

syngo 2009 – Functional Imaging Widens the Clinical Spectrum for CT

By Karin Barthel and Stefan Wünsch, PhD, Business Unit CT, Siemens Healthcare, Forchheim, Germany

Siemens is further strengthening its commitment to deliver software products that can significantly increase diagnostic speed and confidence in everyday radiology as well as maintaining the innovation leadership for functional CT. The latest *syngo* 2009 software focuses on the new era of functional imaging in CT. With the launch of new applications such as *syngo* Dual Energy Lung Nodules, *syngo* Dual Energy Xenon, *syngo* Volume Perfusion Myocardium* and major improvements in *syngo* Volume Perfusion CT, more functional aspects are added to the classical morphological information of CT images.

Applying a newly developed 4D Noise Reduction technique implemented in *syngo* Volume Perfusion CT Neuro, the radiation dose of dynamic CT exams can be reduced by a substantial amount without compromising on diagnostic image quality.*

syngo DE Lung Nodules permits visualizing the contrast agent concentration in the lung nodules without the use of an additional non-contrast scan (Fig. 1). It may support the differentiation of lung

tumors. The new *syngo* Dual Energy Xenon sets a new trend in the evaluation of chronic and acute lung diseases. With the latest advances in CT imaging technologies, the clinical evaluation of, for instance, COPD (chronic obstructive pulmonary disease), is rapidly moving from pure visualization to quantitative analysis of lung parenchyma abnormalities. The acquired information may contribute to a more accurate planning of a surgery. Furthermore, the application provides information about the effectiveness of medication in a very early stage of the treatment.

The *syngo* Volume Perfusion Myocardium** allows the display and analysis of dynamic CT data of the heart utilizing the heart perfusion scanning mode of the SOMATOM® Definition Flash after contrast injection. The application not only helps to determine hemodynamic relevance of a myocardial infarction, it further provides information that can help to distinguish whether the myocardial infarction is old or fresh (Fig. 2). In addition, *syngo* 2009 supports the fusion of dynamic data of other modalities e.g.

dynamic angiographic data from Dyna CT with 4D CT data, thereby obtaining further functional information.

Of course, since the last major software version was released, many more improvements in routine and advanced applications e.g. in Expert-i, *syngo* CT Oncology, *syngo* InSpace as well as in *syngo* Neuro DSA have also been made. To benefit from the latest enhancements within existing applications only a software upgrade is needed.***

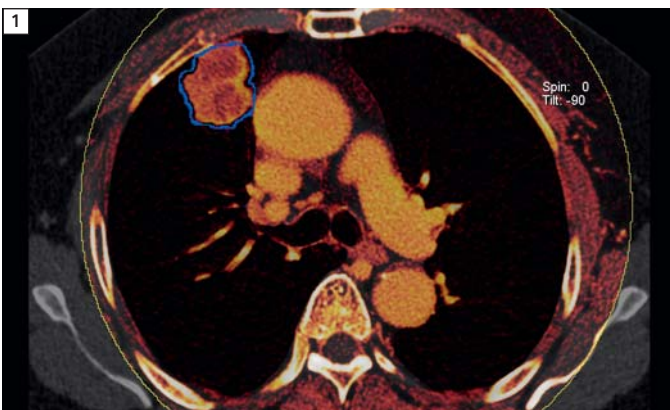
To test the dedicated applications in advance, 90 days trial licenses can be ordered. In case of interest, the local Siemens sales representative should be contacted.

* requires *syngo* 2009B.

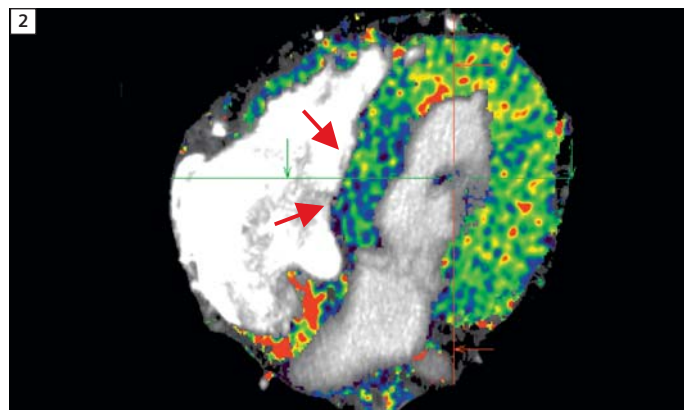
** a prerequisite is *syngo* VPCT Body.

*** dependent on workstation configuration.

www.siemens.com/ct-applications



1 Solitary pulmonary nodule in an adult patient displayed with DECT: iodine enhancement is shown as colored overlay to a virtual non-contrast image; the semi-automatic segmentation result is indicated in blue. Courtesy of Asan Medical Center, Seoul, Korea.



