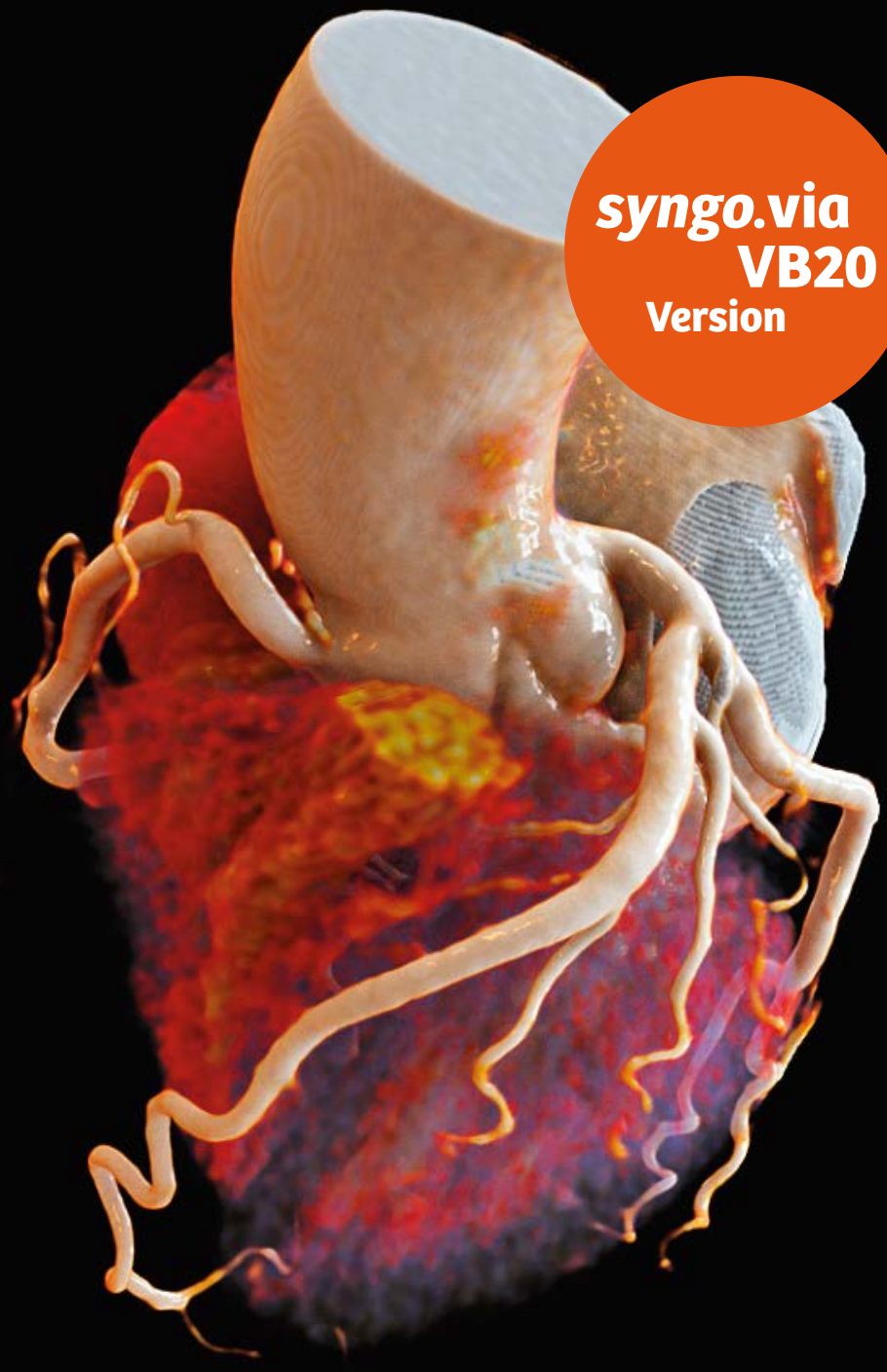


syngo.via
VB20
Version

Get further.
With the CT
Cardiovascular Engine.

siemens.com/clinical-engines

SIEMENS
Healthineers

Get further with your CT.

Get the most out of your images
Medical progress never happens by simply maintaining the status quo. Year after year, the CT Clinical Engines enhanced your clinical capabilities by providing better diagnostic confidence and improving process efficiency by saving working steps and making your entire patient pathway even faster.

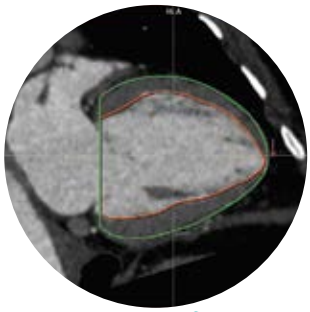
See what's relevant
Save time and costs in diagnosing coronary stenosis – with myocardial perfusion evaluation right on your CT. In the last several years, the CT Cardiovascular Engine featured pre-procedural planning with new and innovative tools offering automated assistance for aortic valve implants and AAA stents.

