MEDINFO 2007
HISA Ltd Australia
© 2007 The authors. All rights reserved.

Construction and Evaluation of e-Learning System for Medical Treatment Safety Measures

Tomiaki Morikawa[a], Hiroki Moriguchi[a], Satsuko Suzuki[b]

[a] *Department of Medical Informatics, Tokushima University Hospital, Japan*
[b] *Medical safety management center, Tokushima University Hospital, Japan*

Abstract

To consider effective medical treatment safety measures, various factors that lead to the malpractice should be understood and be analyzed objectively. In The University of Tokushima hospital, the incident report system was constructed. The safety management room is set up in the university hospital. Its system collects information and analyzes many submitted incidents to contribute safe medical treatment. However, there was no mechanism effectively educating though the system that reported on these results to the staff was able to be prepared. Because it is difficult to teach to about 1000 all staff by the set education. Moreover, it is a current state in the staff in the university hospital that in very busy, there is not even so much educated time. Then, it reports in this research because the e-Learning system is developed to do the medical treatment safety education effectively, and it evaluated it to the learners who are staffs in hospital.

Keywords:

e-Learning, medical safety management

Materials and methods

A necessary educational teaching material was made based on the statistical data having been extracted by the incident report system. The composition data of an educational teaching material is the following.

1.Video data used by lecturing on medical treatment safety management. 2.Power Point data made in safety management measure room. 3.Voice data for narration. 4.Test data

System configuration
The system configuration is: Server's OS is FedoraCore3 which is distribution of Linux, Web server is Apache2.0, SMTP server is sendmail8.12.10 , Database engine is PostgreSQL7.4.3 and program language is PHP4.3.4. The flash was used to compose the educated screen that the learner saw easily. When all contents are built in by using the Flash technology, the data capacity downloaded to the client is large. Then, educational Viewer made in the flash, and constructed the function that only contents were able to be downloaded. Thanks to this function, The volume of data that the client downloads is a little. The client downloads only necessary data from the server. Therefore, this system can be used even with the cellular phone whose cost is generated for the amount of the communication of the packet.

<u>*Evaluation experiment*</u> It experimented for about 50 nurses this time.

<u>*Contents*</u> Laws to protect personal information took effect on April 1, 2005, banning the public and private sectors from using information on a person other than for its intended purpose and from providing it to a third party without permission. The hospital is not an exception. We made contents for protection of personal information.

Results and conclusion

The nurse's record is made electronic in The University of Tokushima hospital. Then e-Learning was able to be used smoothly in this trial.

<u>*Evaluation by nurses*</u> Because the nurse was able to access the system from anywhere, it was very convenient. 50 percent of them inspected it outside work. The person who received the lecture was able also to study repeatedly. They could learn repeatedly where they could not understand. They were surprised at the place in which it was able to test by the cellular phone. But move data were not good.

<u>*Evaluation by safety management room*</u> By the use of only the WWW browser, Safety management person can easily input contents data into the database. With the nurses' usage log of the system, teachers would find their weak points and blind spots at an easier rate than before. The grasp of learner's progress report became possible through the system. Those would be reflected to e-teaching and actual lectures. It encourages interactive education. Once a data is registered, the Safety management person can easily retrieve the slides stored in the database at any time they should give a lecture. In the future, people who work at the university hospital can educate through the system.

This time, the trial was done for 50 nurses. As a result of the trial, it can be said that e-Learning concerning the safety control is a success. There was hardly a convenience of the system. It received high acclaim from the nurses

who was the learner. However, when the number of system users increases, it is necessary to solve the problem on a lot of operation sides like the registration problem etc. of ID. The mechanism of the ASP type is composed of the university hospital and it will expand it to a general hospital in the future.