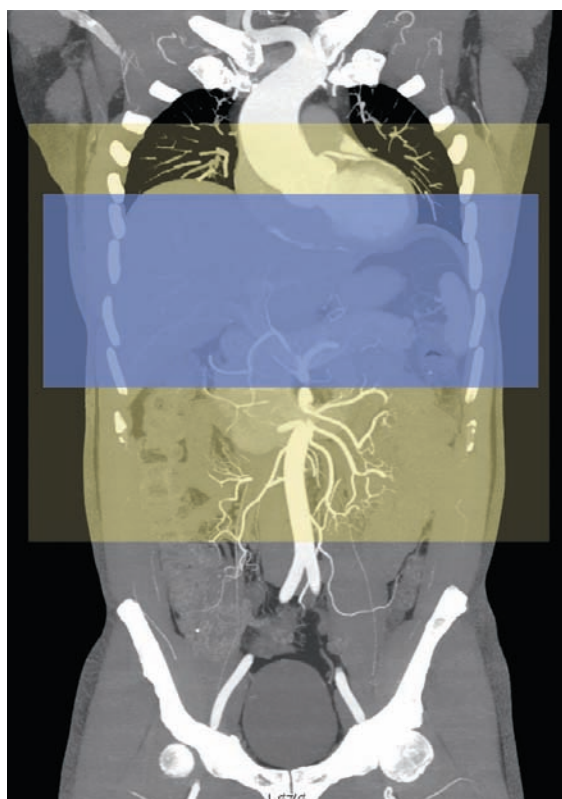
In making a confident diagnosis, image clarity is everything. That's why high definition CT represents such a significant diagnostic breakthrough. In picturing the fine anatomical details, it supports deep insight, certain decisions and an accelerated path to diagnosis and treatment. In delivering improved image quality across the entire body, it supports broad clinical applications and precise treatment paths for diverse patient needs.

# Extending coverage for functional assessment

The Discovery CT750 HD allows for extended coverage for both 4D CT Angiography (CTA) and perfusion studies with two innovative features: VolumeShuttle\* and Volume Helical Shuttle combined with CT Perfusion 4D, which provides volumetric functional analysis using a new Smart Map that creates noise reduced maps while preserving functional detail. They both extend coverage and overcome today's challenge of coverage limited by detector width.

## VolumeShuttle— twice the coverage with less dose

VolumeShuttle helps make the most challenging neuro CT perfusion and angiographic studies possible. It doubles the acquisition coverage to 80mm, with less dose. As a result, practitioners can perform studies such as 4D CTA and CT perfusion in a single scan and with a single contrast injection. For Neuro imaging it ensures ample coverage to perform "whole territory perfusion" (from the basal ganglia to the top of the lateral ventricles).

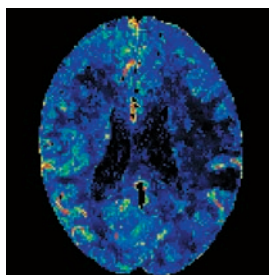


- Perfusion coverage<sup>1</sup> up to 140mm
- 4D CTA coverage up to 312.5mm

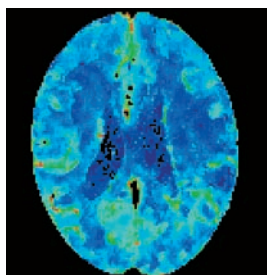
## Volume Helical Shuttle— further extending the range

The Discovery CT750 HD introduces an innovative approach to further extend coverage for studies such as 4D CTA and large internal organ physiological assessments. Volume Helical Shuttle is a continuous bi-directional scan mode that extends z-coverage and improves temporal sampling. GE's unique Dynamic Pitch reconstruction method utilizes acquired scan data during table acceleration and deceleration rather than only during constant table speed. The result is more than 300mm of high-resolution volume coverage for 4D CTA studies.

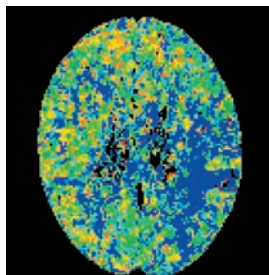
Volume Helical Shuttle may enable anatomical assessment that surpasses the coverage of today's widest detectors and enables you to set the coverage to exactly the range you need. For example you can perform a 4D CTA study to characterize the inflow and outflow of contrast in the arterial and venous system over a length of 312.5mm, equivalent to a 500-slice image. In addition, Volume Helical Shuttle allows you to perform perfusion<sup>1</sup> studies for the brain and body organs.



