

Argus 4D VF allows left ventricular function assessment in less than a minute and provides advanced 4D visualization of the beating heart.

## Keeping Cardiac MRI Inline

With the new Siemens software module Inline Ventricular Function (Inline VF), physicians can accurately evaluate cardiac function immediately after magnetic resonance (MR) image acquisition. For the first time, the Siemens software enables fully automatic detection of heart contours and motion during image acquisition. Inline VF can also help improve workflow efficiency by enabling functional cardiac analysis to be performed even faster than before – right during image acquisition. There is no need to transfer the images to post-processing consoles or manual postprocessing of contours. The heart is localized on MR images automatically; the system helps detect the inner and outer contours and generates the functional data

without additional mouse clicks. The increased efficiency and diagnostic certainty with MR imaging will help even more patients to benefit from radiation-free cardiac examinations. Siemens has also developed Argus 4D VF for four-dimensional visualization of cardiac function. With this software, the physician can quickly analyze cardiac dysfunctions and run advanced 4D-volume imaging of the heart.

The Inline VF software is available as part of the application *syngo*® BEAT, which not only helps improve workflow, but can also help in a variety of other ways, for example, to verify myocardial scars, to clarify thoracic pain (stress MRI), to evaluate congenital heart diseases, as well as to plan ablation in electrophysiology. MR images of cardiac functions, coronary vessels, and congenital heart defects can also be acquired three-dimensionally. The Inline VF software is available for 1.5 Tesla and 3 Tesla MAGNETOM® scanners.

## Portable and Secure Access with the Patient Health Card



The patient health card is a secure means of storing vital patient data and is easy for the patient to carry.

The Mount Sinai Medical Center in New York, USA, is currently issuing the Siemens Patient Health Card. The Patient Health Card is a secure and portable card designed to store patient demographic data and important healthcare information. Healthcare providers can benefit from the technology by using it to optimize clinical and administrative workflow. Patients benefit from secure and convenient access to their medical records. Much like a credit card, the technology is placed on a chip-embedded photo identification card, which may contain patient information such as: medical history, chronic diseases, allergies, current medi-

cations, lab results, demographic data, and even insurance information. The patient must enter a personal identification number as the card is read in order to ensure data security. Insufficient access to patient information is a leading cause of medical error. According to the Institute of Medicine at the National Academy of Sciences in Washington, DC, USA, as many as 98,000 people die in the USA each year due to preventable medical errors. The Siemens Patient Health Card allows patients to be tracked through the entire course of treatment and across organizations, which may help to reduce errors and costs, and can improve healthcare quality.

## Diagnosing Faster, Safer

Patients admitted with acute chest pain to the emergency room (ER) of Alegent Health in Omaha, NE, USA, may very well proceed to treatment faster than elsewhere, even if their electrocardiograms, troponin, and other lab results are inconclusive. Instead of continuous retesting for 24 hours, and possibly even a subsequent invasive exam if results are still unclear, such patients undergo an <sup>82</sup>Rubidium-enhanced positron emission tomography-computed tomography (PET-CT) scan to evaluate perfusion of the myocardium, and receive their results within one hour. Samuel H. Mehr, MD, Alegent's Director of Molecular Medicine and Imaging, says: "Studies\* indicate that PET-CT perfusion testing in these patients has more than 90 percent accuracy, compared to other noninvasive or nuclear medicine exams." Other than <sup>18</sup>F-fluorodeoxyglucose for functional testing, <sup>82</sup>Rubidium is readily available without labelling it in a cyclotron. In addition to faster treatment for patients whose chest pain is a symptom of coronary artery disease (CAD), quickly clarifying which patients do not suffer from CAD is also beneficial – for both the patient, who doesn't need diagnostic catheterization and can be released sooner, and the hospital, as it frees a bed, ER personnel, and the cath lab for other patients. According to Mehr, PET-CT myocardial perfusion testing can be particularly beneficial for young women in their 30s, who tend to have different symptoms when suffering from CAD – symptoms that even today rarely would lead to suspicion of coronary arteriosclerosis, like back pain and fatigue.

