

# Think “DSCT STAT”!

For general cardio-thoracic imaging

Answers for life.

**SIEMENS**



## Thinking “CT STAT” for cardio-thoracic emergencies?

# Think “DSCT STAT”!

Today, CT scans have become a rapid, accurate, and common clinical diagnostic tool for emergency situations. “CT STAT” is a first-line diagnostic order in many cases of cardio-thoracic emergencies where time to diagnosis and treatment is critical. Dual Source CT (DSCT) offers a paradigm shift in imaging diagnostics, from simply making cardio-thoracic emergency CT scans “faster” to offering improved image quality and clinical capabilities – **easier, faster, and better** diagnoses. From emergency to non-emergency cases and from bariatric to pediatric patients, the Dual Source CT scanner can handle them with as low as reasonably achievable X-ray and contrast dose.

With a single scanning procedure that takes merely seconds, physicians can accurately assess simple and complex cases. Freeze-frame capture of the beating heart without any heart rate reduction reduces monitoring requirement, frees up resources, and brings about operational improvements. With Dual Energy there is now the ability to view functional data as well as the ability to move beyond function to physiologic data for ischemic changes – a first for diagnostic CT. It even enables both reading and referring physicians to review results before the patient has left the table, so they can provide immediate feedback to the patient and quickly determine their next steps.

Common indicators	CT STAT	“DSCT STAT”
Heart imaging	Stable low heart rates, longer breath-hold/scan duration, more radiation dose	No heart rate limitations, no beta blockers, shorter breath-hold/scan duration, lower radiation dose, specialized protocols for high heart rates and obese patients, minimized motion artifacts providing a higher diagnostic confidence
Chest pain	Standard protocols for cardiac and chest exams, more scan time, more radiation exposure, patient exclusions based on heart rate, operational impact from patient preparation for heart rate reduction	Specialized protocols for chest pain triple rule-outs that provide fast scan time and minimize the radiation exposure, no patient exclusions, minimized operational impact
Cardiac/coronary anatomy evaluation	Larger vessels and large anatomy can be evaluated	Small vessels and smaller anatomy, fast moving objects like valves and atria
Coronary artery disease evaluation	Basic coronary artery disease and plaque morphology evaluation especially in the larger proximal vessels	Advanced coronary artery disease and plaque morphology evaluation in proximal and distal vessels
Aortic disease	Identification of aortic aneurysms	Highly accurate separation of true and false lumina in dissected vessels; provides blood flow dynamics
Bypass graft/stent evaluation	Basic graft/stent morphology evaluation especially in the larger proximal vessels	Advanced graft/stent morphology evaluation difficult to evaluate grafts with overlying clips or tight mesh stents
Electrophysiology – arial and pulmonary venous anatomy	Slower arrhythmias, especially if amiable to beta blockers, can be imaged/evaluated	Fast heart rates, even those resistant to beta blockers, can be evaluated, minimizing patient exclusions and operational impact
Cardiac masses	Slow-moving masses can be evaluated/ imaged	Fast moving masses can be evaluated/imaged with high diagnostic accuracy
Post-heart transplant	No access to post-transplant patients because of insufficient response to beta blockers	Large and medium damage with perfused blood volume can be displayed
Myocardial damage	Large area of muscle damage with CT perfusion can be seen	Small areas of muscle damage can be seen, enabled by Dual Energy protocol
Heart wall motion	Functional evaluation possible for low heart rates	Evaluation of global and regular wall motion defects independent of heart rate

## Cardiac

- Chest pain
- Cardiac/coronary anatomy evaluation
- Coronary artery disease evaluation
- Bypass graft/stent evaluation
- Cardiac masses



## Chest

- Aortic disease
- Pulmonary emboli
- Bronchiectasis
- Diffuse interstitial lung disease
- Pre- or post-cardio-thoracic surgery