2 SOMATOM Definition Flash Heart Perfusion: Minor perfused myocardium (arrows) scanned with spatial resolution 0.33 mm, rotation 0.28 s, 2 x detector coverage .



Enhanced diagnostic confidence using *syngo* Colonography PEV as a second reader option for colon polyp detection.

Private Payers Reimburse for CT Colonography in the U.S.

By Joachim Buck, *Business Unit CT, Siemens Healthcare, Forchheim, Germany*

Stunning results of several CT Colonography (CTC) trials (e.g. ACRIN¹ 6664) have motivated the American Cancer Society (ACS) to add CTC to its five-year colon screening guidelines in 2008. Despite this fact, CMS (Centers for Medicare and Medicaid Service) announced a proposed non-coverage decision for CTC, at least for the time being. However this proposed decision won't discontinue the success story of CTC.

Two major commercial payers, Blue Cross Blue Shield of Delaware (BCBSDE) and Philadelphia region's largest health insurer, Independence Blue Cross (IBC), have started to reimburse for CTC. BCBSDE has agreed to reimburse the patient-

pending Integrated Virtual Colonoscopy™ model from Colon Health Centers (CHC)² of America, a Philadelphia-based company that partners with pre-eminent gastrointestinal physician groups in a region, enabling them to provide CTC as an option to traditional colonography for colon cancer screening. BCBSDE is providing a single, bundled, episode-of-care payment "per screening event" for CTC and believes that it is essential to have the capability to provide same-day, same-prep therapeutic colonography for patients who undergo CTC. CHC of America is expecting several Mid-Atlantic region Blue Cross plans and other commercial insurers to begin to reimburse CTC within the next several months. Payers are encouraged and positively responding to the high sensitivity, safety and convenience that CTC offers patients, as well as the signifi-

cantly lower "per screening event" costs. With colorectal cancer (CRC) screening rates hovering in the dismal 50% range, payers are looking for other screening options to get their members off the 'screening sidelines'. CTC is that new option. For example, nearly 50% of the patients screened at CHC of America sites report that the availability of patient-friendly CTC was the force motivating them to receive life-saving CRC screening. CT Colonography will definitely play a large role in CRC screening for the foreseeable future. With this, CTC is definitely the wave of the future and it is highly expected that other private payers will follow in the near future.

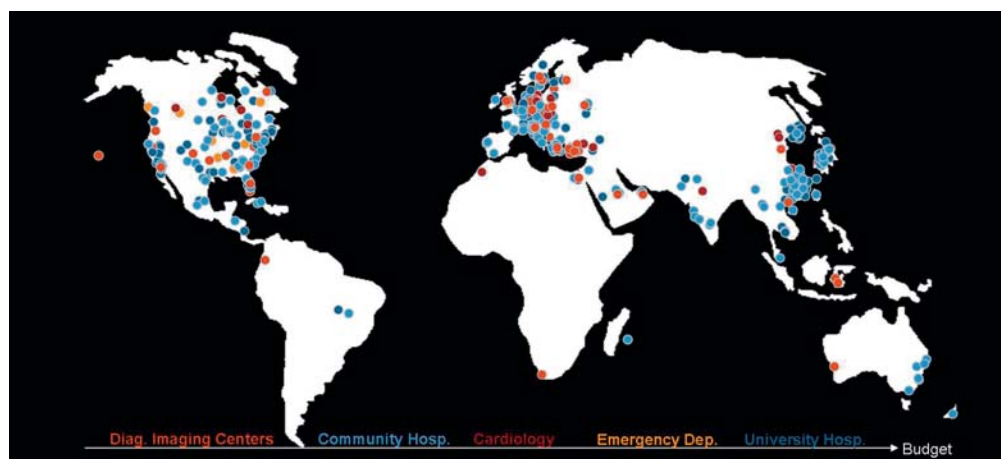
References

- 1 ACRIN (American College of Radiology Imaging Network)
- 2 www.colonhealthcenters.com

