

Paperless Workflow for Interventional Radiology:

Tufts Medical Center

by Cat Vasko on August 10, 2012



Neil Halin, DO

The interventional-radiology department at Tufts Medical Center (Boston, Massachusetts) was an early adopter of the workflow tool HI-IQ, developed by ConexSys; however, a recent initiative to develop a paperless workflow led the department to fuller use of its features. “When I came on board two years ago, we sat down and looked at the capabilities HI-IQ offered, and we were particularly interested in the idea of going paperless,” Kristen Mansur, RN, the department’s nurse manager, says. “The nurses would have more standardized documentation, and we would eliminate a lot of the handwriting and handwritten record keeping.”

As Neil Halin, DO, chief of cardiovascular and interventional radiology at Tufts Medical Center, observes, interventional-radiology departments generate a great deal of paperwork. “Paperwork is a problem in medicine in general—they are saddling us with more and more because there are more and more regulations to comply with,” he notes. “On top of that, interventional radiology is like an operating room, so there is more to coordinate. Every time we turn around, it seems that we are being asked to complete another piece of paper.”

Transitioning to Paperless Workflow

The benefits of transitioning to a paperless workflow were obvious to Halin and Mansur: improved efficiency, less patient-safety risk, smoother workflow, and better organization and coordination. “When we were on paper, a copy of the patient’s documentation was sent to medical records, so to look up the patient’s previous visit, you would have to go and get it pulled, which was time consuming,” Mansur says. “This way, we can get the patient information we need quickly. We use the medical-history area of HI-IQ to keep the patient’s whole history in our system, and we can get a complete picture of patients before their visit.”

At the onset of the paperless initiative, Halin, Mansur, and Halin’s physician assistant mapped out what could be done in HI-IQ that was currently being done using paper. First on their list of targets was scheduling. The HI-IQ system uses color coding to track patients as they move through the department, Halin explains, making both nurses’ and physicians’ lives easier. “The schedule is displayed on a 60-inch plasma touchscreen in the control room,” he says. “It lets everyone who is involved—nurses, technologists, and physicians—see the schedule.”

Next, the interventional department looked at other areas that could be improved, including preoperative and postoperative workflow. “We started out using HI-IQ primarily for scheduling, and then we explored the options for customizing the different databases and forms,” Mansur says. “Today, the system hits on every point we were previously documenting on paper. The ease of use makes it very appealing for a clinical area such as ours, which is very dynamic.”

Efficiency and Effectiveness

When still using paper, the interventional department used manila folders to keep patients' paperwork together. Halin details their typical contents: "History and physical forms, laboratory forms, the notes we take for clinical follow-up, the time-out form, the sedation nursing assessment, consent forms, the white card where the technologists record doses of contrast and radiation, and forms documenting supplies used and who was in the room: It was too much, and we could never find what we wanted when we wanted it," he says.

Today, in contrast, "The nurses use a combination of tablet computers and mobile workstations to document procedures," Mansur says. "We do all of our preprocedural, intraprocedural, and postprocedural documentation in HI-IQ, and we are working on getting an interface with our hospital information system (so that we do not need to print the report, at the end of the case, for the patient's paper chart)."

The results, she says, have been enormous gains in efficiency for the department's staff—and those gains have translated into increased procedure volumes. "It's much easier to manage the day using HI-IQ; we can document in the room and move on to the next patient, so it has really increased our efficiency and our ability to care for the patient," she says. "We can maximize our capacity for the day. As a result, we've seen our volume grow approximately 10% over the past two years."

Safety and Compliance

The clinicians in the IR department also leverage the features of HI-IQ to improve patient safety, Halin says. The system can track any precautions and allergies that are applicable to a patient, and it keeps a record of how often those precautions were checked (and by whom). A module for morbidity and mortality tracks patient complications, enabling Halin to create a database of adverse incidents that can be used for quality improvement.

In addition, Halin says, the system generates reminders for patients who require follow-up care by the department. "We have automated call-back ticklers for different procedures at certain intervals," he says. "If we put in an inferior vena cava filter, for instance, the system automatically creates ticklers, set for every three months, so we can check with the patient to see if we can take out the filter."

The HI-IQ system monitors and aggregates radiation dose as well, which is increasingly a regulatory requirement for radiology departments. "In places like California, you are even required to report, to the patient, his or her radiation exposure," Halin notes. "Being able to track that is very helpful."

These features of the new paperless workflow enhance patient safety and quality of care while improving the department's compliance, Halin says. "The last time the Joint Commission was here, I was able to show patients' status boxes in HI-IQ with the audits indicating the last time their precautions and allergies were checked," he says. "I have an audit trail and data that are available to anyone. As the program evolves, more and more information will be able to be shared."

Halin and Mansur conclude that the paperless initiative has revolutionized the department's workflow. "It's great to be able to go to one location and have the information you need, even with multiple team members taking care of the patient," Mansur notes. Halin adds, "We live by HI-IQ. My goal is to eliminate paper as much as possible; there needed to be a better way, and for us, the better way was HI-IQ."

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