Deliver to the point
Now, the *syngo*.via VB20 Version provides you with Rapid Results in TAVI, a revolutionary ready-to-read-application, and, furthermore, an impressive Cinematic Rendering. The new VB20 Version enables you to choose the right approach in functional assessment for your individual patient, speeding up your routines in diagnosing coronary stenosis.

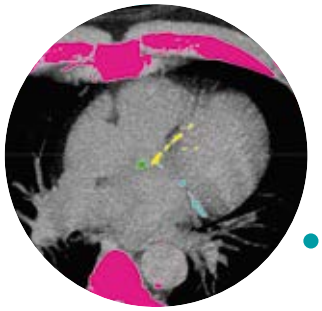
CT Cardiovascular

Applications and Engines

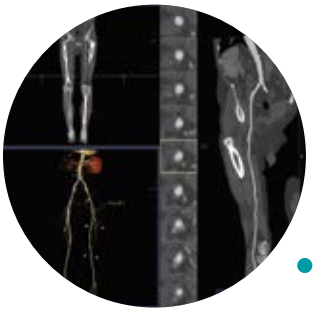
Overview



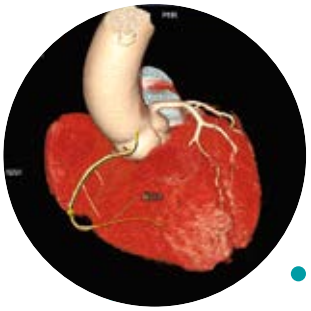
syngo.CT Cardiac Function



syngo.CT CaScoring



syngo.CT Vascular Analysis



syngo.CT Coronary Analysis

Engine

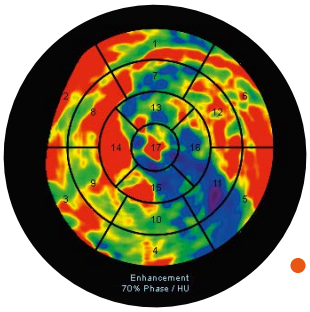
syngo.CT Vascular e.g. Bone Removal

syngo.CT Cardiac e.g. Heart Isolation

Standard Applications

syngo.CT
Rapid Stent
Planning

syngo.CT
Cardiac Function
– Right Ventricle

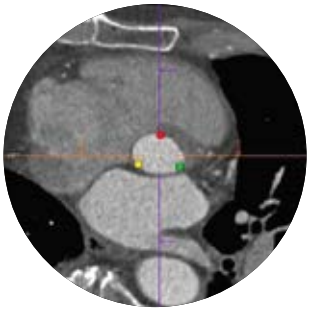


syngo.CT
Cardiac Function
– Enhancement

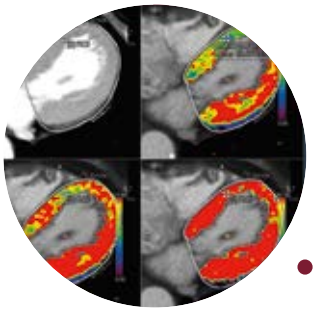
syngo.CT
Vascular Analysis
– Autotracer

Engine Pro

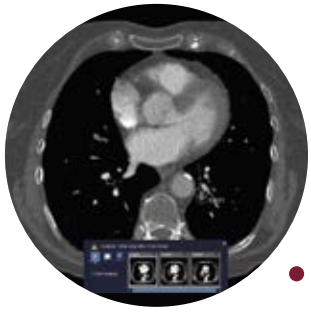
syngo.via
Cinematic VRT



syngo.CT
Cardiac Planning
– Aortic Valve



syngo.CT
Myocardial
Perfusion



syngo.CT
PE CAD

Options


SIEMENS
CT Vascular
CT Vascular
Vessel Delination
Vessel Evaluation
Rapid Results
MM Reading
Findings Navigator
Tools

Cardiovascular

Standard Applications

Based on many conversations with healthcare professionals, we have identified which functionalities are essential for an everyday clinical assessment. Cardiovascular Standard Applications bundle exactly those features that will additionally help you to speed up your routine cardiac assessment regardless of whether it involves ruling out coronary artery disease or performing calcium scoring.

