

PHILIPS

Computed
tomography

Certainty
lives in
layers

Philips IQon Spectral CT





A new landscape with new challenges

The world of healthcare is shifting to a patient-centric, payment-for-services model—driving leaders in our field to ask: **How can we provide better patient experiences* and improve clinical outcomes while achieving the economic objectives of our organization?**

Overcoming these challenges with imaging

Facilities are being driven by reimbursement streams to ask the following questions:

- *Can we increase diagnostic accuracy without increased dosage?*
- *How do we improve efficiency and reduce errors?*
- *What can we do to fully integrate evidence-based imaging practices?*
- *How can we better adhere to clinical pathway protocols?*
- *Can we improve upon our approach to patient-centric care and service excellence for the department and health system?*

As standardized quality measures place an increased importance on diagnostic certainty, the need for solutions that produce more definitive and accurate data than conventional CT technology has become apparent.

And that's where detector-based spectral technology comes in.

Certainty lives in layers

As the world's first spectral detector-based CT, the Philips IQon Spectral CT delivers multiple layers of retrospective data in a single, low-dose scan, empowering you to improve clinical confidence that may impact your quality outcomes.

With the IQon Spectral CT:

- 1 The first exam is the right exam.
- 2 You'll have answers for your most challenging cases.
- 3 The advances are powerful — the workflow stays the same.



The first exam is the right exam

Conventional CT scans often produce ambiguous or inaccurate data that can require additional testing. To provide better patient experiences* and empower you to improve clinical outcomes while achieving the economic objectives of your organization, there's a clear advantage to making the right diagnosis in the first scan.

By delivering spectral results 100% of the time in a single scan, the Philips IQon Spectral CT can:

- **Reduce time and costs** by decreasing the number of patient findings that are indeterminate, providing the opportunity to positively impact patient care
- **Reduce workflow complexity**
- **Reduce the need for additional tests** through the ability to create angiograms from routine or low injected contrast volume studies
- **Transform a sub-optimal CTA exam** into an optimal diagnostic CTA



Case study

This patient, who was previously diagnosed with hepatic cell carcinoma and liver cirrhosis, underwent ablation to treat the hepatic lesions. Ablation effectiveness following treatment was a concern. The following images were taken on the Philips IQon Spectral CT.

Scan Data:

CTDIvol: 15.2 mGy

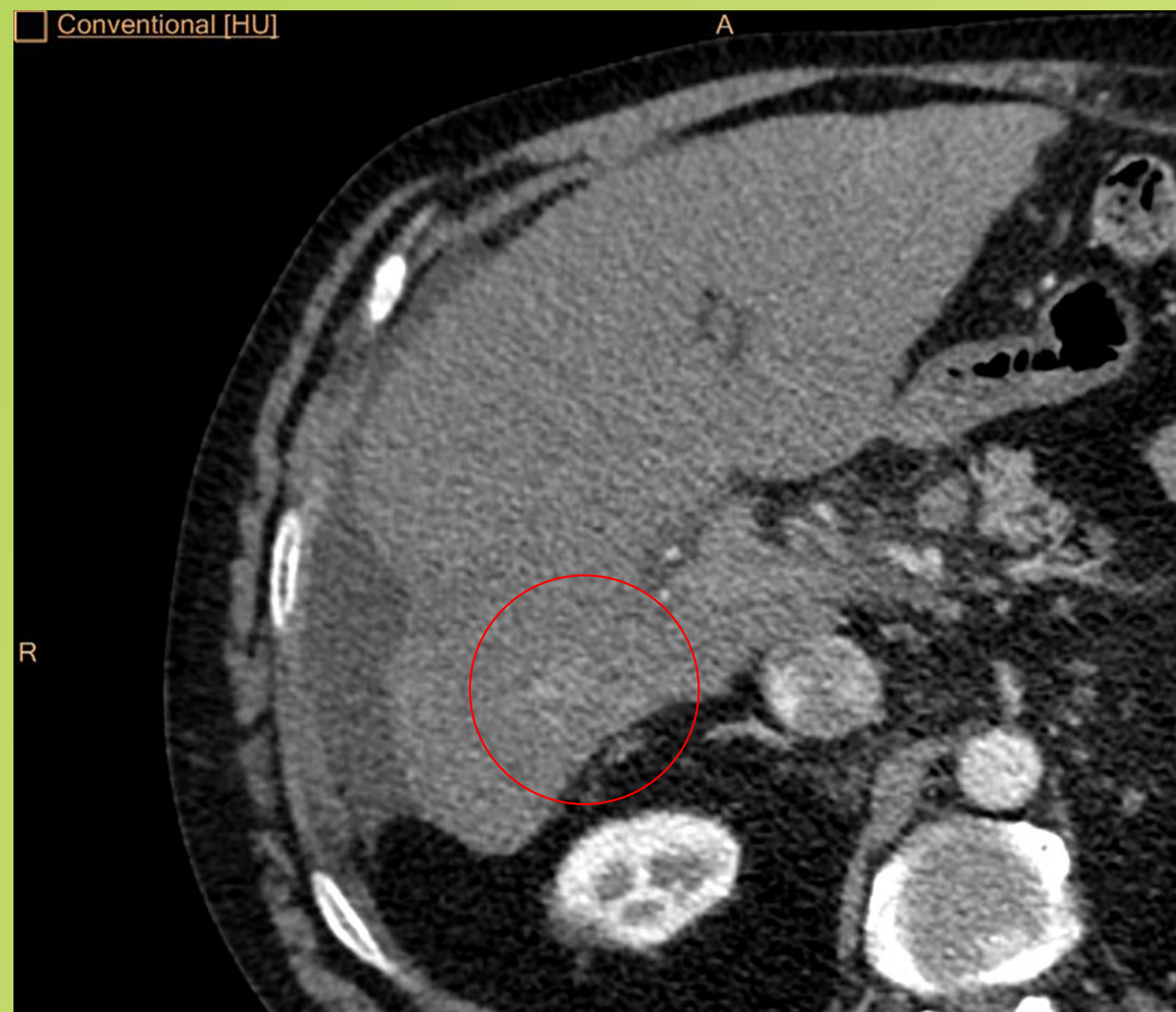
DLP: 550mGyxc

Effective Dose: 8.2mSv ($k=0.015$)*

Images courtesy of University of Texas Southwestern Medical Center

This conventional CT image shows what could be a suspicious area in the liver. However, further enhancement was needed to better visualize the possible lesion. Normally, this patient would require additional scanning, such as MR or ultrasound.

Is that a lesion?
Could be.
Could be nothing.
I can't solve what
I can't see.
I need to be certain.