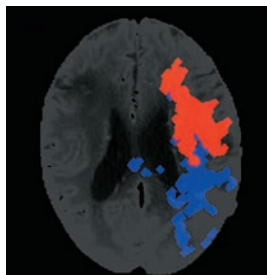
Blood flow



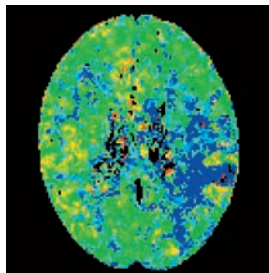
Blood volume



Mean transit time



Tissue classification



T Max

1. Up to 120mm for brain perfusion.

1 three-series  
scan

3 time-saving  
results

On average, someone in the United States has a stroke every 40 seconds.<sup>2</sup> Discovery CT750 HD's ability to acquire whole brain coverage perfusion in addition to the other stroke workup exams provides the information physicians need to make a diagnosis. Hospitals receive a fixed payment for admitted patients, so reducing the amount of resources used translates directly to cost saving for the hospital.

With GE's Discovery CT750 HD, a single three-series scan can provide the results of a non-contrast CT, a 4D dynamic CT angiography, and 12 cm of whole brain perfusion coverage at once. Discovery CT750 HD's Volume Helical Shuttle (VHS) with 12 cm of full coverage allows for whole brain imaging, which can potentially eliminate the need for follow-up MR and reduce the cost of a patient's hospital stay.

2. Lloyd-Jones D et.al. Heart disease and stroke statistics 2009 updated. A report from the American Heart Association statistics committee and stroke statistic subcommittee. Circulation 2008 (ePub ahead of print); DOI: 10.1161/CIRCULATIONAHA.108.191261.






What if radiologists and clinicians could have the enhanced image quality at a radiation dose never before thought possible? Introducing Veo\*—the breakthrough that's rewriting the rules of CT imaging.





The rules of CT Imaging  
have changed



“Veo may reduce dose but also increase image quality: In oncology studies, we can increase the conspicuity of the tumor for tissue characterization—In vascular studies, it is possible to differentiate stenosis from occlusion and reduce the blooming effect that result from the presence of a stent or calcified plaque. There are instances where a higher quality study is more important, and Veo enables us to increase spatial and contrast resolution to visualize very small lesions.”

*Dr. Jean Louis Sablayrolles  
Centre Cardiologique du Nord, Saint Denis, France*

## The latest advance in CT image reconstruction technology

Veo is the world’s first model-based iterative reconstruction product. This breakthrough is changing the way physicians use CT imaging. It may deliver a combination of high-quality images and low dose that was previously unthinkable.

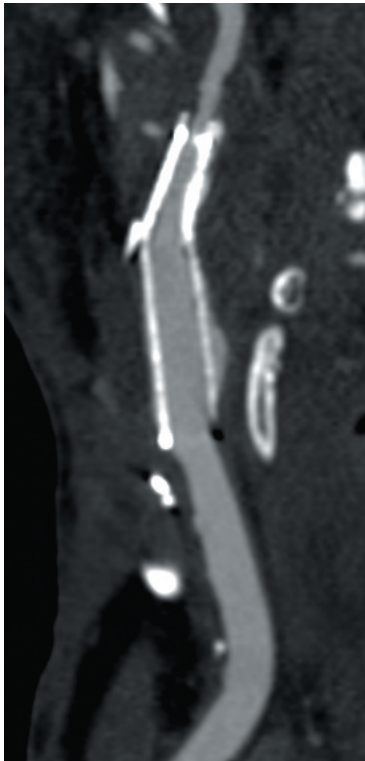
GE Healthcare has solved this challenge in partnership with leading healthcare partners and hardware manufacturers, combining sophisticated algorithms and advanced computing power. As a result, a CT reconstruction technique that was once only theoretical has now been put into practice.

So radiologists and clinicians can now operate under a new set of rules. Lower pixel noise standard deviation and higher resolution may be achieved within a single image. Veo may help clinicians achieve confident diagnosis with lower dose, opening up new possibilities for challenging cases and sensitive patients.<sup>1</sup>

