Changing views in CT

SOMATOM Edge Plus

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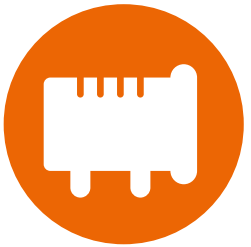
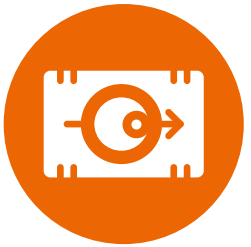
Flip the page to see the **imaging chain technologies** of SOMATOM Edge Plus.

Likewise, you can open the last page of this brochure to explore **technologies for efficient workflows.**

Best-in-class visualization of morphology and function

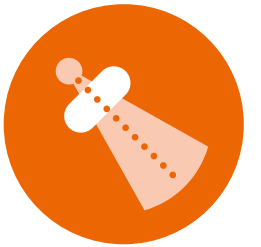


Straton® MX Sigma X-ray tube and generator
The Straton MX Sigma X-ray tube offers low-dose scanning with consistent image quality. Thanks to the Sigma generators and their dependable kV input, it boosts the power available at most kVs, allows fine-tuned dose modulation with 10 kV Steps, and maintains the focal spot size. The Straton MX Sigma X-ray tube represents a full redesign of the Straton brand. Having powered our high-end CT scanners for years, this X-ray tube type has proven to provide excellent spatial resolution with its flying focal spot and direct anode cooling.



Stellar^{Infinity} detector modules
With its ability to process even low signals, the Stellar^{Infinity} detector enables low-kV and low-dose imaging. On the one hand, it relies on the unique Ultra Fast Ceramic (UFC) detector material and the successful integration process already used in our Stellar detector. On the other hand, the Stellar^{Infinity} detector goes one step further: By miniaturizing and integrating further components compared with its predecessor technology, it helps significantly improve the detector system's efficiency.

Integrated iterative reconstruction
Integrated iterative reconstruction (IR) acquires images with reduced noise as well as outstanding delineation and sharpness. Its performance is ready to enhance your clinical routine: Now you can reduce dose, improve image quality, decrease preparation time, and speed up aftercare. This is the result of integrating the IR algorithms to a higher degree, which makes advanced data coding techniques available right at the detector.



Tin/Gold Split Filter
SOMATOM® Edge Plus now enables two applications using its unique Tin/Gold Split Filter technology. First the Split Filter allows you to simultaneously acquire two spectral energies, enabling dose-neutral TwinBeam Dual Energy scans in your clinical routine. Secondly the Split Filter can be positioned in a way that the tin part covers the entire detector, enabling tin-filtered low-dose scanning for non-contrast studies.

Fast scanning
SOMATOM Edge Plus makes fast scanning your standard. This is especially valuable with trauma injuries and patients who can't hold their breath or hold still, and it generally prevents potential motion artifacts. All of this is enabled by a fast rotation time of 0.28 seconds, a maximum pitch of 1.7, and High Power reserves with a generator power up to 100 kW.

Clinical capabilities
SOMATOM Edge Plus comes with several additional features for dedicated clinical tasks. E.g., by using the Adaptive 4D Spiral mode, you can achieve long dynamic scan ranges of up to 48 cm in dynamic CTA. The patient is shuttled back and forth multiple times to cover scan ranges far beyond the detector coverage. Or with the Adaptive 3D Interventional Suite, you can rely on a complete solution for CT-guided interventional procedures, including virtually real-time 3D guidance, switch between fluoro, sequence, and spiral mode on the fly, and needle tracking and navigation.

Tackling the pressure requires change

Many terabytes of studies are available on global healthcare challenges. They clearly show that the cost impact of demographic change, a growing chronic disease burden, and ongoing reimbursement cuts are driving the transition to value-based care. This implies more targeted disease evaluation, a shift toward industrialization, and as result, higher cost efficiency throughout the continuum of care.

Digging beyond these global statistics, we surveyed more than 160 institutions to find out about their particular pain points in radiology. Despite differences in institution type, statements from executives and radiologists showed major similarities: First, they simply can't choose their patients, some of whom make it challenging to obtain quality images and stay on schedule. Second, the potentials of advanced imaging are still largely unutilized, resulting in a lack of diagnostic information. Third, image quality often varies and depends on the availability of experienced staff.

André Hartung,
Head of Business Line
Computed Tomography,
Siemens Healthineers,
Forchheim, Germany

"To address these pain points, we created SOMATOM Edge Plus – the next generation rooted in SOMATOM Definition AS and SOMATOM Definition Edge, the proven CT workhorses from Siemens Healthineers that are trusted by nearly 5,500 institutions."

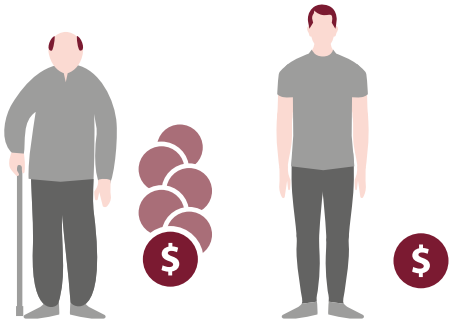
Improving accuracy, advancing therapy results – and why CT can play a key role

Aging societies and their impact on healthcare cost

Demographic change
People are living longer worldwide. However, health in the later years hasn't significantly improved. Because the number of people aged 60 years and older is expected to increase by 1.1 billion from 2015 to 2050,[1] the impact on healthcare costs will be substantial.

2020: **People aged 60+** outnumber those aged **<5**

Globally, people aged 60 and older will outnumber children younger than five in 2020.[1]



Aged 85+ **Aged 55–59**

In per capita health spending, there's a sixfold difference between people over 85 and those between 55 and 59.[2]

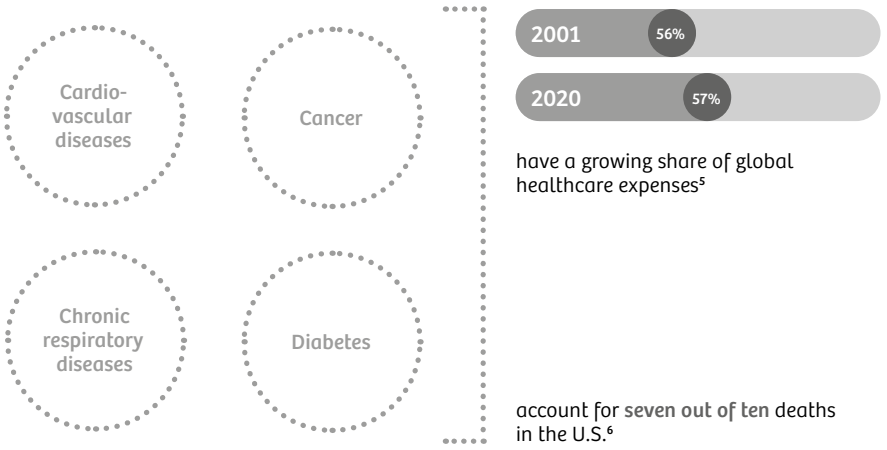
Reimbursement cuts affect radiology

Economic pressure
Around the globe, healthcare systems are seeing fundamental changes. Rising expenditures and the need for more outcome-oriented healthcare are putting reimbursement rates under pressure.

In the U.S., reimbursement for CT cardiac scans was cut by nearly 25 percent from 2013 to 2014.[3] Generally, radiologists in the U.S. are facing a 15 percent reimbursement cut if the procedure and the equipment don't meet the Smart Dose Standard.[4]

Four key diseases with a high toll

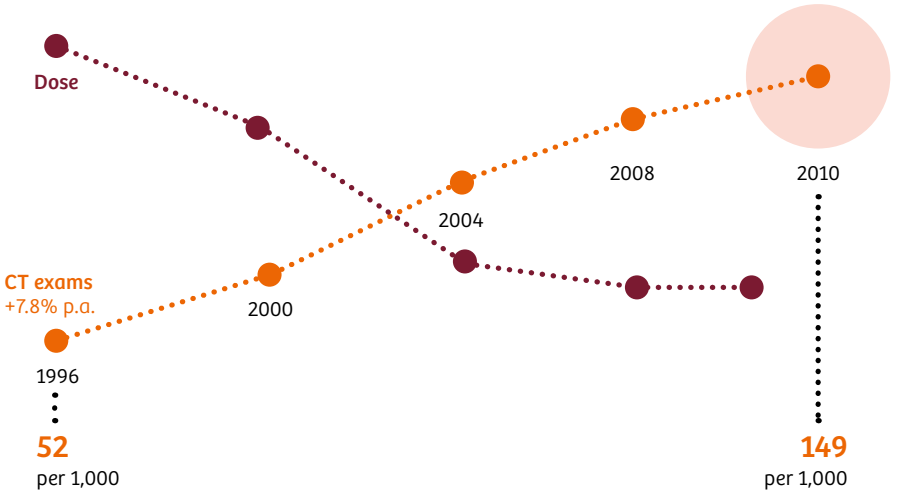
Chronic disease burden
Chronic, non-communicable diseases account for an ever-increasing share of health-care costs in developed societies. CT imaging can contribute to earlier detection and accurate evaluation of cancer and cardiovascular diseases in particular.



A small number of chronic disease types has a disproportional impact on both healthcare costs and death rates.

CT – increasing use, decreasing dose

Importance of CT
Among the most used medical imaging modalities, CT ranks third behind plain radiography and ultrasonography.[7] More advanced technologies at lower doses could further increase its use.



While the number of CT exams continues to rise,[8] radiation dose is steadily decreasing. Even the use of advanced technologies such as 4D requires an only moderate reincrease – if at all.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Changing views in CT

Today Computed Tomography is one of the most established modalities in diagnostic imaging. However, the pressure to reduce expenses remains high, resulting in an ever-increasing need for standardization and accuracy. At the same time, obesity and an aging patient population pose growing challenges to image quality and efficiency. So how can radiologists routinely get accurate images and – whenever possible – additional information in order to make confident decisions?

With SOMATOM Edge Plus, you can scan all patients at the appropriate dose and reproducible precision – based on fine-tuned automation, combined with exceptional power reserves and speed. You can also leverage richer and more accurate information with technologies that bring tin-filtered scanning, 4D, and quantitative imaging to your clinical routine. Plus you can rely on consistent image quality: Game-changing workflow automation simplifies scan preparation and helps you achieve new levels of precision.

