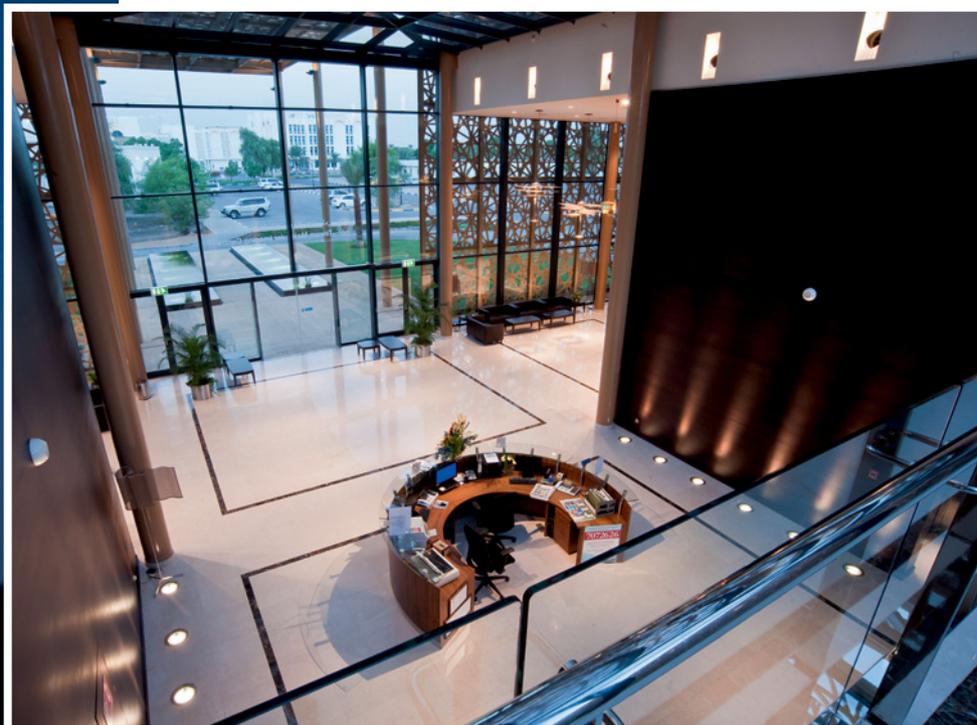




Patient-centric Imaging in Abu Dhabi: A ‘Gold Standard’ in Molecular Imaging

In the oasis city of Al Ain, United Arab Emirates (UAE), Mubadala Healthcare has established Tawam Molecular Imaging Centre, a world-class molecular imaging center to serve citizens and residents of the UAE. The Centre turned to Siemens for solutions that included advanced diagnostic imaging modalities, such as Biograph mCT, that are helping to raise the standard of diagnosis and treatment in the fields of oncology, cardiology and neurology.

By Ward Pincus



Above: The entrance area of the Tawam Molecular Imaging Centre

In 2006, when Mubadala Healthcare began planning the Tawam Molecular Imaging Centre (TMIC), there were no facilities in the United Arab Emirates with a PET•CT scanner. This represented a significant gap in the level of care available at that time, given that this imaging modality represents the “gold standard” for cancer detection and treatment monitoring, as well as cardiovascular and neurological disease diagnosis, according to Bashar Al Ramahi, senior manager of business development at Abu Dhabi-government-owned Mubadala Healthcare. And a “gold standard” was just what was required, given some of the challenges facing healthcare in the UAE: rising cancer rates, cardiovascular disease as the leading cause of death in the country (cancer is third), and a tendency for UAE citizens and expatriate

residents to travel overseas for medical treatment, especially tertiary care. TMIC represented a dramatic step by Mubadala Healthcare to address all three issues. Siemens Molecular Imaging helped provide a solution that included advanced and comprehensive diagnostic imaging and workflow systems. Opened in October 2010, TMIC not only houses a Siemens Biograph™ mCT PET•CT, a Siemens MAGNETOM® Skyra 3 Tesla open-bore magnetic resonance imaging (MRI) system and Siemens *syngo*® imaging software, but also the region’s first particle accelerator, a Siemens Eclipse™ HP Cyclotron. Complementing this is clinical care provided in partnership with Johns Hopkins Medicine International and patient care on par with a luxury hotel, as well as a building that is a stunning piece of architecture. TMIC is located in the

oasis city of Al Ain, and situated adjacent to Tawam Hospital, a regionally renowned oncology center, where it supports the hospital’s existing work and capabilities.

The result is a molecular imaging facility that rivals—in technology, clinical excellence and patient care—the best of what’s available anywhere else in the world.

