

USE OF A TABLET COMPUTER DEVICE, THE APPLE IPAD, IN THE DESIGNING OF ORDER ENTRY SCREEN FOR MEDICATION FOR AN ELECTRONIC ANESTHESIA RECORD

Anil Marian, MD, FRCA; Michael Todd, MD; Franklin Dexter, MD, PhD; Peter Tucker; Frank Scamman, MD
University of Iowa Hospitals & Clinics, Iowa City, Iowa

Electronic Medical Records are becoming the standard across the country. Many physicians would be using tablet computers for accessing electronic records for the purpose of data entry and for reviewing clinical records in the near future. University of Iowa Hospitals recently went live with EPIC Electronic Anesthesia records. During the process of designing and testing the interface for Intraop Record, we decided to do a Quality Improvement study to compare comparing 2 different simulated layouts for medications order entry in electronic anesthesia record. One layout had medications arranged in an alphabetical arrangement and the other had medications arranged in a categorical arrangement. From the results of this Departmental QI project we designed the EPIC Intraoperative Anesthesia Record.

In this project we wanted to measure speed and accuracy using either design. To gather this information we developed a web-based application utilizing ASP.net, jQuery and SQL Server to conduct an experiment. The experiment was given to clinical anesthesia providers when they were not involved in patient care. We got a total of 60 providers participating in the study.

To run the web application for the trial, we decided to use the power, speed, portability, wireless connectivity and versatility of a new tablet computer- the Apple iPad. Subjects were handed an Apple iPad with the application preloaded. The product had just come to the market and it satisfied all requirements of an easily portable mobile device that we could use for the study. We needed to carry the device around to various locations so that we can get a provider to do the trial. It needed wireless connectivity to access the web application from anywhere in the hospital. For this we used the hospital secure "staffnet" WiFi, which is accessible only by staff working within the hospital. The iPad had a touch screen interface, which was similar to the touch screens we were planning to install in all anesthetizing location for data entry into EPIC record. That meant that the data entry method for the study was similar to actual operating room scenario. It had reliable battery power which helped us make sure we were able to complete each trial without loss of power at different locations. With the help of this tablet device, we were able to reliably complete the study in a short time and were able to implement the results in our intraoperative record before go-live.

In short, we describe the novel and successful use of a new tablet computer device, the Apple iPad, for Quality Improvement study in a medical setup which helped us design the interface of our electronic anesthesia record better.