

Intelligent Data Mining Sets High Bar for Cardiovascular Information Systems

Facilities today compete with each other to attract patients, produce state and federally mandated quality metrics, and live in an unstable reimbursement environment. The days of collecting and storing clinical and patient data in disparate information systems are over.

More and more hospitals and healthcare systems are installing cardiovascular information systems (CVIS) that give clinicians and staff convenient, quick access to the information they need to make important clinical and administrative decisions, as well as provide critical benchmarking data that are increasingly being tied to reimbursement.

The Mid America Heart Institute at Saint Luke's Hospital, Kansas City, Mo., is a prime example. Because Saint Luke's performs a high number of cardiovascular procedures in a year—from screening to transplants to rehab—it needed a CVIS that could unify disconnected data and make the information available to users in real-time. And physicians at Saint Luke's knew that sophisticated reporting was critical to a large program like theirs.

Saint Luke's had already been using several integrated modules of the Lumedx CVIS to simplify and consolidate the flow of information within the cath and EP labs and the transplant department when it decided to go deeper by implementing CardioManager performance management software and the Apollo Advance clinical data repository module. Cases created in the

Mac-Lab hemodynamic recording system (GE Healthcare) automatically go into the Apollo data repository, says Lijia Lyles, clinical programs applications specialist. And CardioManager makes it easier

to examine quality metrics such as cath outcomes, physician times and more.

Saint Luke's did not submit data to the American College of Cardiology National Cardiovascular Data Registry (ACC-NCDR) prior to implementing the latest modules. Staff had done internal benchmarking, similar to NCDR, but now they report data to the registries, as well as perform more internal benchmarking, Lyles says.

Integration is key

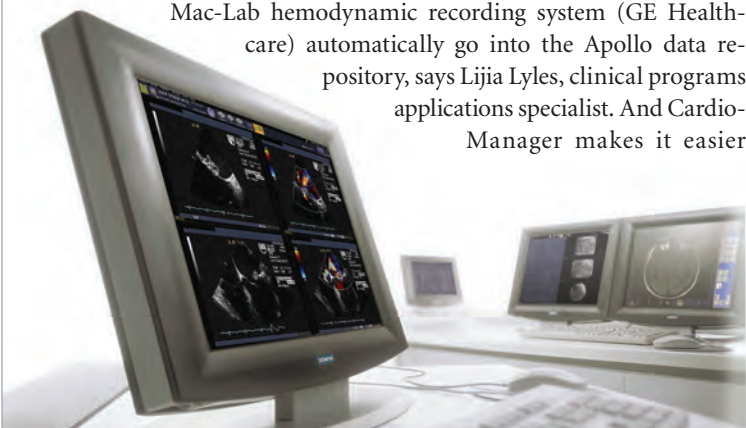
The Heart & Vascular Center in the Cape Fear Valley Health System, Fayetteville, N.C., accommodates nearly 5,000 diagnostic and therapeutic visits to the cath lab each year, according to Emily Thorne, network coordinator for multiple centers in the system. Without hard evidence, physicians and staff at Cape Fear could only guess where improvement was needed. But with a comprehensive CVIS, hard evidence is no longer a scarcity.

Cape Fear has integrated its image and data management, postprocessing and reporting using syngo Dynamics, coupled with real-time data transfer with Sensis, a hemodynamic recording system, both from Siemens Healthcare. Data mining now is easy, Thorne says.

In the past, counting monthly procedures for the echo and cath labs was quite a burdensome task. Logbooks were kept that had an entry for each patient and procedure. At month's end, one would have to "slice and dice and count and recount the data" to ascertain the number of procedures. Their solution: They created a query that lists the patients and procedures, which exports to a spreadsheet where they can manipulate the data much faster and easier.

The Heart & Vascular Center in the Cape Fear Valley Health System, Fayetteville, N.C., uses syngo Dynamics (Siemens Healthcare) to integrate cardiology data from many sources.