500 SOMATOM Definition Dual Source Installations Prove Clinical Success

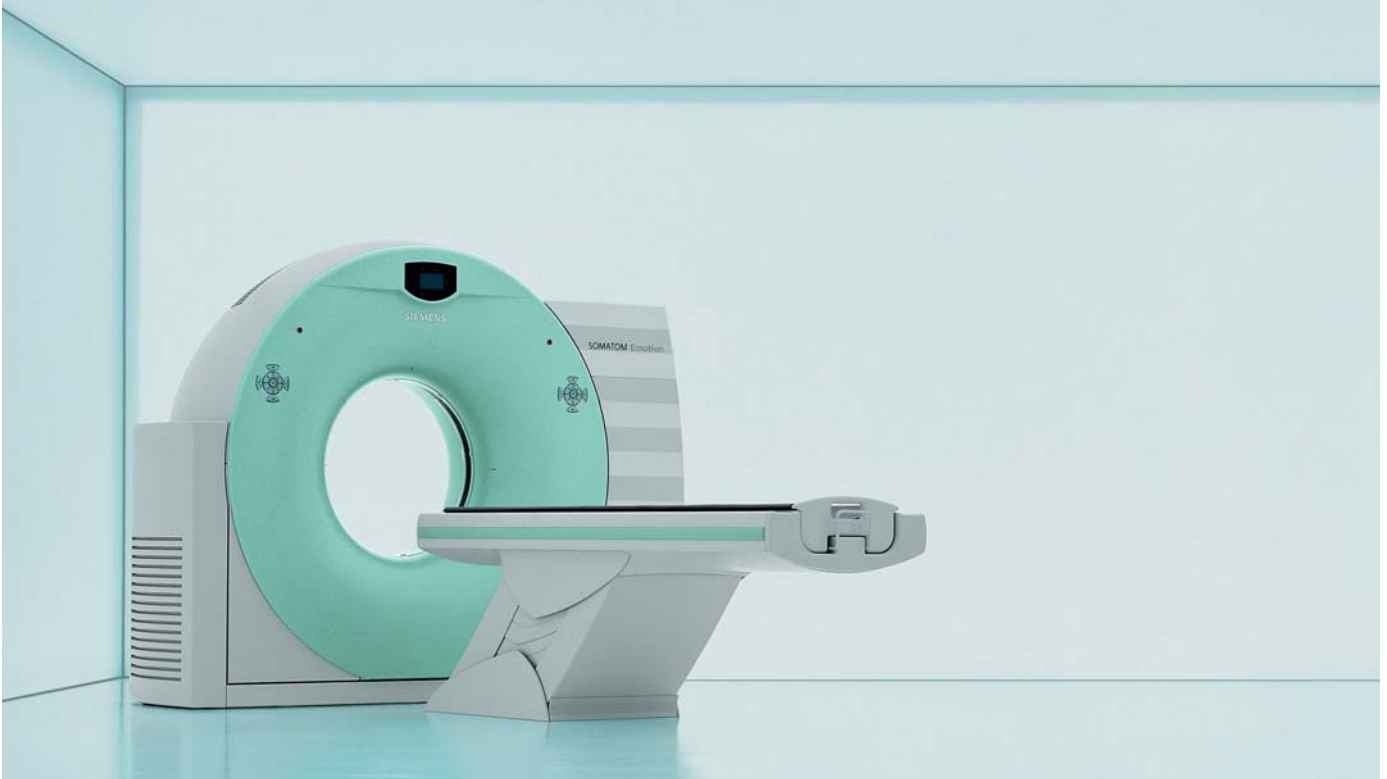
By Rami Kusama, *Business Unit CT, Siemens Healthcare, Forchheim, Germany*

With currently 500 installations worldwide, the SOMATOM® Definition has redefined the face of CT. Within three years, DSCT has proven itself in clinical routine as state-of-the-art with more than 1,500,000 coronary CTAs performed, 250 peer-reviewed papers, and 200,000 Dual Energy scans. Together with the SOMATOM Definition Flash, introduced in 2008, the SOMATOM Definition family will continue to define – and redefine – the expanding world of CT.



This map shows where SOMATOM Definition DSCT scanners are installed worldwide in Diagnostic Imaging Centers (red dots), Community Hospitals (blue dots), Departments of Cardiology (deep red dots), Emergency Departments (yellow dots) and University Hospitals (deep blue dots).

www.siemens.com/dsct



The *syngo* CT 2009E Software for the SOMATOM Emotion Further Increases the Clinical Capabilities of the Most Popular Scanner

By Steven Bell, Business Unit CT, Siemens Healthcare, Forchheim, Germany

The release of the *syngo* CT 2009E software version for all new SOMATOM® Emotion systems further reinforces Siemens Healthcare's dedication to continuously increase clinical capabilities throughout the product portfolio. *syngo* CT 2009E makes remote access to the scanner workplace available for the first time through the introduction of *syngo* Expert-i. Siemens' leading applications, such as *syngo* CT Oncology, are available for the first time on the SOMATOM Emotion CT Workplace, and a number of leading *syngo* applications have been even further enhanced.

Additional capabilities on Acquisition Workplace

With the *syngo* CT 2009E release, Expert-i will allow physicians or senior CT technologists to connect remotely to the scanning workplace. This functionality enables the CT users to seek an expert clinical

opinion quickly and efficiently without the need to physically go to the CT suite, resulting in improved workflow and better clinical outcomes for patients. In interventional CT, the simple and efficient workflow for which the SOMATOM Emotion is known is further enhanced with the addition of a laser grid to increase the speed and accuracy of CT interventional procedures.