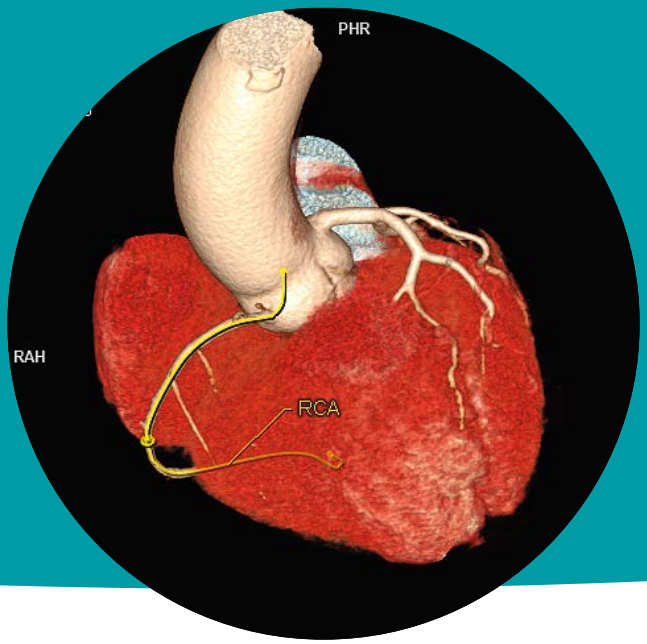
syngo.CT Cardiac

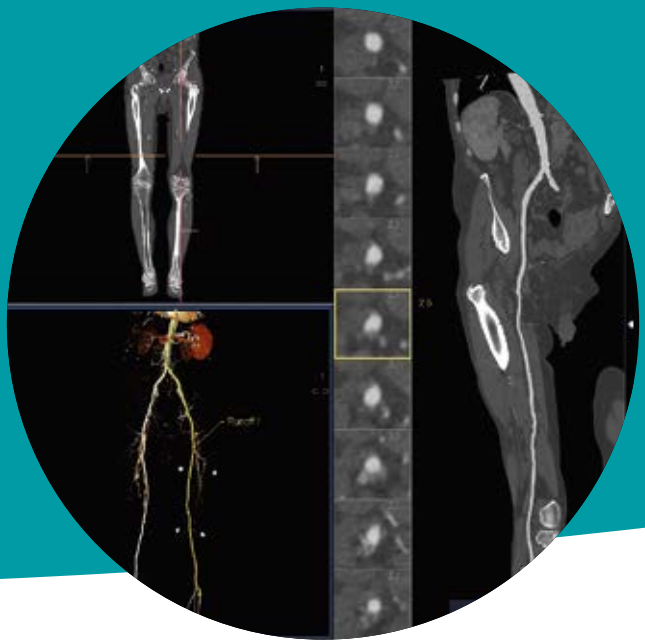
- Review Marker
- Plaque Visualization
- Heart Isolation
- Movie mode (Beating Heart)
- Manual Coronary Tracking (> 2-click centerline)
- Cardiac Planes
- Curved and Cross-Sectional MPR
- Integrated Reporting

syngo.CT Vascular

- Bone Removal
- Table Removal
- Review
- Marker
- Manual Vessel Tracking (> 2-click centerline)
- MPR
- Thin MIP Ranges
- Curved and Cross-Sectional MPR
- Integrated disease-specific reports

Cardiovascular Engine





Rule-out coronary artery disease in less than a minute

syngo.CT Coronary Analysis

For a suspected acute coronary syndrome, it is essential to assess the entire coronary tree. Severe stenoses may impair a detailed visualization of the coronary vessels.

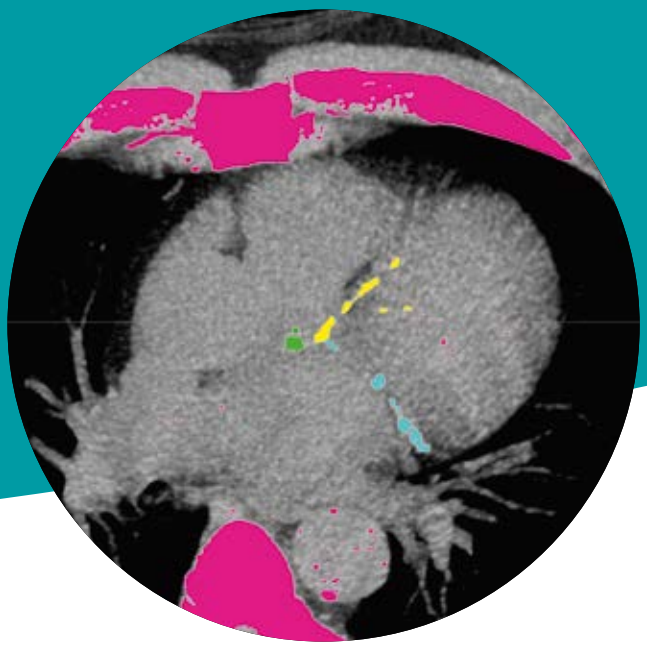
Nevertheless, you may need to make a confident decision in a very short period of time. *syngo*.CT Coronary Analysis features a robust segmentation of the coronary vessels and provides a comprehensive visualization of the coronary tree, despite high-grade stenoses. You can reliably assess the case and make a sound decision – even when time is tight.