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DLP: 550mGyxc

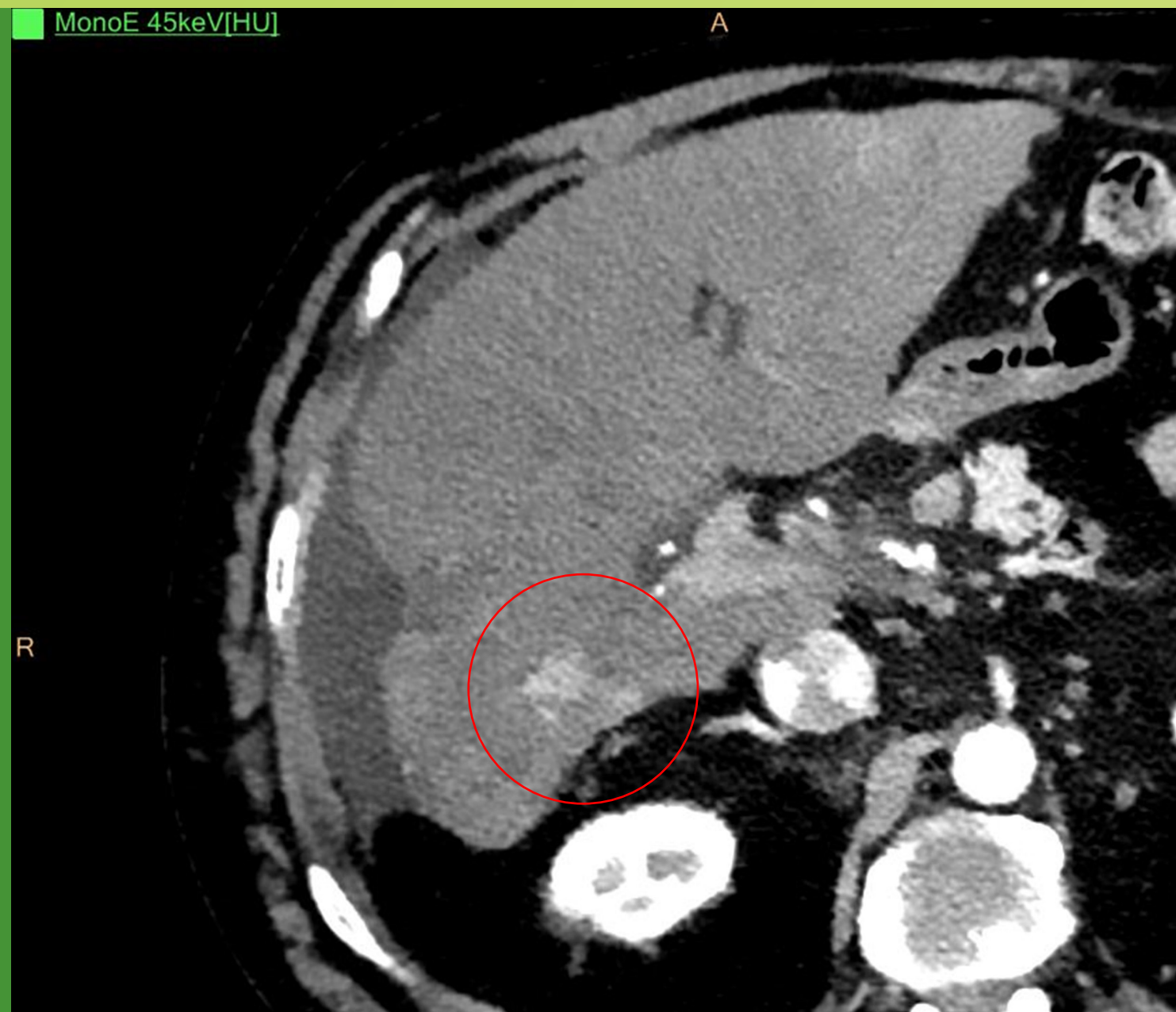
*Effective Dose: 8.2mSv ($k=0.015$)**

Images courtesy of University of Texas Southwestern Medical Center

Spectral Monoenergetic (MonoE) Image

This 45 keV MonoE image reveals visualization of a suspected lesion. An additional scan is not needed to confirm.

MonoE 45keV[HU]





Case Study

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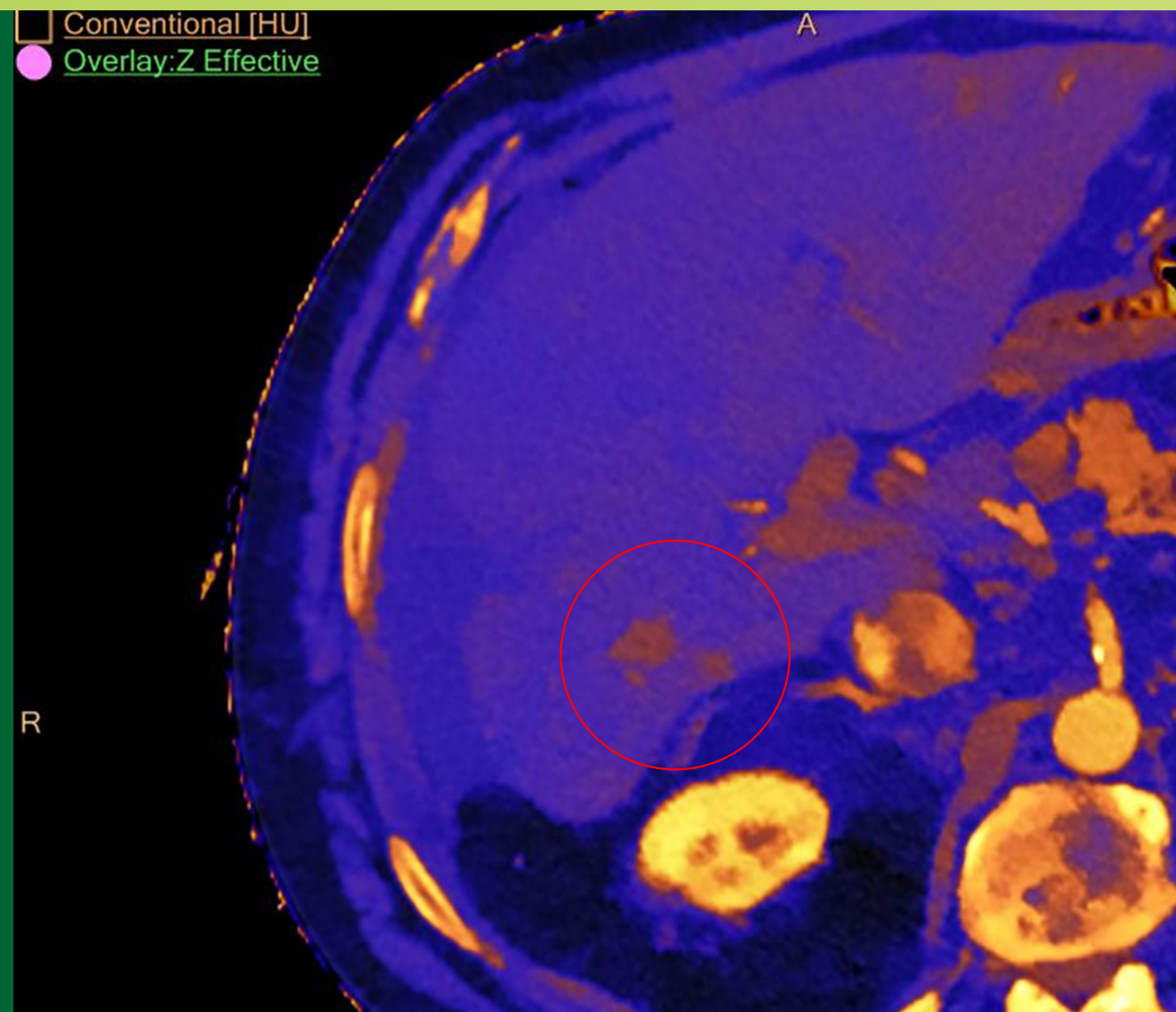
DLP: 550mGyxc

*Effective Dose: 8.2mSv ($k=0.015$)**

Images courtesy of University of Texas Southwestern Medical Center

Z Effective Spectral Results

Here, we can visualize iodine uptake, adding another layer of information. Because spectral information is always on with the IQon Spectral CT, this additional information is available whenever a deeper analysis is needed.





