Imagine the clinical benefits of a solution for oncology imaging created by synergizing the most innovative CT scanner technologies and trendsetting software applications. Images of exceptional resolution, quickly and effortlessly translated into the information you need to make confident treatment decisions. You enjoy high workflow efficiency while offering superior patient care.

This is exactly what Siemens SOMATOM® CT scanners in combination with the CT Oncology Engine offer you. A unique combination of innovative CT technologies for precision imaging, like z-Sharp™ or 3D Intervention, and time-saving software applications including syngo® LungCAD (computer aided detection) and syngo CT Oncology. Our unique spiral Dual Energy applications will expand your horizons towards tissue differentiation for tumor evaluation.

From detection and evaluation to intervention and follow-up, our oncology solutions are designed to help take the guesswork out of your day. We help you achieve the best possible clinical outcomes in oncology CT imaging.
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Our Solution for You

Detection

• WorkStream4D™ saves time with direct 3D Recon.
• Perform tissue characterization using spiral Dual Energy.
• Clinically proven syngo LungCAD for fast detection of lung lesions.¹
• Enhanced diagnostic confidence using syngo Colonography PEV, a second reader option for colon polyp detection.

Evaluation

• syngo CT Oncology – automated one-click 3D segmentation of liver and lung lesions plus other solid lesions and lymph nodes.
• Taking out the guesswork – automated measurement of tumor size: RECIST, WHO, 3D volume, and total tumor burden.

¹ syngo LungCAD is not designed to be used as a first reader tool.
Follow-up

• z-Sharp for acquisition of finest detail in combination with fast coverage, greater accuracy in determining change in tumor size.
• syngo CT Oncology – autopilots for automated one-click lesion matching and 3D segmentation of liver and lung lesions plus other solid lesions and lymph nodes.
• Taking out the guesswork – automated measurement of tumor growth in %, doubling time and total tumor burden RECIST, WHO, and 3D volume.

Intervention

• 3D Intervention\(^3\) offers a new level of visualization for more accurate minimally invasive procedures.
• i-Cockpit\(^3\) for superior in-room control from table positioning to windowing. The control is at your fingertips.
• Wide gantry opening for better patient access.

\(^3\) Only available for SOMATOM Definition AS.
Siemens understands that you want to make sure that you are seeing all clinically relevant tumors and that you want to be confident that you have not missed anything. Unique innovations such as z-Sharp Technology and CARE Dose4D™ ensure that you routinely get the best possible image quality while taking care of patients’ dose exposure. SureView™ delivers exceptional imaging for multi-phase liver studies or of vasculature for surgical planning. And with highest resolution down to 0.33 mm, tumor edges can be well defined for confident treatment planning. Looking into the future, spiral Dual Energy applications allow you to obtain morphological information and perform tissue characterization using two different energy levels in a single spiral scan.11
But that’s not all – Siemens helps you manage your imaging data, providing intelligent tools for real-time direct 3D reconstruction and off-line data processing. Clinically proven software tools like syngo LungCAD\(^1\) will help you save time and improve your outcomes for lung cancer evaluation. State-of-the-art syngo Colonography with syngo Colonography PEV aids in the visualization of colon polyps and incorporates color coding of unseen areas and tagged stool, which together with 3D panoramic viewing of the colon, helps you to be more confident that you have not missed clinically relevant lesions.

And with the increasing routine use of PET/CT for functional tumor assessment, the seamless integration of image fusion will help you be ready to address the widening spectrum of diagnostic demands in today’s routine oncology imaging.

\(^1\) Only available on SOMATOM Definition. Must be purchased separately.

\(^2\) syngo LungCAD is not designed to be used as a first reader tool.
Evaluating tumors accurately and reliably can be challenging. Manual measurement and reporting can be a time-consuming, error-prone process. Siemens understands that you want to offer the most accurate tumor evaluation you can, but that you also want to do so as quickly as possible. That’s why Siemens delivers unique, intelligent software solutions with automated workflow for the tumors you are evaluating everyday. syngo CT Oncology offers automated 3D tumor segmentation and measurement, delivering RECIST, WHO, 3D volume, maximum diameter and total tumor burden at the click of a button.

There are dedicated programs, optimizing the workflow for evaluation of lung and liver lesions and lymph nodes, and a general tool automates the workflow for other solid lesions such as metastatic lesions in malignant melanoma. The single auto-report is DICOM SR and DICOM RT compatible. So it’s easily stored in PACS or can be used for radiation therapy planning. For evaluation of lesions in the colon, syngo Colonography facilitates auto-measurement of lesions, synchronous reading of prone and supine datasets.