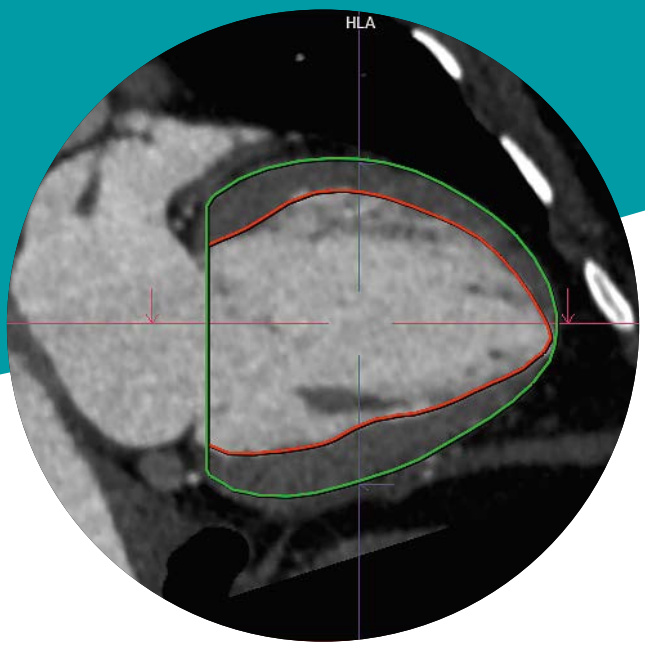
Assessment and quantification of general vascular pathologies

syngo.CT Vascular Analysis

Accurate measurement is key to reliable abdominal aortic aneurysm (AAA) and thoracic aortic aneurysm (TAA) stent planning. Inexact placement of start and end points of a distance measurement compromises the optimal choice of the implant device. The calculation of the effective vessel diameter can be cumbersome, because vessel cross sections are usually noncircular. In *syngo*.CT Vascular Analysis, reference markers are displayed in the VRT, enabling an easy placement at the, e.g., ostia or the iliac bifurcation.

The exact position can be fine-tuned through direct scrolling in cross sections along the curved centerline. Also, the system automatically provides effective vessel diameters, based on the cross-sectional area and perimeter.





Quick risk assessment and coronary age calculation

syngo.CT CaScoring

Assessment of coronary artery calcium burden can be used as a prognostic indicator of the patient's risk of morbidity/mortality from atherosclerotic coronary heart disease.

The *syngo*.CT CaScoring package allows accurate visualization and quick quantification of calcified coronary lesions. Scoring is facilitated by automatic selection and region growing tools for defining lesions in the main coronary branches (RCA, LM, LAD, CX). It also provides a one-stop comprehensive analysis of area (in mm^2), peak density (in Hounsfield units), volume (in mm^3), calcium mass (mg calcium hydroxyapatite), and score (Agatston method).

Comprehensive global and local ventricular analysis

syngo.CT Cardiac Function

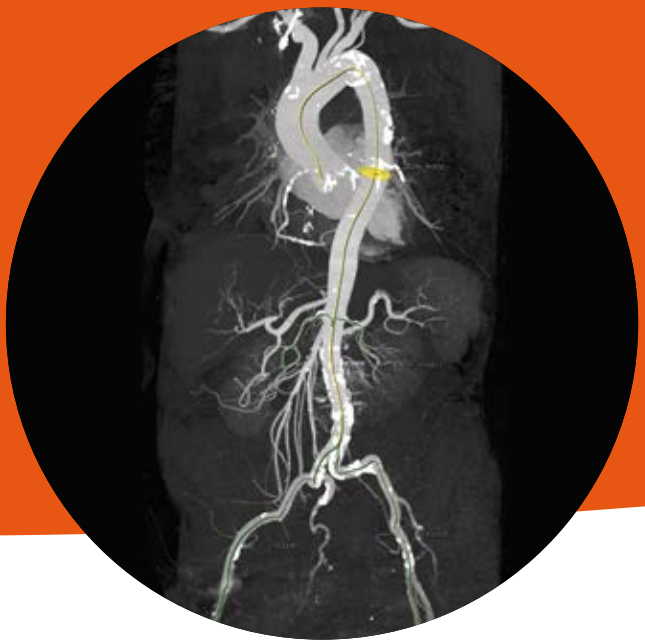
syngo.CT Cardiac Function provides fully automatic evaluation of left and right[1] ventricular function. The automatic pre-processing has the data ready for functional evaluation as soon as the case is opened. The ventricles are automatically segmented and the software provides all relevant information for local and global function assessment. For an in-depth evaluation of the cardiac function, the software automatically calculates the global parameters of ejection fraction, myocardial mass, stroke volume, end-systolic and end-diastolic volumes. The local parameters of wall motion and wall thickness are displayed in 17-segment 2D polar maps in accordance with the American Heart Association (AHA). The assessment of congestive heart failure is facilitated.

