Background

CME on the World-Wide Web (WWW) emerged early in the 1990s. Since then, practicing physicians have significantly increased their use of the WWW for medical information-seeking and CME. Beyond CAL, the WWW represents a universal educational delivery system that can be quickly updated and transformed to reach different audiences.

While the amount of online instruction for health professionals has increased dramatically, there has not been a significant change in the way online instruction is addressed for physicians in practice. The goals of the study are to address the following effectiveness questions:

1. What difficulties do physicians experience when accessing online CME? What are the most common difficulties? Are text-based courses more effective than case-based courses?
2. What case-based formats are preferred? What is the effect of case-based formats on knowledge and practice changes?
3. Which course formats were preferred by online course developers? What are the perceived benefits and limitations of each format?

Methods

A feasibility study was conducted, followed by a time series trial and ancillary analyses of data to evaluate the effectiveness of online CME courses. Feasibility trials used the two different server platforms: Server (1) was the team of the University of Alabama Division of CME online website to deliver standardized test plates at three points in time for courses that had different clinical topics, had been created in different formats, and used a variety of multimedia software in their delivery. The feasibility study was conducted between July, 2002 and October, 2002.

Following the feasibility study, time series trial was conducted between October, 2002 and March, 2003. This series represented performance outcome of one group of physicians prior to participation in the online courses (pretest), immediately following course participation (post-test) and at 30 days following course participation (follow-up). Since a number of participants did not complete all tests, an analysis of addition of additional data was conducted.

Subjects

1. United States physicians who visited either the CMS-Medline Portal or the UAB Division of CME online website and completed three tests between August, 2002 and March, 2003.

Email address, name, address and key code were collected for each subject.

Selection of courses

The trial was designed to evaluate a sample of 30 online CME courses. The trial was conducted from August 1, 2002 through March 31, 2003. Each subject completed three tests:

1. Pro-course knowledge
2. Post course knowledge
3. Follow-up course knowledge

An extended period of time would allow further study of sustainability of knowledge.

Feasibility study

Data was collected during the period of August 1, 2002 through March 31, 2003.

Results

Feasibility study

Data was collected during the period of August 1, 2002 through March 31, 2003.

Time series trial

There were 1071 individuals who completed at least one of the course components. Of those, 527 at 720 post-tests were completed by U.S. physicians. Four hundred twenty-two (422) physicians completed a post-test, and 125 of those post-tests were taken at 30 days following course participation. Eighty-five physicians completed 3 post-tests, 40 post-tests were taken at 30 days following course participation. The Pearson's correlation coefficients were:

Post-test knowledge

Follow-up test knowledge

Knowledge increase was sustained over a period of at least 30 days. These knowledge gains were considered significant.

Discussion

Over three-quarters (76.5%) of physicians completing the follow-up test reported taking other online CME courses from the time series trial; an extended period of time would allow further study of sustainability of knowledge.

Ancillary analyses

Nearly all physicians reported at the time of the pretest that they intended to make a change in practice following the course participation (post-test) and at 30 days following course participation (follow-up). Since a number of participants did not complete all tests, an analysis of addition of additional data was conducted.

What was learned?

1. Differences in practice (posttest) and 3) reported change (follow-up). The design of the standardized templates is representative of three assessments (pre, post, and follow-up).

2. Effect size, or the magnitude of relationship between test scores, was computed using the Pearson's correlation coefficient.

3. Utilization of multimedia software in the delivery of online CME courses has significantly increased their use of the WWW for medical information-seeking and CME. Beyond CAL, the WWW represents a universal educational delivery system that can be quickly updated and transformed to reach different audiences.

4. Case-based formats were more effective than text-based courses.

References

7. Interview with Department of Health and Human Services, Office on Women’s Health, Women’s Health Bulletin on computer-assisted instruction, in press.