The global view offers an ideal guide for the gastrointestinal surgeon, including the distance from the rectum for each marked lesion, if patient requires polypectomy. Together, these tools offer you high speed and confidence for your routine oncology imaging – helping to take the guesswork out of your day.
Follow-up

Follow-up on tumor growth needn’t be imprecise or something you do manually. Our belief is that the combination of superior image quality and streamlined intelligent software tools can help you be faster and more confident about finding the right lesion and enable faster and more accurate assessment of tumor growth. To obtain the best possible outcome you need the best possible image quality. From innovative CT scanners with z-Sharp Technology, you benefit from high volume coverage and highest spatial resolution. Your outcome? The detailed image information you need for more precise tumor growth definition.

Confident tumor follow-up is not only about the best possible image quality, it’s also about access to intelligent software tools. That is why we incorporated fully automated lesion matching and percentage tumor growth evaluation into our newest software, syngo CT Oncology. With one click you can match all marked lesions from the previous and follow-up exams and, following the same easy workflow, the software calculates the change for the target lesions in percent.

What’s more, color coding of total tumor burden will help you see at a glance if the patient’s situation is getting better, worse or is unchanged. Whether you are following up on liver lesions, lung lesions, lymph nodes, or all of these and more, the single auto-report gives you all the parameters you need to make a confident decision. Another way that the Siemens CT imaging solutions for diagnostic oncology help take the guesswork out of your day.
CT intervention is about accuracy and speed, while delivering the minimum possible dose to your patients, your staff, and yourself. Whether you perform fluoroscopic or non-fluoroscopic procedures, you want an imaging solution that gives you first-class images quickly and in such a way that you can see your needle position in an instant.

CT intervention is also about patient access: You want to position your patients quickly and accurately, and you want to have full access during the procedure. With our slimmest gantry and wide bore designs, we ensure best combination for virtually every procedure. Our newest CT intervention solutions combine a fully configurable scanning user interface, enabling you to optimize your intervention scan to meet your needs, including setting an on-screen dose monitor. With HandCARE™ you have significant physician dose saving for both fluoroscopic and non-fluoroscopic procedures.

With the new SOMATOM Definition AS, Siemens adds a whole new dimension to interventional CT. For the first time you can benefit from 3D real-time procedures. One-touch interventional scanning modes allow you to switch between sequential and spiral modes on the fly. Fast image reconstruction in i-spiral mode gives you instant access to coronal and sagittal images giving you a more accurate overview of your needle position, and with i-NeedleSharp your images are artifact-free, helping you achieve more accurate positioning.

And when it comes to in-room control, from table positioning, image windowing to remote mouse control of the syngo Acquisition Workplace, our new i-Cockpit gives you the freedom to control the entire procedure at the touch of a button, without leaving your patient’s side.
“With the new interventional solution even an inexperienced radiologist can immediately reduce the biopsy time by 20%.”

Prof. A. K. Dixon, Addenbrooke’s Hospital, Cambridge, UK
“syngo CT Oncology gives reliable and consistent information. It virtually eliminates human error and the variations in measurement that can occur when doing it manually. Eventually, software like this will be standard for any follow-up of oncology patients. Previously, the technology was not available.”

Vahid Yaghmai, MD, Associate Professor of Radiology, Northwestern University Feinberg School of Medicine, Chicago, USA
System Overview

Since Siemens Medical Solutions introduced the world’s first CT from a medical equipment manufacturer in 1974, we are widely accepted as a leader in CT innovation. Siemens’ customer-focused philosophy has always been to continually integrate cutting-edge imaging applications into daily clinical practice, ensuring the highest quality patient care while lowering costs. Over the years, these innovations have spanned, for instance, from the first spiral CT scanner to the STRATON®, the industry’s only 0 MHU X-ray tube, to Dual Source CT in 2005, and the world’s first adaptive scanner in 2007. It is then no surprise that Siemens invests more than twice as much on research as any other CT scanner manufacturer. Improving healthcare efficiency with innovative technology makes SOMATOM CT scanners the preferred solution for both leading healthcare institutions and physicians around the world.

With the SOMATOM Spirit, we deliver an accurate, reliable, and fast diagnosis – the only outcome that counts in the CT world. It is our multislice CT scanner for all who dreamed about an affordable and reliable system with the absolute newest, future-oriented technology.

The SOMATOM Emotion beautifully illustrates Siemens’ attention to detail and insistence on excellence. Designed to make your day easier...