Are you ready to change views?

Contents

Changing views …

… on patient diversity – with personalized scanning

Increase your offerings to referrers: Scan virtually all patients with diagnostic confidence – including obese persons, children, and patients unable to cooperate.

… on clinical paradigms – with advanced imaging

Improve your reputation with new levels of diagnostic insight – like functional information and tissue characterization – acquired with no dose or time penalty.

… on patient positioning – with automated workflows

Save time and achieve consistent results – with intelligent automation for fast and precise patient positioning, scanning, and postprocessing.

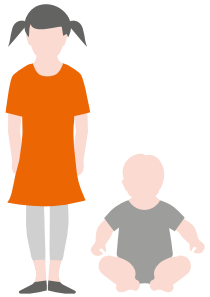
Can you choose your patients?

No two patients are the same, and some aren't easy to scan – but referring physicians and ordering clinicians expect you to accommodate all of their patients and deliver high-quality results.

Up to 30 percent of the population are obese

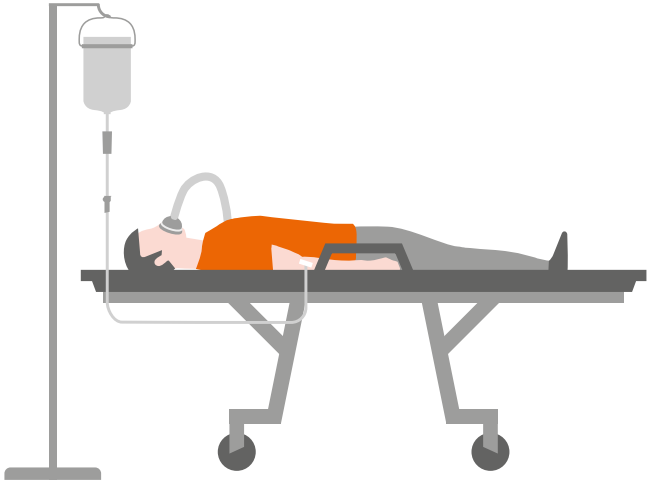
Obesity is a worldwide trend. In developed countries, up to 30 percent of the population are obese.[9]

Children are three times more dose-sensitive than adults



CT is an important tool, for example, in the trauma workflow for injured children – but children are three times more dose-sensitive than adults.[10]

Some patients are unable to cooperate



A certain percentage of patients – for example, in emergencies, or when there is cognitive impairment – are unable to follow any commands.

Changing views on patient diversity –

with personalized scanning

Increase your offerings to referrers: Scan virtually all patients with diagnostic confidence – including obese persons, children, and patients unable to cooperate.

Get powerful images of obese patients

More and more patients suffer from very high BMIs, often in conjunction with comorbidities. How can you get images with high diagnostic quality at the lowest possible dose – from a patient group with the highest X-ray attenuation?

High speed, low dose
SOMATOM Edge Plus smartly combines the Straton MX Sigma X-ray tube, High Power reserves throughout the entire spectrum from 70 to 140 kV in 10 kV Steps, and the Stellar^{Infinity} detector. This provides the ideal imaging chain for scanning obese patients with diagnostic confidence – enabling sharp and rich-in-contrast images at high speed and low dose.

Personalized and comfortable
The combination of CARE kV[11] and 10 kV Steps allows for previously unknown automated personalization. With its large bore of 78 cm and a patient load capacity of up to 307 kg (676 lbs), SOMATOM Edge Plus helps you accommodate even very large patients. Thanks to the extended field of view, your patient's skin line will be visualized throughout the entire bore size. Integrated iterative reconstruction (IR) helps you further reduce dose and acquire images with outstanding delineation and resolution.

Unique combination of solutions

High Power reserves
powered by 100-kW generator
and Straton MX Sigma X-ray tube

Low-signal imaging
powered by Stellar^{Infinity} detector boosted
by integrated iterative reconstruction

High capacity
powered by 78-cm bore
and 307-kg/676-lbs table

Extended field of view (FoV)

Lung scan of an extremely obese 44-year-old patient

The 78-cm bore and robust table enable easy positioning, even for obese patients; High Power reserves and 10 kV Steps facilitate high image quality.

Gently scan the dose-sensitive ones

When examining children, everyone on the team are especially attentive – knowing that developing organs and tissues should be maximally safe-guarded from high doses. At the same time, the youngest ones are often unable to hold still, requiring sedation to acquire sharp images free of motion artifacts. SOMATOM Edge Plus helps you overcome these challenges.

More speed, less sedation
High Power at low kV (70–100 kV) enables low-dose scanning for more children and young adults. These additional power reserves enable low kV values, in combination with high-pitch scanning of up to 1.7 – which minimizes the need for sedation.

Reduce dose, enhance care
Especially with young patients, the ALARA[12] principle is of utmost importance. SOMATOM Edge Plus helps you achieve your dose goals with a valuable set of dose-reducing technologies: from the unique Tin Filter technology to the ability to process even low signals to the CARE Child solution set for the lowest-dose pediatric scanning.

Unique combination of solutions

High Power at low-kV scanning
powered by Straton MX Sigma X-ray tube including High Power 70–100, 10 kV Steps, and CARE kV

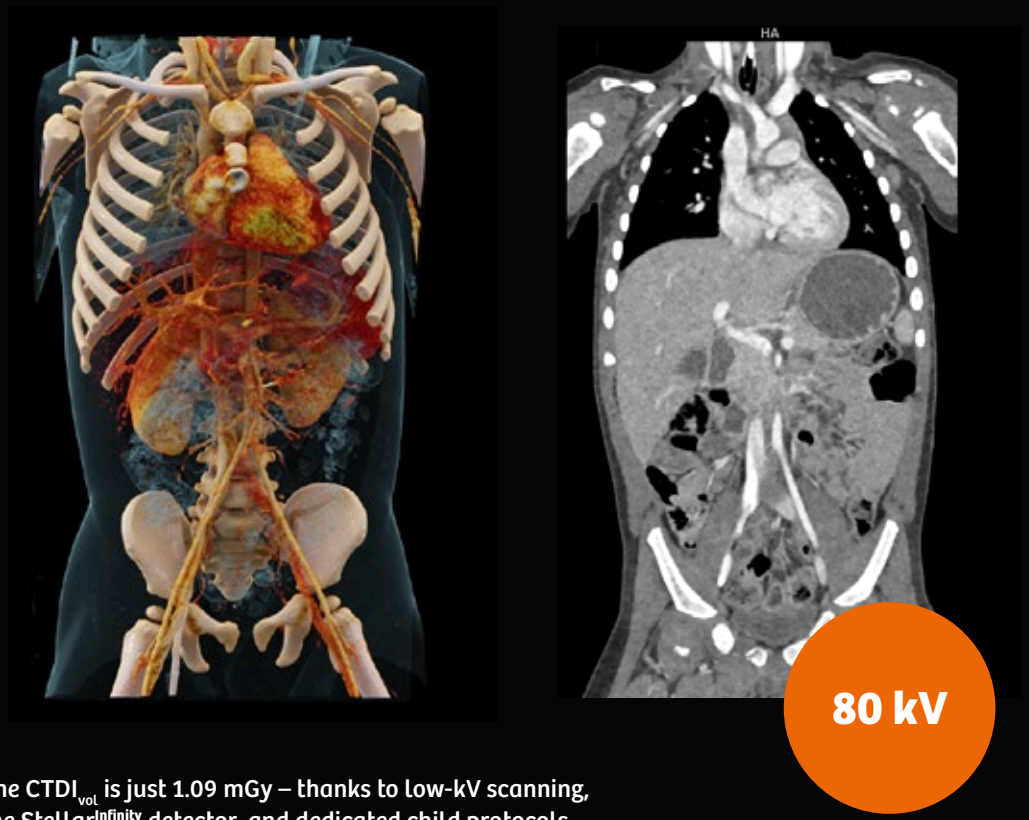
Tin-filtered scanning
powered by Tin Filter technology

Low-signal imaging
powered by Stellar^{Infinity} detector boosted by integrated iterative reconstruction

Dedicated pediatric scanning
powered by CARE kV and CARE Dose4D™

Fast scanning
powered by 0.28 s rotation, 1.7 pitch, and High Power reserves

Thorax, abdomen, pelvis scan of a two-year-old child after trauma



The CTDI$_{vol}$ is just 1.09 mGy – thanks to low-kV scanning, the Stellar^{Infinity} detector, and dedicated child protocols.

Freeze motion when your patient can't

In emergency cases, every second counts. But some patients are unable to follow any commands. The result: Image quality is often compromised when it's least acceptable. SOMATOM Edge Plus delivers motion-artifact-free images that are urgently needed for life-saving procedures.

Quality images in seconds
Freeze motion when your patient can't. SOMATOM Edge Plus combines High Power reserves enabling fast rotation at 0.28 s with high coverage of up to 23 cm/s in clinical routine, resulting in outstanding image quality in emergency cases. This comes with exceptionally fast reconstruction and postprocessing.

Reliable results in minutes
Using FAST IRS (image reconstruction system), you can perform polytrauma and emergency exams without wait time. Integrated workflow algorithms help you accelerate the emergency workflow: for example, by unfolding ribs and letting you accurately prepare spine recons with zero clicks in Rapid Results.