Case study

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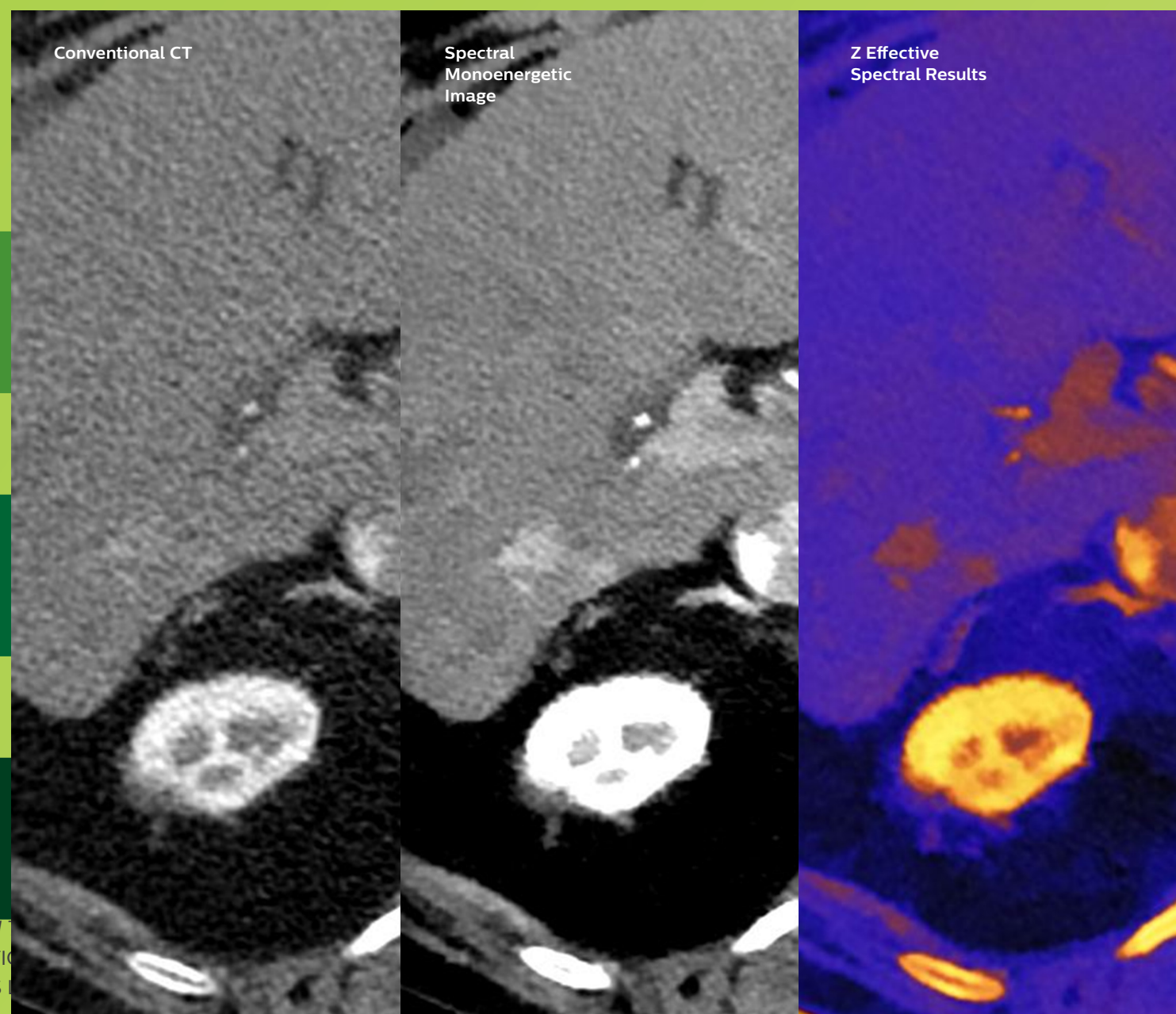
Scan Data:

CTDIvol: 15.2 mGy

DLP: 550mGyxc

*Effective Dose: 8.2mSv ($k=0.015$)**

Images courtesy of University of Texas Southwestern Medical Center



The Philips IQon Spectral CT was able to take a conventional CT and lower the MonoE to provide layers of spectral results in one scan.

With the IQon Spectral CT, certainty lives in layers.



Case study

A 53-year old patient was being evaluated for pulmonary venous anatomy prior to radiofrequency ablation for atrial fibrillation and was referred to CT following an abnormal Transesophageal Echocardiogram (TEE).

Scan Data:

CTDIvol: 12.1 mGy

kVp: 120

mAs: 87

Scan length: 23.2 cm

Images courtesy of University Hospitals Case Medical Center

This conventional CT image shows a left atrial hypoattenuating lesion; whether it's thrombus or slow flow cannot be determined. This would ordinarily require additional testing and delays.

*Is that normal
cardiac anatomy?*

Or lack of blood flow?

*There's no room
for guesswork
when it comes to AFib.*

How can I be sure?





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kVp: 120

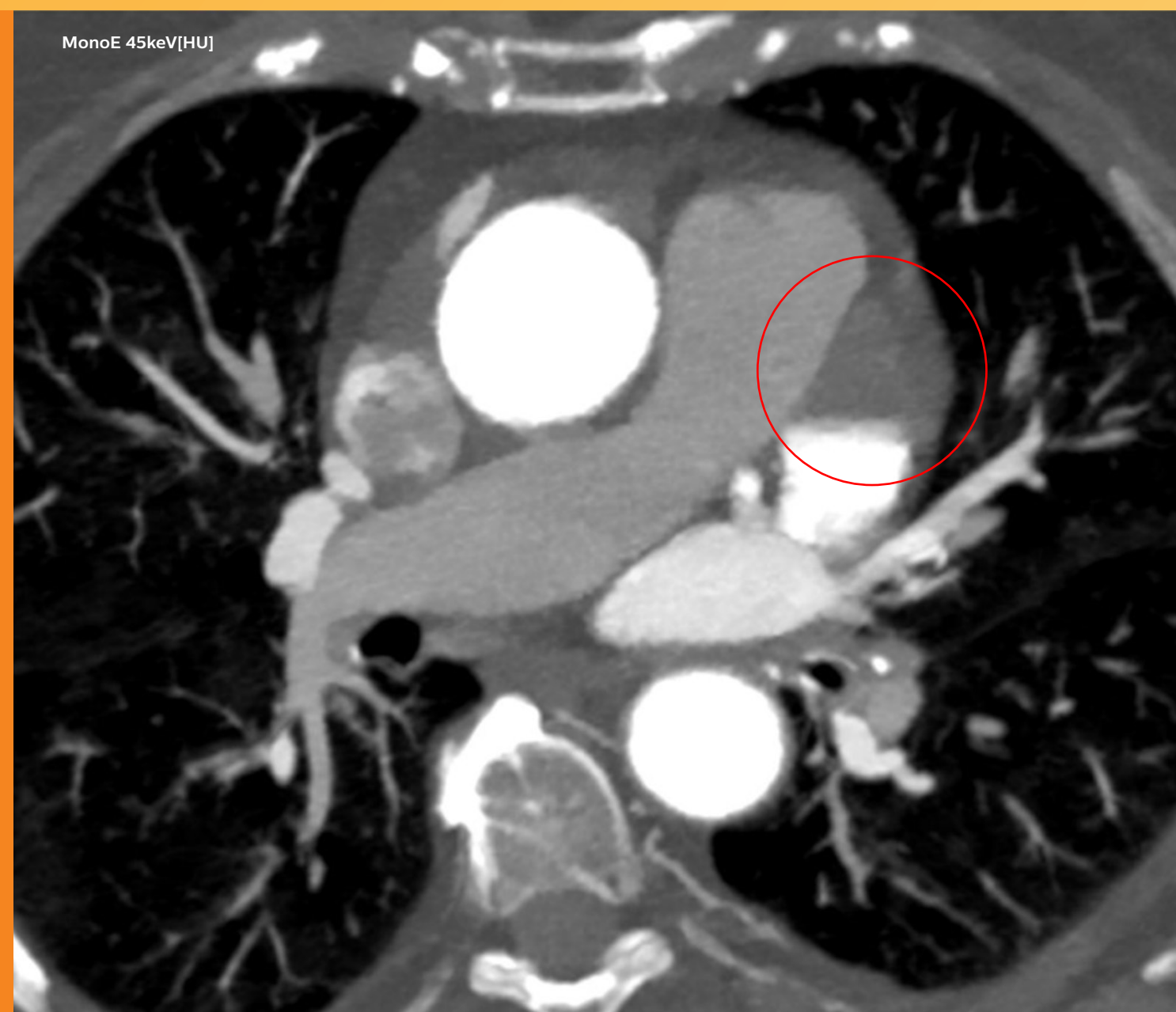
mAs: 87

Scan length: 23.2 cm

Images courtesy of University Hospitals Case Medical Center

Spectral Monoenergetic (MonoE) Image

The 45 keV MonoE image shows iodine enhancement in the coronary anatomy, but still leaves a questionable distinction between thrombus or slow flow. Additional spectral results are needed.