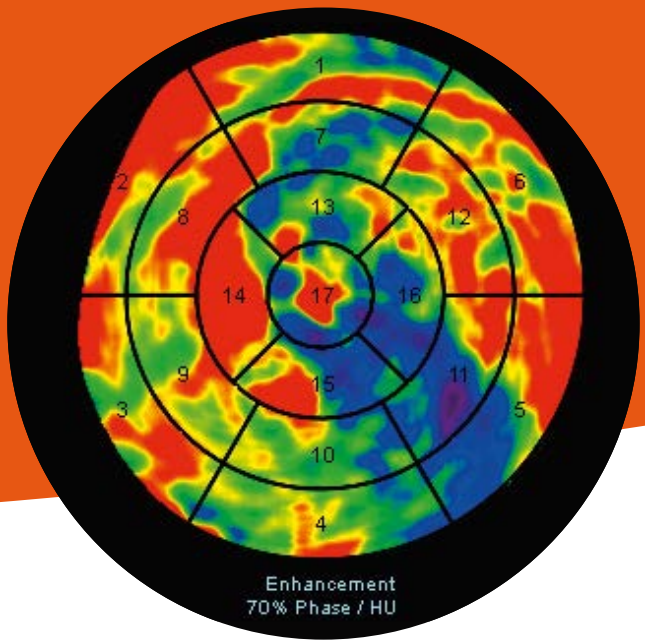
The dedicated visualization of first pass enhancement[1] highlights ischemia and yields valuable information on the effects of a stenosis. The late enhancement feature[1] helps to categorize perfusion defects as viable or non-viable.

[1] Optional

Cardiovascular

Engine Pro





Zero-click tracing of the main general vessels

syngo.CT Vascular Analysis – Autotracer

The Autotracer allows for the automatic identification, anatomical labeling, and centerline extraction of main vessels – even before the case is opened. This applies to major blood vessels such as the internal and external carotid arteries, the aorta, and the renal as well as the iliac arteries.

The first vessel is prepared in curved planar reformation view and the cross-sectional cuts are displayed for immediate evaluation.

Visualization of ischemia from early or late enhanced image

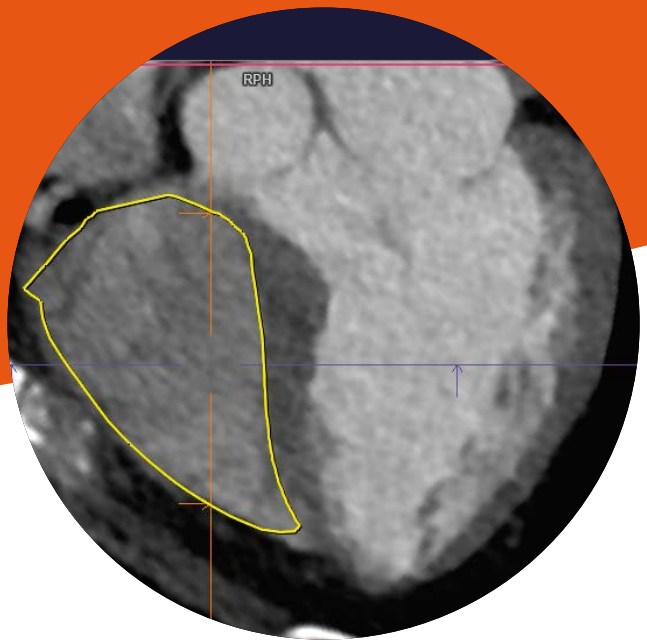
syngo.CT Cardiac Function – Enhancement

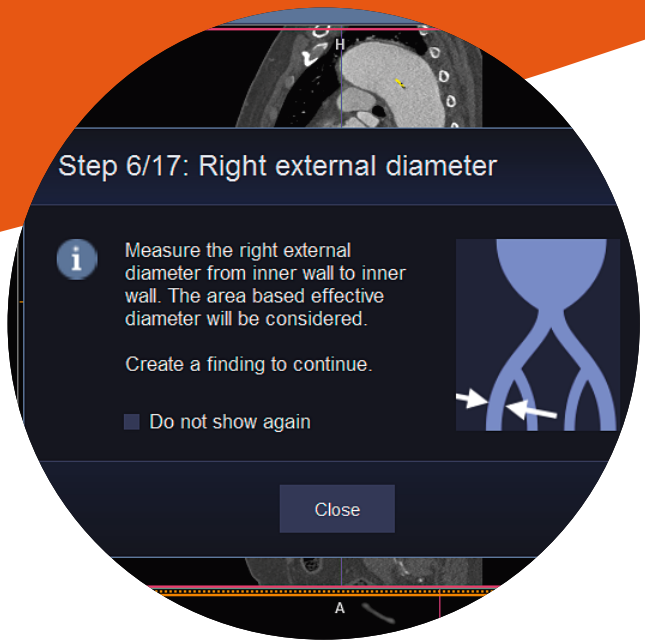
A simple first-pass enhancement scan may not yield the decisive information necessary to determine the hemodynamic relevance of an intermediate stenosis: sub-optimal scan timing may decrease the attenuation difference between healthy and diseased myocardium.

A quantitative assessment of a possible perfusion defect is not possible. The Perfusion Evaluation task enables the simultaneous assessment of Dual Energy and quantitative dynamic myocardial perfusion data[2].