SOMATOM Definition

Dual Source CT allows you to scan any heart rate without the need of beta-blockers – at the lowest radiation dose ever achieved. Moreover, it provides one-stop diagnoses regardless of size and condition of the patient, saving precious time and money in acute care. And imagine all the new clinical opportunities spiral Dual Energy scanning offers in CT by characterizing materials.

SOMATOM Definition AS

Our new CT scanner is the world’s first to adapt to your patients and to your clinical questions – breaking the barriers of conventional CT. Imagine a truly adaptive CT scanner that intelligently adapts, on the fly, and gives you exactly what you need. By modifying every component of Multislice CT, we make the SOMATOM Definition AS an expert in virtually any clinical field.
SOMATOM Spirit

SOMATOM Spirit is a subsecond, multislice CT scanner adapted specifically for economical day-to-day clinical routine. This cost-effective solution benefits from Siemens’ latest developments that lead to superb image quality and dose efficiency. Our system is designed to perform CT examinations easier than ever before, a simple entry into the fascinating world of Computed Tomography.

SOMATOM Emotion

With more than 5,000 systems worldwide, the SOMATOM Emotion is the most popular CT in the world. With both 6-slice and 16-slice configurations outfitted with Siemens’ newest technological advances, you can expect, and will receive, high-end imaging performance from an unbelievably compact scanner that will continuously protect your investment.

and clinically more successful. Innovative imaging technology supported by outstanding workflow concepts will make your workday exceptional.

To meet today’s and tomorrow’s demands, Siemens had to shift thinking from how CT has always been built to how it can be used. Not just as a discrete imaging modality, but as a critical tool to help manage a complete patient story. The vision began in 2005 with SOMATOM Definition, the world’s first Dual Source CT. With the SOMATOM Definition, we have redefined the clinical role of CT by doubling temporal resolution, doubling speed, and by offering twice the power while lowering dose even further.

It continues today completing the SOMATOM Definition Era with the introduction of the world’s first adaptive scanner, the SOMATOM Definition AS. The result? You can go beyond seeing the sharpest picture in CT to seeing the big picture in healthcare. The Definition Era opens up new worlds of clinical and economic possibility everywhere, ensuring higher quality and cost-efficient healthcare. It helps you as well as leading healthcare institutions and physicians all around the world to move from almost to always, from where to what, and from there to anywhere.
Thinking About the Future of Your Routine 3D Workflow?

Think of the advantages of innovative software solutions that are seamlessly integrated into your CT workflow: more intuitive scanning, higher patient throughput, plus faster and more confident diagnostic decisions. Imagine instant access to CT imaging data wherever and whenever you need it, with the flexibility of 3D image processing in your office, even a second opinion in the middle of the night without leaving home. And, imagine knowing that in the future you will continue to have access to the newest software technologies ...

For Siemens CT, everything you have imagined is today’s reality. Innovative scan technologies such as z-Sharp and CARE Dose4D, automatically facilitate scanning with the highest possible image quality at the lowest possible dose. Furthermore, our unique one-touch contrast management solution, CARE Contrast CT, automatically synchronizes scanning and contrast injection.

Siemens also leads the field in “Zero Delay” data processing, in pioneering shared database concepts, and in automated direct 3D image reconstruction. For example WorkStream4D ensures that you achieve outstanding image quality while maximizing patient throughput. Access to the right clinical software solutions can help you reach a confident diagnostic decision more quickly. Our trendsetting portfolio for routine oncology, cardiac, vascular, and neuro imaging offers you unique, clinically proven time-saving tools for automated tumor measurement and follow-up, coronary vessel evaluation and stroke assessment, to name a few. And, if you need a second opinion, syngo Expert-i gives remote access to your syngo workplace. The latest addition to our clinical portfolio, syngo WebSpace, uniquely offers instant access to 2D reading and 3D postprocessing tools whenever and wherever you need it.1) “Zero Delay” data streaming between a Siemens SOMATOM CT scanner and the syngo WebSpace server offers our customers the industry’s fastest access to data via Fast Data Link. By accessing the server from a variety of PC types including PACS or your office PC, or laptop, up to 20 users can simultaneously benefit from advanced clinical tools such as bone removal, vessel segmentation, and 4D heart visualization.

What about the future? Your future security is our future success, which is why we developed a program specifically designed to keep you at the clinical forefront – our commitment to your investment in a Siemens CT solution. Whether you want to stay at the clinical cutting edge, protect your investment or both, our new e-Tune program offers you the opportunity to ensure that your syngo WebSpace platform is ready for the newest cutting edge clinical applications.

