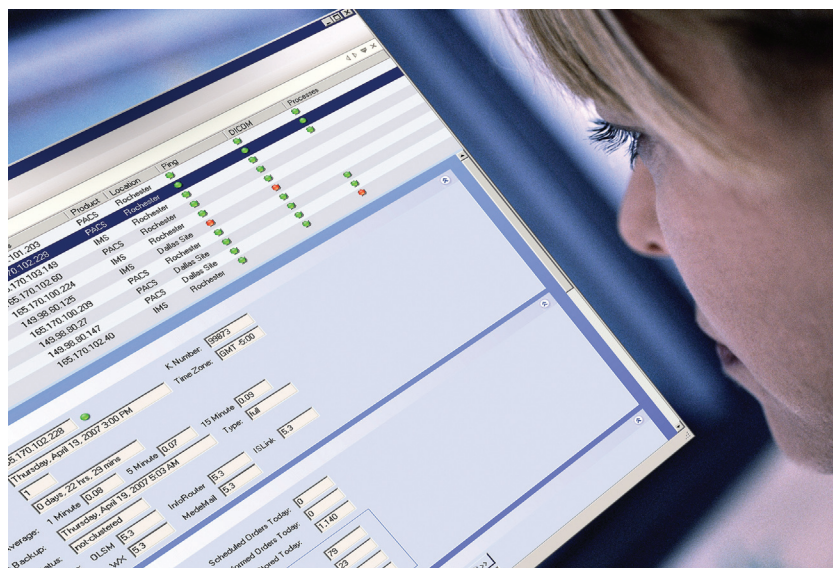


## SMOOTH OPERATOR

# The Digital Dashboard Drives Optimum Performance

The digital dashboard not only steers daily PACS and imaging department operations, but also can color the roadmap for future travels. Digital image management (a.k.a. PACS), often coupled with RIS, is the engine of the 21st century radiology department and imaging center. Market penetration is high with nearly all large and mid-sized hospitals invested in PACS. In the last two years, the small community hospital and imaging center market has exploded.



Carestream Health's KODAK CARESTREAM Digital Dashboard software provides PACS administrators with a convenient way to monitor equipment performance, storage utilization and user volumes.

**B**ut digital radiology can be a tricky business. Most sites have limited fiscal resources. In fact, the push to maximize resources is at an all-time high with the Deficit Reduction Act (DRA) forcing healthcare to tighten its collective belts. Imaging providers, whether they are large academic institutions or single site centers, need to squeeze every last drop of efficiency out of their imaging investments—imaging systems, PACS and staff. The unused scanner or downed image review system represents dollars that few radiology departments or imaging centers can afford to forego.

To further complicate the environment, PACS administrators are in high demand, and it may be difficult for smaller sites to hire an administrator or dedicate an FTE to PACS administration. At the same time, decentralization of imaging is on the rise. It is increasingly common for a single PACS administrator to oversee multiple sites.

Finally, imaging is a business, and daily and long-term decisions should be based on hard data.

PACS vendors have recognized the challenges surrounding the digital image management environment and are tapping into IT to help sites gain a better

handle on the business of imaging. A number of vendors are wrapping the solution—a digital dashboard—into their PACS or RIS/PACS offerings. Others are marketing distinct dashboard software to help improve the business of radiology.

Although each dashboard solution is unique, the general thrust of the digital dashboard is a tool to oversee the department to help administrators better manage business, IT and staffing challenges. For example, the digital dashboard can pinpoint reimbursement denials, under-used scanners or system glitches. The end game is to help customers improve their imaging business. Some dashboards hone in on IT and operational issues, while others focus on the business aspects of radiology management. Others enable retrospective data mining to help sites plan future projects. Regardless of the objective, early adopters are proving that the digital dashboard can improve efficiency, patient care and the bottom line.

This month, several facilities discuss how they have implemented digital dashboard solutions to withstand the various challenges of digital image management, enhance PACS performance and improve imaging operations and efficiencies.

### The single screen snapshot

Eric Bruce, PACS administrator at Good Samaritan Community Healthcare in Puyallup, Wash., signed on as a beta tester of Carestream Health's KODAK CARESTREAM Digital Dashboard software early this year. The project promised a one-stop data shop with a simple stoplight icon to provide an overview of any monitored device. "CARESTREAM Digital Dashboard has saved me a lot of work in the last several months. I have a single view of systems and processes that I normally would have to search for in four or five places," explains Bruce. The dashboard automatically performs routine system

checks—replacing the conventional, often unrealistic, process of logging into the UNIX server to perform tests.