\*Sampson et al., Diagnostic accuracy of rubidium-82 myocardial perfusion imaging with hybrid positron emission tomography/computed tomography in the detection of coronary artery disease, *J Am Coll Cardiol*. 2007 Mar 13;49(10):1052-8.

Dr. Samuel Mehr and the staff at Alegent Health benefit from the workflow advantages provided by Siemens Biograph™ TruePoint™ PET-CT.



The new generation of ARCADIS C-arms brings various new features to aid in clinical workflow.

## New Generation of the ARCADIS Family

The ARCADIS™ family of C-arm X-ray systems now helps customers and patients benefit from improved image quality and eased handling thanks to their new generation of systems equipped with a brand-new ergonomic monitor trolley. With the latest advancements, health-care professionals can profit from improved clinical workflow through user-friendly features and design. A broad range of applications and excellent image quality also remain important advantages.

New features have been added to further help ease operation such as height-adjustable and rotatable heights that allow for varying application-specific heights. They can even be folded during transport and storage. The reduced trolley weight and footprint help to ease maneuverability. New algorithms in subtraction, roadmaps for improved vessels and catheter visibility, and automatic dose and brightness adjustments lead to maximum image quality and user-friendliness. Cost-savings can be achieved with ARCADIS because it can be used throughout various clinical fields. With the Siemens syngo® user-interface, workflow can be enhanced via intuitive system operation, image post-processing, and networking. To help further optimize workflow, convenient ergonomic features have been added. Electromagnetic brakes also help ensure fast and precise positioning.

# Redefining PET Imaging with High Definition

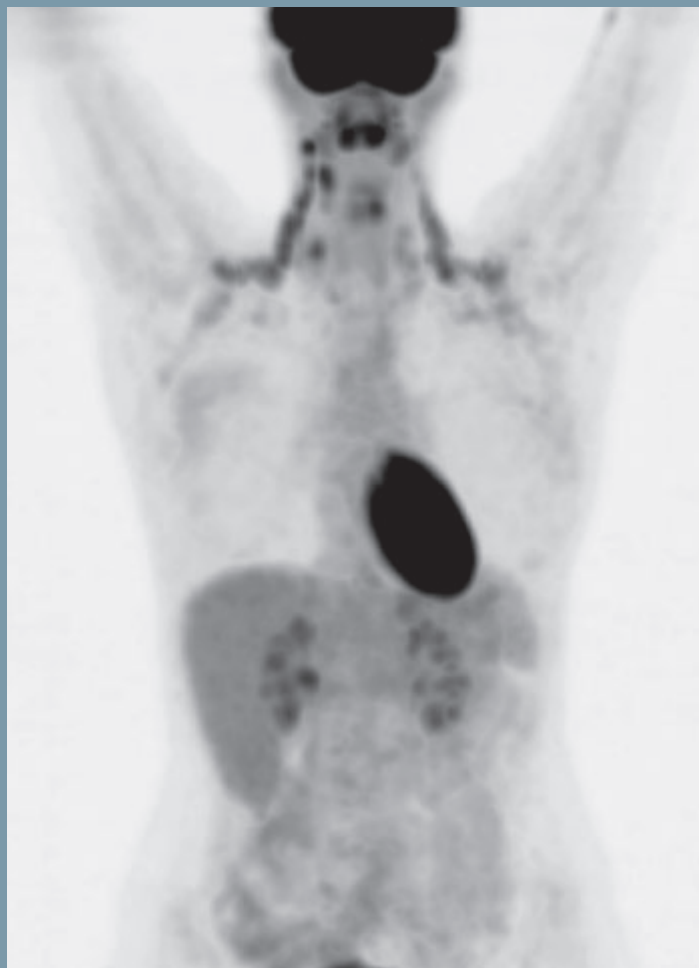
In conjunction with the high-definition television trend that has transformed the entertainment world, Siemens has unveiled the world's first high-definition position emission tomography (HD-PET) molecular imaging system. The revolutionary HD-PET technology promises superior detection of small lesions with high definition uniformity, resolution, contrast, and clarity. These advantages can aid in cancer diagnosis, disease staging, treatment, and postsurgery/postradiation monitoring. Siemens Medical Solutions introduced HD-PET at the 2007 Society of Nuclear Medicine (SNM) Annual Meeting in Washington, DC, USA. The clarity achieved

by HD-PET can literally change the whole picture. The added contrast is a result of the high-definition technology. Michael Reitermann, President of Molecular Imaging, Siemens Medical Solutions, adds, "The clarity of HD-PET will provide greater specificity and accuracy and will enable physicians to more confidently delineate small lesions – including those in lymph nodes, the abdomen, the head and neck, and the brain – to provide earlier, more targeted treatment."

