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Imaging news from Siemens Healthcare

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More cardiology, less heartache



On September 29, 2015, the world focused on one organ of the human body – the heart. Cardiovascular diseases such as heart attack, stroke and coronary heart disease have been among the most common causes of death worldwide for many years now. According to the WHO country profile

report 2014, cardiovascular diseases contribute to 26% of the total deaths in India and the rate is likely to increase.

Advances in medical imaging play a key role in the fight against these diseases, by helping achieve sound diagnoses even at earlier stages and enabling efficient interventional therapy. At this year's **Congress of the European Society of Cardiology (ESC)** held in London, Siemens Healthcare presented innovative IT solutions and medical imaging systems in the areas of angiography, ultrasound, magnetic resonance imaging and computed tomography, with the theme of "More cardiology, less heartache." These solutions are intended to help physicians diagnose cardiovascular diseases at an early stage, structure treatments to best suit the individual patient and perform interventions safely.

In this issue of *iConnect*, we will briefly cover the solutions presented by Siemens at ESC. I am sure it would be an interesting read to know the latest in the field of cardiology.

I would like to thank all of you for nurturing *iConnect*. Our last issue on Anniversary Special received an impressive response. Many of you, our esteemed customers, downloaded our book *Thinking Healthcare Ahead* (www.siemens.com/publications-app-healthcare).

iConnect has begun its second year journey, so please continue reading it and encourage us with your feedback. Please write to us at hc_contact.india@siemens.com.

Best Regards,

Richard Guest,
CEO-Siemens Healthcare, India

Real-time 3D echocardiography helps personalize treatments

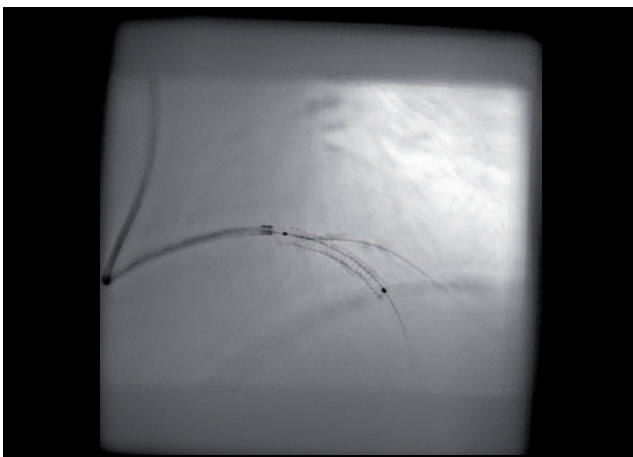
Prime edition of ACUSON SC2000



In order for physicians to optimally plan and perform surgical and minimally invasive cardiac procedures, the information they obtain about the patient's heart must be as accurate as possible. With the Prime edition of its ACUSON SC2000 premium cardiovascular ultrasound system, Siemens combines two state-of-the-art technologies: A transesophageal echocardiography (TEE) probe, which is guided into the patient's esophagus, **provides detailed real-time 3D Color Doppler images of the heart anatomy and blood flow** and the eSie Valves analysis software, which **automatically measures individual heart valves in just seconds**.

Stabilizing heart movements allow stents to be perfectly positioned

CLEARstent Live



Many patients cannot undergo open heart surgery because of their age or health issues. That's why minimally invasive

therapies have developed into a valuable treatment alternative and have now become part of the clinical routine. One example is the use of percutaneous coronary intervention (PCI) in significant coronary stenoses, which involves balloon angioplasty to restore normal coronary blood flow. To keep the revascularized segments open permanently, cardiologists must position coronary stents or scaffolds (bioresorbable coronary stents) during PCI with absolute accuracy despite the movement of the beating heart.

The CLEARstent Live application, which is now available for all new Siemens angiography systems, virtually reduces heart movements during interventions, stabilizing the area around the balloon catheter. **This gives the cardiologist a clear view of the stent, enabling it to be perfectly positioned – even in particularly challenging locations such as bifurcations.** CLEARstent Live also holds the **potential to speed up procedures thereby increasing the throughput and also saves contrast agent.**

New SPECT system enables four-minute cardiac imaging

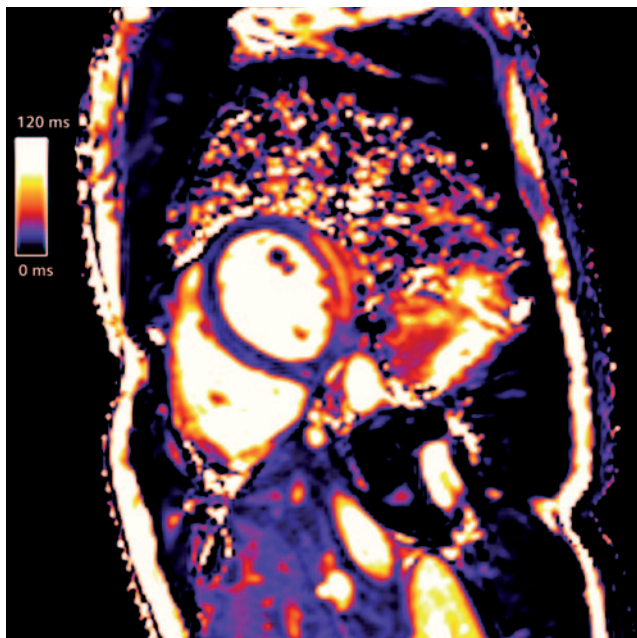
Symbia Evo



Siemens' latest SPECT system **Symbia Evo is designed to significantly increase productivity and offers the potential to double patient throughput compared with conventional SPECT systems** -- for example, by automating routine manual tasks. Nuclear cardiologists who use the new system can increase efficiency through a fourfold reduction in scan time with IQ-SPECT cardiac imaging technology. While routine SPECT cardiac acquisitions typically take about 16 minutes and risk patient movement that may result in lower image quality, a field-upgradeable hardware and software combination of Symbia Evo and IQ-SPECT **enables a reduction in imaging time to four minutes with a standard dose, or up to 75 per cent lower injected dose** for imaging in standard time.