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CTDIvol: 12.1 mGy

kVp: 120

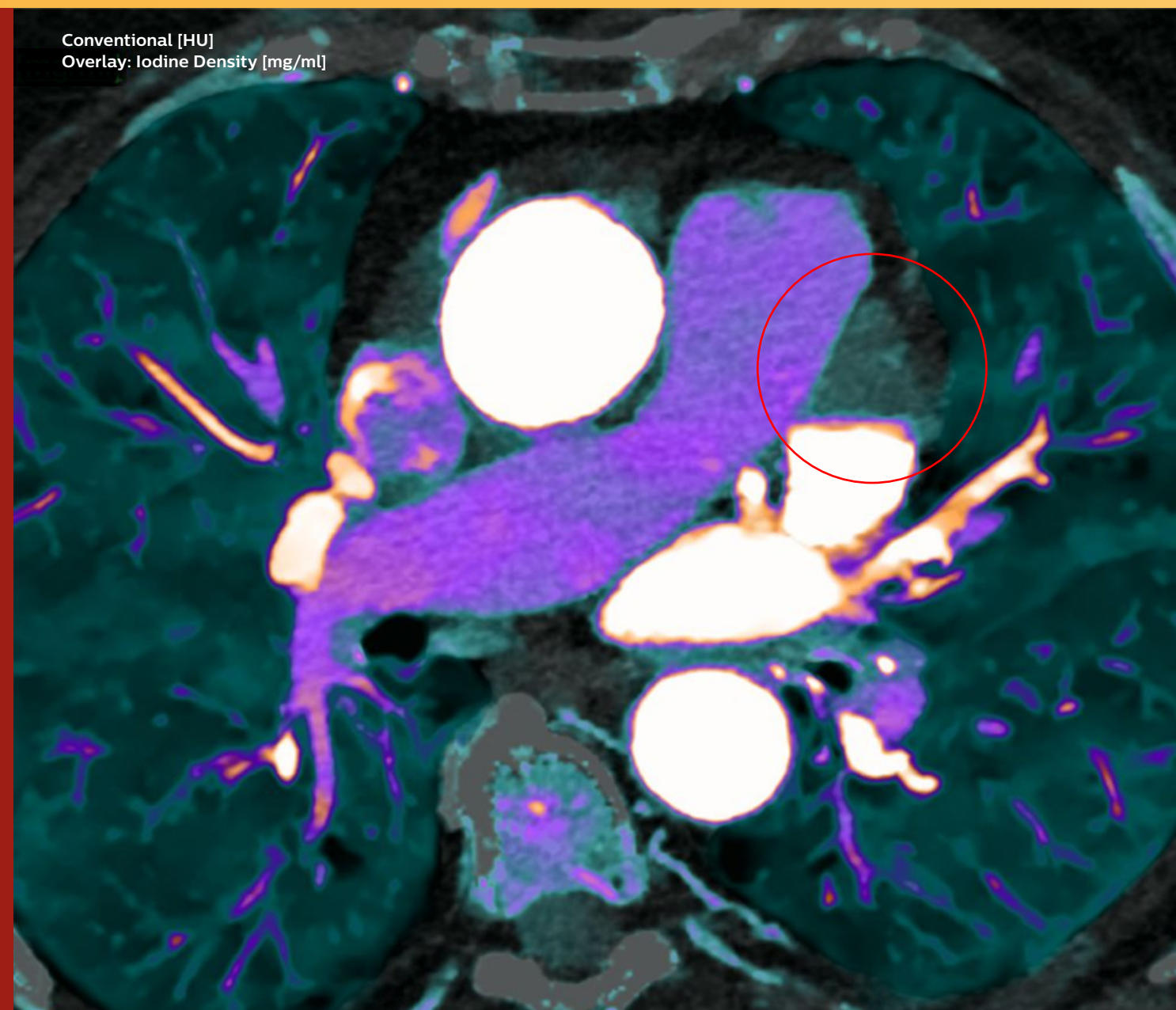
mAs: 87

Scan length: 23.2 cm

Images courtesy of University Hospitals Case Medical Center

Iodine Overlay

The Iodine Overlay image shows absence of iodine in the lesion. Absence of iodine typically indicates a thrombus rather than slow flow.





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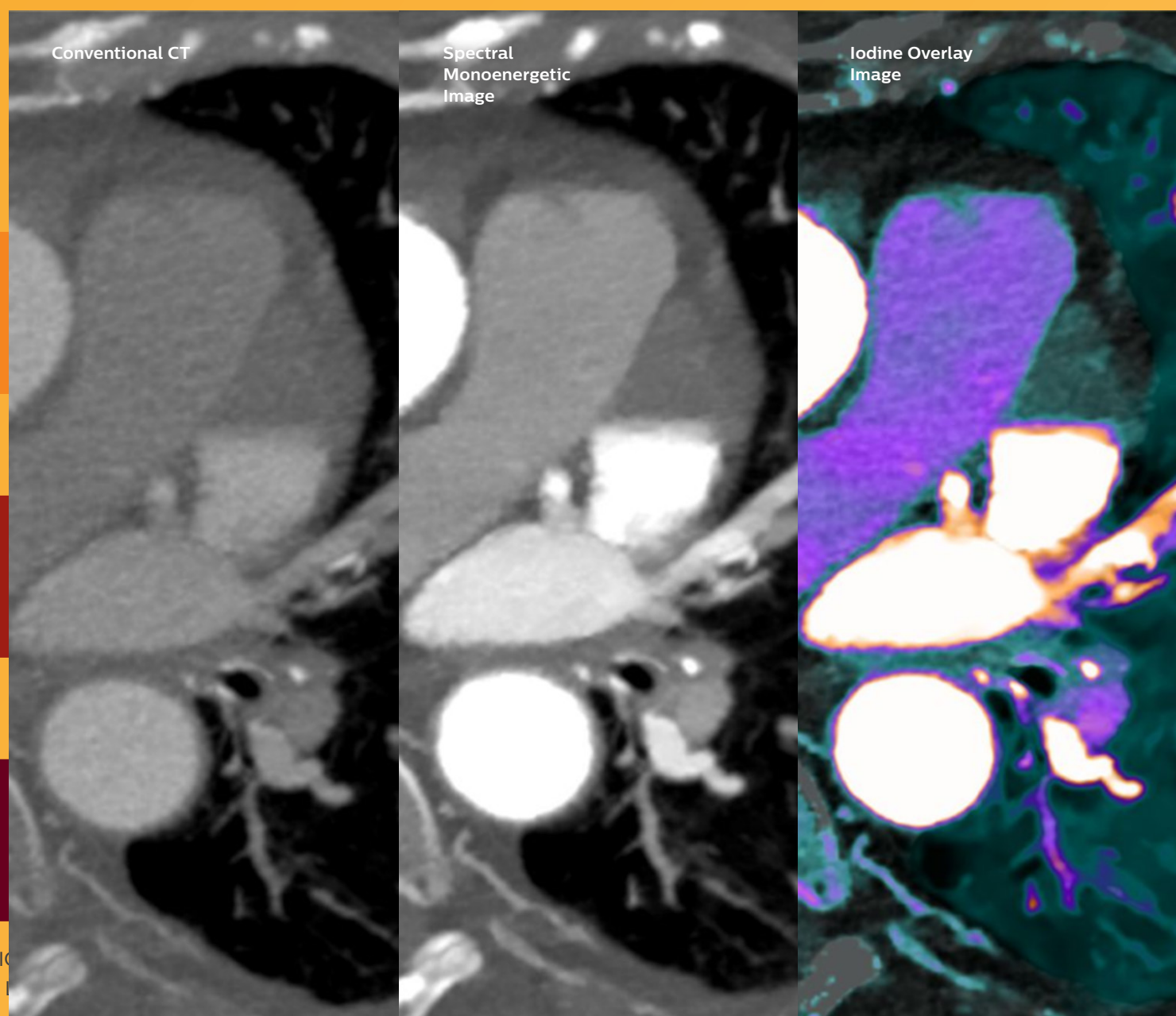
CTDIvol: 12.1 mGy

