Lessons from Methodist
Deploying Evidence-based Reporting

Intelligent, efficient and swift image review and evidence-based reporting was the objective when Methodist Willowbrook Hospital deployed Siemens *syngo* Dynamics. The state-of-the-art cardiovascular imaging and information system (CVIS) has met the needs of this suburban Houston community medical facility which began as a small community hospital. The CVIS has been so successful that it is now being adopted throughout the well-known Methodist Hospital System.

By Mary C. Tierney

At Methodist Willowbrook Hospital, *syngo* Dynamics sits at the center of cardiovascular department operations. Physicians use the CVIS to review cardiac catheterization lab and echocardiography images and pre-populated measurements, and complete and e-sign cath lab reports. Reports are immediately sent electronically to referring physicians and to billing—omitting lags, increasing accuracy and speeding up payment. Cardiologists can review the images and reports with patients in the hospital, their office or home. Physicians use the *syngo* Dynamics Portal to show patients their images in their room after cardiac cath procedures. They also use the portal to read echocardiography exams remotely from their home or office.

"When we look at images, we generate an opinion," says Mukarrum Baig, MD, medical director of the cardiac catheterization lab. "Instantaneous access to information allows good patient care. Access to digital images and reports allows us to make better decisions and offer an opportunity for better communications with patients, explaining why we have done what we have done."

Baig's colleague, Sanjay Kunapuli, MD, an interventional cardiologist, concurs. "I often show post-cath images in the patient's room so he or she better understands the condition. I used to draw pictures. The real images help to motivate the patient in recovery."

Inside an expanding hospital

Methodist Willowbrook is a reflection of its growing community in suburban Northwest Houston, as well as a progressive vision for cardiovascular care. It opened in December 2000 as a community hospital with 68 beds. In May 2010, the hospital

Methodist Willowbrook Hospital

underwent a major expansion to 251 beds, making it the largest tertiary care hospital in the area with services as varied as emergency, primary care, open heart surgery and advanced stroke care—all incorporating the well-known quality and expertise of The Methodist Hospital System.

The hospital's mission is to provide high-quality, cost-effective healthcare that delivers the best value to patients in a spiritual environment of caring. All patient rooms are private. A central healing garden is open to all to relax, or reflect. The practice mirrors the patient-centered care theme of this year's American College of Cardiology (ACC) President William Zoghbi, MD, who is part of the Methodist team as chair of cardiac imaging at the Methodist DeBakey Heart & Vascular Center of The Methodist Hospital.

The cardiovascular department utilizes two cardiac catheterization labs, four echocardiography systems and a SPECT/

CT system. They perform 3,200 cath lab procedures and 4,877 echocardiography exams per year, with an average 63-minute door-to-balloon time in 2011 and 2012.

The technology inside

Methodist Willowbrook installed its first cardiac catheterization laboratory in 2004. "We wanted to start early in our existence with the implementation of point-of-care data capture," recalls Lyle C. Muhammad, MBA, RT(R), cardiovascular service line director.

Observing that interventionalists had no easy way to notate what transpired in the lab, Muhammad sought a commercial digital documentation solution, selecting the Siemens legacy AXIOM Sensis Physician Report Tool (PRT) in combination with Siemens AXIOM Sensis cath lab hemodynamic and monitoring software solution. PRT automatically grabbed patient vital signs and procedure parameters, such as size of stent and atmospheric pressure of stent deployment.

A dedicated workstation for reporting was set up for physicians in the control room. When they exited the cath lab, they were guided through the PRT tool to report. The reports already were populated with key data from the case to reduce time and increase accuracy. Physicians quickly saw the advantages as the system automatically triggered documentation in the report such as vessel scores and stenosis index, increasing accuracy and saving time. The faxed report immediacy was a plus for the cardiologists' offices, expediting the billing process.

Better reporting

In 2006, echocardiograpy reporting came into the mix and Siemens KinetDx was implemented. VHS tapes quickly went the way of the dinosaurs as physicians embraced the new reporting paradigm that cut out multiple steps such as dictation and transcription, and greatly sped up echo reporting time

Next a new reporting system for the cath lab was installed. *syngo* Dynamics was an upgrade for KinetDx and the next-generation technology of choice for Methodist Willowbrook. With databases continually synching with the AXIOM Sensis hemodynamics and monitoring system, the cath lab and cardiovascular picture archiving and communication system (CPACS), true CVIS functionality was the result. The cardiologist could start the report, correct or add patient condition or important American College of Cardiology-National Cardiovascular Data Registry (ACC-NCDR) registry information, while the tech or nurse was adding data and measurements to the event log. CVIS data are available from home or office via secure web access. Reports are e-signed and faxed automatically. A "family friendly" report can be used to explain the patient's condition in layperson terms. The CVIS further helps with reading efficiency of echo exams needed for clearance for surgery. Physi-

cians can review, offer a report, e-sign it and have it auto-faxed to the surgeon—right from a home or office, Baig notes.

"The success of an IT system has everything to do with responsiveness," he says. "We need appropriate exams and want everything working perfectly. We selected a good CVIS that works very well."

Kunapuli offers that EMR access to CVIS data can avoid unnecessary repeat exams as exams are easily accessible. "Physicians really use the CVIS, in the hospital and from their office or home."

Growing yet again

By 2007, a second cath lab was added. Reporting to the ACC registry became easier, too, as the CVIS could export key data and parameters for the registry. The Siemens AXIOM Sensis hemodynamic system pulls vital patient data directly from the EMR. An HL7 interface pulls patient data from the hospital information system (HIS).

syngo Dynamics "is almost the solution to everything in cardiology," Muhammad says. "Overall, faster read times enable better reporting to the [ACC-NCDR] registries and allow us to meet appropriate use criteria by using mandated fields. *syngo* Dynamics structured reporting was key to accreditation of the echo lab."

"Adding codes to the coronary tree map will help us bill better," says Kunapuli. "We will see the chargeable/billable codes. By doing this improperly, we could lose hundreds of dollars per case."

The Methodist System is working to implement an enterprise server for the Siemens CVIS. "Not having to swap out any imaging equipment is a large plus," Muhammad says. "This is strategic as we can dedicate our workflow resources across the health system. This structure now becomes a corporate asset."

The CVIS will bring automated coding, business analytics tools and electronic whiteboarding for clinicians and waiting rooms across the enterprise. Three of the five hospitals are currently using *syngo* Dynamics. "A centralized enterprise database will be a major benefit to do reports and visualize them anywhere throughout our system," Baig says. "This will allow us to access all exams [across the enterprise] and to offer opinions from home or office." Stay tuned. **CVB**

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> Mukarrum Baig, MD, Medical Director of the Cardiac Catheterization Lab, Methodist Willowbrook Hospital