

EDITORIAL

Health Information Technology: Patient Safety and the Importance of Training and Education

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As I completed my internal medicine training in 1999, the Institute of Medicine (IOM) published *To Err Is Human*. The IOM claimed that up to 98,000 lives are lost yearly from medical errors. This landmark document helped spur the implementation of health information technology (HIT). The assumption has been that with computer support, we can improve safety and quality. The federal government has accelerated HIT adoption further with large financial incentives in its "Meaningful Use" program, which extends into 2014.

The complexity of modern HIT systems and a shortened timeline for deployment have created the potential for significant errors in design and implementation. As a result, a significant risk to patients has been created by the very systems intended to improve safety. Errors related to HIT are growing, but the scope of the problem remains difficult to measure.

Recently, the IOM summarized the impact of HIT on patient safety and made recommendations to limit harm. In 2011, it published "Health IT and Patient Safety: Building Safer Systems for Better Care." This publication called for a greater effort in ensuring that safety is prioritized in the design, implementation, and maintenance of HIT systems. One committee member, Richard Cook, MD, even recommended that HIT systems be regulated by the Food and Drug Administration.

In the coming years, we will see a growing focus on HIT safety. Improvement efforts will be the task of many parties, including IT departments, vendors, and governmental agencies. The focus will be on usability, interoperability, and improving the ease of implementing and maintaining systems.

As physicians we should be reminded that we have the ability to improve the safety of HIT now. We can strive to master rather than simply learn the basic operations of these systems. With a deeper understanding of how they function, we can identify opportunities for improvement and share them with developers. We bring a unique understanding of HIT behavior at the point of care.

We should redouble our efforts in training physicians to use electronic medical records (EMRs). Physicians spend many hours honing their understanding of pathophysiology and pharmacology. They apprentice and seek certification to perform invasive medical procedures. The same rigor should apply to mastering the operations of a modern day EMR.

The rest of this discussion will focus on lessons learned at our institution as we taught more than 1,000 physicians to use the EMR. "Pre-live" training was very important; however, instructors should understand that learners can absorb a limited amount of information before fatigue sets in. Content should provide a broad introduction to the software interface along with an overview of the system's range and scope. This will help learners appreciate how the EMR will impact their workflows and hopefully impress on them the importance of future training efforts. Providing access to the system immediately after training can allow users to start building templates and preference lists. These are high yield activities that can empower learners to prepare. "Playground environments" can be used to practice, but understand that very few will have the time to "play." We found that some early adopters spent time building tem-

plates and preference lists and also spent time in the playground. In addition, they often shared their templates and preference lists with colleagues.

As important as pre-live training is, "post-live" training and education is more critical to organizational success. At this point, users have more insightful questions and are able to learn advanced functions. They will also need continued training as enhancements are implemented. With "Meaningful Use," we should expect an aggressive schedule of updates.

One of the greatest challenges to training remains time. Physicians simply do not have the luxury of spending hours in training. They also cannot travel repeatedly to computer training labs. They need training that is delivered to them in a time-efficient manner. The information needs to be customized to their needs and should be presented in a manner that allows them to apply what is learned easily.

Tip sheets are commonly used to provide ongoing training. They are easy to produce and disseminate over e-mail. Unfortunately, applying information from these documents requires a significant effort. Many of our physicians have fatigued from the barrage of tip sheets. The value of tip sheets has been lower than hoped.

One-on-one training is resource-intensive, but given the cost of an inefficient physician, it may be well worth the investment. Our department has hired an EMR trainer who is available to provide shoulder-to-shoulder support for physicians. This concierge training has been invaluable for those who struggle the most. Physician trainers, if available, can teach colleagues to use the

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EMR very efficiently. They can target the highest-value topics and provide examples that resonate with physician learners.

Short video lessons that demonstrate optimal EMR workflows have been very effective. One simply has to watch one of the 27 million “Do-It-Yourself” videos on YouTube to understand the power of this format. The production quality of our videos is amateur at best, but the educational value remains high. Video screen capture and production software facilitates easy creation. With proper formatting, physicians can view videos on desktop or mobile devices. Videos should be less than five to seven minutes in duration. They should also be compressed to less than 7 megabytes to minimize upload time.

Our informal surveys have shown that 75% of respondents found this method of training to be “very helpful.” When asked how

videos compared to other training methods offered, respondents replied:

- *“The video format is really nice—can view on our own time and review as needed.”*
- *“Very nice as no work has to be missed!”*
- *“I get much more from the short, directed training modules—and that they are coming from a physician using [EMR] in daily practice—even more helpful.”*
- *“Better than tip sheets”*

It has been 13 years since I completed my residency. I started in a paper system that limited my ability to provide safe and effective care. I now operate in a fully integrated health information system that affords me the ability review clinical information, place orders, document findings using voice recognition, notify patients electronically of results, and even bill my services—all with a

single software application. The system cost millions to deploy and has literally hundreds of integrated functions. I am confident that this marvelous invention called an EMR can improve quality and safety.

I am just as confident that physicians must dedicate themselves to becoming experts in using these systems if they expect to improve quality and patient safety.

References

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