

Using IT Tools to Support Online Clinical Training

Michael M. Dumais

The advent of the digital information age has presented a great opportunity for the use of the Internet as a means of delivering high-quality educational materials to just about anyone who has Internet access and a personal computer. Many aspects of our lives have been changed by the reach of the Internet, and education is no exception.

Medical device manufacturers have begun to understand and harness the power of the Internet with the goal of delivering high-quality online medical device training. This article will provide a broad survey of past educational practices, a review of current computer-based training that incorporates a learning management system, and strategies for ensuring success in online medical device education.

In the past, education around medical devices often consisted of a vendor representative who arrived at the hospital on the same day the device would go-live. The clinicians present on that day would have received an in-service call, while concurrently attending to patient care responsibilities.

The success of this sort of education was limited by the amount of time the vendor stayed on-site, the total number of nurses who attended the training, and the total amount of information that could be remembered given conflicting demands on attention.¹ This paradigm of education delivery was further complicated by the fact that some clinicians only worked on weekends and some



Image of a set-up screen that provides local administrative control over learning activities.

only at night, making access to in-service education impossible.

Historical Perspectives and Future Trends

Device manufactures began to utilize video taped in-services as a means of delivering medical device education. Some creative hospitals came up with unique ways of providing unlimited access to clinical staff.² Having access to and viewing these training videos was an excellent step in the evolution of asynchronous medical device training. However, from a learning standpoint, it had problems. The first problem is the lack of objective means for gauging whether a clinician successfully learned how to use the device. Passively watching a video tape cannot show competency, and the only means of

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objective evaluation is a sign-in sheet. Next in the evolution of asynchronous learning was the use of CD-ROM and online resources. A computer literate clinician could use a CD-ROM provided by the manufacturer to view a digitized version of the video tapes. This digitized content could also be accessed via the Internet and viewed anytime at a clinician's convenience. While this provides access to well-designed and presented learning materials, it still lacked any sort of metrics that managers and educators could use to evaluate learning.

Recently, the development of various software applications has given medical device manufacturers the opportunity to incorporate learning management systems

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(LMS) into their clinical training program. Essentially, an LMS allows vendors computer-based training to be tied into a large database that functions as a tool to assign, track progress, and ensure completion and understanding of the fundamentals covered in the training program. The most advanced programs include interactive questions and

answers, device user interface simulations, and scenario simulations for testing the student.

One such manufacturer, GE Healthcare, has recognized that it is not always possible for all clinicians to attend the formal in-servicing that generally accompanies a large device installation. They have also realized that it is not always necessary to have formal in-servicing on upgrades due to the very simple learning needs associated with upgrades. As a result, they have developed and are on the cusp of the release of an LMS that will be used in conjunction with online training that teaches students how to use their monitoring devices.

This LMS allows local administrators, a nurse manager, or project biomedical engineer, for example, to assign clinicians courses related to the medical devices. The clinician would receive an electronic notification that directs them to an online course. This course would be available for them to complete at any time, either at work or at home. Once the clinician signed into the course, he/she would complete the course materials, which would include a presentation on the topic and would be followed by a quiz to assess competency.

With this particular LMS, employee tracking of successful completion is possible, both from the individual and institutional level. Reports generated can include course start and finish dates, as well as individual and institutional completion trends. The ramifications of this sort of tracking would be particularly helpful for institutions that may have a policy of not going live unless a certain percentage of clinicians have completed the training. It is also helpful in identifying individuals or units that may need more instruction than what they receive from the online course. Based on a conversation with Dorothy Lutz, RN, global program and applications manager, GE Healthcare, a section that many of the employees may have performed poorly in the computer-based training may be flagged for more compre-

LMS Attributes

- ◆ Allows “anytime” access to computer-based training.
- ◆ Allows access to training for all shifts.
- ◆ Allows access to training at any location, work or home.
- ◆ Allows for objective analysis of training completion.
- ◆ Allows for identification of clinicians or units who may need additional training.

LMS Demo Instructions

1. Go to <http://216.139.204.104/prospect/gems/app/public/default.asp>
2. Select: LOGIN AS STUDENT
3. Login by using: Username: lms-demo
Password: lms-demo
4. Click on MY COURSES.
5. Select OPTIONAL COURSES
6. Select desired course; either Dash 3000/4000 or CIC Apex Pro
7. Select TAKE COURSE at bottom of page to initiate training.

hensive live training from the vendor educator in addition to the go-live support.

Factors to Consider When Implementing a Training Program

When evaluating the use of online training, there are various technical and human factors that must be considered to ensure success.

First, having the technical infrastructure is very important. The hospital must have enough Internet-enabled computers to ensure all students will have access to the training. While it is possible to access computer-based training from home computers, it is prudent to not assume every student has a computer at home. Also, management should be prepared to support the learning needs of all students. Additionally, it's important to review both the hardware system and software requirements of a particular computer-based instruction to ensure local infrastructure will support the training. Nothing will destroy a well-planned online educational session faster than finding out the computer's browser is not compatible with the LMS or that the sound card necessary for the course is not installed on the computer. It is also important to consider the computer literacy skills that each student will need. Generally speaking, all learners should know how to use e-mail to access their assignments online. Additionally, they will need to have basic web browser skills. Not having these basic skills will be a major barrier to implementing a computer-based training.

Because of the increased sophistication in application software, the production and use of online training courses for medical device is on the cusp of becoming a viable training option to train clinicians on how to operate new medical devices. Learning management systems will allow local administrators to assign courses, track progress, and set an objective measure of competency. This objective measure can help gauge whether the facility is ready to go-live with the new equipment.

When planning for the implementation of online training, it's important that the institution's hardware and software configurations will accommodate the training. If planners ensure an adequate technology infra-

| Technical Considerations | Human Factor Considerations |
|--|--|
| Available hardware and configuration which allows for completion of training | Adequate computer literacy skills <ul style="list-style-type: none"> ◆ e-mail access ◆ Web browser skills ◆ human interface device competency |
| Software and browser versions appropriate for LMS use | Buy-in and support from local clinical leadership |
| Adequate institutional bandwidth | |

Table 1. Pre-LMS Utilization Checklist

structure is in place, and clinical students possess the requisite skills, the use of online training can be a valuable tool to a successful medical device training. ◆

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