Unique combination of solutions

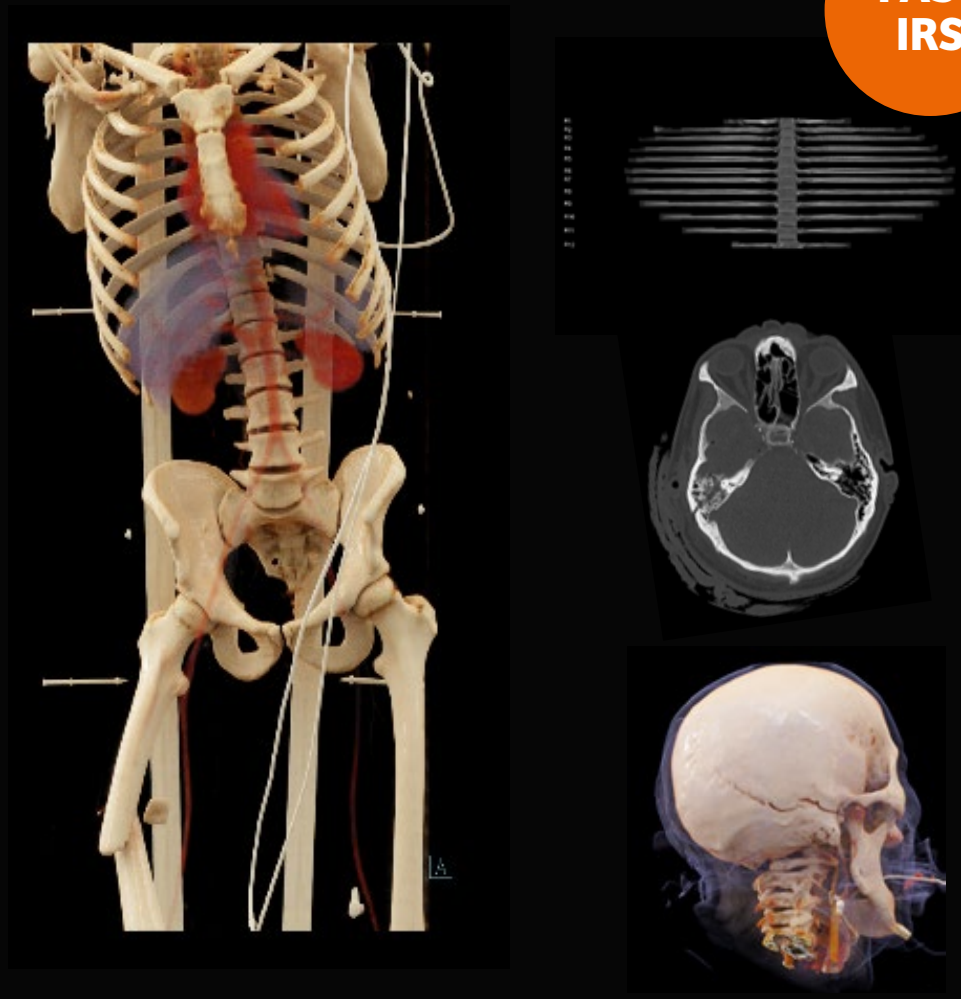
Fast scanning
powered by 0.28 s rotation, 1.7 pitch, and High Power reserves

Fast image reconstruction
powered by new FAST IRS

Fast postprocessing
powered by FAST technology, e.g., FAST Spine and *syngo*.via Rapid Results, e.g., Bone Reading/ Rib Unfolding

Trauma scan after polytrauma reveals skull and femur fracture

FAST IRS

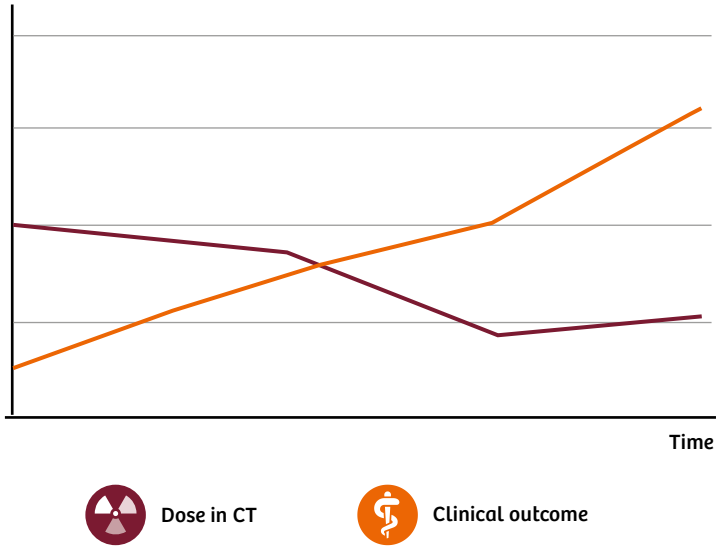


High image quality and fast reconstructions and postprocessing enable efficient trauma handling.

Are you getting the most profound diagnostic information possible?

Today tin-filtered scanning brings native CT scanning to dose levels similar to conventional X-ray. Dynamic and quantitative CT imaging offer proven advantages; however, they still aren't routine clinical tools.

CT innovation over time: Increasing information, decreasing dose



Driven by clinical advancements

- Tin-filtered scanning
- Adaptive 4D Spiral
- TwinBeam Dual Energy

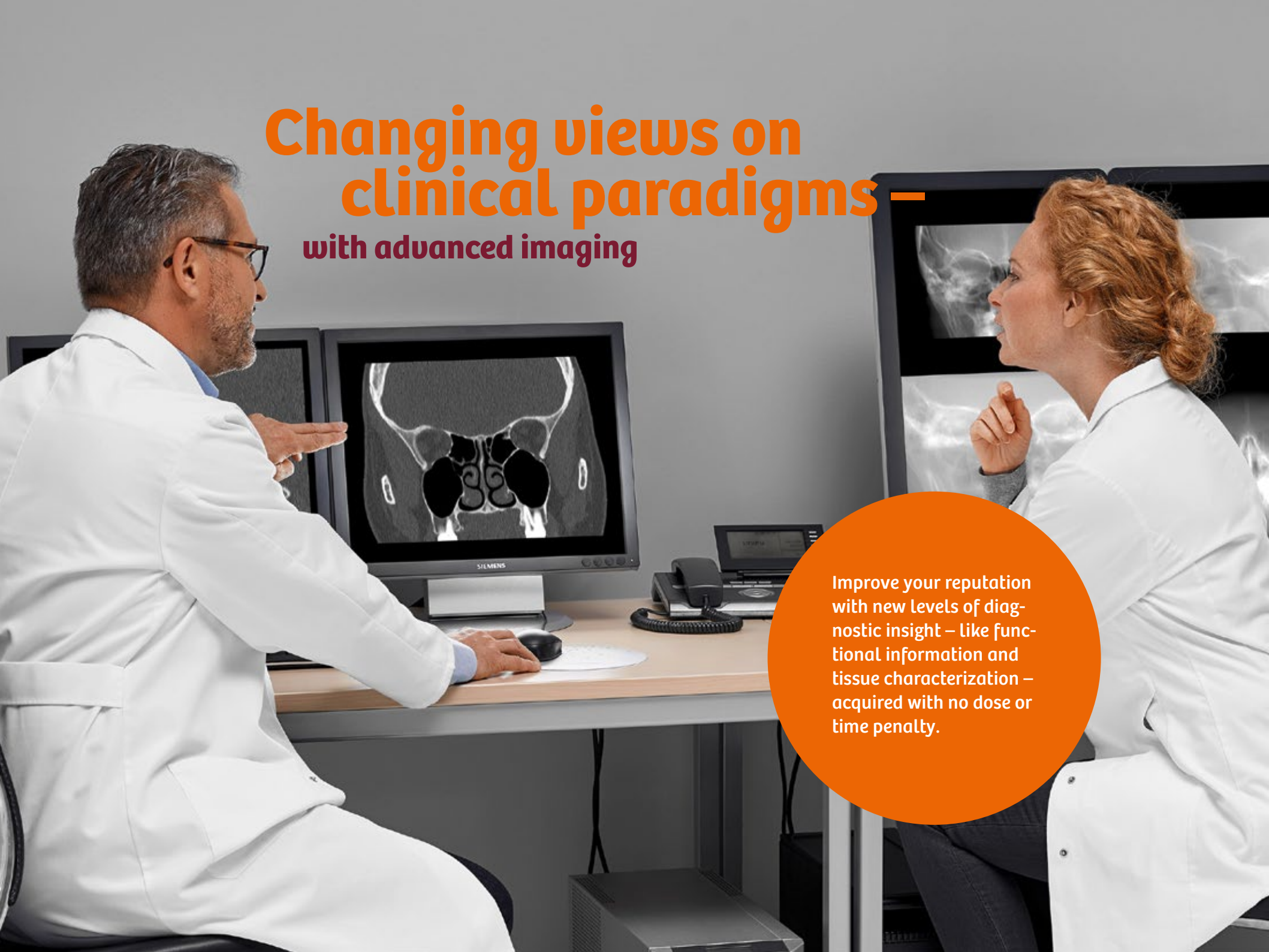
Driven by

- Low kV
- Iterative reconstruction
- Stellar^{Infinity} detector
- Tin Filter

With ongoing technological innovation, CT has achieved very low dose levels while image quality has been increasing over time. Most recent developments – for example, 4D and quantitative imaging – require a very moderate or even no dose increase but allow the extraction of additional and more in-depth information from CT images for better clinical outcomes.

Changing views on clinical paradigms –

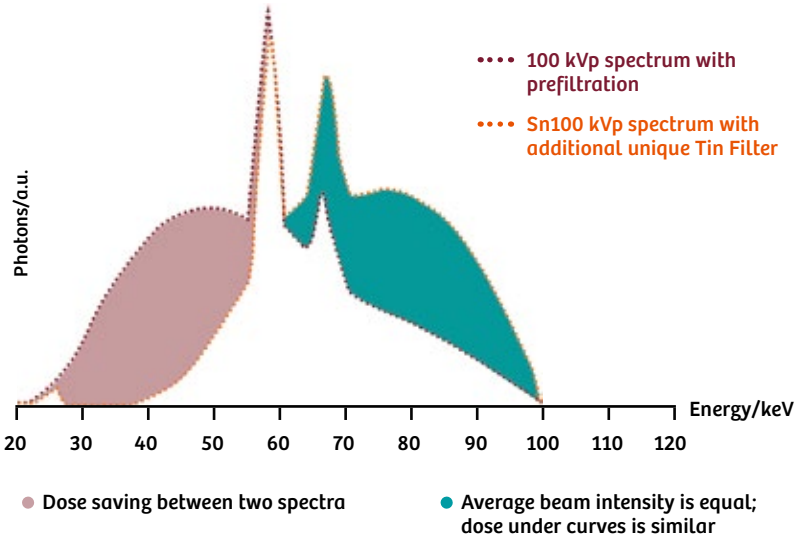
with advanced imaging



Improve your reputation with new levels of diagnostic insight – like functional information and tissue characterization – acquired with no dose or time penalty.

See more than ever before with tin-filtered scanning

CT gives you a better view of complex anatomy than conventional projection radiography. For example, when delineating small bony details, it's considered the "criterion standard."[13] Siemens Healthineers' unique Tin Filter technology minimizes or even eliminates dose differences between conventional X-ray and CT, enabling even larger use of CT.