kVp: 120

mAs: 87

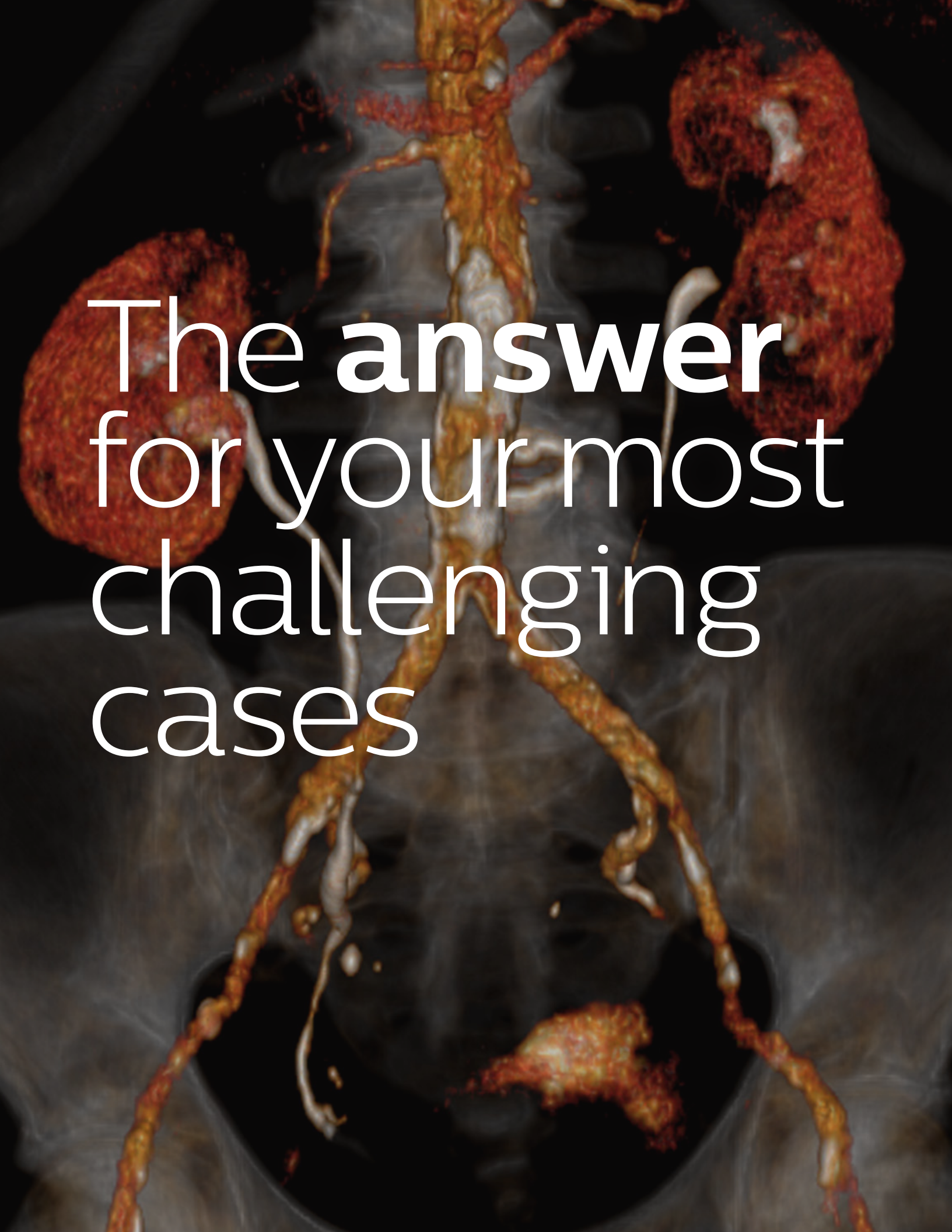
Scan length: 23.2 cm

Images courtesy of University Hospitals Case Medical Center



Characterizing the presence of a left atrial lesion and confirming the presence of a thrombus rather than slow flow allowed the medical team to more confidently formulate a treatment plan.

With the IQon Spectral CT, certainty lives in layers.



The answer for your most challenging cases

A challenging case can cause a great deal of uncertainty for the physician searching for the correct diagnosis and treatment plan.

With improved tissue characterization and visualization, and full use of dose management tools, the Philips IQon Spectral CT allows you to:

- **Uncover obscured pathology** through improved visualization and assessment of tissue in proximity to metal implants
- **Determine therapy response** through contrast enhancement in lesions
- **Reduce radiation dose** through the full use of iterative reconstruction techniques (IMR) and dose management tools including 3D dose modulation
- **Experience enhanced diagnostic capabilities**, even in patients who would not have been preselected for dual-energy techniques

The Philips IQon Spectral CT helps you extend the benefits of spectral data to all patients, providing answers for even the most challenging scenarios. Being able to achieve diagnostic confidence, in even the most problematic situation, can help you provide better patient experiences* and improve clinical care.



Case study

An 85-year-old patient with aortic valve stenosis and dyspnea needed scans for a pre-procedural evaluation. Because of his challenging condition, he could only tolerate 20 cc of injected contrast which, in a conventional CT, yields poor visualization of the vasculature.

Scan Data:

