Trident Case Study

GE Centricity* Imaging Analytics – Real-time Dashboard helps Trident Medical Center improve radiology department efficiency and productivity.
Introduction

Trident Medical Center in Charleston, S.C., is using a real-time business analytics dashboard to help improve exam turn-around time, staff efficiency, and the patient experience in its radiology department. The technology lets department managers and staff easily monitor patients’ progress through their exams by way of large screens in work areas. By instantly knowing each patient’s status and the reasons for any delays, staff members can move proactively to expedite procedures, keep workflow on schedule, and avoid long patient wait times. In its first year under a development partner beta test, the technology helped the department cut turnaround time from patient registration to exam report by 25 to 30 minutes for X-rays and by 15 to 20 minutes for CT studies. The technology also provides retrospective reports that allow department management and senior executives to spot trends and identify areas for continuous improvement.

Customer
Trident Medical Center is a 296-bed tertiary care hospital in Charleston, S.C. It is part of the Trident Health System, which in turn is owned by HCA, Inc.

Situation
The radiology department, which performs a total of 140,000 exams per year across multiple modalities, wanted to improve exam efficiency, exam scan turnaround time, and scanner utilization.

Solution
Trident Medical Center installed the Centricity Imaging Analytics – Real-Time Dashboard from GE Healthcare to gain actionable intelligence in support of sound, proactive day-to-day operating decisions.

Benefits
- Improved X-ray and CT exam turnaround times
- Data to cost-justify investments in process improvements
- Better coordination of emergency, inpatient and outpatient exams
- More efficient staff deployment
- Improved communication between departments and job functions
Business Situation
The radiology department at Trident Medical Center has functioned well for years, but managers and staff still seized a chance to explore improvements in efficiency.

Today, the Centricity Imaging Analytics Real-Time Dashboard from GE Healthcare helps the department keep X-ray, ultrasound, CT and MR exams on track for a mix of inpatients, outpatients, and emergency cases.

First deployed in mid-2010 under a development partnership beta test, the technology enables staff to monitor patients’ progression through scanning process in real time and intervene as necessary to avoid delays and bottlenecks. It provides actionable intelligence to guide decisions that help reduce waste and inefficiency, increase scanner utilization, and grow patient volume. In addition, data from the system has helped the staff document frequent causes of delays and justify investments in remedies, including rapid point-of-care blood testing equipment.

Solution Overview
The Centricity Imaging Analytics – Real-Time Dashboard aggregates information from multiple sources – scheduling, lab, pharmacy, RIS and PACS – and displays patient prep prior to scan in real time on large, wall-mounted screens in the imaging work areas and on smaller screens or computer displays in managers’ offices.

Staff members can see delays and progress in completion of scanning and interpretation workflow at a glance and take proactive steps as needed to keep exams and reporting on schedule. A HIPAA-compliant list of pending and in-process patient exams is displayed continuously. For exams that are behind schedule, staff members can enter codes that let managers quickly see the reasons for delay.

Before the system was installed, Trident staff received daily performance reports covering metrics from the previous day. “We can’t fix what happened yesterday,” notes Jodi Barteet, Director of Imaging Services. “The GE analytics tool lets us fix problems as they happen.” At any time, for each patient, the system displays information including:

- Time the exam was entered
- Status of required lab testing
- Exam priority [STAT exams are indicated in red]
- Exam type [inpatient, outpatient, emergency]
- Whether the patient needs exams in multiple modalities
- Time the exam was started
- Time the images were verified and sent to PACS
- Time the report was completed

Stoplight indicators [green, yellow, red] show at a glance which exams are on schedule or delayed. The staff constantly has information about every step in the exam process – information that otherwise would require phone calls or visits to the different work areas. Staff members have experienced a wide variety of benefits.

“This technology helps our people in radiology react immediately and move patients through the exam process.”

Mark Robinson
Chief Operating Officer, Trident Health System
Charleston, S.C.
Benefits & Results

Improving exam turnaround.
Barteet says the analytics tool helped open the staff’s eyes to issues that would not have been apparent otherwise. “We weren’t aware of how long it was really taking to get our lab results or for oral contrast to be given,” she says. When I looked at our results from July and August of last year as opposed to this year, our X-ray turnaround times dropped by 25 to 30 minutes, and CTs by 15 to 20 minutes.”

Revealing process bottlenecks.
The system has given hard evidence of some persistent process delays, notably the time required for lab work. “The GE analytics solution showed that we had been waiting 45 minutes to an hour for HCGs and Creatinine levels from the lab,” says Malinda Smith, Manager of Imaging Services. “That made it very clear that we needed a point-of-care testing system. We had been asking for that for some time, and when we showed the evidence to leadership, the response was, ‘Go ahead, get it.’ ” The point-of-care tests now take just five minutes.