Deploying a Tin Filter in front of the X-ray tube filters low-energy photons from the spectra. Tin's high atomic number means that it's very efficient and can deliver substantially hardened and effective spectra.

Unique combination of solutions

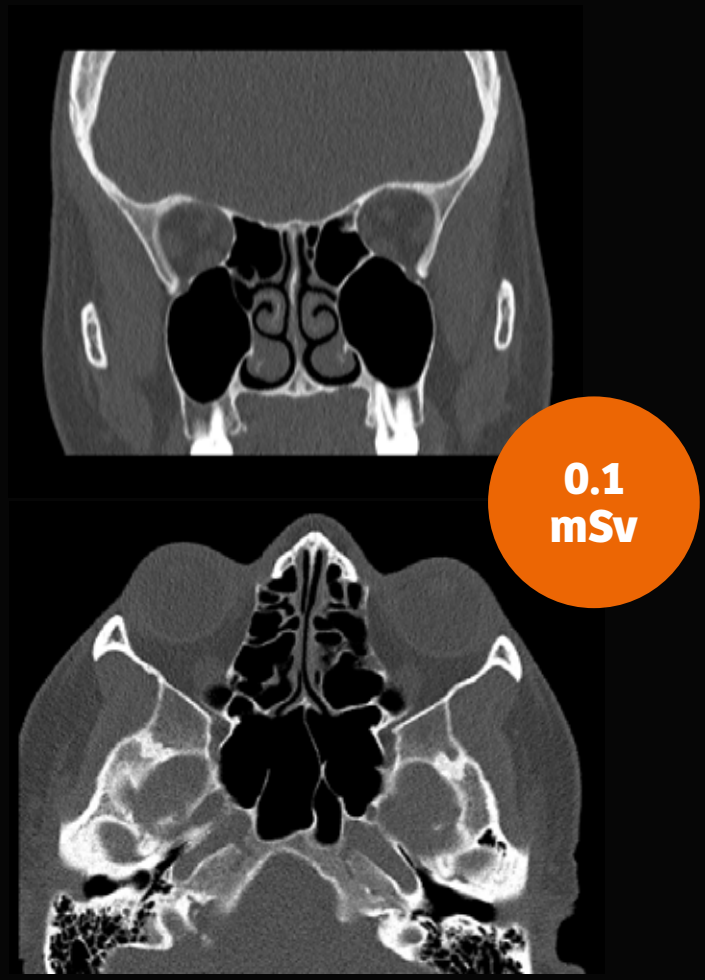
Tin-filtered scanning
powered by Siemens Healthineers' unique Tin Filter technology

+

High Power reserves
powered by 100-kW generator and Straton MX Sigma X-ray tube

Unique protection, variable application
SOMATOM Edge Plus comes with High Power reserves and our unique Tin Filter technology, which shields your patients from clinically irrelevant low-energy radiation. The result: You can deliver excellent results at dose levels comparable to conventional X-ray – for example, in non-contrast studies like lung and colon screening as well as orthopedic and sinus scanning. You can also use the Tin Filter technology in a range of other applications, including topograms and calcium scoring, that you can now carry out at previously unknown low dose levels.

Spectral-shaped sinusitis exam (Sn100 kV) at dose levels like conventional X-ray

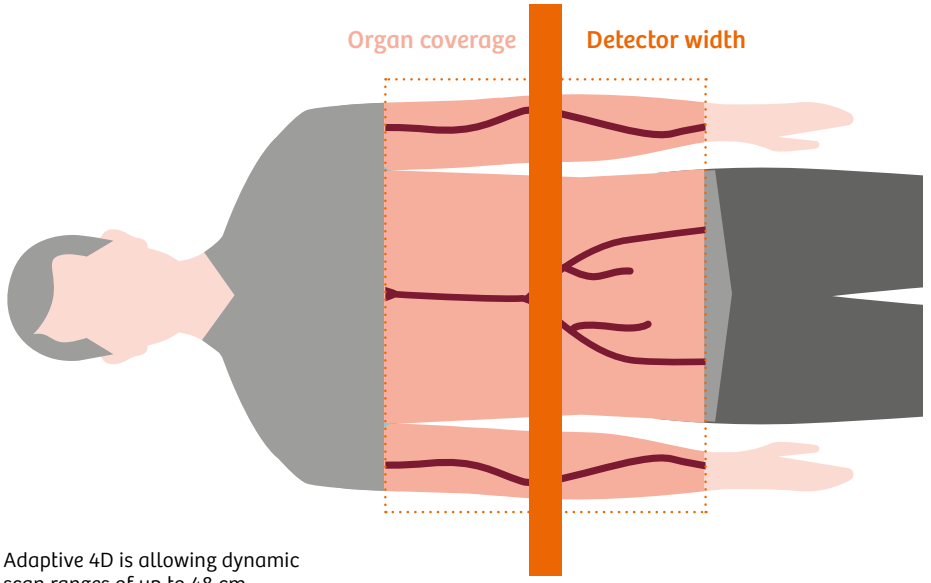


This tin-filtered scan reduces sinus CT dose to X-ray levels.

Add dynamic imaging to your clinical routine

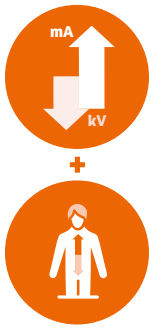
The benefits of dynamic imaging have long been established. For example, in detecting and classifying endoleaks and detecting and quantifying stenoses. With SOMATOM Edge Plus, you can fully utilize the advantages in your clinical routine – and always at the right dose.

"The accuracy of the detection and quantification of stenosis (...) is significantly improved when performing dynamic CTA examinations (...) The described radiation dose is low, but can be further optimized by using lower tube voltages."[14]



Adaptive 4D is allowing dynamic scan ranges of up to 48 cm.

Unique combination of solutions

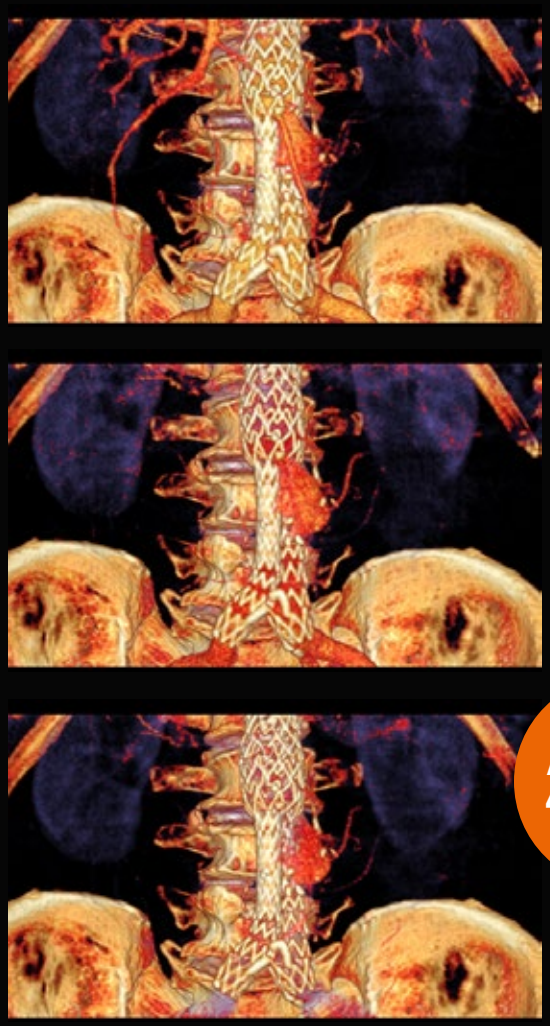


High Power at low-kV scanning
powered by Straton MX Sigma X-ray tube including High Power 70–100, 10 kV Steps and CARE kV

Long dynamic ranges
powered by Adaptive 4D Spiral

For every patient, every day
With SOMATOM Edge Plus, you can break out of the paradigm and make dynamic imaging an everyday method for virtually all patients. The scanner's High Power at low kV, plus its incremental 10 kV Steps, help you deliver the right dose and optimize contrast-to-noise ratios. Long dynamic ranges up to 48 cm allow scanning of all anatomical regions to generate dynamic information. *syngo*.via Dynamic Angio also enables motion correction and noise reduction based on the 4D data. Moreover, you can use those data to easily extract the routine phases.

Changing patient outcomes: 4D analysis of an aortic endoleak



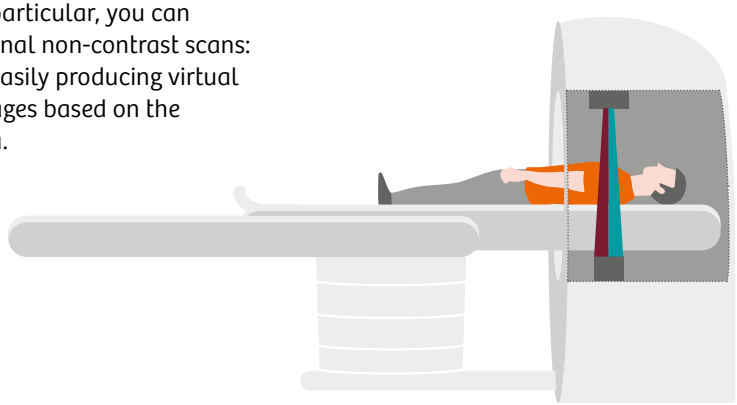
Long-range dynamic 4D studies with Adaptive 4D Spiral can help adapt therapy to improve the patient's outcome.

Get advanced quantitative information with no dose penalty

Thanks to improved tissue characterization, quantitative imaging delivers a profound decision basis, from diagnosis to therapy monitoring. SOMATOM Edge Plus lets you leverage quantitative imaging with virtually dose-neutral exams and fast workflows.

TwinBeam – unique possibilities
SOMATOM Edge Plus is equipped with unique TwinBeam Dual Energy technology, low-dose technologies, and low-signal imaging – your keys to leveraging Dual Energy scanning in the clinical routine with no dose penalty. Now you can benefit from a wide range of Dual Energy applications. In particular, you can eliminate additional non-contrast scans: for example, by easily producing virtual non-contrast images based on the Dual Energy data.

Workflows – automated and accelerated
After acquisition, take the fast workflow track. Automated postprocessing calculates images like virtual non-contrast, iodine map, bone-removed visualization, and a wide range of keV values. It then sends the images to the PACS – ready for you to read.