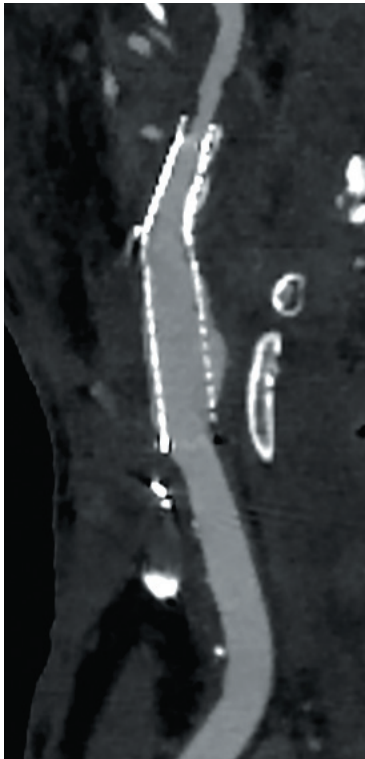
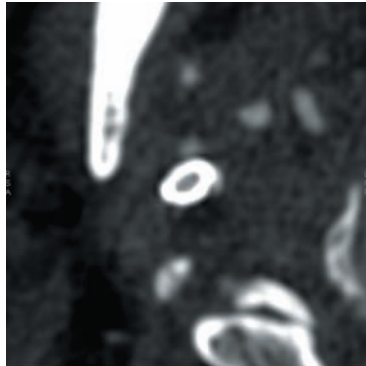
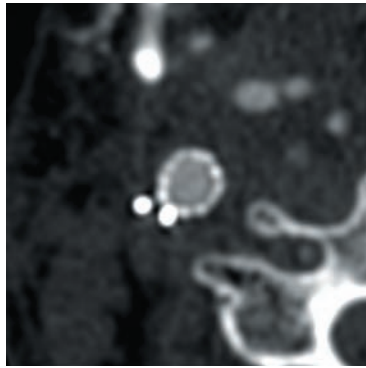
1. In clinical practice, the use of Veo may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.



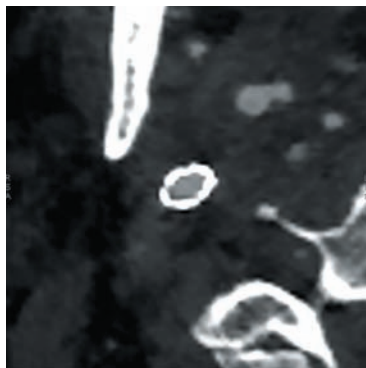
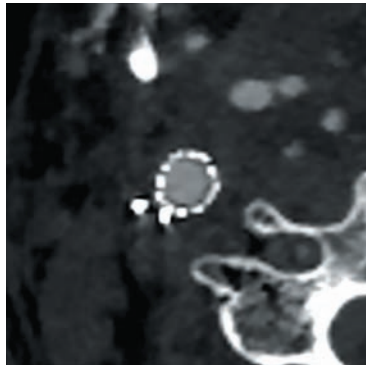




FBP



Veo




## New levels of image quality

Veo provides a new benchmark for CT image quality. Its powerful modeling techniques may result in better images, delivering previously unattainable levels of combined pixel noise standard deviation reduction, resolution gain, improved contrast, and artifact suppression!

In traditional approaches, higher spatial resolution is accompanied by higher image noise. But Veo challenges this common trade-off. Veo may improve resolution and may reduce pixel noise standard deviation!

Images courtesy of Dr. Sablayrolles, CCN, France

1. In clinical practice, the actual level of low signal artifact, LCD and resolution improvement may vary. Consult with a radiologist and a physicist.

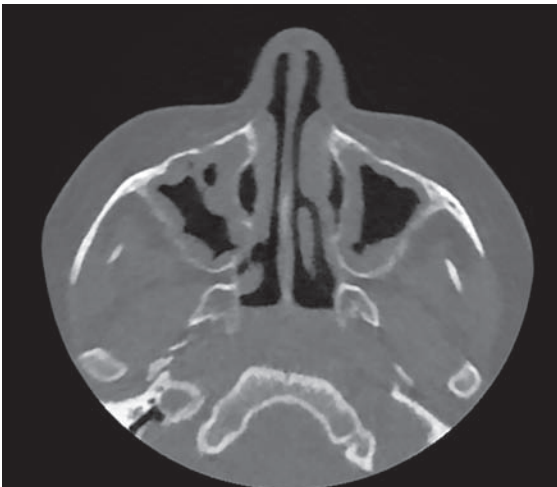


“Veo allowed us to scan a chest CT at 0.06 mSv with readable images where pathology could be analyzed. With Veo, we can conduct lower dose CT scans in children, and this is particularly important in groups that require continued follow-up, such as those with cystic fibrosis or lymphoma.”