By using a proprietary reconstruction technique, HD-PET provides distortion-free images throughout the entire field of view. Thanks to a two-millimeter reso-

lution, physicians can clearly distinguish even the tiniest of lesions. The clarity provided by high definition is invaluable in monitoring surgery or therapy patients. The improved delineation provided by the system can help physicians in terms of detection.

HD-PET is available as part of Siemens TruePoint™ technologies – a unique combination of technological features and workflow solutions for PET-CT imaging to help better diagnose and treat patients. The high-definition feature will not only be available on all new Biograph™ TruePoint PET-CT systems, but also as an upgrade option for current Biograph TruePoint users.



Thanks to its two-millimeter resolution, HD-PET (left) allows for superior detection of small lesions, dramatically greater staging capabilities, and therapy accuracy, compared to conventional PET (right). *Courtesy of University Hospital Erlangen, Germany*



The University Hospital works to improve patient throughput without jeopardizing quality care or budget concerns.

## Large Improvements for Little Patients

At the Department of Pediatric Radiology at the University of Heidelberg, Germany, Siemens Medical Solutions has teamed with physicians and technicians to provide solutions to improve the hospital's efficiency and accuracy in its magnetic resonance imaging (MRI) processes. Especially in the field of pediatric radiology, it is important to keep in mind that children are not adults and have special needs when it comes to medical care. At the same time, increasing the quality of care and budget reductions are also of concern for the hospital.

A team of Siemens Healthcare consultants worked alongside representatives of the University of Heidelberg and came up with efficient and budget-friendly solutions for more than 100 challenges that the hospital faced. A central goal was to decrease patient wait time by improving workflow processes. The patient throughput can also be increased thanks to a newly designed waiting room, created for patient preparation and recovery from examinations requiring sedation, which speeds the workflow process. Children often have to be mildly sedated before exams. Additionally, flexible office hours are now offered for working parents.

In April of 2008, the Children's Hospital at the University of Heidelberg will move into a new building. In the radiology department, a MAGNETOM® Avanto MRI system will replace previous imaging equipment. The solutions now in place in Heidelberg lead to a more efficient workflow despite budget restrictions – solutions that not only benefit the patients, but the staff as well.

## Versatile New Monitor

Siemens Automation and Drives (A&D) has developed a new five-megapixel monochrome display, the SMD 21510 D, ideally suited for mammography diagnosis and picture archiving and communication systems (PACS). With excellent image quality, this integrated Fully Automated Stability system provides reliable gray-scale response and continuous luminance levels. The display can also be used with the latest standard, high-performance graphic cards.

The 21-inch high-resolution monitor is equipped with two independently functional sensors that are used to continuously monitor the luminance and grayscale levels. An Integrated Stability Sensor (ISS) monitors the backlight in the center of the display, and the Integrated Consistency Sensor (ICS) monitors performance on the front right corner without obstructing the view of the display. This monitoring system provides high image quality and conforms to medical imaging standards such as DICOM (Digital Imaging and Communications in Medicine). The Cold Cathode Fluorescent Lamt (CCFL) backlight is optimally suited for the human visual system which is especially sensitive



The new monitor provides reliable gray-scale images and can continuously monitor luminance levels.

to lights in this color range. The SMD 21520 D display comes precalibrated and is ready for use immediately out of the box, a feature available with all Siemens medical displays. For quick and easy installation, the monitor has five preset 12-bit Look-up Tables (LUTs), which allow for adaptations to any lighting environment. The monitor data are stored in the LUTs, which also makes it compatible with almost any graphic card. The specific SMD 21510 D settings can be tailored to the local environment, the luminance values can be measured, and the internal sensors can be readjusted to their optimal levels when necessary.