Unique combination of solutions

Dual Energy routine scanning
powered by TwinBeam Dual Energy

+

Postprocessing with Rapid Results and FAST Dual Energy Results
powered by *syngo*.via and FAST CARE technology

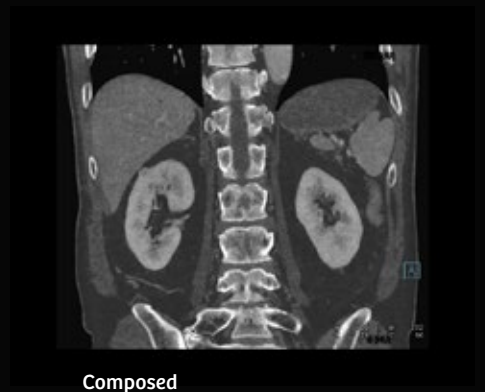
+

Low-signal imaging
powered by Stellar^{Infinity} detector boosted by integrated iterative reconstruction

+

Low-dose technologies
powered by CARE Dose4D and iterative reconstruction

Incidental finding virtual non-contrast (VNC) imaging kidney lesion



Composed

Virtual non-contrast

Iodine map

TwinBeam Dual Energy

Dual Energy in routine oncology workflow enabled by TwinBeam Dual Energy and FAST DE Results/Rapid Results.

CT-guided procedures advance new business opportunities

Interventional procedures such as biopsies and ablations increasingly use or require CT image guidance. Siemens Healthineers' i-Control-assisted Adaptive 3D Intervention Suite provides unique, advanced tools for these procedures and aims to reduce procedure times, guide outcomes, and ultimately reduce complications.

Challenging procedures, higher risks
Interventional procedures, being invasive, pose a clear risk to the patient, and therefore to overall profitability for the hospital, clinic, or practice. Any issues that occur during the procedure can extend stay times, create aftercare requirements, and reduce the efficiency of the reading physician. Long or extended procedure times are key risk factors for postprocedural complications.

Solution

Adaptive 3D Interventional Suite

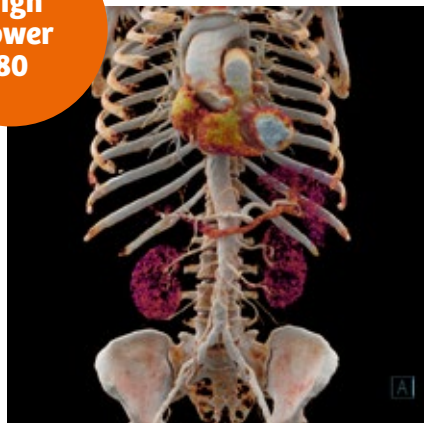
Helping increase accuracy and speed
The Adaptive 3D Interventional Suite[15] provides unique features that are designed to help increase the speed and accuracy of these complex procedures. Needle Tip detection offers an automated view of the position of the needle in situ. 3D workflows offer automated visualization of the lesion or anatomy. The workflow is contained in a single, user-friendly interface, which helps reduce interscan delays.

More needs – more possibilities

0.28 s rotation

Cardio imaging
71-year-old female with chest pain; fast rotation time of 0.28 s and Stellar^{Infinity} detector enable impressive cardio images

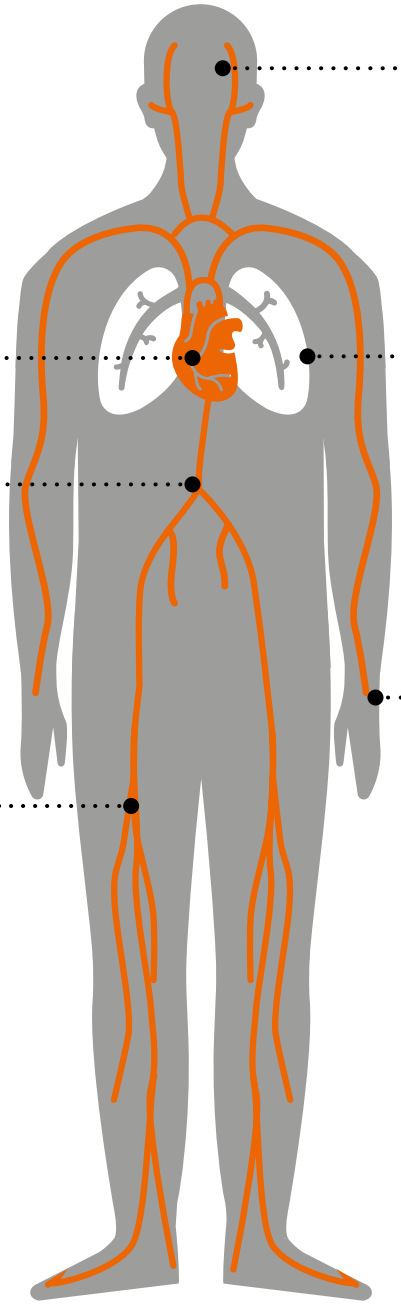
High Power 80



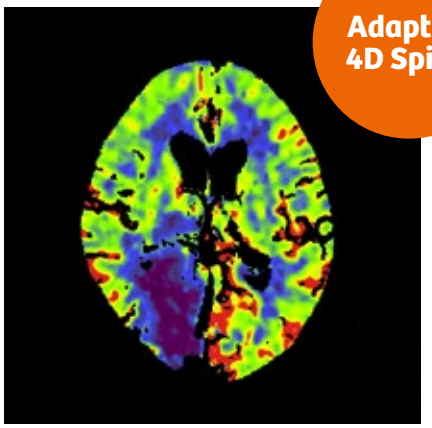
Body CTA
High-quality body CTA enabled by High Power 80

High Power 80

CTA runoff
54-year-old male, long runoff using High Power 80

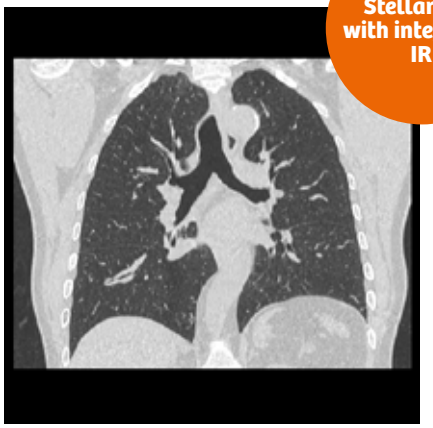


Adaptive 4D Spiral



Neuro imaging
Stroke case of 84-year-old female; volume perfusion scan enabled by Adaptive 4D Spiral showing perfusion deficit

Stellar^{Infinity} with integrated IR



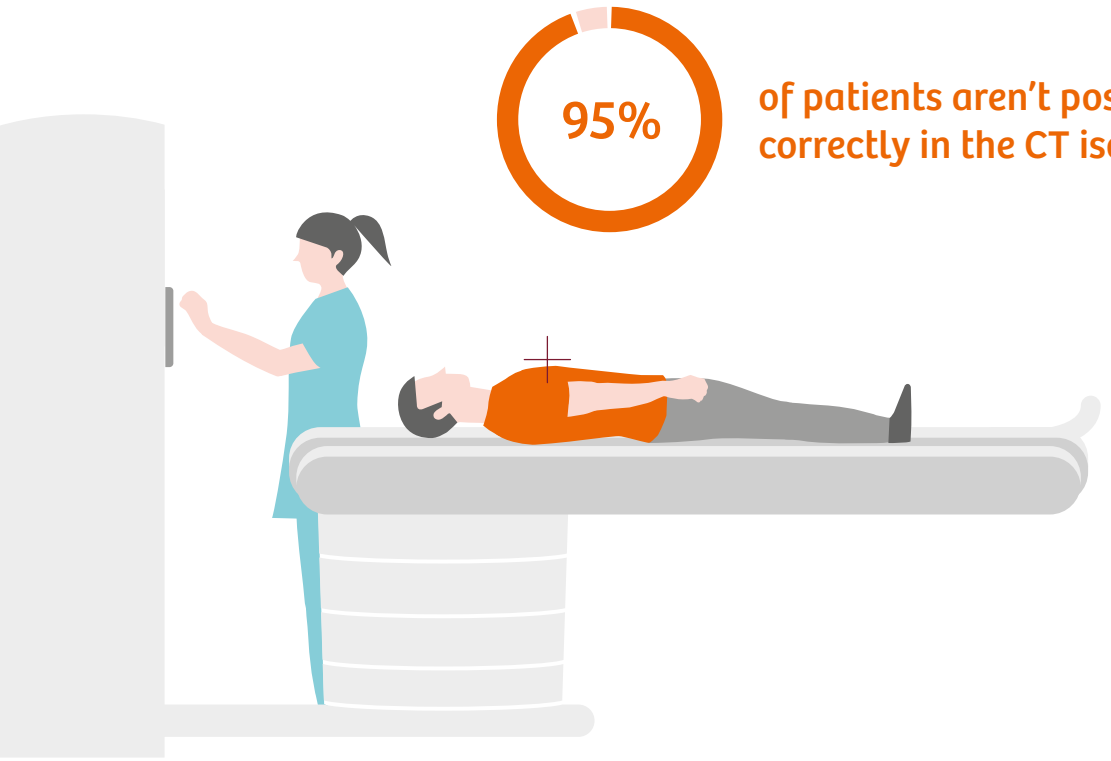
Thorax imaging
61-year-old male thorax scan; high image quality and no motion artifacts using high rotation times and Stellar^{Infinity} detector with integrated iterative reconstruction

z-UHR

Bone UHR
Ultra-high-resolution scan of wrist enabled by z-UHR combination

What's the price of insufficient planning and patient positioning?

High-quality images begin with accurate planning and patient positioning. However, precision and consistency are often compromised due to time or staff constraints – increasing dose and affecting image quality, and potentially leading to not reimbursed rescans.

