

Implementation of Mobile Computing System in Clinical Environment:

MobileNurse™

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Introduction. With the wealth of technical improvement in health care, the need for information technology innovation is increasing. There are many new technologies which are being developed to improve the efficiency and productivity of nursing. The purpose of this study is to develop a prototype of mobile nursing information system, providing mobile environment of retrieving medical orders and test results

Development of MobileNurse™. We have divided the framework of development into two stages. First, to implement the interactive system between PDA and Mobile Support System. MSS is a unit server located at the nursing station, it stores and communicates patient data with PDA. Second, to interface PDA with HIS. PDA communicates with HIS via MSS. The autosynchronization module were developed to interchange updated information between PDA and MSS consistently.

MobileNurse™ consists of four modules: patient information management, medical order check, nursing recording, and nursing unit care plan. Patient information management module shows the patients list and displays individual demographic information of patients. Medical Order Check module helps nurse to check physician's orders. Nursing recording module consists of nursing notes, vital sign recording, checking fluid intake/output of patient, pain assessment, and results of special nursing treatment. Nursing unit care plan module consists of submodules such as discharge, clinical test, consultation, blood transfusion, operation, transfer, and diet note.

The functions provided in MobileNurse™ are as follows.

- Automating vital signs graph
- Calculating total amount of fluid intake/output
- Pain Assessment Tool
- Online retrieval of physicians'orders and test

results

- Nursing records at bed-side

Clinical Trial. We tested MobileNurse™ at the Clinical Trial Center, Seoul National University Hospital, Korea. Six registered nurses volunteered and performed nursing care.

Discussion. The positive aspects of MobileNurses are : it is handy and ease to use, beneficial to nursing care, and it will be able to replace nursing worksheet. The nurses requested several modifications to improve the user interfaces. A recent survey of health care organizations found that almost 30% have automated the documentation process with computer-based patient record¹. This trend is expected to continue, because the minimum time for gathering and entering computerized documentation is less than the minimum time for handwritten documentation. Considering that nurses spend up to 50% of their time documentation patient information, the computerization of these tasks is essential². We think that enhancing user interface of data input, MobileNurse™ will reduce time-consuming, redundant paperworks in nursing unit.

References

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2. Bowles KH. The barriers and benefits of nursing information systems. *Computers in Nursing* 1997; 15(4): 191-196