Bruce's dashboard setup is simple. The PACS administrator relies on a dual-screen monitor and dedicates one screen to Carestream's Digital Dashboard. "It's the first application I launch in the morning and the last tool I shut down every evening," Bruce says.

The software is designed to analyze CARESTREAM PACS and the database server to determine functionality. It identifies problems by device, IP address and process to help the administrator pinpoint the issue. Prior to the digital dashboard, the protocol for fixing problems such as a malfunctioning archive manager required Bruce or another staff member to search for the problem. "With Carestream's Digital Dashboard, we're not looking for a needle in the haystack. It brings the needle to my attention," said Bruce. For example, several weeks after installing the digital dashboard, the hospital's DICOM archiver failed and the imaging department was not able to retrieve studies from the archive, send completed exams to the archive or recall prior studies. The digital dashboard notified Bruce about the failure, so he did not spend several hours trying to determine the problem. Equally important, Bruce did not have to contend with radiologists calling to complain about PACS problems. Instead, he proactively notified them about the situation. "The dashboard helps maintain a high level of satisfaction with PACS; we're able to minimize the impact of routine technical issues."

Other benefits of Carestream's Digital Dashboard include efficiency and economics. For example, this spring a red stoplight on the dashboard alerted Bruce to a system database with 99.3 percent full table space. "I reported the situation, and it was a five-minute fix. If I had not recognized the situation and the database had exceeded its capacity, it would have shut down the entire archive for hours,"

recalls Bruce. The cost of downtime can be quite high and affect both patient care and staff satisfaction, says Bruce.

Finally, the digital dashboard software boosts the efficiency of the PACS administrator. Bruce, for example, estimates that Carestream's Digital Dashboard saves him at least 30 minutes daily because he no longer needs to search to determine PACS and modality functioning. Instead, a quick glance at the dashboard screen provides a live overall view of the system.

## Digital data mining simplified

"The trend in the imaging industry is to generate more revenue. The best way to achieve this goal is to understand the ins and outs of the business," opines Richard Masson, director of operations for CBIZ Medical Management Profes-

sionals in Atlanta. Over the last decade, CBIZ has evolved from a billing service to a practice management and analysis provider. The company helps its radiology clients understand their business, including the largest referring physician practices, top procedures, reimbursement patterns and denials.

Until recently, says Masson, there was a lack of software to facilitate this type of data analysis. "We generated our own analyses by extrapolating data from existing systems and creating spreadsheets," recalls Masson. Earlier this year, however, the process improved significantly when CBIZ signed on as a beta site for Amicas Inc.'s Insight Dashboards. "Insight Dashboards provides CBIZ with accelerated and improved abilities to produce data and present that data to clients in an accessible manner," explains Masson.

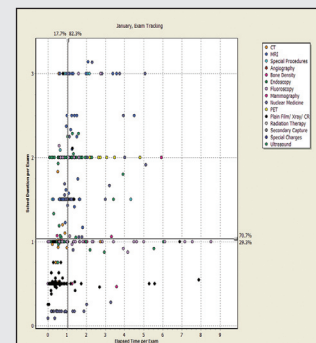
## DASHBOARD TOOLS WITHOUT THE DASHBOARD?

The digital dashboard is a moving target with various vendors offering their own flavors of the dashboard. To further complicate the picture, dashboard-like functionality may be built into PACS or RIS/PACS without the vendor using the term "dashboard."

Basic dashboard tools to monitor system performance are built into many PACS. Merge Healthcare and ScImage systems, for example, both incorporate basic system checks to keep the PACS and RIS running smoothly. As sites evaluate new solutions in the evolving PACS market, they can help assess dashboard functionality by asking the right questions. These include:

- » Does the system include a digital dashboard? Is it an option, upgrade or separate investment?
- » What tools does the dashboard include?
- » What questions or information does the department or center need answered? Can the software provide the answers? If the PACS or RIS/PACS does not include a dashboard, does it incorporate system check capabilities? Does the solution incorporate other features to enable streamlined data analysis?

It is critical for hospitals and imaging centers to understand their business. The digital dashboard provides a tool for viewing and reviewing operations and trends, but some PACS or RIS/PACS may incorporate similar functionality. Check it out.



Captured from the Practice Analysis module available as an add-on to Merge Healthcare's RIS and RIS/PACS solutions, this chart shows "Actual vs Scheduled Exam Times by Modality" and is used by organizations to identify exams that are chronically under- or over-scheduled to improve room utilization.