An additional clinical benefit is introduced with the quantification of iodine concentration in the myocardium as well as the inspection of quantitative blood flow and volume data. The visualization in AHA-compliant 17-segment polar maps and the direct overlay in MPR segments help to pinpoint the perfusion defect.

[2] *syngo*.CT DE Heart PBV and/or *syngo*.CT Myocardial Perfusion – Myocardium required





Right ventricular analysis – even with MinDose data

syngo.CT Cardiac Function – Right Ventricle

The right ventricle (RV) makes an essential contribution to normal cardiac pump function due to the ventricular interdependence. Moreover, its function has been shown to be a major determinant of clinical outcome. Therefore, the reproducible assessment and evaluation of the right ventricular function is evident and should be considered during clinical management and treatment.

syngo.CT Cardiac Function – Right Ventricle allows reading and diagnosing CT angiography images of the heart for the evaluation of right ventricular function, even with MinDose data.

Automatic completion of manufacturer-specific graft order forms

syngo.CT Rapid Stent Planning

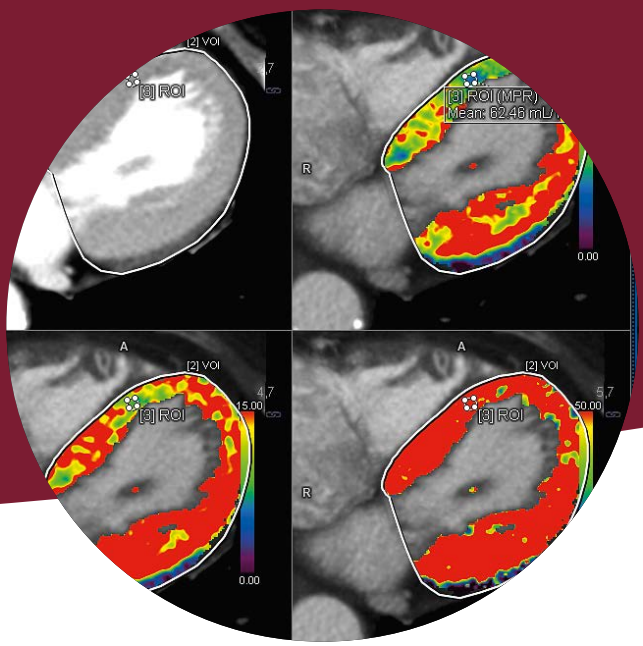
Pre-procedural planning for the treatment of abdominal and thoracic aortic aneurysms (AAA and TAA) requires a precise assessment of several anatomical parameters. Numerous vendors offer various stent grafts, each of which requires its own set of measurements. Manually completing graft order forms can be both tedious and time-consuming.

syngo.CT Rapid Stent Planning introduces the automatic completion of manufacturer-specific stent order forms. This optional extension effectively utilizes our unique Rapid Results Technology. Protocols guide the user through all length and diameter measurements, which are then automatically stored in the corresponding order form. At delivery, *syngo*.CT Rapid Stent Planning provides three order forms: Gore® Excluder®, Zenith Flex®, and Medtronic Endurant in PDF format. In addition, new order form templates can be generated to match the requirements of other vendors.[3]

[3] Adobe Acrobat Professional required

Cardiovascular

Options



Automatic detection of pulmonary filling defects

syngo.CT PE CAD

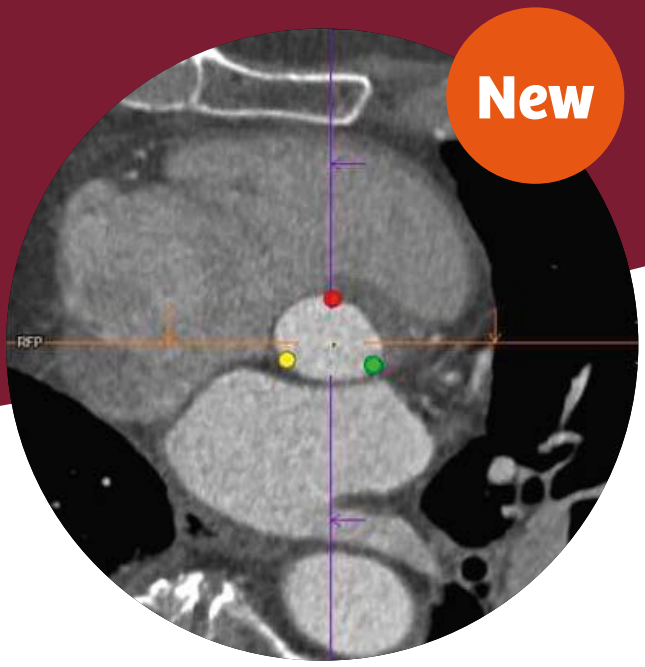
When ruling out pulmonary embolism in patients with acute chest pain, for example, the optional *syngo*.CT PE CAD serves as a second reader to detect segmental and subsegmental filling defects and also provides an automatic lesion zoom view for easy lesion classification.