CTDIvol: 14.6 mGy

kVp: 120

mAs: 154

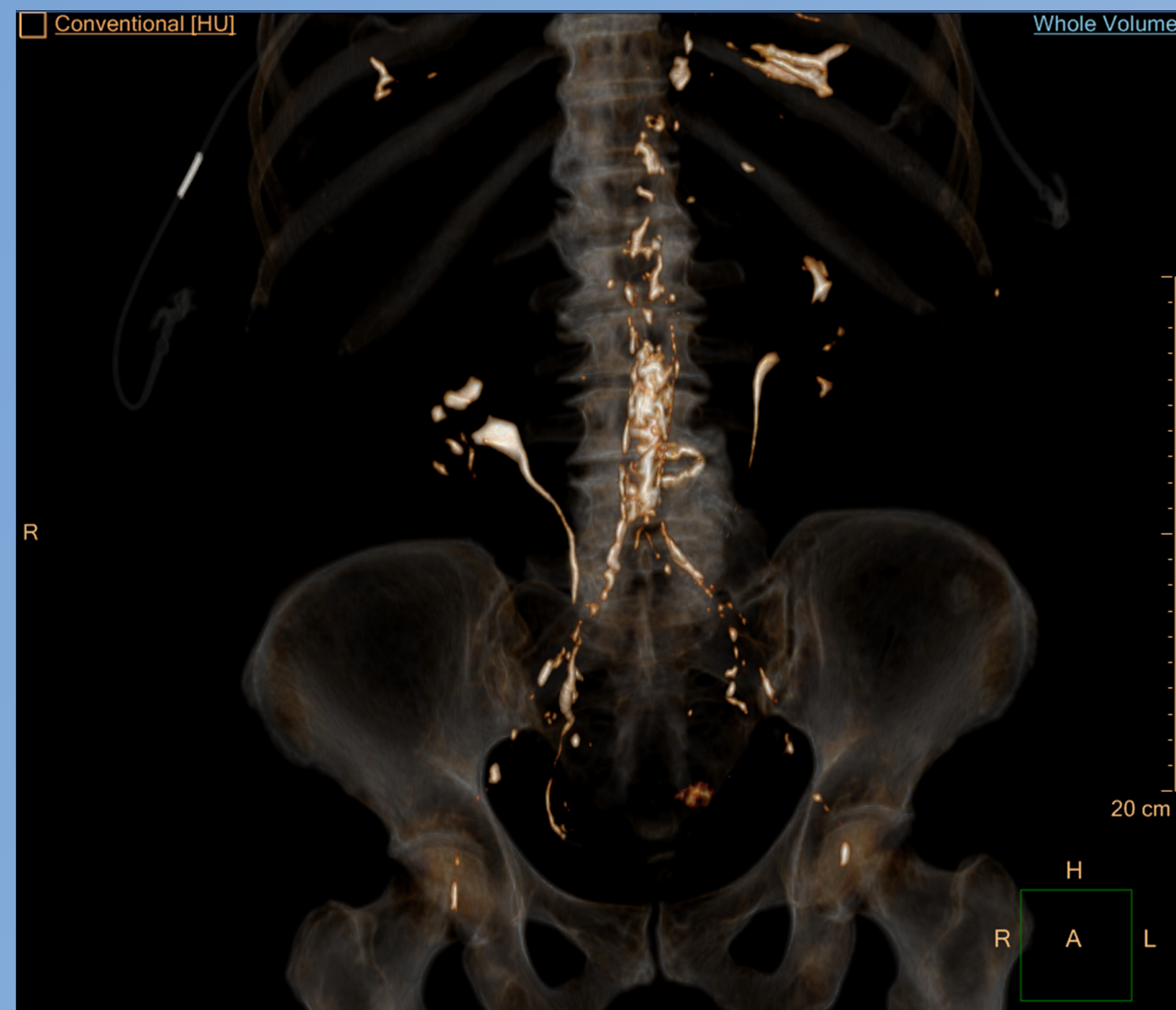
Scan length: 40.0 cm

Images courtesy of University Hospitals Case Medical Center.

We need to do a pre-surgical plan for aortic valve replacement (TAVR).

But the patient can't tolerate the routine volume of IV contrast.

How do I visualize vascular access?





Case study

An 85-year-old patient with aortic valve stenosis and dyspnea needed scans for a pre-procedural evaluation. Because of his challenging condition, he could only tolerate 20 cc of injected contrast which, in a conventional CT, yields poor visualization of the vasculature.

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CTDIvol: 14.6 mGy

kVp: 120

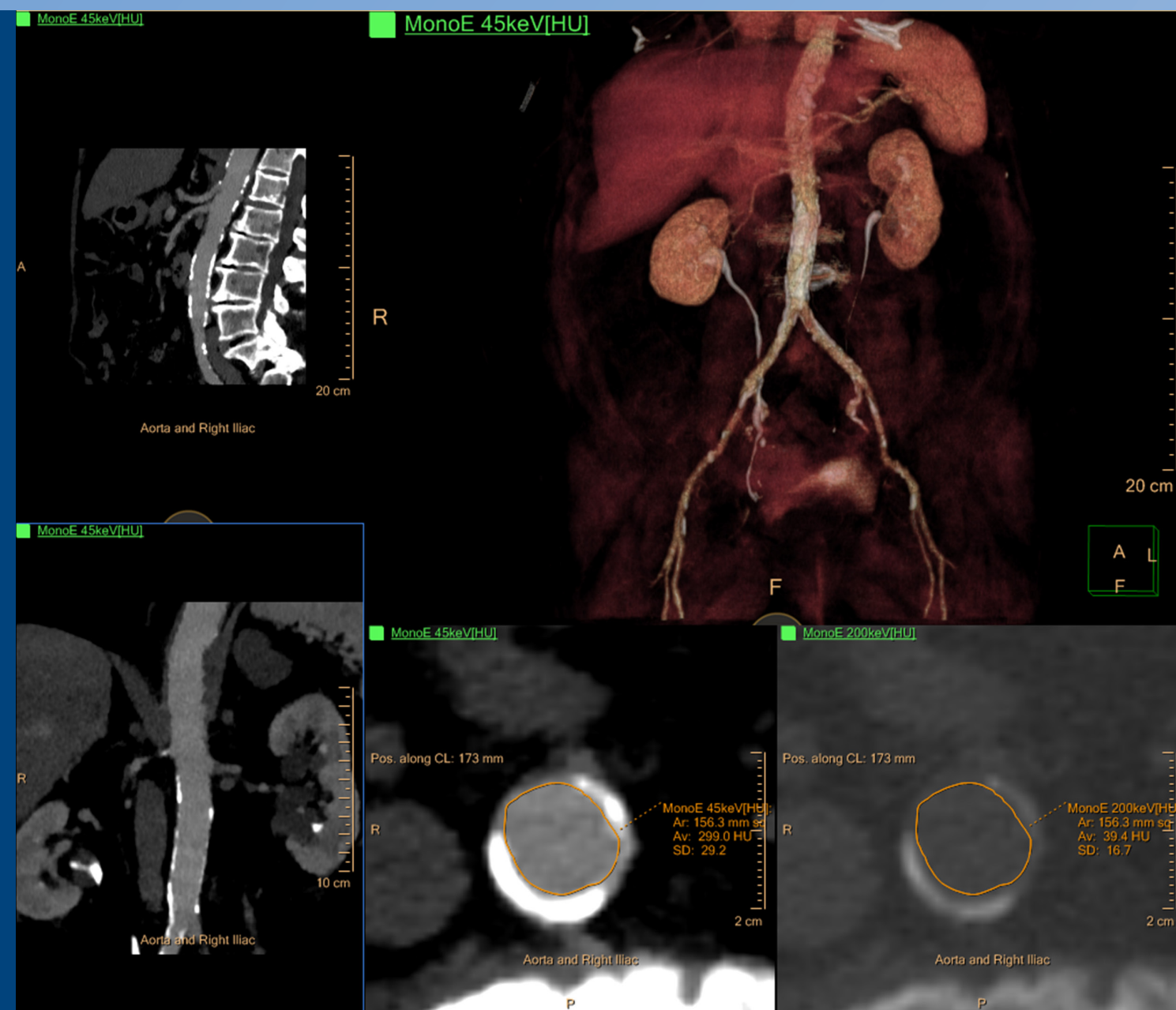
mAs: 154

Scan length: 40.0 cm

Images courtesy of University Hospitals Case Medical Center.

Spectral Monoenergetic (MonoE) Image

Even with 20 cc of injected contrast, lowering the MonoE to 45 keV enhanced iodine visualization in the aorta.