Prior to the dashboard, producing quarterly analyses for large groups performing up to 50,000 studies monthly represented a fairly significant undertaking. "It took several hours to query the system and run the reports," notes Masson. With Insight Dashboards, producing similar reports is a point-and-click process. Masson simply logs on to the internet-based system to drill down to the essential data such as procedures, referring physicians patterns, reimbursement figures and Medicaid referrals.

The system also helps CBIZ customize services for its various clients. "Imaging

centers live and die by referrals. They need to understand trends among referring physicians. Is a physician sending the center all Medicaid patients and shuttling its commercial payor business elsewhere? I can pull up Insight Dashboards and produce 'top 10 graphs' of referring physicians, revenue and CPT codes in near real-time," states Masson.

The objective for hospital-based practices differs. "They don't have control over their referral base, but they do need to mine data to determine top procedures, modalities and sub-specialties and how each procedure is paid to jus-

tify staff and equipment expenditures," says Masson.

The dashboard helps CBIZ better serve its customers by providing more efficient and real-time data mining capabilities, but the solution meets the needs of individual practices as well. "If a site really wants to understand its practice, this is an investment that will pay off. In addition, small practices could benefit, too, as Insight Dashboards may eliminate the need for a full-time administrator or consultant. Staff could use the dashboard to get at the data they need," notes Masson.

In fact, some imaging centers are investing in dashboard-type software to boost efficiency and optimize resources. Take for example Manatee Diagnostic Center in Bradenton, Fla. The three-site imaging practice has used Merge Healthcare's Practice Analysis module since it installed Fusion RIS/PACS in 2003. The software replaced a homegrown RIS program. "It allows us to gather information and slice and sort it very quickly and without a programming degree," sums IT Manager Neal Schafer.

For the last four years, the center has used Practice Analysis to inform and improve its business decisions. "No one wants to make decisions without good, solid information. Practice Analysis makes all of the information we put into the RIS readily available," states Executive Director Davis Graham. For example, as the practice considers opening a new center, Graham looks to Practice Analysis for data about the number of patients located in the zip code, patient ages, exams ordered and insurance and payment information. Similarly, the marketing group can target messages to subsets of referring physicians, tweaking the message depending on trends in referral patterns, patient loads and locations.

The software also facilitates daily decision-making, says Graham. "In today's environment, administrators need to be the best bean counters they can be to

## STREAMLINING CLINICAL PROCESSES

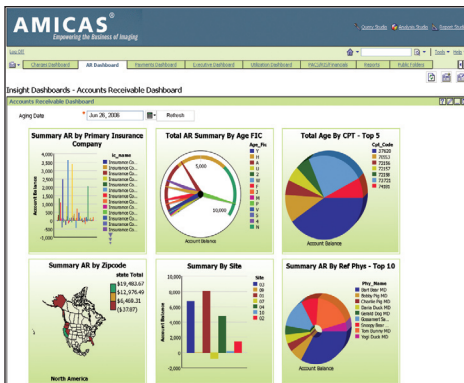
Most digital dashboard solutions address imaging operations, PACS checks, data mining and business planning. But the dashboard concept can be broader and encompass clinical aspects of imaging, too. Take for example Prince William Hospital in Manassas, Vir. The emergency department relies on a Meditech ER Tracking Board in conjunction with McKesson Corporation's ER Discrepancy Tracking solution and Horizon Medical Imaging to streamline communication between the ER and radiology, shorten ER visits and improve patient care.

The ER Discrepancy Tracking system is particularly helpful during the 11 p.m. to 7 a.m. shift when radiologists are not available for image review, says PACS Administrator Steve Speelman. During the night shift, ER physicians review images on PACS and assign an opinion. When radiologists arrive in the morning, the McKesson software highlights these wet-reads for the radiologist. After the radiologist views the study and preliminary report, he or she can agree or disagree with the initial findings. In the case of a discrepancy, the PACS automatically prints a discrepancy report in the ER, so the ER can review the patient chart and provide alternative treatment if necessary.

"ER Discrepancy Tracking improves patient care and safety and also indicates which ER staff may need additional help interpreting films," says Speelman.