1) Internet access required.

Terms and conditions apply. Please contact your Siemens partner for more information.
Data Flow

Benefits

- Planning, Preparation, Scanning and Reconstruction for several patients by two parallel workplaces.
- Immediate data access at *syngo* Acquisition Workplace and *syngo* CT Workplace through shared database.
- Virtually “Zero Delay” availability of thin slice data through Fast Data Link to *syngo* WebSpace Server.

- 3D data where needed with *syngo* WebSpace.
- Get a second opinion with *syngo* Expert-i.
- Parallel 3D Reading by concurrent sessions.
Specialized *syngo* CT Applications

**syngo CT Oncology**

*syngo* CT Oncology is a comprehensive software solution designed to fast-track routine diagnostic oncology, staging, and follow-up. It provides a range of fully automated tools specifically designed to support physicians in the detection, segmentation, and evaluation of suspicious lesions (including dedicated tools for lung, liver, and lymph node assessment). It also offers a fully automated follow-up protocol and features *syngo* LungCAD. *syngo* CT Oncology also facilitates functional imaging offering fusion of PET and CT data.

**syngo LungCAD**

A computer-aided detection (CAD) tool that assists the radiologist in the detection of solid pulmonary nodules during review of multi-detector CT examinations of the chest.

**syngo Colonography**

Locates and evaluates colon polyps using non-invasive, real-time virtual 3D endoluminal viewing for CT datasets.

**syngo Colonography PEV (Polyp Enhanced Viewing)**

Supports as automated second reader tool the visualization of lesions.

**syngo Body Perfusion CT**

Allows non-invasive perfusion assessment of organs and tumors for diagnosis, therapy planning, and therapy monitoring.

**syngo Volume Perfusion CT**

For the SOMATOM Definition AS, Adaptive 4D Spiral Technology scanning in combination with *syngo* Volume Perfusion CT enables full organ coverage for functional evaluation.

**Advanced Intervention**

Advanced Intervention is the biopsy mode combined with CARE Vision CT designed for a fast and intuitive workflow for all fluoroscopic interventions.

**syngo Dual Energy Advanced**

Dual Source CT permits the simultaneous use of two sources at two different kV levels. The resulting images show a different attenuation depending on the material scanned and thus allow differentiation of soft tissues from fat, or contrast agent from hard plaque or calcification, for example. Clinical applications range from organ perfused blood volume to iodine removal from liver scans generating a virtual non-contrast image. Potential new applications include the classification of tumors.

**WorkStream4D**

Fully automated reconstruction and reformating of raw data provide optimal image quality and enhance diagnostic confidence. Reconstruction occurs at both the *syngo* Acquisition and *syngo* CT Workplace parallel to acquisition of direct 3D reconstruction. Data is stored economically in your daily workflow and your data volume is reduced by up to a factor of 10. Furthermore, all diagnostic information is captured in 3D slices.

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1) Only available on SOMATOM Definition. Must be purchased separately.
Are We Speaking the Same Language?

Siemens CT solutions for diagnostic cardiovascular imaging are the result of working together with experts around the world, analyzing workflows and developing solutions to enhance them, and driving for better clinical outcomes with innovative scanner technologies and intelligent time-saving software solutions. The language we share is the language of images. The proof of our finely tuned imaging solutions are the images we share, the images you use every day to make life-saving diagnostic decisions. Our solutions for oncology are designed to help you obtain the best possible images and to provide you with the innovative tools you need to make confident decisions.

And from the moment of your purchase Life, our unique customer care solution, will accompany you. To sharpen your skills, choose from a wide range of education programs – from application training to clinical education. Benefit from the professional knowledge of our education specialists and clinical partners. Learn in your department, workshops, via e-learning tools, or attend fellowships and symposia.

With syngo WebSpace, our trendsetting technology, your postprocessing workflow changes. syngo WebSpace will give you the freedom to access your clinical images, postprocessing functionalities, and tools from almost any location. Our investment protection program “e-Tune” keeps your CT Clinical Engine software and syngo WebSpace software up-to-date – from day to day, from year to year. As the functionality of our CT Clinical Engines is continuously improved and enhanced, you will participate in these innovations. By changing key hardware components and the complete server, we even offer an investment protection for your syngo WebSpace hardware platform.

Your partnership with Siemens brings you to the forefront of the most cutting edge in CT performance. It opens the door to the newest generation of technology and developing medical fields – with Life.

1) Internet access required.
Clinical cases by courtesy of:

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