## Benefits from the unmatched performance of the SOMATOM Definition to overcome the most common clinical challenges

Differentiators	Your advantage
<b>Twice the resolution</b> – 0.33 mm resolution (equal to 1080 Ip HD resolution) with z-Sharp and 0.24 mm z-UHR resolution	▶ Visualize and better differentiate very small anatomy like tiny blood vessels and clear delineation of bone from soft tissue; Elimination of windmill artifacts and reduction of metal artifacts
<b>Twice the speed</b> – 83 ms temporal resolution (shutter speed) @ 180 rpm	▶ Freeze-frame capture of the beating heart without any heart rate limitations, without beta blockers, and at lowest possible radiation dose
<b>Twice the power</b> – 2 generators @ 80 kW delivering 160 kW total power	▶ Scan obese and morbidly obese patients with high diagnostic quality with the same scan speed as normal patients while maintaining radiation dose as low as reasonably possible
<b>Twice the capabilities</b> – Dual Energy	▶ Cardio-thoracic evaluation and Vascular Evaluation Dual Energy Heart Performed Blood Volume (PBV) provides the ability to visualize perfused blood volume deficits, provides comprehensive information about extent and cause of ischemic changes in the myocardium

Free yourself from financial burdens faced by the healthcare industry today.

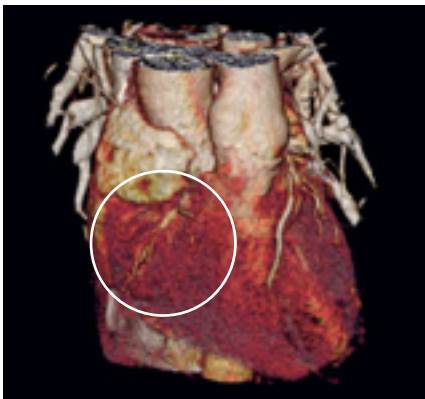
Differentiators	Your advantage
Faster time to diagnosis reduces length of stay (LOS) and cost of care	▶ Improve ED workflow – reduce costs
200-bed hospital can open up 4 ‘effective’ beds per 8 hrs.* LOS reduction	▶ Free up capacity – improve resource utilization
Reduce adverse events & repeat visits within 30-day guideline	▶ Improve clinical and operational outcomes and quality metrics
Less than 1 % missed diagnosis of cardiac and non-cardiac disease*	▶ Reduce clinical and financial risk
Cutting-edge competitive advantage solution that provides easier, faster, and better diagnoses	▶ Differentiate your healthcare services and improve care satisfaction, helping build patient/referring physician affinity

\* Results may vary. Data on file.

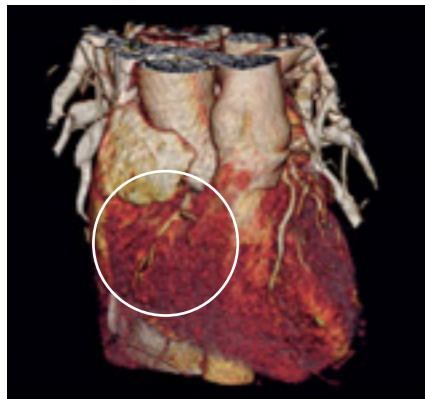
“The new Chest Pain Imaging Protocol can enhance care and drive operational efficiencies by improving clinical outcomes, reduce length of stay by 50–70 % and cost of care by 40–60 %\*”

Judd Hollander, MD, Professor and Clinical Research Director, Emergency Medicine, Hospital of University of Pennsylvania

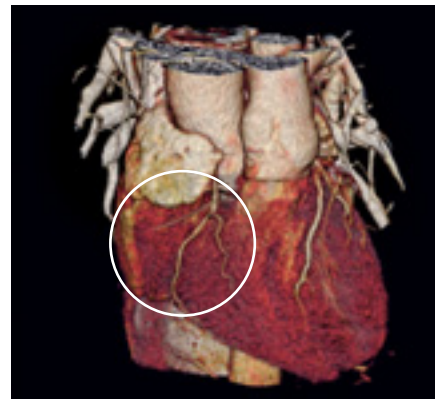
### Cardiac CT image quality comparison



Limited temporal resolution of single source CT results in poor image quality. At a higher and varying heart rate, the insufficient image quality does not permit a diagnosis of the right coronary artery.

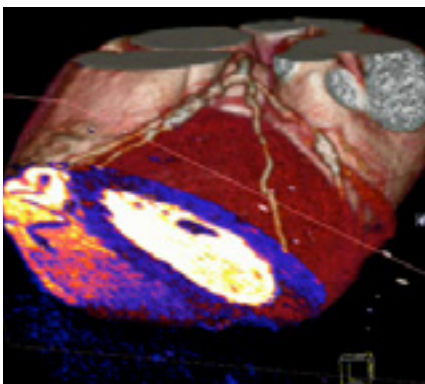


Multisegment reconstruction cannot improve the image quality adequately. The visualization of the right coronary artery is limited because the acquired data is collected from subsegment heartbeats.