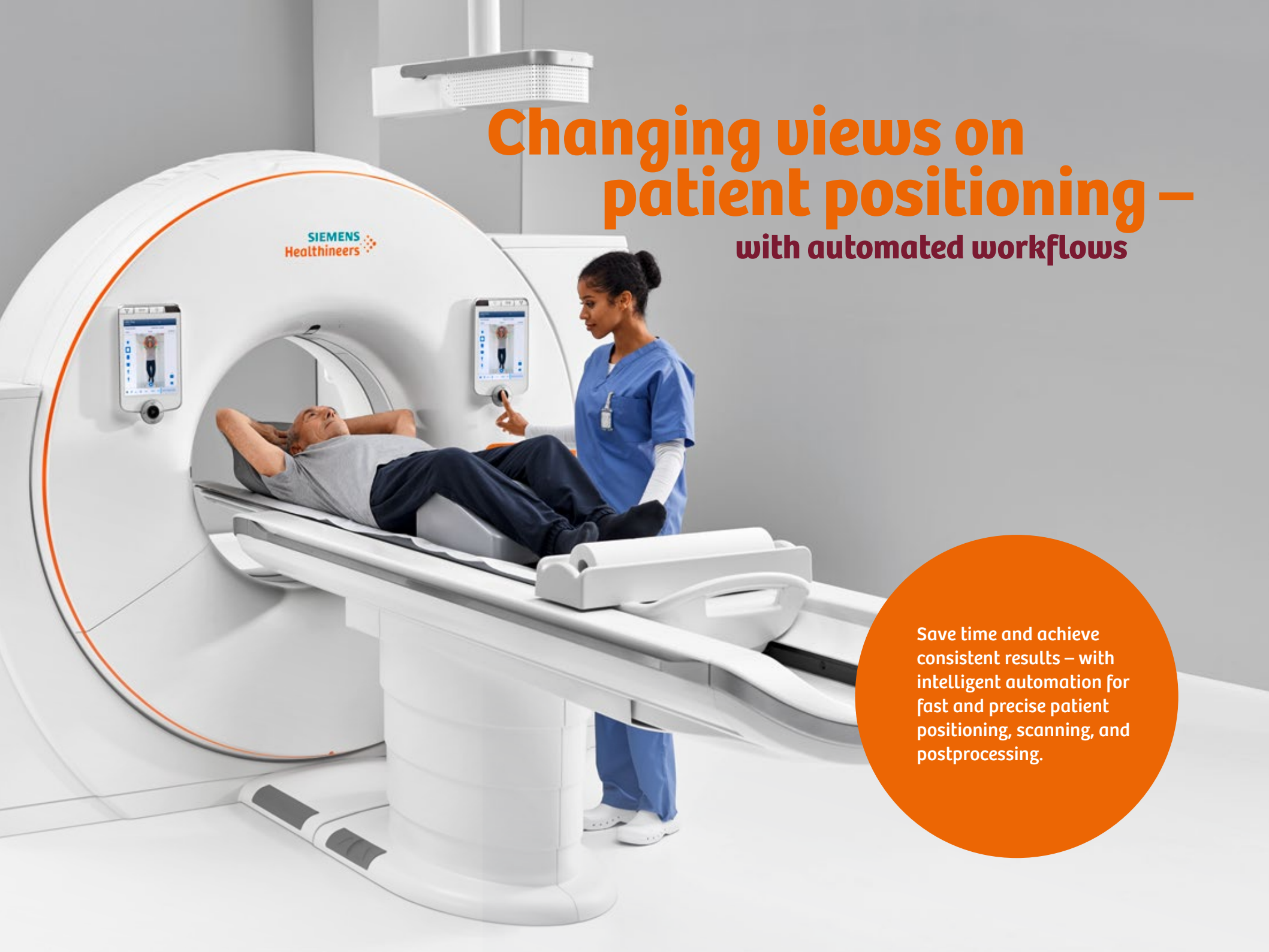


95% of patients aren't positioned correctly in the CT isocenter.[16]

The same study revealed a 2.6-cm mean deviation. A 3.0-cm deviation would lead to …

18% higher peripheral dose

6% more image noise



Changing views on patient positioning –

with automated workflows

Save time and achieve consistent results – with intelligent automation for fast and precise patient positioning, scanning, and postprocessing.

Safeguard correct and consistent positioning

Accurate patient positioning is essential for safe, error-free CT imaging with no rescans and time loss. However, users are as individual as patients, and so the quality of results can differ enormously. With its game-changing FAST Integrated Workflow, SOMATOM Edge Plus helps technologists acquire the right body region at the right dose – in a reproducible way.

Precise position – precise quality and dose
The world's first FAST 3D Camera in conjunction with FAST applications helps your team provide first-time-right scans, manage tight schedules, and potentially examine more patients.

Get closer to your patients
At the same time, with the Touch Panels, technologists can provide instruction and assistance much closer to patients. Considering the growing pressures on healthcare providers, this could enhance patient cooperation, staff satisfaction, and even your institution's reputation.

Unique combination of solutions

FAST 3D Camera
powered by FAST Integrated Workflow

+

Touch Panels
powered by FAST Integrated Workflow

"Special attention must be paid to a correct patient centering in order to optimize organ doses and image quality of the respective CT examination."[17]

Make precise positioning your standard

With SOMATOM Edge Plus and its FAST Integrated Workflow, you can push workflow automation and standardization to a new level – and, with no contradiction, care for patients more individually.

Starting with 3D measurement
"You can only improve what you can measure" – SOMATOM Edge Plus gives truth to the old saying:

- FAST 3D Camera captures the patient's shape, position, and height in three dimensions
- Using infrared measurement, it even recognizes body contours; this is particularly useful when, for example, patients are wearing thicker clothes

Calculating with accuracy
Algorithms use the measured data to calculate:

- The body regions in z-direction
- The patient's direction – "head-first versus feet-first" as well as "prone or supine"
- The table height and patient thickness

Automating precision
Specialized applications support accurate and reproducible positioning:

- FAST Isocentering, at the push of a button, provides the correct isocenter position, enabling the right dose modulation and consistent images
- FAST Range supports scanning the correct body region with no truncation by aligning the automatically identified anatomical position with the protocol
- FAST Direction helps safeguard the right scan direction, which is crucial when moving the table with infused patients
- FAST Topo enables faster scan speeds in topograms, which prevents breath-hold artifacts. It also has the potential to decrease the topogram dose

Want to dive deeper?
Scan the QR code to
watch the FAST Integrated
Workflow video!

Staying in control – closely to your patients
Technologists can improve patient interaction with two front-side and two optional back-side Touch Panels:

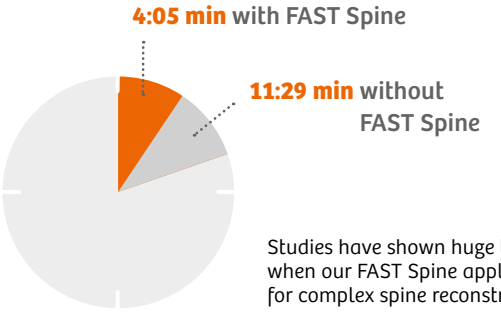
- This allows setting and controlling all parameters while staying in touch with the patient
- Protocol selection and patient positioning become simpler and more precise
- With FAST ECG Check, patient variabilities with ECG impedance and electrode contact are ruled out, allowing for the most accurate ECG signal for each patient

Simplify preparation of patients and scanner

What if you could save just two minutes per patient? That could easily add up and free time for two more patients per day.[18] Optimize your process efficiency and improve patient outcomes with comprehensive software packages that facilitate your workflows and lower radiation exposure.

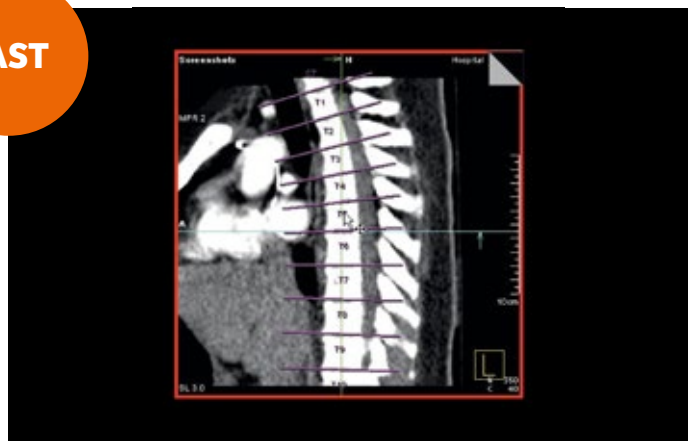
Be FAST
With our FAST[19] technologies, you can accelerate a wide range of tasks – from preparing anatomically aligned spine recons to directly accessing Dual Energy results on your PACS.

Take CARE
SOMATOM Edge Plus helps you optimize scanner workflows in terms of standardization, quality, speed, and dose. Our CARE technologies enable improved patient outcomes by delivering excellent image quality while lowering radiation exposure – even when scanning patients is challenging.



Studies have shown huge time gains when our FAST Spine application is used for complex spine reconstructions.[20]

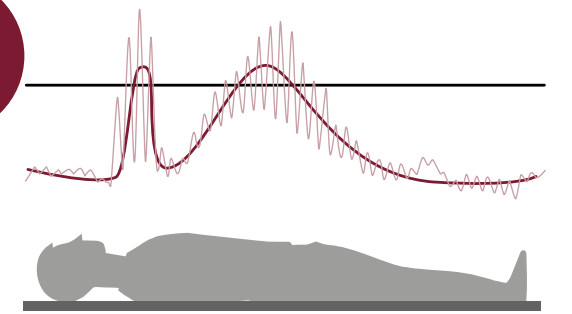
FAST



Spine reconstruction with one click
FAST Spine lets you accurately and automatically align the preparation of spine recons with just a single click. By predetecting and predefining recon ranges, it frees up time that you can devote to your patient, which improves patient cooperation and satisfaction.

Align images automatically
Rely on clear findings even in challenging situations. FAST 3D Align automatically corrects misalignments of anatomical structures. It also allows for side-by-side comparisons and adjusts the reconstruction field of view. Automated workflows help you save time and effort.

CARE

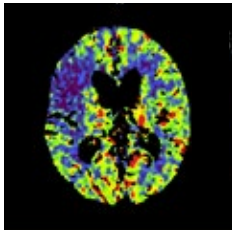


● Scan with constant mAs
● CARE Dose4D: mAs based on topogram
● CARE Dose4D: Angular dose modulation

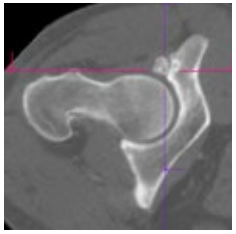
Right dose modulation – automatically
With CARE Dose4D, you can achieve significant dose reductions. Automated dose modulation delivers the right dose – with mAs tailored to the size and shape of your patient. Predefined settings for children, adults, and bariatric patients help you prepare the scan quickly and safely.