With the release of this software Siemens also continues the philosophy of reducing dose in CT. To assist users in this continual process, a comprehensive and exportable dose report is now available on the SOMATOM Emotion with the *syngo* CT 2009E release.

Additional capabilities on CT Workplace

Through the introduction of the *syngo* CT 2009E software, leading applications, including *syngo* CT Oncology, are now

available on the CT Workplace with the additional convenience of a linked database with the CT system. *syngo* CT Oncology increases the speed and accuracy of CT oncology imaging through the use of automated lesion measurements, routine volume calculations, and automatic lesion matching for follow-up staging studies.

In addition to *syngo* CT Oncology, *syngo* Neuro Perfusion Weighted Map, e-Logbook, and InSpace Circulation PE Detection are now also available on the CT Workplace with the potential to significantly improve workflow in acute care imaging.

syngo CT 2009E has been available on all new Emotion 6- and 16-slice configurations since the beginning of April 2009.

Win with Excellent Image Quality at Lowest Dose

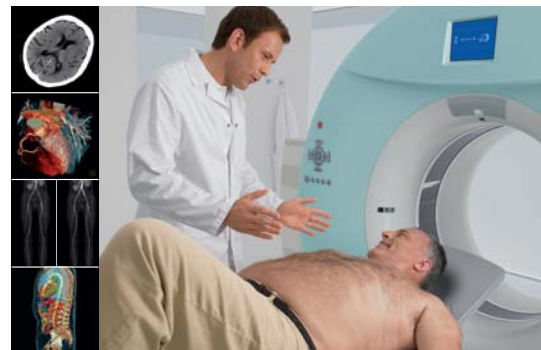
By Jan Freund, Business Unit CT, Siemens Healthcare, Forchheim, Germany

Seeing is better than believing. Therefore Siemens CT will launch a global contest to underline that the Definition family is the choice for achieving the best results when it comes to image quality. In 2005, Siemens CT introduced its Dual Source Technology with the highly successful SOMATOM® Definition. Since then, more than 500 systems have been installed, proving that Dual Energy has become a routine application and thus making the SOMATOM Definition the proven Dual Source CT. In 2007, Siemens then launched the most flexible scanner system in the market, the SOMATOM Definition AS which adapts to any patient, while at the same time also adapts for complete dose protection with innovative technologies. Since its introduction, the SOMATOM Definition AS has achieved the fastest ramp-up in Siemens CT history.

But these cutting edge systems were

not the end of CT's innovation potential: Last year, CT continued its Dual Source success story with the introduction of the SOMATOM Definition Flash, allowing scanning the entire thorax in less than one second and imaging the heart with a radiation exposure of less than 1 mSv, only a fraction of the natural background radiation.

Consequently, the time has come to prove the superior image quality of the SOMATOM Definition family obtained with significantly reduced dose. As the best proof is customers' voice, Siemens CT will host a contest for all Definition users addressing highest image quality at lowest dose which will be introduced in June 2009. Participants are welcome to send in cases scanned on any Definition scanner (single and Dual Source). A jury of highly qualified experts and medical advisers will discuss each case and determine the finalists. Therefore, beginning



The SOMATOM Definition Family: Revolutionizing CT imaging since its introduction in 2005.

immediately, all Definition customers are invited to participate in this contest and start collecting their outstanding low dose cases and demonstrate their achievements in cutting-edge CT.

www.siemens.com/CT-IQcontest

SOMATOM Definition Flash Introduced During ECR 2009

By Carolin Knecht and Peter Seitz, Business Unit CT, Siemens Healthcare, Forchheim, Germany

Themed, "Ask the Ultimate Power in Imaging," Siemens Healthcare introduced its latest imaging innovation, the SOMATOM® Definition Flash, at the European Congress of Radiology (ECR) 2009 from March 6 to March 10 in Vienna, Austria.

This latest computer tomograph is designed to be the industry's most patient friendly CT by requiring less dose through faster speed.

During the congress, dose reduction was obviously of universal interest for the visitors. Many wanted to know more details about technical features of the SOMATOM Definition Flash that enable users to scan with highly reduced radia-

tion dose, for example, heart scan with less than 1 mSv. The fast scan speed of 43 cm/s and the temporal resolution of 75 ms were also subjects of great general interest at the Siemens booth.

At a Joint Satellite Symposium of Siemens Healthcare and Bayer Schering Pharma, first clinical results of the SOMATOM Definition Flash were presented, together with updates on the entire range of SOMATOM Definition scanners. According to the theme "For better patient care: What's new in CT," leading clinical experts once again complimented the innovative power of Siemens CT and made it one of the most visited symposia at ECR 2009.



The new SOMATOM Definition Flash was introduced to the European market during the European Congress of Radiology (ECR) 2009 featuring a special "healthy" version of the low-dose scanner.