Dynamic quantitative myocardial perfusion assessment

syngo.CT Myocardial Perfusion

With coronary CT angiography, the diagnosis of a coronary stenosis is easy in a clinical routine. But what about the functional relevance of an intermediate lesion?

syngo.CT Myocardial Perfusion takes you to a new level in measuring the myocardial blood flow and allows you to use actual quantitative assessment for determining the hemodynamic relevance of intermediate stenoses of the coronaries. This enables you to choose the right diagnostic approach for every patient.



Automatic assessment of the aortic annulus – zero click and zero delay

syngo.CT Cardiac Planning – Aortic Valve

The optimal selection of a suitable aortic valve implant device relies on the accurate quantitative assessment of the aortic annulus. Crucial for exact measurements is the correct visualization of the annulus plane.

syngo.CT Cardiac Planning – Aortic Valve finds the annulus plane and provides minimum, maximum, and effective diameters of the aortic annulus when the case is opened. The two ostia views help you to assess their distance from the annulus plane. That saves time, and your TAVI planning results become more precise and reproducible. In the *syngo*.via VB20 Version, you also benefit from new features like a step-by-step configurable measurement guidance protocol for pre-procedural planning as well as an import and export option for an easy exchange of user-created protocols.

Make communication with referrers and patients clear and convincing

syngo.via Cinematic VRT

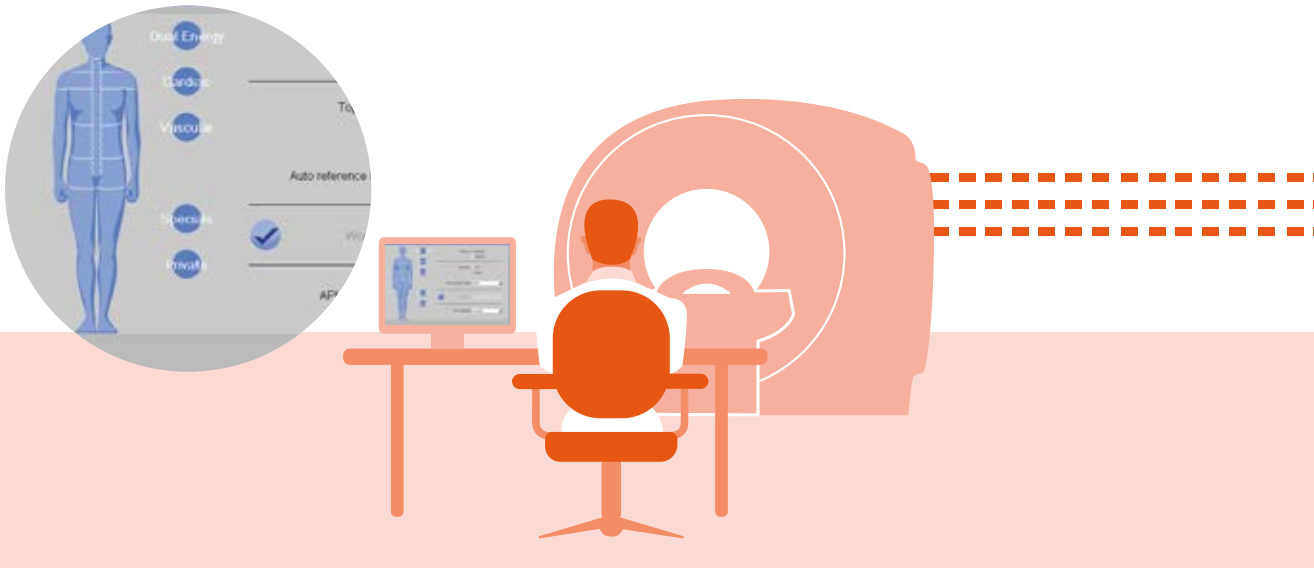
You can generate photorealistic clinical images just like in an anatomy textbook with a single click. You can use this material for education, publication, and communication – especially with your referrers and patients.

From pure geometric optic to electromagnetic modeling of ambient light: Cinematic Rendering is based on a physically accurate simulation of how light interacts with matter. It provides a realistic rendering of shapes and scattering, subsurface scattering and depth. This allows easier interpretation by the human brain, a much faster understanding of spatial anatomical structures, and the presentation of virtual human anatomy, which almost explains itself.

Reading as simple as it should be

Rapid Results for Cardiovascular

SOMATOM CT scanner



Why waste time in CT post-processing?

Rapid Results improves your efficiency by reducing your workflow steps:

In conjunction with Rapid Results, cardiovascular evaluations such as TAVI planning become even more accurate and reproducible through a step-by-step configurable measurement guidance protocol as well as an import and export option for easy exchange of user-created protocols.

