UCSD Digital Nursing: Next Generation Healthcare

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Purpose
Creation and evaluation of computer based documentation tools for the nursing home environment

Methods

User-Centered Design Team (UCD)
Conduct all ethnographic research at the St. Paul’s facility.
- Observes nurses’ work practices
- Analyzes the paper trail of charts
Design a user-based interface for the new computer based that is efficient and intuitive to use.

Software Team
Develop the Digital Nursing system as a web based application. Retrieve paper prototypes from UCD team to convert to digital format.

Hardware Team
Create custom made metal casings to house the Digital Nursing equipment.

Research Team
Perform research to evaluate the computer based system, using:
- surveys
- focus groups
- direct observations
Key areas of focus include changes in workflow, evaluation of user design process, and improvement in patient care.

Design Cycle

Introduction
Abstract
Documentation computer tools for nursing homes are uncommon, with few nursing homes having access to electronic systems. At St. Paul’s Senior Homes and Services a UCSD student engineering team created a web based solution for the nursing staff progress notes. The purpose was to develop innovative design processes so other groups can emulate similar processes. By collecting information from nurse notes and feedback, a web based system with high level of user input standardization was created. The system is currently in use at the St. Paul’s facility.

Background
In order to monitor the health of the residents, nurses record medical information in handwritten binders and forms. Only one single nurse can view or write an entry in these logs at any given time.
- The “24 hour log” document is an information bottleneck
- Handwritten information can be messy and disorganized
- Nurses often wait too long to make entries, introducing errors

Questions to Answer
- Does the computer based system ultimately improve patient care?
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- Is the system easy to use and how effective is the UCD process in the nursing home environment?
- What is the best way to introduce a computer based system into the nursing home environment?

Results
- Figure 1: Overview of Digital Nursing System
- Figure 2: Overview of the Design Cycle, going through different iterations of user centered design, nurse input, and software implementation
- Figure 3: Nurse using the Digital Nursing System
- Figure 4: Survey question results, on average nurses found computer based system easy to use

Conclusions
- Shift to shift continuity is improved in terms of quality, time, and communication
- Administration mandate is in effect to force nurses to adopt information technology
- Computer equipment must function correctly and be placed in well thought out locations
- Clarity defines usage of computer based tool
- Proper administrative and technological support
- Balance of user input as well as developer insight needed to create best possible result

Future Work
- Deployment of Care Plan, MAR, and CNA Flow sheet
- Complete publication project
- Additional studies on new computer based documents

For a demonstration of the Digital 24 Hour Log, please visit: http://diginurse.homeunix.com
For additional information on the Digital Nursing project please visit: http://ties.ucsd.edu/projects/digitalnursing/

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