

## EHR switch poses learning curve in the surgical suite

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**Kevin B. O'Reilly**

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When Brigham and Women's Hospital left its legacy electronic health records (EHR) system for a commercial offering, a period of adjustment was expected. Leaders scheduled 20 percent fewer surgical cases during the first two weeks of the EHR transition, yet the switch still increased the time between procedures by 19 percent during the first month, and turnover times did not return to the pre-implementation baseline for nine months. The experience shows the importance of adjusting expectations regarding efficiencies that might be gained from a new EHR, and how strong teamwork can overcome the initial learning curve.

Prior to implementing the new Epic EHR system, the average time between procedures at the Brigham was 53 minutes, according to a recent study published in the *Journal of Medical Systems*. The turnover time rose to an average of 63 minutes during the first month after implementing Epic, June 2015. In July, the turnover time fell to 59 minutes. It was not until the ninth month after the Epic switch that the Brigham's surgical teams got back to their previous baseline and then started achieving slightly lower average monthly turnover times—by a minute or two—during the remaining three months during which data were collected.

“What this paper demonstrates is that it took many, many months to return to baseline,” said Jesse M. Ehrenfeld, MD, MPH, a co-author of the study. “What's encouraging is that at the end of the study you see some interval improvements. Whether those improvements totally reflected implementation of the software or other initiatives at the hospital is unclear—that's one limitation of the analysis pointed out in the paper. Clearly, that effect at the beginning is tied to the implementation of Epic.”

Increases in operating-room (OR) turnover time can make a difference to the bottom line, depending on the setting. “The OR is one of the most expensive areas in a tertiary care academic teaching hospital,” says the study, citing previous research. “High clinical activity and abundant personnel, equipment and technology all generate high costs. Any decreases in efficiency, whether due to a new EHR or policy, can have a large impact on OR utilization and thus profitability of the hospital as a whole.”

A 10-minute increase in average turnover time is unlikely to have a material impact on productivity in an academic medical center, said Dr. Ehrenfeld, associate professor of anesthesiology at Vanderbilt University School of Medicine and associate director of the Vanderbilt Anesthesiology and Perioperative Informatics Research Division. But, he said, such delays could make a financial difference in, for example, a busy ambulatory care center where many, shorter cases are handled.

But even fairly minor upticks in surgical turnover time fall short of the time savings health care organizations are often led to expect will result from a new EHR.

The study, co-written with colleagues affiliated with Harvard Medical School and the Brigham, concludes: “We believe that caution should be advised in regards to broad claims of improved efficiency associated with new EHR implementation. Despite commercial EHR vendors advertising their products as helping streamline perioperative workflow, this has yet to be our experience.”

In this case, most of the additional EHR burden fell on preoperative and intraoperative nursing personnel, rather than surgical or anesthesia professionals. The study does note benefits of the new EHR, including:

- | Easy access to the entire patient chart with full functionality at any workstation and from home, enabling orders for preoperative medications and laboratory testing to be placed the night before surgery
- | The ability to order labs and to print a single patient-specific and specimen-specific label during the case from within the OR, resulting in faster results reporting
- | Lower risk of human errors due to intraoperative electronic safety checks of blood products using a patient label, product label and scanner
- | The ability to view administered medication and order medications postoperatively through one centralized source, cutting delays in appropriate postoperative management

A practice-improvement module that is part of the AMA’s STEPS Forward™ collection offers concrete advice on successful EHR implementation.

“Transitions are always challenging,” said Dr. Ehrenfeld, a member of the AMA’s Board of Trustees. “Even with the best-planned transitions, the unexpected happens. I think it’s important for clinicians to be flexible, but it’s challenging when at the end of the day you find yourself in a situation where the technology that’s supposed to help you is, in fact, a barrier to providing the care that you want. ... I’ve experienced that myself, and I have seen it with colleagues. There’s no amount of planning that can eliminate that experience, but hopefully you can mitigate it.”

Dr. Ehrenfeld will have some more firsthand experience soon, as Vanderbilt plans to implement Epic in November.

“We are fortunate to learn from a lot of colleagues around the country who have gone through implementations, to look at things they would have done differently and what the best practices are,” he said. “I hope it will be a smooth transition.”