Cape Fear wanted their cath labs to become more efficient. So, they queried sheath pulls: who pulls and where the sheath



“We can collect nearly all patient data at the point of care.”

Daniel Moreno, CV service line director at Good Samaritan Hospital in Los Angeles



is pulled. “We saw that cath lab personnel pulled most sheaths in the cath lab,” Thorne says. The solution was to have pre- and postprocedures occur outside the cath lab in the appropriate areas, thus making the cath lab more efficient.

Making querying easy

Jeffrey A. Breall, MD, director of the cardiac catheterization laboratories and interventional cardiology at Krannert Institute of Cardiology, Indiana University, Indianapolis, Ind., speaks of the ease of querying the ProSolv Cardiovascular system (Fuji-film Medical Systems). In fact, the system replaced a full-time person because relevant data can now be pulled in seconds.

“The system has a very open architectural data base, so it’s very easy to query,” says Breall. “Instead of one to two FTE to go through charts and pull out data to send to quality assurance organizations or insurance companies, you can have these data automatically plucked out of the system and sent with the push of a button. It saves an enormous amount of time, energy and money.”

The practice’s data mining capabilities are “unlimited,” Breall says—stretching from lab values to gender, demographics, stent type, periprocedural MI, mortality and productivity. “If we find out that the ACC has defined a new data element for reporting, we can easily add that,” he says.

Sentara Healthcare in Norfolk, Va., complements its Agfa Impax PACS with ProSolv Cardiovascular to manage images and reports for its echo and cath labs. “The system has decreased the time from image acquisition to final reports to a few hours, which historically had been a few days,” says Chris Nelson, director, cardiac education & technology.

Within cardiology, there is still the need to be able to integrate different packages and systems. Cardiology PACS technology is continually evolving and often incorporates structured reporting capabilities. “There is this immediacy now that we didn’t have before,” Nelson adds.

Point-of-care collection

In 2007, Good Samaritan Hospital in Los Angeles wanted to upgrade their CVIS. The facility already had been in talks with

McKesson for its radiology PACS. “It didn’t make sense to have two PACS vendors,” says CV Service Line Director Daniel Moreno, adding that he liked that the system included echo, cath and electronic recording. “Now my docs can access cardiology and echo images, as well as radiology images from a single solution sitting in the cath lab,” Moreno says.

McKesson also offers a pre-holding room application, which allows staff to collect patient data that will be available in the cath lab when the file is opened. More data are collected in the recovery room and input into the same patient chart. “We can collect nearly all patient data at the point of care,” Moreno says.

Scott Adelman, MD, is chair of the cardiology technology committee for Kaiser Permanente in Northern California. “We are very good at watching costs,” Adelman says. It didn’t take Adelman long to realize that the disparate silos of information in cardiology departments was neither cost effective nor guaranteed consistent quality. “For stimulus dollars, we have to prove we have cost-effective practices. The way to do that is to have one system.”

For Adelman, Horizon Cardiology, from McKesson, was the only system that offered “true” integration. “You enter the data once and they flow to all the places they need to be,” he says.

On the quality side, he uses the system to gauge the level of skills of physicians, looking at their case volumes, the case mix and the types of complications. In the past, a thorough quality improvement analysis might take months: gathering the data, reviewing it, contacting the physicians. By the time the analysis is presented at a conference, no one remembers the case. “What’s nice about this system is that we programmed it to look for complications on a nightly basis. A report is instantly e-mailed to the Q/A department for evaluation and the turn-around time is much shorter and the impact is much greater,” he says.

CVIS today are designed with cardiologists and cardiovascular staff in mind. System features are more user-friendly and robust than in the past, with the ability to mine and query any data a facility wants to examine. The current push by the Obama Administration to tie IT solutions into healthcare reform makes it mandatory that hospitals and healthcare systems spend their money wisely on a CVIS that is the right fit for their needs. **CVB**