Easier tissue differentiation using MRI now available to even more customers

MRI application MyoMaps



Myocarditis follow-up examination after two months with MyoMaps on MAGNETOM Skyra.

(Copyright: Diagnostikum Berlin, Berlin, Germany)

Cardiac MRI provides detailed information about the myocardial perfusion, morphology and function of the heart with no radiation exposure. Beyond a visual diagnosis, the MRI application MyoMaps from Siemens gives cardiologists physical quantity measurements of the characteristics of heart muscle tissue.

The application quantifies even the smallest changes in heart muscle tissue and displays them on an image in color. This is especially helpful in the case of heart diseases that involve minimal tissue lesions that are distributed across the entire heart – for instance, scar tissue and edemas.

Physicians can now make valid diagnostic and treatment decisions even earlier than was previously possible and adapt the method of treatment more quickly if necessary.

MyoMaps application was previously limited as a standard feature to Siemens' two premium MRI systems – the MAGNETOM Skyra 3-Tesla scanner and the MAGNETOM Aera 1.5-Tesla scanner. It is now also available on the recently launched MAGNETOM Amira 1.5-Tesla scanner. MyoMaps is also available via scanner upgrades on the current software platform syngo MR E11.

A cardiac CT in a quarter of a second

SOMATOM Force



CT scan of the heart has supported huge advances in the past decade and lends itself very well to the task of rapid diagnostic evaluation of the coronary arteries. The dual-source technology used in the current SOMATOM Force high-end system is what makes the fastest imaging speed on the CT market possible: A cardiac dataset can be

acquired in just a quarter of a second.

This means that patients require beta blockers less often to slow their heart rate in order to avoid movement artifacts. It is also not necessary for them to hold their breath thanks to the fast acquisition speed of 737 millimeters per second and high temporal resolution of 66 milliseconds.

In addition, a significantly lower dose is needed compared with existing premium CT systems. CT angiography benefits in particular from the fact that, with the optimized Care kV technology of the SOMATOM Force, the tube voltage can be flexibly set between 70 and 150 kilovolts (kV) and more patients can now be scanned with low-voltage values.

When examining obese patients at 70 or 80 kV, this can result in a dose reduction of 68% over traditional 120-kV protocols. As a result, the system's high scanning speed combined with a lower radiation dose opens up new possibilities: for example, extending the use of CT scanning to the early detection of coronary heart disease.

New cardiovascular imaging and information system drives care outcomes

syngo Dynamics



Growing cost pressure on hospitals increases the need for cardiologists to streamline their work processes. This is why Siemens has refined its tried and tested syngo Dynamics cardiovascular information system (CVIS) to not only help diagnose cardiovascular diseases, but **also to reduce the administrative load on medical staff and provide the best possible support in outcome-focused management decisions.**

The main focuses for improvement were on reading and reporting capabilities as well as interoperability and integration into other systems, such as the electronic health record (EHR) system. Data exchange between disparate systems makes improved efficiency and care outcomes possible. This interoperability gives various departments within a hospital – and multiple hospitals within an enterprise – a single point of access to relevant cardiovascular information.

While an examination is in progress or during interventions, multi-modality clinical images and measurement data can be transferred directly into syngo Dynamics, which reduces the risk of error compared with manual data input. Unusual results are now automatically highlighted, too, to direct attention to potential pathologies.

Customer Testimonial

“CFR availability in Biograph mCT was the decision maker”

Dr. K G Kallur, Director of Molecular Imaging, HCG, Bangalore and Professor of Nuclear Cardiology, Sri Jayadeva Institute of Cardiology (SJIC), Bangalore.



We were the first in India to install Biograph mCT about four years ago. Decision to procure this system was solely because of CFR quantification offered by Siemens. Earlier we never did CFR cases.

At HCG, I supervise the Cyclotron production, two PET-CT systems and two gamma cameras. We do approximately 800-900 PET-CT scans and about 700-800 conventional nuclear medicine procedures per month. We produce variety of PET tracers such as FDG, F18, FDOPA, C11 Choline, C11 Methionine, Ga68 PSMA and Ga68 Dotanoc. About 20% of PET-CT scans are now by non-FDG tracers as mentioned.

HCG being an oncology center, the thrust is mainly on oncology services. Post the installation of Biograph mCT, we do approximately 5-6 CFR cases per month and we do these evaluations as per clinical needs and requests from cardiologists. Inconclusive 99mTc Myoview myocardial perfusion scans always undergo CFR tests in our center and the decisions are taken based on CFR values. We also do cardiac viability tests using Biograph mCT.

Besides CFR, we also perform all routine oncology cases such as FDG, FDOPA, Ga68 PSMA and Dotanoc scans using Biograph mCT. Resting Ammonia scan is done first, followed by FDG scan to show the viable or scarred myocardium.

Disclaimer: The products/features (here mentioned) are not commercially available in all countries. Due to regulatory reasons their future availability cannot be

guaranteed. Further details are available from the local Siemens organizations.

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