Technology Blends Speed and Precision

Al Ramahi says Siemens was selected for the TMIC project for a variety of reasons, among them, “because the PET•CT scanner [Biograph mCT] is the fastest in the market... nearly twice as fast as others,¹ and because it helps to make the experience of the patients much better.” This speed combined with calming lighting, serene image



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Bashar Al Ramahi, Senior Manager of Business Development and Project Manager for Tawam Molecular Imaging Centre, Mubadala Healthcare, Abu Dhabi

projections onto the ceilings and various music options, helps to keep patients as calm as possible.

He also speaks of Biograph mCT’s low radiation dosage per exam as a significant advantage, noting that most of the oncology patients undergo repeated imaging in the course of their disease. “With this machine,” he says, “radiation dose to a patient can be minimized.”

Biograph mCT’s high image quality plays an important role in addressing Mubadala Healthcare’s focus on the early detection and diagnosis of cancer, because it allows physicians to view metabolic activity and the exact location of abnormal lesions within an integrated 3D image, providing fast, accurate and effective detection and tracking of the disease. This means that by using TMIC’s facilities, “physicians can more accurately assess disease stage, improve assessment of treatment response and achieve more precise and accurate detection of disease recurrence in oncology patients,” Al Ramahi says.

TMIC’s Biograph mCT also is helping treat other diseases.* “In cardiology,” Al Ramahi says, “we have enabled physicians to optimize their management of coronary artery disease and its complications by evaluating the extent of disease and providing accurate metabolic assessment of the myocardium.”

Although most often used in the fields of oncology and cardiology, Biograph mCT also is helping to improve outcomes in neurological cases. For example, pediatric neurologists now have the capability to more precisely define the seizure-causing region of the brain, and this will translate into optimal surgical

management. It also helps neurologists to define and understand the etiology of dementia.

Integrated Imaging

Complementing the Biograph mCT is the MAGNETOM Skyra 3 Tesla MRI, which has twice the field strength of conventional MRI units, thereby producing considerably higher resolution scans in shorter timeframes. The result is, again, greater patient comfort through reduced examination time and a more spacious and comfortable examination environment, as well as enhanced clinical performance due to high-quality images.

Al Ramahi says that Tawam is one of a few facilities in the UAE with both PET•CT and MRI, offering clinicians and patients the benefits of integrated imaging by simultaneously acquiring morphological, functional and metabolic information.

With TMIC operating as a stand-alone facility and many referring physicians located elsewhere in Al Ain or the UAE, it was vital that the Information and Communications Technology (ICT) solution, also provided by Siemens, offer powerful analysis and sharing functionality. This included *syngo.via*,² an advanced, client-server visualization software platform designed to let clinicians more quickly and easily process, read and share images. This software “has so many different functionalities—3D image calculations, cardiac software, neurological software and analysis—while all images are archived and easily accessible,” Al Ramahi says. The solution also includes a radiology



information system and a picture archiving and communications system (PACS). This means that all physicians at TMIC and referring physicians, no matter where they are, have access to patient images using a Siemens web application to access these images.³ Further contributing to patient care and clinical outcomes is the region's first particle accelerator, a Siemens Eclipse HP Cyclotron, which produces radioisotope biomarkers used in PET examinations. With this set of complementary technologies, says Al Ramahi, TMIC is one of the few facilities in the region equipped with a cyclotron and one of the few facilities in the UAE equipped to do, for instance, full cardiac scanning with ammonia N-13. It was essential to Mubadala Healthcare's vision for a world-class facility that TMIC was self-sufficient in biomarkers. This is important because it allows for even more utilization of the Biograph mCT and ensures that patients get imaging done whenever their

treatment requires, rather than being dependent on the availability of internationally sourced biomarkers. Also, it gives patients another level of safety, since isotopes can be generated for minimal dose.

Mubadala Healthcare is looking to transform the character of care in the UAE and the wider Gulf region. With Siemens consulting across all aspects of its building design, workflow software, IT systems and equipment solutions, TMIC has made a bold statement that healthcare in this part of the world can match the best available anywhere.

Ward Pincus writes on healthcare, energy, green technologies, banking and finance, and telecommunications for publications in North America, Europe and the Middle East. He is a former correspondent for the Associated Press in the UAE.

1. Based on competitive literature available at time of publication. Data on file.
2. *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 rights. The described features are *syngo.via*-based software options, which are medical devices in their own right.
3. The *syngo.via* web applications are not for diagnostic use. For mobile based applications, country specific laws may apply. Please refer to these laws before using for diagnostic reading/viewing.

* The statements by Siemens' 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.