Case Study: Rethinking Throughput

A community hospital MRI unit reduces exam wait times and increases patient satisfaction.

By Kerri Reeves

Key Takeaways:
• Patient satisfaction regarding exam wait times is integral to providing imaging services with success.
• Streamlined MRI screening forms and transport strategies are areas to target for increased efficiency.
• Improvements in workflow are achievable through interdepartmental communication regarding staff responsibilities and challenges.

MRI technologists confess: They hate an empty table. At Howard County General Hospital, a community hospital of Johns Hopkins Medicine, in Columbia, Md., the table wasn't empty due to lack of inpatient volume. The problem was patient throughput. At times, up to 20 patients were queued up for exams, with wait times extending nearly 9 hours from order until exam.

“We kept getting calls from referring doctors and nurses asking ‘When are you going to scan my patient?’ — while I was staring at the empty table and thinking, ‘We’re ready!’” says Patricia Rabette, manager of CT and MRI services at Howard, whose office is in the MRI suite, giving her an up-close-and-personal look at the department’s daily operations.

“If we don't have the next patient here when we're getting one off the table, we're doing a disservice to our patients and losing valuable time and resources,” says Rabette, who is also a fellow at Hopkins' Armstrong Institute Patient Safety and Quality Leadership Academy.

Inpatient surveys captured during two time periods in 2014 and 2015 regarding wait times for MRI exams showed that patient satisfaction was rated at 59 percent and just 17 percent, respectively.

Rabette knew the team could do better and was certain an MRI quality improvement project was the solution to improving patient care. She was right. The project led to a three-hour decrease in throughput times and a more than 60 percent increase in patient satisfaction.

Here’s how it unfolded.

Brainstorming Solutions

In the spring of 2015, Rabette teamed up with one of the hospital's busy medical-surgical departments to get the project going. She met regularly with med-surg nurses and managers, patient care technologists, the secretary of the unit, the med-surg director, MR technologists, and a transport dispatcher to discuss the patient intake process.

During the meetings, each team member took turns discussing the detailed steps of handling patients who are due for an MRI. Nurses also observed the radiology unit to better understand the complex demands of the magnet and screening processes.

“We really hashed out not just what we all do throughout the process but also what obstacles and challenges we faced along the way,” says Rabette, who maintains that better communication among departments has been the greatest takeaway from the collaborative project. “Once we worked together as a full team instead of in separate silos, we just really clicked,” explains Kim Losiewski, nurse manager. “We were able to see our own weaknesses and where other departments were struggling. Then, everything fell into place.”

The hospital had recently begun working toward high-reliability health care via Lean Six Sigma, a collaborative process improvement methodology. Employee participation became paramount in the organization, and the project team tapped into the culture change to discuss problems and potential ways to solve them.

“In meetings, we let employees know that their ideas and suggestions are 100 percent welcome,” Rabette says. “There’s no kind of retribution or pushback if they
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speak up about things that need improvement or if they have a safety concern. We truly want to hear from front-line staff on these kinds of issues.”

The group identified barriers and obstacles in the MRI process. They wrote their conclusions on sticky notes, which they then categorized according to high patient satisfaction and high organizational cost. Everyone in the meeting was assured there were no wrong answers, and not to be preoccupied with limitations, such as money and time constraints, Rabette says. The team plotted ideas on a grid, and enacted a plan with the highest yield/lowest cost items first to achieve the quickest path to improvement.

Screening Patients

One of the highest priority issues was use of a common patient screening form (click here to see the form) and harmonizing the workflow that surrounds this form. In some Hopkins facilities and departments, the screening process is entirely the responsibility of the MRI technologists; while in other environments, the nurses on different floors will begin the form. The MRI unit drove home the importance of starting that screening form as early as possible.

Rabette also amended the MRI screening form to include not only questions with “Yes or No” answers, but also guidance for the nurses. For example, underneath questions, the form may note, “Call MRI before proceeding” or “Remove patient medication patches or pumps,” Rabette explains. “This is a huge plus because it helps our nurses understand that specific things need to happen. If questions have a certain answer, it should halt the entire process and the patient shouldn’t be sent down to MRI at that time.”

Another priority was to educate the transport dispatch team about how different types of imaging exams impact workflow. Considering that certain modalities have multiple scanning rooms (as compared to MRI’s one), placing patients for transport in the order they were received was nonsensical. The dispatcher must consider MRI’s longer duration and complex scanning protocols when ordering the patient transfers.

“The majority of our ED scanning is CT and X-ray, which are relatively quick,” explains Rabette. “What we implemented was a dispatcher strategy where they are watching for MRI requests going into the system, monitoring exam duration, and moving MRI patients up in the transport queue so no time on the table is lost and patients don’t experience unnecessary wait times,” Rabette explains.

Rendering Results

After the pilot to improve workflow was completed, Howard’s MRI unit saw a 35 percent decrease in throughput times, and inpatient satisfaction surveys positively reflected the changes. Responding to a question regarding wait times for tests, patients indicated their satisfaction rose to 80 percent.

What’s more, nursing and radiology staff reported a significant and almost immediate improvement in the fluidity of the MRI patient throughput process. They also reported a smoother, friendlier, and more understanding environment thanks to the collaborative effort, Losiewski says.

“We really appreciate how hard the MRI department is working to prioritize and expedite tests for our patients,” says Melinda Kantsiper, MD, associate medical director of the Collaborative Inpatient Medicine Service at Howard County General Hospital. “They have reduced wait time significantly, and these hours make a big difference to our patients and their families.”

The baseline data of 9 hours from MRI request to the exam initially decreased to 6 hours. While that’s shy of the original goal of a 50 percent decrease, Howard continues to work toward that target, along with seeking wait time and quality improvements on this (and other) projects.

“We don’t have to keep doing things the way they’ve always been done. We call the improvements ‘Just do it,” says Rabette, a Lean process leader who regularly attends daily huddles and staff meetings organization

During initial brainstorming sessions, team members identified obstacles within the MR workflow and categorized them to identify potential areas for high-yield results.
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wide to solicit feedback and help departments with continuous improvement. “We highlight successful things that arise and really respect the people who do their jobs,” she continues. “Managers are spending much more time out of their offices and on the floors.”

“Another concept we try to drive home is that we must always stay focused on the patient,” Rabette says. “If you or one of your family members were going through treatment, how would you feel about waiting 9 hours for an MRI exam?” This proactive approach translates to smarter, faster, and better care for patients.

Next Steps

• Conduct patient surveys to assess satisfaction regarding wait times and establish baseline data on wait times.

• Plan a brainstorming meeting where staff members from various departments are free to voice concerns about workflow processes.

• Implement a plan to move patients through the queue more quickly and reduce wait times.

Join the Discussion

Want to join the discussion about working across departments to improve MRI throughput? Let us know your thoughts on Twitter at #imaging3.

Have a case study idea you’d like to share with the radiology community? Please submit your idea to http://bit.ly/CaseStudyForm.

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