Special care for young patients
CARE Child is a dedicated pediatric CT imaging package with special protocols modified for children. The industry's first 70-kV scan mode and specific CARE Dose4D, curves enable a significantly lower radiation dose for children.

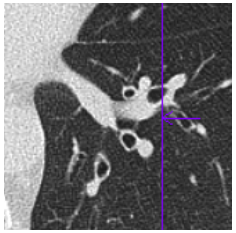
Rapid Results applications available with SOMATOM Edge Plus and *syngo*.via



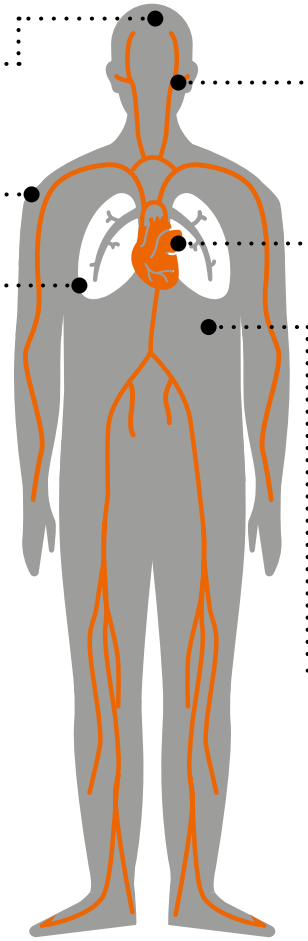
AutoStroke



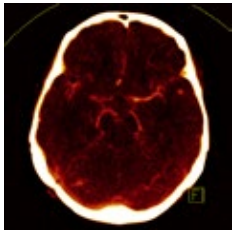
ALPHA Anatomical Ranges



Lung CAD

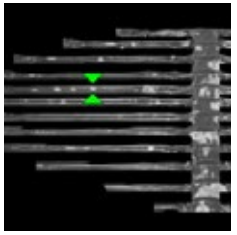


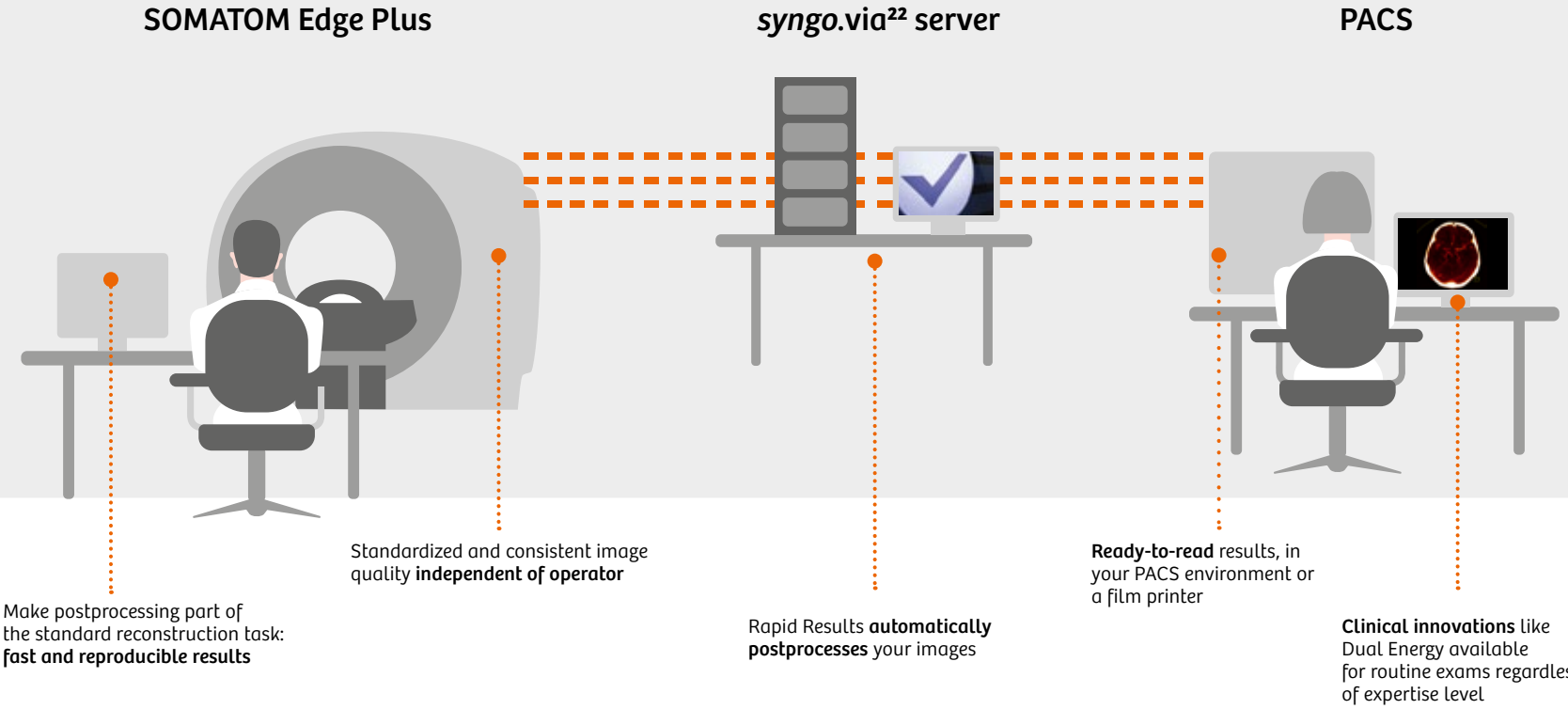
Dual Energy



Cardiovascular and TAVI Planning

Rib and Spine Unfolding





Rapid Results – zero-click postprocessing
Rapid Results enables direct communication between *syngo*.via²² and SOMATOM Edge Plus, enabling zero-click postprocessing within the selected scan protocol. In this way, *syngo*.via automatically creates and sends ready-to-read results from wherever you are to your PACS or a film printer. Rapid Results knows what you need, just when you need it. This is reading as simple as it should be. With Rapid Results, you can automatically generate neuro perfusion maps, standard visualizations of general vessels and different anatomies in various types and orientations, or visualizations of the rib cage in an easy-to-report format. Define your workflow once, and let Rapid Results produce the basis for your decisions.

Your benefits with Rapid Results

1. Clinical innovations like CT Bone Reading for routine exams regardless of expertise level
2. Standardized and consistent image quality independent of operator
3. Postprocessing as part of the standard reconstruction task
4. Ready-to-read results wherever you want them

SOMATOM Edge Plus

Detector:	Stellar^{Infinity} detector
Number of acquired slices:	128
Number of reconstructed slices:	384
Spatial resolution:	0.30 mm
Rotation time:	0.28 s
Temporal resolution:	142 ms
Generator power:	100 kW
kV steps:	70, 80, 90, 100, 110, 120, 130, 140 kV
Max. scan speed:	23 cm/s
Table load:	up to 307 kg/676 lbs
Gantry opening:	78 cm

Touch Panels
Enhanced patient care plus real-time ECG control

- Facilitated patient interaction
- Reduced obsolescence

Fast scanning at 23 cm/s in routine
0.28 s rotation plus 1.7 pitch

78-cm bore and strong tables
Comfort plus capacity

- Accommodate diverse patients
- Easy access

Stellar^{Infinity} detector boosted by iterative reconstruction
Low-signal detection plus low-dose imaging

FAST IRS (image reconstruction system)

- 80 fps (FBP)
- 40 fps (IR)

FAST 3D Camera – part of FAST Integrated Workflow

Simple plus precise positioning

- Precise isocentering
- Correct patient positioning

Straton® MX Sigma X-ray tube

Precise power plus precise dose management

- 100-kW generator
- 10 kV Steps
- CARE kV

Tin/Gold Split Filter

Routine TwinBeam Dual Energy scanning plus low-dose Tin Filter scanning

FAST CARE technology

High-performance workflows plus fine-tuned balance of image quality and dose

Additional products and services

***syngo*.via –**
reading as it should be: simple and cinematic
Reading should be simple. If you like to read and report with ease, you'll love the new *syngo*.via. All your favorite tools are centralized in one place, from basic distance measurement to CT vascular tools. This saves you clicks and mouse movement. With the new Findings Assistant, you can organize your findings and make sure you focus on what's relevant.

Reading should be cinematic. Make your communication with referrers and patients clear and convincing. With the new Cinematic VRT[23] in *syngo*.via, you can make your case look like something from an anatomy textbook. It only takes one click to create stunning, easy-to-understand clinical images. Use this photo-realistic material for education, publication, and communication.

siemens.com/*syngo*.via

Cyber security –
protecting data, systems, and patients
With ongoing digitalization in healthcare systems, the role of cyber security is ever increasing throughout the entire imaging chain. *syngo* System Security protects your imaging modalities and data from unauthorized access and manipulation. Custom-made activities range from fast and regular delivery of security fixes to incident support and vulnerability management. All of this is based on a comprehensive cyber security partnership that keeps you apprised of the latest developments in software and hardware as well as current innovations in the security field.