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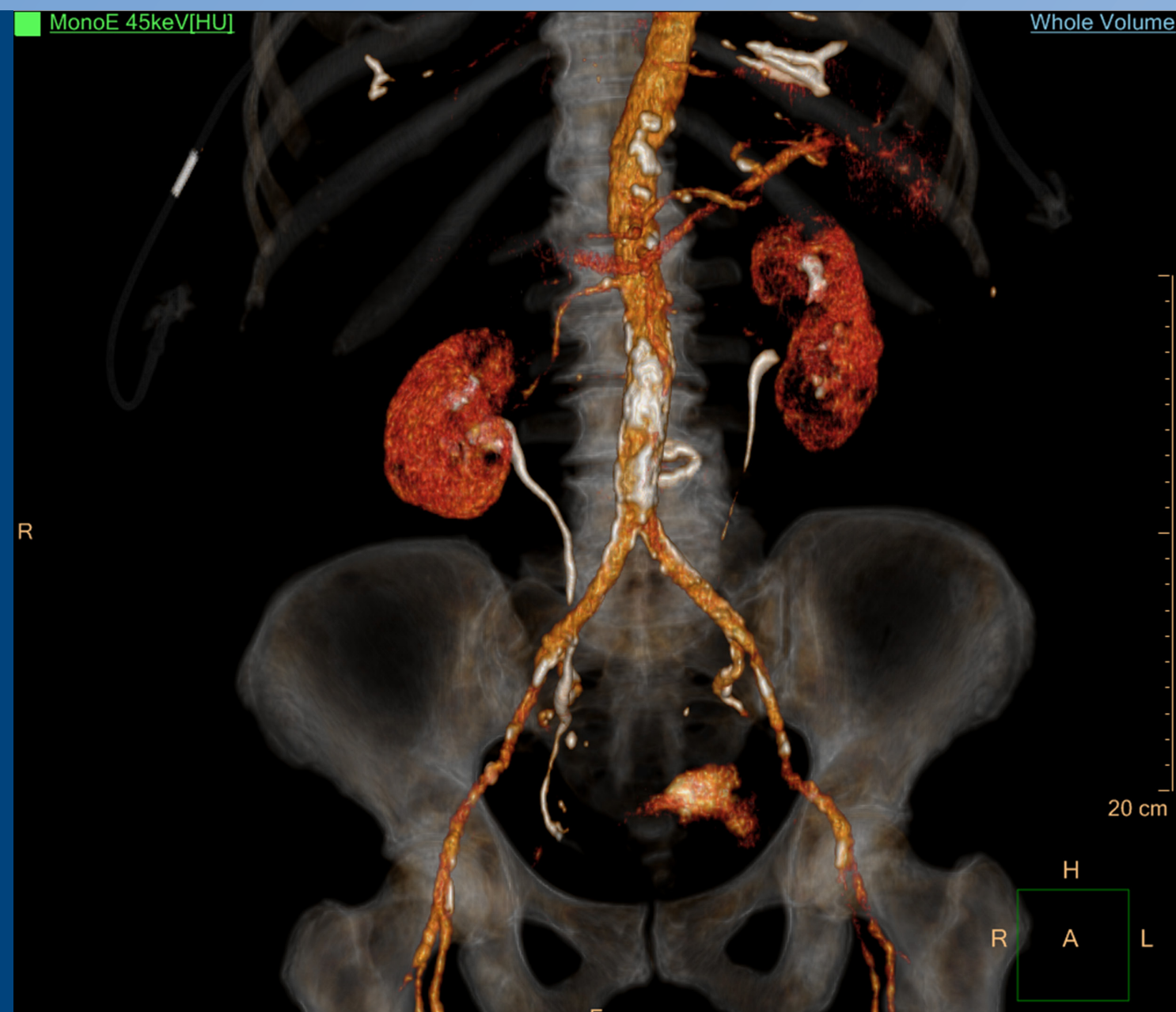
mAs: 154

Scan length: 40.0 cm

Images courtesy of University Hospitals Case Medical Center.

Spectral Advanced Vessel Analysis

Using Spectral Advanced Vessel Analysis enabled measurement of the vessel diameter for catheter placement. This allowed for visualization of the iliac artery for planning and access to the aortic valve.





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Scan length: 40.0 cm

Images courtesy of University Hospitals Case Medical Center.



Vascular procedures on certain patient populations can be very challenging. The medical team was able to plan a vascular procedure on this challenging patient.

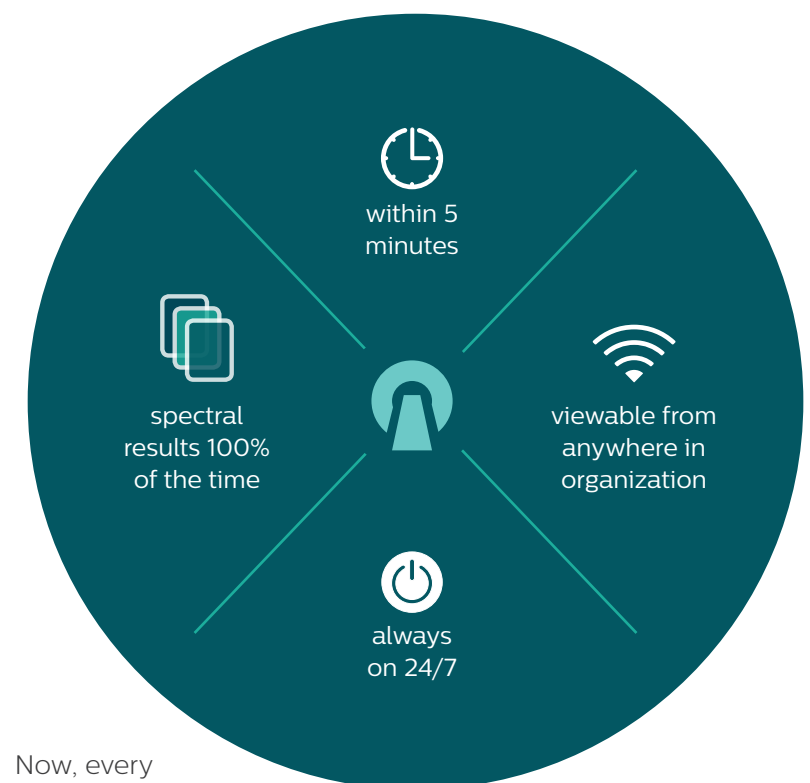
With the IQon Spectral CT, certainty lives in layers.

The
advancements
are powerful—
the workflow
is the same

Training multiple professionals on a new system all at once can be a challenge. There's a large variability in speed and skill level in learning and adjusting to new technologies.

The Philips IQon Spectral CT and the Spectral Diagnostic Suite easily and fully integrates into your current workflow, allowing you to:

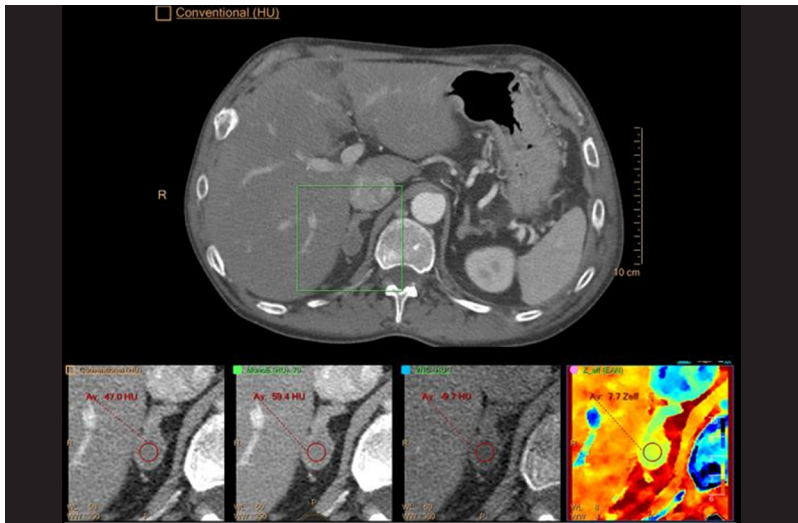
- **Acquire spectral results** as part of a routine CT scan
- **Review and analyze spectral data** on PACS, with results ready in five minutes
- **Integrate spectral solutions easily**, because spectral is always on, 24/7
- **Use spectral data** to address a wide variety of complex clinical questions
- **Analyze spectral results** retrospectively from anywhere within your enterprise



Now, every technician can acquire spectral data with every scan—data that can be viewed by physicians and care teams across your organization to help determine the best path for patient care.