Furthermore, Rapid Results Technology (RRT) enables you to automatically generate visualizations of the coronary and general vessels in various types and orientations. Save time for reading other cases by letting RRT create just the right amount of information – standardized and reproducible. RRT enables you to send the results of your executed protocols directly to your PACS without any further effort.

Moreover, new *syngo*.CT Rapid Stent Planning introduces the automatic completion of manufacturer-specific stent order forms.

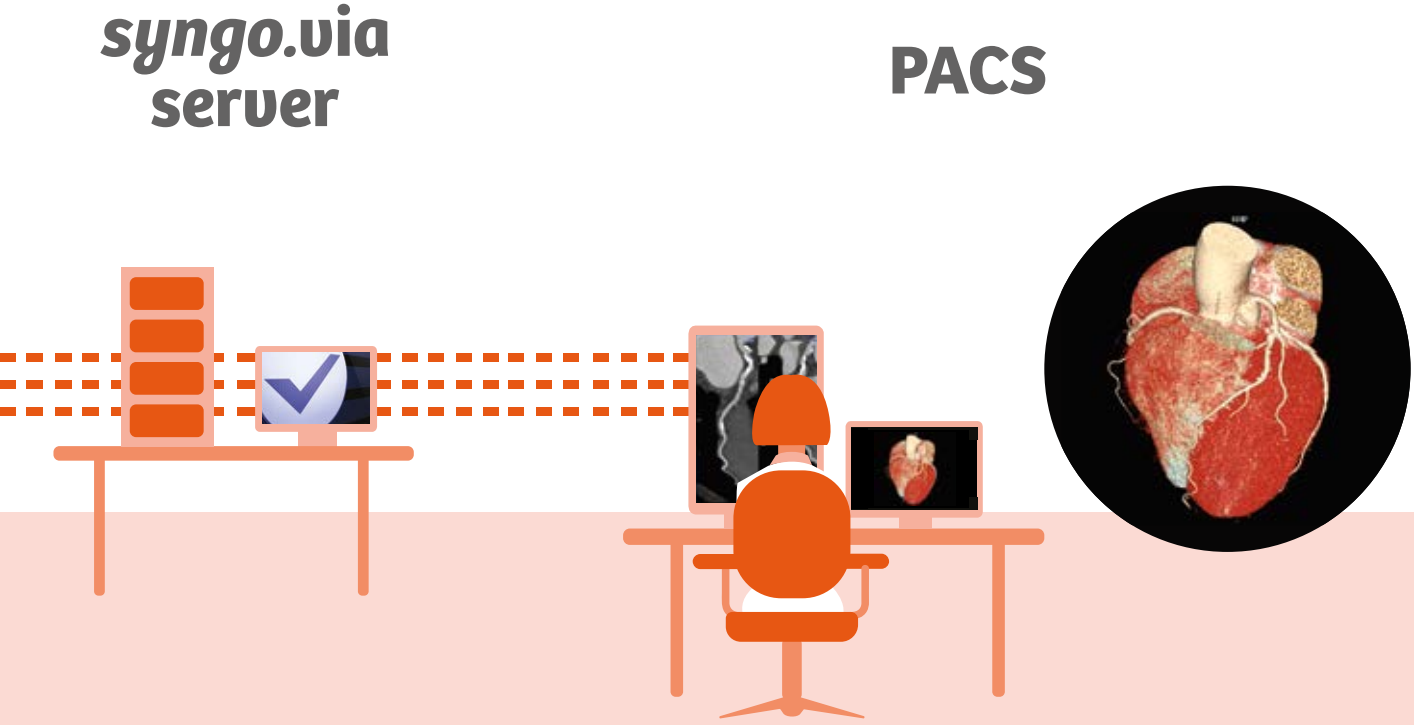
This optional extension effectively utilizes our unique RRT. Protocols guide you through all length and diameter measurements, which are then automatically stored in the corresponding order form.

At delivery, *syngo*.CT Rapid Stent Planning provides three order forms: Gore Excluder, Zenith Flex, and Medtronic Endurant in PDF format. In addition, new order form templates can be generated to match the requirements of other vendors.[3]

Overall, a powerful combination to deliver standardization, reproducibility and efficiency in your cardiovascular evaluations workflow.

[3] Adobe Acrobat Professional required

imaging



Your Rapid Results benefits with the CT Cardiovascular Engine:

1. Increase process efficiency by completing manufacturer-specific graft order forms automatically
2. Enhance patient outcome with zero-click and zero-delay automatic assessment of the aortic annulus and a step-by-step configurable measurement guidance protocol for pre-procedural planning
3. Standardize quality of care by automating image creation of coronary and general vessels
4. Ready-to-read results wherever you want them

Clinical cases: Courtesy of University of Erlangen, Erlangen, Germany; UMM, Mannheim, Germany and Cardioangiologisches Centrum Bethanien, Frankfurt, Germany.

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Siemens Healthineers Headquarters
Siemens Healthcare GmbH
Henkestr. 127
91052 Erlangen
Germany
Phone: +49 9131 84 0
siemens.com/healthineers

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