Customer Services – providing users with expertise and efficiency over the long term
We're constantly focusing on high-quality services. Our extensive service portfolio for CT offers comprehensive service contracts including a variety of training modules. This makes Siemens Healthineers well positioned to address diverse customer needs in the healthcare market.

siemens.com/user-services

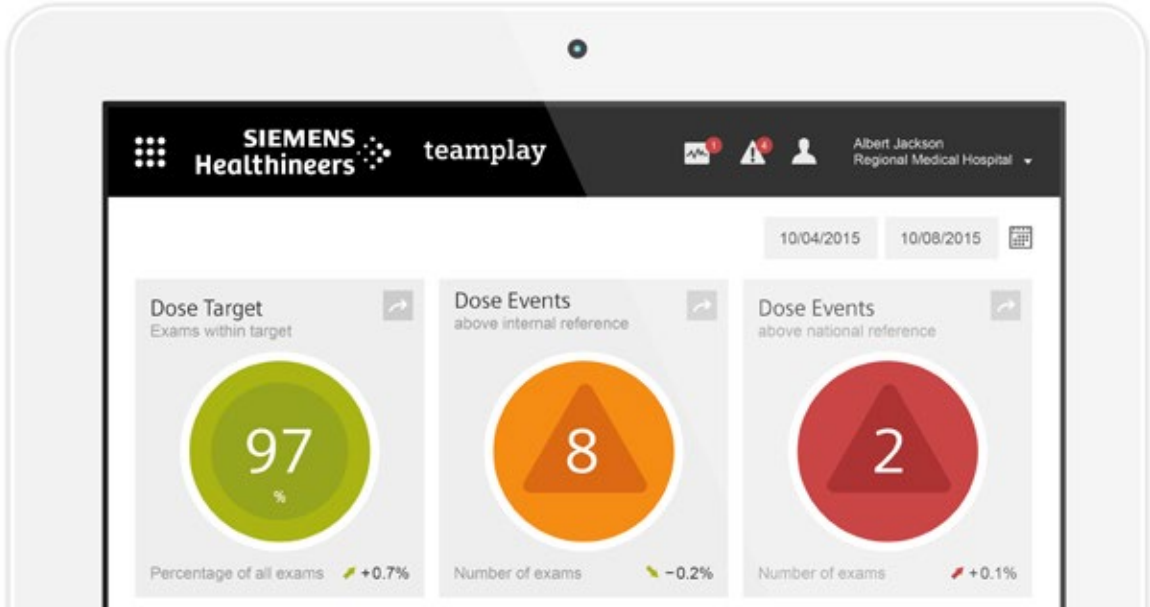
Guardian™ Program including TubeGuard
Predicting your tube's lifecycle:

- Continuous real-time monitoring
- Focus on the X-ray tube
- Failure prediction

siemens.com/system-services

teamplay
teamplay[24] helps you to securely connect, compare, and collaborate. Connecting to the teamplay cloud gives you instant[24] access to your data for faster decision-making based on reliable, well-structured, and up-to-date key metrics. Comparing performance data to peer institutions[25, 26] helps you maintain competitive standards.

siemens.com/teamplay



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Why Siemens Healthineers?

At Siemens Healthineers, our focus is to help healthcare providers succeed in today's dynamic environment.

Healthcare providers around the world have long relied upon our engineering excellence – leading-edge, high-quality medical technologies across a broad portfolio. Our technologies touch an estimated 5 million patients globally every day.[27] At the same time, they help hospital departments to continuously improve their clinical, operational and financial outcomes.

We now consolidate this unprecedented volume of data and insights and turn them into pioneering enterprise and digital health services. With those, we maximize opportunities and share risks for the success of your entire health system.

Partnerships are built on people. With Siemens Healthineers there is no team more committed and more connected than we are to realize your success together.

Automated and patient-adaptive workflows

FAST Integrated Workflow with FAST 3D Camera
The FAST 3D Camera captures the patient's shape, position, and height using three-dimensional data. Thanks to infrared measurement, it also recognizes body contours: for example, when patients are covered with blankets or wear patient gowns. Algorithms utilize this data to calculate the correct patient positioning. The zero-click solution runs unique algorithms to support accurate and reproducible positioning: With FAST Isocentering, you get the right dose modulation and consistent images; FAST Range supports scanning the right body region with no truncation; FAST Direction helps safeguard the right scan direction.

Touch Panels
Touch Panels bring you closer to the patient and allow for smooth scan selection and real-time ECG monitoring right next to the patient. Technologists can take immediate action when necessary.

FAST CARE technology
Achieve groundbreaking efficiency in your workflow and manage an optimal balance of dose level and image quality with the FAST CARE technology. Streamlined scan procedures deliver higher speeds and shorter wait times in your clinical routine. Standardized workflows provide greater consistency from image acquisition to postprocessing to reading, exceptionally patient-friendly scans, and increased safety for sensitive patients.

High capacity
The high-capacity table is ideally suited for bariatric imaging. With a bore diameter of up to 78 cm, a table load capacity of up to 307 kg/676 lbs, and two meters in maximum length, it helps you overcome the limitations posed by many other CT systems. Large and bariatric patients can be easily scanned from head to foot. Also, considering that claustrophobia is a common issue for some people, the design offers great patient comfort and can reduce anxiety.

FAST IRS
In virtually all reconstructions, the FAST IRS (image reconstruction system) can reduce wait time. For example, filtered back projection (FBP) reconstructions are calculated with up to 80 fps (frames per second) and iterative reconstructions (IR) are calculated with 40 fps. Using FAST IRS, the often numerous reconstructions in polytrauma and emergency exams can be performed fast, when time until diagnosis really counts.

Rapid Results
With no intermediary human interaction, you'll get the right series and the appropriate amount of information. Rapid Results technology automatically calculates the images right at the scanner and archives the evaluation results: for example, Lung CAD in the multimodality oncology workflow and Monoenergetic images in CT Dual Energy. Also, you don't have to open the workflow in *syngo*.via because the calculated results are automatically sent to your PACS.

SOMATOM Edge Plus is not commercially available in all countries. Due to regulatory reasons, its future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

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The information in this document contains general descriptions of the technical options available and may not always apply in individual cases.

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In the interest of complying with legal requirements concerning the environmental compatibility of our products (protection of natural resources and waste conservation), we may recycle certain components where legally permissible. For recycled components we use the same extensive quality assurance measures as for factory-new components.

Any technical data contained in this document may vary within defined tolerances. Original images always lose a certain amount of detail when reproduced.

The statements by Siemens Healthineers' customers described herein are based on results that were achieved in the customer's unique setting. Since there is no "typical" hospital and many variables exist (e.g., hospital size, case mix, level of IT adoption) there can be no guarantee that other customers will achieve the same results.

Clinical Images – Courtesy of: Christie Clinic Champange IL, USA; Linköping University Hospital, Sweden; Ridgeview Medical Center, Waconia, M, USA; Universitätsklinikum Tübingen, Germany; Medscan Barangaroo, Sydney, Australia; Medical University of Vienna, General Hospital AKH, Vienna, Austria; New York University, USA; LMU Grosshadern, Munich, Germany; Hong Kong Baptise Hospital, China

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[1] World Health Organization (WHO). Media Centre: Ageing and health. Available from: http://www.who.int/mediacentre/factsheets/fs404/en/ [Accessed October 9, 2017].

[2] Deloitte. Vital Signs: How to deliver better healthcare across Europe. Available from: https://www2.deloitte.com/content/dam/Deloitte/ch/Documents/life-sciences-health-care/ch-en-life-sciences-vital-signs.pdf#page=37 [Accessed October 9, 2017].

[3] Madden Yee, K. Cuts on top of cuts: 2014 Medicare rates slash CT, MR payments. Available from: http://www.auntminnie.com/index.aspx?sec=ser&sub=def&pag=dis&ItemID=104035 [Accessed October 9, 2017].

[4] Fisher, D. Setting the Standard: XR-29 and the Importance of CT Dose Optimization. Available from: https://de.dotmed.com/news/story/23914 [Accessed October 9, 2017].

[5] Dr. Yach, D, *et. al.* WHO/FAO Tackle Diet-Disease Epidemic. Available from: http://ceche.org/mol/Spring-03/11-1/PDFs/lead-1%2011-1.pdf [Accessed October 9, 2017].

[6] Thorpe, KE. Chronic disease management and prevention in the US: The missing links in health care reform. Available from: https://www.lse.ac.uk/LSEHealthAndSocialCare/pdf/eurohealth/VOL15No1/Thorpe.pdf [Accessed October 9, 2017].

[7] Wikihowo. Top 10 Most Used Medical Imaging Modalities. Available from: http://wikihowo.blogspot.de/2014/10/top-10-most-used-medical-imaging.html [Accessed October 9, 2017].

[8] Smith-Bindman, R, MD, Miglioretti, DL., PhD Johnson, E, MS, *et al.* Use of Diagnostic Imaging Studies and Associated Radiation Exposure for Patients Enrolled in Large Integrated Health Care Systems, 1996--2010. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3859870/ [Accessed October 24, 2017].

[9] OECD. Obesity Update. Available from: http://www.oecd.org/health/obesity-update.htm [Accessed October 9, 2017].

[10] Almohiy, H. Paediatric computed tomography radiation dose: A review of the global dilemma. World J Radiol 2014 Jan 28;6(1):1--6.

[11] Combined Applications to Reduce Exposure

[12] As Low As Reasonably Achievable

[13] Lell MM, *et al.* Imaging the Parasinus Region with a Third-Generation Dual-Source CT and the Effect of Tin Filtration on Image Quality and Radiation Dose. Am J NeuroRadiol July 2015;36(7):1225--30.

[14] Haubenreisser, H, *et al.* From 3D to 4D: Integration of temporal information into CT angiography studies. Eur J Radiol Dec 2015;84(12):2421--24.

[15] Option

[16] Li J, Udayasankar UK, Toth TL, *et al.* Automatic patient centering for MDCT: effect on radiation dose. Am J Roentgenol 2007;188:547–552 and Kaasalainen T, Palmu K, Lampinen A, et al. Effect of vertical positioning on organ dose, image noise and contrast in pediatric chest CT-phantom study. Pediatr Radiol Jun 2013;43(6):673--84.

[17] Saltybaeva N., Alkadhi H.; Vertical Off-Centering Affects Organ Dose in Chest CT: Evidence from Monte Carlo Simulations in Anthropomorphic Phantoms.

[18] Given a global average utilization of 25 patients a day

[19] Fully Assisting Scanner Technologies

[20] Schumann, I. Simplification of the imaging process in computed tomography via FAST Planning and FAST Spine – Results of an explorative case study [Masterthesis].

[21] Automatic landmark and parsing of human anatomy

[22] *syngo*.via can be used as a standalone device or together with a variety of *syngo*.via-based software options, which are medical devices in their own right. *syngo*.via and the *syngo*.via based software options are not commercially available in all countries. Due to regulatory reasons their future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

[23] Requires the license *syngo*.via Cinematic VRT. Cinematic VRT is recommended for communication, education, and publication purposes and is not intended for diagnostic reading.

[24] Prerequisites include: wireless connection to clinical network, meeting recommended minimum hardware requirements, and adherence to local privacy and security regulations.

[25] The information about this product is preliminary. It is under development, not commercially available, and its future availability cannot be guaranteed.

[26] Availability of benchmarking option depends on a minimum number of considered subscribers to guarantee customer anonymity and data protection.

[27] Siemens AG. Sustainable healthcare strategy -- Indicators in fiscal 2014, page: 3--4

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