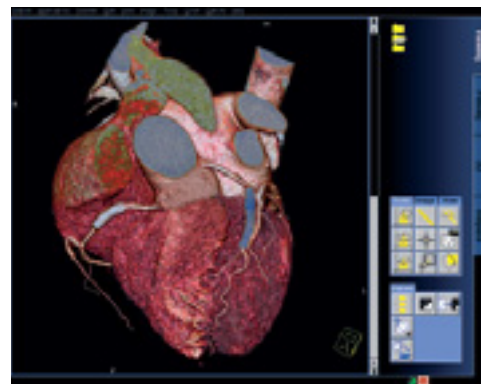
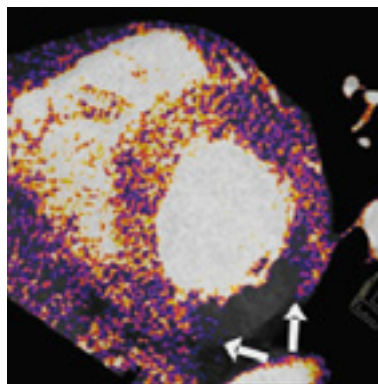


Dual Source CT's heart rate independent temporal resolution of 83 ms delivers sharp and motion free images even at high and unstable heart rates. Even the right coronary artery can be displayed with excellent image quality.

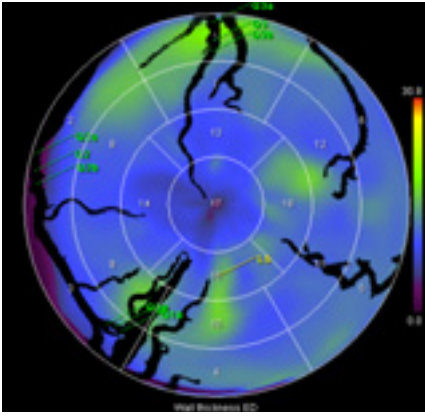
### Visualization of stents



Dual Energy Heart PBV provides the ability to visualize perfused blood volume deficits. Provides comprehensive information about extent and cause of ischemic changes in the myocardium.



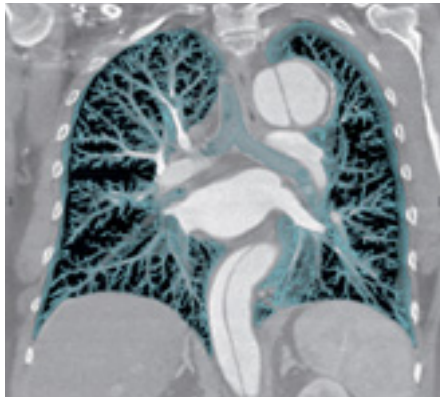
Clear and crisp visualization of stents without metal artifacts, providing confident diagnosis.



## Chest pain evaluation



Motion free visualization of coronary arteries, rule out myocardial infarction.



Accurate display of pulmonary arteries, rule out pulmonary embolism.



Excellent imaging of patient's aorta, Stanford type B aortic dissection can be precisely shown.

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#### **Global Business Unit**

Siemens AG  
Medical Solutions  
Computed Tomography  
Siemensstr. 1  
DE-91301 Forchheim  
Germany  
Phone: +49 9191 18 0  
Fax: +49 9191 18 9998

#### **Global Siemens Headquarters**

Siemens AG  
Wittelsbacherplatz 2  
80333 Muenchen  
Germany

#### **Global Siemens Healthcare Headquarters**

Siemens AG  
Healthcare Sector  
Henkestr. 127  
91052 Erlangen  
Germany  
Phone: +49 9131 84-0  
[www.siemens.com/healthcare](http://www.siemens.com/healthcare)

#### **Legal Manufacturer**

Siemens AG  
Wittelsbacherplatz 2  
DE-80333 Muenchen  
Germany

[www.siemens.com/healthcare](http://www.siemens.com/healthcare)