Mobile Clinical Assistant in Hospital Information System (HIS) Environment: Are We Ready?

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Abstract and Objective

Mobile Clinical Assistant (MCA) provides real time data entry for the clinicians and nurses in HIS environment. Observation showed that in an IT hospital, doctors and nurses tend to transcribe data on to a piece of paper and then keyed in the data into the system at their own convenience. This situation will jeopardize patient safety and defeat the purpose of ICT in improving patient care. To improve efficiency of nursing care, a pilot project on the use of mobile clinical assistant (MCA) was conducted in Serdang Hospital, Malaysia one of the hospitals with total hospital information system (THIS). The efficiency of nursing care was determined by measuring data latency before and after the implementation of MCA. The acceptance level of adopting MCA was also measured. The results showed that MCA did improved the efficiency of real time clerking for nursing care, however the acceptance level of adopting the technology is generally lower than expected.

Keywords:

Mobile clinical assistant, Point of care clinical documentation, Improve efficiency, User acceptance level.

Introduction

Mobile Clinical Assistant (MCA) is a newly designed device specifically to be used in healthcare environment. The MCA tested was a slim, lightweight computing platform with integrated carrying handle and integrated features including a bar code reader, radio frequency identification (RFID) reader, with special touchable screen, embedded digital camera and voice recognition. The weight of the device is around 1.4kg.

MCA provides real time data entry for the clinicians and nurses in HIS environment. Observation showed that the nurses tend to transcribe data on to a piece of paper and then transcribed into the system at their own convenience. This is the main reason for data latency which was defined as time lapse between data collection and data recording into the EMR. However the study did not measure the clinical significance of data latency.

The objective of ICT adoption in H. Serdang was to improve quality of patient safety by real time access to patient information. The benefits of technology adoption were not well realized by the staff due to training and change management issues.

Methods

An interventional study with non randomized trial was conducted in Medical and Multidisciplinary Ward. Data latency for vital sign charting and medication administration was measured before (using laptop on trolley) and after using the MCA. Descriptive analysis was performed for all data and paired T test was used to compare pre and post implementation data. Significant level was determined at 0.05.

For user acceptance level, a self administered questionnaire with likert score from 1 to 5 was given to all users to fill up.

Results

Mean data latency had reduced from 8 minutes to 1 minute in Medical Ward (87.8%) and 28 minutes to 2 minutes (92%) for Multidisciplinary Ward. (p value < 0.0001). Mean data latency for medication administration in Medical Ward had reduced from 33 minutes to 4 minutes (87.9%) and from 2 hours and 43 minutes to 4 minutes in Multidisciplinary (97.5%) (p value < 0.0001).

Only 22 users out of 48 (45.8%) used MCA frequently during the pilot project and out of these only 20 (43.5%) of the users wish to get MCA.

Conclusions

The success in the use of MCA is much dependent on the user friendliness of the MCA & HIS system and training and change management program provided to the staff.