Spectral Diagnostic Suite

A suite of advanced visualization applications for the Philips IQon Spectral CT, the Spectral Diagnostic Suite delivers advanced spectral and clinical application tools, including Spectral Magic Glass and the Spectral Magic Glass on PACS app.



Spectral Magic Glass

In addition to conventional CT images, Philips Spectral Magic Glass enables on-demand simultaneous viewing and quick comparison of up to five different spectral results for a region of interest, including Monoenergetic, Iodine Density, Virtual Non-contrast, Iodine no Water, and Z Effective maps.



Spectral Magic Glass on PACS app

The Spectral Magic Glass on PACS app conveniently launches directly in the user's PACS viewing setup. Spectral Magic Glass on PACS is only available with the IQon Spectral CT and offers a simple interface that integrates into your organization's current workflow with little or no training.

Spectral Magic Glass on PACS app is integrated with IntelliSpace PACS (iSite) and Sectra. In addition, we have completed ISP (SpDS) integration on several PACS and can make available upon request our open interface document to local hospital or PACS vendor IT in order to complete the Standard Integration.

Low-dose solutions delivering on quality measures

With the Philips IQon Spectral CT, you'll have the full use of dose management tools—like iterative model reconstruction (IMR) and 3D dose modulation—allowing you to experience all the benefits of spectral data at the same dose levels as a conventional CT scan.

Philips helps you get the most out of your customer service

Philips has developed service innovations designed to reduce time of repair and support an evolution towards fully predictive maintenance.



Integrated Health System monitoring
Predictive maintenance that leverages information from more than 400 health properties and over 3,000 data points



Onboard visual diagnostics
Advanced auto-diagnostic routines that offer faster failure identification and resolution



Expanded remote capabilities
Automated data collection and expanded diagnostic routines that can be executed remotely for real-time clinical support



Proactive remote monitoring
Remote teams of global experts who collaborate with local service and your staff to monitor performance, detect anomalies, and immediately repair or maintain your system without interrupting patient care



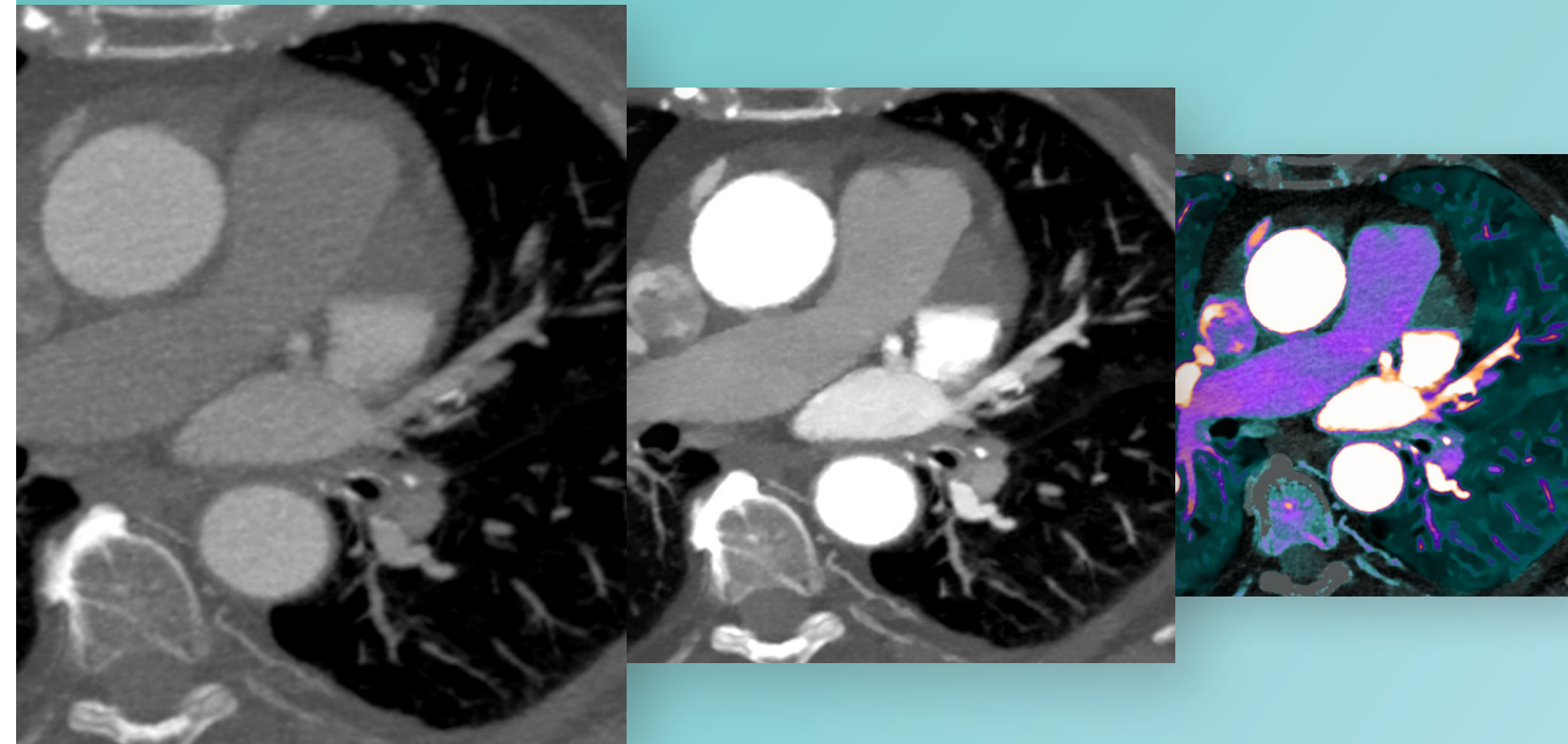


With the Philips IQon Spectral CT:

- The first exam is the right exam.
- You'll have the answer for your most challenging cases.
- Though the advancements are powerful—the workflow is the same.

When it comes to the positive effects it can have on your organization, that's only the beginning.

Because what the IQon Spectral CT really delivers is certainty. With certainty come solutions. And as the world of healthcare advances towards a patient-centric model, those solutions can allow your organization to provide better patient experiences,* enhance clinical care, and achieve your economic objectives.



Images courtesy of University Hospitals Case Medical Center.

To learn more, please visit www.Philips.com/IQon

Sources:

Evaluating Optimal Monochromatic Energy Reconstruction on Aortic Angiography Obtained from Spectral Detector CT

Prabhakar Rajiah MD, FRCR (Presenter): Institutional Research Grant, Koninklijke Philips NV, Andrew Sher MD: Research Grant, Koninklijke Philips NV, Abed Ghandour MD : Nothing to Disclose, Rong Rong MD: Institutional Grant support, Koninklijke Philips NV, Amar Dhanantwari: Employee, Koninklijke Philips NV

Fleischmann,D, Vascular Imaging Series: CT Angiography-New Techniques and Their Application. Radiological Society of North America 2014 Scientific Assembly and Annual Meeting, November 30 - December 5, 2014, Chicago IL

Incremental Benefit and Clinical Significance of Retrospectively Obtained Spectral Data in a Novel Spectral Detector CT Technology- Initial Experiences and Results
Claudia M. Martinez Rios Arellano MD: Research Grant, Koninklijke Philips NV, Rong Rong MD: Institutional Grant support, Koninklijke Philips NV, Robert C. Gilkeson MD: Research Consultant, Riverain



**The Centers for Medicare & Medicaid Services requires United States hospitals that treat Medicare patients to participate in the national Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey, a standardized tool that measures patients' experience of hospital care. Results collected for public reporting are available at medicare.gov/hospitalcompare.*

The images and descriptions contained herein provide technical specifications and optional features which may not be included with the standard system configuration. Contact your local Philips Representative for complete specific system details.

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