Making department managers more effective.
“The GE analytics solution makes my life a lot easier, because I can head things off before they become issues,” says Smith. “I’m able to be proactive instead of reacting when we get a complaint.”

Managers can quickly detect incomplete workflow steps – such as staff members’ failure to close exams after acquiring images, or to place studies into “Verify” in the PACS for reading by the radiologists. “If there were no way for us to see that,” says Barteet, “we would have to wait until the doctor saw a case on the worklist, tried unsuccessfully to open it, and called us.”

If a red indicator appears, signaling that a patient is delayed, Barteet and Smith can easily investigate. “If a CT of the head is scheduled and I see that it’s getting close to missing the turnaround time, I can look on the analytics real-time dashboard to see what the reason for the delay is,” says Barteet. “If no delay code is listed, I can call the department and I say, ‘Suzy Smith’s CT of head—what’s going on that you haven’t started it?’ ”

“Nine times out of ten, I don’t even have to call because the delay code is posted. I can see all this as I’m sitting in my office doing my regular work.”

Improving communication and coordination.
Staff communication between modalities has improved significantly. Before the analytics tool, there was no easy way to tell if a patient needed exams in multiple modalities. “If we didn’t make it a point to look that information up, we wouldn’t know that a patient needed multiple exams, and that could result in repeated trips from their room to the Medical Imaging Department,” says Smith. “Now we can coordinate much more easily, just by looking at the screen.”

Optimizing staff deployment.
The screens let managers see easily if a given area is slow or overloaded and adjust staff accordingly. Smith observes, “If they’re really busy, we can call and say, ‘Can I send some help? Do we need to have someone come in early?’ Or if they’re really slow, we can say, ‘How many people do we have there? Do we need to send somebody home?’ ”

Addressing Emergency Department (ED) radiology order turnaround times.
“Turnaround time in the ED has a very high-profile in our entire organization,” Barteet says. The real-time analytics solution helps the imaging staff coordinate ED exams with outpatient and inpatient studies so that ED patients get priority, without subjecting other patients to excessive delays.

“If you can see that an ED patient’s CT exam is coming up on 30 minutes wait time and that hasn’t been addressed yet, you might decide not to put another scheduled outpatient into the exam room before doing that ER study,” Barteet says. “So it helps you be a good conductor of your orchestra, in how you’re deploying the rooms.”
Enabling continuous improvement.
Reports generated from the system let managers identify persistent issues and look for ways to remedy them. “Suppose we find that last month 25 patients were delayed because contrast was not given when it should have been,” Barteet says. “Now we can work with the staff on changes in workflow to make sure contrast is given sooner.” The data also lets managers measure individual staff members’ performance and counsel or train them to improve if necessary.

Improving work conditions for technologists.
X-ray supervisor Sabrina Comps says technologists find the system easy to operate and feel comfortable using it. They can easily see which patients are waiting for exams and set the proper priorities. “It’s very helpful the STAT exams are shown in red,” Comps says. “They stand out much more, and that helps us keep tabs on those patients.

“We’re enthused about the system because we know what we’re seeing is real, it’s live, and it’s not a report that someone’s showing you from a month ago. I like the fact that we can put in delay codes and the delay reasons. It lets management know the problems and the issues we’re having – why patients are waiting.

“We used to write things down on paper and then occasionally let someone know we were consistently having a certain issue. Now it’s all being tracked, and reports can be made. It’s encouraging for the technologists to know that someone is looking at the data.

Enhancing the patient experience.
Patient satisfaction is a key performance indicator for Trident Health and is measured by Trident Health in ways that include not just formal surveys but also feedback through e-mails, a web site, direct-mail postcards, and a patient hotline. “People don’t have to go to their local hospital anymore; they can get in their car and go wherever they want,” Barteet says. “So patient satisfaction scores are huge to us.”

“Recently, on our comment cards, we’re seeing more scores of “Very Satisfied” as opposed to just “Satisfied,” and it’s mostly because of the speed of service. The analytics system is making us more efficient. It also makes life easier and less stressful for the technologists. And when they’re happier, they’re going to be more pleasant with the patients, as well.”

Aligned with the mission
Mark Robinson, Trident Health System COO, says the analytics system’s benefits are in “exact alignment” with the organization’s critical objectives. “It’s all very much in line with patient care, growing volumes, creating capacity, and increasing margin,” he says. “It’s about improving the patient experience.”

“If we can identify and quantify where our delays are, then we can find ways to save time and add capacity. That’s going to help us with scheduling. It’s going to help us meet patients’ expectations of being served quickly – and we know those expectations today are very high. If we know what is going on at the time the exam is occurring, then we can make changes to make that patient experience better.

“The mission of the hospital is to create a caring environment where healing occurs. We aim to create a process by which patients are getting the best service in a timely fashion. We have seen an impact already – absolutely.”
GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems.

Our “healthymagination” vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at www.gehealthcare.com.

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