The integration with Meditech streamlines imaging via a stoplight icon. That is, ordered imaging exams are highlighted in red on the ER Tracking Board. When the study is complete and images are available for review, the light turns yellow. At this point, an ER physician can read the study and begin treatment. Providing clinicians with the ability to instantly review studies can accelerate patient care and treatment, particularly when radiology is backed up or in less complex cases. After the final radiology report is complete, the study turns green on the tracking board.

The new solutions replace the conventional, outdated model that relies on faxing results to the ER. "Faxes were easily lost, resulting in additional calls between the departments. Nothing is lost with the system. Our open, real-time access to imaging benefits everyone, particularly our patients," explains Speelman. The answer to the \$1 million question—have ER visits shortened—is an anecdotal "yes," says Speelman.



Insight Dashboards from Amicas provide near real-time analytics to navigate through the pressures of an ever-changing competitive landscape and regulatory environment.

survive," claims Graham. The director reviews Practice Analysis daily to determine capacity and staffing. For example, if only 25 of the daily 36 CT slots are filled, the center can ask a CT tech to help out in x-ray, travel to a different site for the day or cut her hours. Graham uses a manufacturing analogy. "Shoe makers know exactly how much rubber is in each shoe, who worked on the shoe during the manufacturing process and how many stitches are in each shoe." The digital dashboard provides this type of critical knowledge to closely manage the imaging business.

## Business intelligence at the fingertips

GE Healthcare's solution to meeting the multiple demands of the modern PACS administrator is Centricity Business Intelligence Portal. The new software is built into the Centricity PACS platform. "Centricity Business Intelligence Portal provides a real-time snapshot to help administrators monitor the efficiency of the department," sums Vijay Tanjore, marketing manager.

The new tool addresses several critical factors that can make or break an imaging business. For starters, the PACS administrator must juggle multiple demands. In addition, the person wearing the PACS

admin hat may have other duties such as department director or radiology informatics. In some cases, PACS sites are dispersed, which can push the geographic capacity of a single individual. Other sites can not afford or locate a PACS administrator due to the robust demand for that skill set. Finally, generic RIS management reports don't quite drive maximum efficiency. That is, weekly or monthly reports don't provide real-time, actionable data.

Enter Centricity Business Intelligence Portal. The software provides real-time data about parameters such as transcribed exams, patient wait time and report turnaround. For example, if a site wants to focus on patient wait time, the RIS can notify the tech as soon as the patient arrives. The tech can prep the patient for the study, including checking vital signs and administering contrast, to streamline the visit and accelerate throughout.

Other critical metrics presented on the dashboard include patient arrival to exam completion time, which provides accurate data to help the practice determine how many exams can be scheduled on a daily basis.

The solution also helps to maximize resource and staff efficiency and develop staff training. Centricity Business Intelligence portal highlights delay patterns and cancelled exams, which could indicate problems with the equipment or a particular technologist. The administrator can investigate the situation to determine if the scanner requires service or if the tech needs additional training. Both factors impact revenue and efficiency. On the radiologist side, the dashboard displays the number of unread reports in the queue. If necessary, the administrator can shuffle resources to maintain report turnaround time or simply remind radiologists to complete reports prior to leaving.

The software is designed with portability in mind. Users can generate reports on BlackBerry devices or PDAs equipped with a solid browser, providing the mobile administrator with a view of activities.

## The digital dashboard: The road ahead

First-generation digital dashboards are designed to help facilities optimize their resources, but the software can be refined to deliver further improvements. For example, some systems present real-time data only. That is, they don't pull historic information or apply projections to the future. And there are other features on the dashboard drawing board. For example:

- » Right now, most digital dashboard solutions present information (or problems) to the PACS administrator, but do not provide a direct path to a solution. For example, if the dashboard alerts the administrator to table space near capacity, he or she can not amend the situation through the dashboard. Instead, the administrator must log-onto the UNIX server to fix the table space. Future dashboards may provide a link to the fix.
- » Some software can be accessed only from machines with a static IP (internet protocol) address. Thus, the administrator with a laptop equipped with a dynamic IP address may be limited in his or her ability to access the dashboard.
- » Data-mining capabilities should be significantly ramped up in future releases. That is, the user rather than the dashboard vendor, will be able to customize reports around essential data based on which data or reports are most relevant to the site. In addition, the user will be able to customize tools on the fly and view additional parameters as the situation warrants.
- » Finally, look for automated email notification capabilities. The administrator can customize the dashboard to send him or her an email if any parameter such as report turnaround time falls below a certain benchmark.

In all, sites in the market for increased efficiency and productivity have a new ticket—the digital dashboard. **HIM**