**Professor Johan de Mey, M.D.**  
Chair of Radiology Department,  
University Hospital, Brussels

## Imaging under 1mSv

The benefits of dose reduction are significant, especially for the most radiosensitive patients—including pediatric cases and young women. Veo may also provide the opportunity to dramatically reduce cumulative dose in patients who require regular follow-up exams.<sup>1</sup>



DLP of 5.02 mGy.cm, 0.02 mSv, obtained by EUR-162662 EN, using a pediatric head factor of 0.004\*DLP

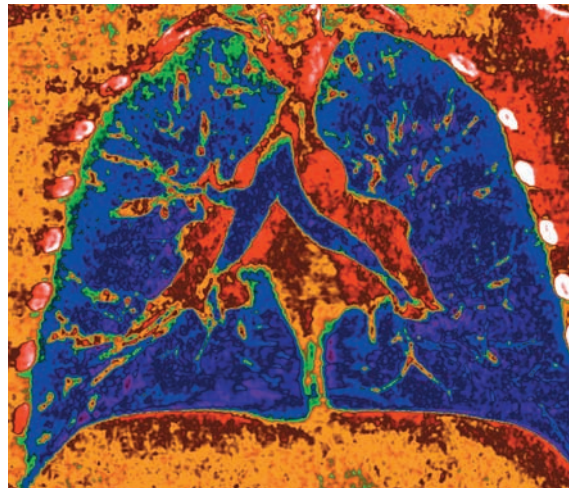
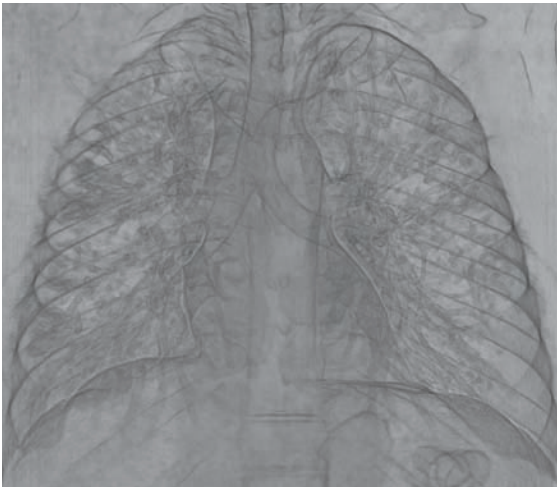
Veo is the next step in GE's commitment to lower-dose CT. Our ASiR technology, introduced with the launch of the Discovery CT750 HD, offers fast reconstructions and may allow for low-dose imaging without compromise—an ideal approach for routine, robust imaging. By pushing the possibilities even further, VEO represents added capability for the most sensitive cases. By changing the rules, these potential dose-reduction capabilities open up exciting new possibilities in CT.

VeO establishes new rules in the relationship between image quality and dose reduction. VeO can give the

clinicians the diagnostic information they need and may allow for it to be done at a previously unthinkable low dose! So at an equivalent dose, VeO may deliver dramatically better aspects of image quality.

**The rules have changed. But the goal hasn't.**

Radiologists and clinicians have another powerful new tool to deliver more informed, confident diagnoses. And above all else, VeO can help achieve what has always been the ultimate goal—the best patient care available.



DLP 3.16 mGy.cm, 0.05 mSv, obtained by EUR-16262 EN, using a chest factor of 0.017\*DLP

1. In clinical practice, the use of VeO may reduce CT patient dose depending on the clinical task, patient size, anatomical location and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.



# Invest in a Discovery CT750 HD and experience all of the benefits of being a Discovery customer, including field service paired with education and consulting.

## GE Healthcare Services

With GE CT you're backed by the largest, most experienced service team in the industry.

### Maximizing uptime

The ground-breaking Discovery CT750 HD incorporates fault tolerant design and InSite\* OnWatch proactive service to help eliminate surprises and keep your scanner performing so you can stay on schedule.

### Simplify your access to service

Have a question about performance or a Discovery CT750 HD process? Thanks to iLinq\* instant help, your staff can quickly connect to our service team. Rest assured, when you have questions about support or training, we'll help you get the answers—fast.

### Enabling better asset management

To help ensure maximum scanner efficiency and productivity, GE also provides iCenter\* asset management tools for accurate reporting and analysis.

### More from your network

A wide range of learning tools teaches your imaging professionals how to use the advanced imaging capabilities of the Discovery CT750 HD with skill and finesse.

## Physician and Technologist instructed CT Masters series

A comprehensive range of courses, in Advanced CT Applications, taught by experts in the latest technologies.

### GE Healthcare Institute

A hands-on institute with offerings that include: clinical, technical, service, patient, and leadership education.

### On-site training

Detailed on-site training and consulting to help you grow your clinical performance, referral power and your bottom line.

### TiP\* Virtual Assistant

For application support, the TiP Virtual Assistant provides your staff with interactive real-time training and support right on the console from a dedicated and experienced team of application specialists.

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#### About GE Healthcare

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our "healthymagination" vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at [www.gehealthcare.com](http://www.gehealthcare.com).

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GE Healthcare

Discovery\* CT750 HD

The leading edge of CT clarity



Discovery\* CT750 HD  
Great care by design



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