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Using PDA to transform the long MDS-HC evaluation form into a favored system

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Abstract

The MDS-HC has been an effective home care evaluation form. However it was not yet accepted in Taiwan because it is too long for our over-burdened home care nurses. We used a self-developed PDA information representation model to design the PDA MDS-HC support system and used the Technology Acceptance Model to examine its potential acceptability. The results showed a well-designed PDA could greatly improve the usability of a originally un-favored paper system.

Keywords:

MDS, home care, PDA, information representation

Introduction

The Resident Assessment Instrument, consisting of a Minimum Data Set (MDS) evaluation form, Client Assessment Protocols (CAPs) and Triggers, has been well internationally known, applied, and even used for the insurance claim, in the long term care [1]. The MDS-HC is vary complete and covers 17 main categories and as many as 64 evaluation items. However, currently its professional completeness doesn't make it a formal evaluation form for the home care in Taiwan because it is too long for our over-burdened home care nurses.

PDA has been a potentially useful tool for mobile nursing, especially for those in home care settings. But its interface features, such as difficult data entry in writing and small display screen, still confine its use. We developed a PDA information representation approach which had been practically proven to be easy to use by nurses [2][3]. A modified version was latter developed for the long forms.

The purpose of this study was to use the modified PDA information representation approach to design the PDA-based MDS home care evaluation support system and to examine the home care nurses' acceptance of the PDA-based MDS-HC system.

Methods

The modified PDA information representation approach is mainly composed of 4 principles:

1. The screen display area is separated into three sections for the users to clearly see and to easily navigate through the form.

2. User should be able to switch to any item in less than 3 taps.

3. The hand-writing should be replaced, if possible, by tapping for data entry.

4. User should be well reminded what tasks have been done.

A team of nursing user, nursing programmer and experienced PDA programmers was organized and the prototyping approach was used to develop the system. A convenient sample of 24 subjects, who were trained of the MDS, was used for testing. 3 representative home care scenarios were written for users to test the PDA system. Davis' Technology Acceptance Model was used to evaluate users' acceptance of the system in terms of their perceived ease of use and usefulness.

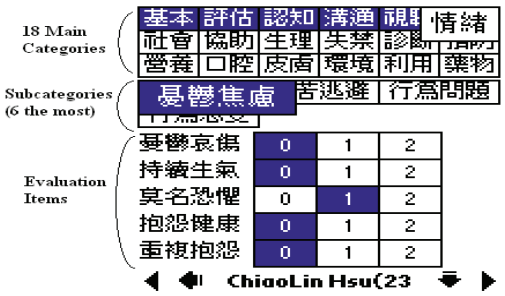

Figure 1. The representative screen shot.

Results

The representative PDA screen was shown in Figure 1, in which uses could navigate the system through tapping the upper main category and subcategory buttons, and enter data in the lower half data entry area. The highlighted buttons mean answered questions.

58% of subjects never used the MDS-HC form. Most of the subjects have BS degree and aged from 20-50. 100% agreed the system was easy to use and 92% agreed the system was useful.

Conclusions

Our study showed that a well-usability-engineered PDA system can well improve the usability of both the professional forms, which was too long to be practically accepted, and PDA, which small-display interface usually hinders its popularization.

References

[1] Morris JN, Fries BE, Bernabei R, Steel RK, Ikegami N, Carpenter GI. RAI-Home Care (RAI-HC) assessment manual for version 2.0. Boston: Inter RAI; 1999.

[2] Chang P, Hsu YS, Tzeng YM, et al. Development and Pilot Evaluation of User Acceptance of Advanced Mass-Gathering Emergency Medical Services PDA Support Systems. MedInfo 2004 Symposium, p:1421-1425.

[3] Chang P. Tzeng YM, Wu SC, et al. Development and Comparison of User Acceptance of Advanced Comprehensive Triage PDA Support System with a Traditional Terminal Alternative System. American Medical Informatics Association 2003 Symposium, p:140-144.