Usability Evaluations …

… of Health Information Technology

Part II– Scenario-based simulation

Objectives

- ☐ Continue to expand knowledge and skills for conducting formal usability testing & apply results to continuously improve IT applications at GHS

- ☐ Create a network of usability coordinators to provide feedback & expertise on usability evaluations gained from continuous learning as well as experience associated with software design & implementation

Outline

- Follow up and feedback from August sessions
- "Nuts & bolts" of scenario-based simulation
    - Determining the objective(s)
    - Designing scenarios
    - Selecting end users
    - Organizing &/or developing data collection instruments
    - Conducting the testing
    - Summarizing the results

Outline, cont'd.

- ☐ Hands on usability testing experience → this afternoon for Inpatient team
- ☐ Summarize usability activities tomorrow – Outpatient and Inpatient teams
- ☐ Perform data analysis

Review……

Applied to the science of usability, HEURISTICS refer to "principles of design" or "rules of thumb"

Heuristic evaluations...

... are reviews based on common design principles that offer insights regarding ease-of-use and usefulness for the end-user.

[See handout with priority scoring suggestion.]

Heuristic evaluations (Allen, et al 2006)

- ☐ intuitive
- ☐ require no advance planning (*sometimes*)
- ☐ can be used early on in the development process **
- ☐ rapidly identify issues **
- ☐ inexpensive
- ☐ payoff

"double experts" (Allen et al, 2006)

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individuals with both domain and
usability evaluation expertise

User centered design

- ☐ Intuitive?
- ☐ Replicates mental models?
- ☐ Easy to use?
- ☐ Useful?
- ☐ Reliable?

Final thoughts

Every screen and function should reflect an answer to these questions:

- What question(s) does the user come to this screen with?
- What task does the user want to accomplish?

Common usability evaluation methods

- ☐ Heuristic evaluation
- ☐ Simulation, role playing
- ☐ Field study/observation
- ☐ Rapid reflection

Common methods, sure, but…

… don't be surprised is you find yourself using aspects of multiple methods to accomplish your objective for testing

Where did we leave off?

First of all, answers to questions posed:

- Extent of coaching allowed

- Camtasia®

- For simulation, how create "real" environment?

Any other questions before we proceed?

Today's focus

- ☐ Scenario-based simulations
  - ■ Scenarios
  - ■ Camtasia
  - ■ Observation & recording
  - ■ Debriefing
  - ■ Evaluations (questionnaire post-session)

Today's focus

☐ Hear one

☐ See one

☐ Do one

eMAR will be focus of evaluation

Hear one……
Determine objective

(refer to usability evaluation planning document)

Assess various Epic eMAR functions associated with nursing documentation of medication administration.

Why evaluate?

- ☐ Test design; obtain user feedback
- ☐ Determine training needs
- ☐ Identify workflow issues (policies & procedures)
- ☐ Provide input to PRA
- ☐ Recognize work design issues

What methods to use?

- ☐ Simulation – real end users; scenarios
- ☐ Observation & recording
- ☐ Questionnaires

End users?

ICU nurses – GMC & GWV – not
involved in eMAR user group

Who conduct testing?

As last time – Usability Coordinators (inpatient team) with assistance of researchers

Where testing occur?

Conference rooms in respective hospitals – for logistical reasons

Assess RN eMAR use... documentation of:

- ☐ standard medication administration
- ☐ overdue medication administration
- ☐ dual sign-off requirements
- ☐ PRN administration
- ☐ medication administration post-downtime
- ☐ blood product administration

Creating scenarios

- ☐ Focused on issue(s) addressing; combine when possible
- ☐ Logical – coincide with nursing practice
- ☐ Limited number
- ☐ "Minimalist"

[consideration → amount of time]

Scenario #1

✓ standard medication administration

☐ overdue medication administration

✓ dual sign-off requirements

☐ PRN administration

☐ medication administration post-downtime

☐ blood product administration

✓ medication not given

Scenario #2

■ standard medication administration

✓ overdue medication administration – from previous shift

■ dual sign-off requirements

☐ PRN administration

✓ medication administration post-downtime – combined with overdue med

☐ blood product administration

■ medication not given

Scenario #3

■ standard medication administration

■ overdue medication administration – from previous shift

■ dual sign-off requirements

✓ PRN administration -- injectable

■ medication administration post-downtime – combined
   with overdue med

☐ blood product administration

■ medication not given

Scenario #4

- standard medication administration

- overdue medication administration – from previous shift

- dual sign-off requirements

- PRN administration

- medication administration post-downtime – combined with overdue med

✓ blood product administration

- medication not given

What to collect?

- ☐ User's ability to perform eMAR med. admin. documentation task(s)
- ☐ Screen captures – Camtasia®
- ☐ User comments (think aloud & open-ended question)
- ☐ Subjective ratings – questionnaire (including demographics of users)

Data collection & recording

- ☐ Recording sheets
- ☐ Camtasia®

Recording sheets

- ☐ Response categories – simple/direct
- ☐ Notes section(s)

Clicks on appropriate (filter) column (Y/N)	Able to a document Ceface not administered (Y/N)	Reaction to dual sign-off message for Cefazolin	Able to document administration of all other meds (Y/N)	Notes/observations/user comments	Comments notes

1

Capturing subjective ratings

Questionnaire:

demographics

ratings

open-ended

Questionnaire, subjective ratings

2. Characters on screen →

   Hard to read….Easy to read

3. Highlighting on the screen simplifies tasks →

   Not at all…Very much

4. Organization of information on screen →

   Confusing…Very clear

5. Sequence of screens →

   Confusing…Very clear

6. Use of terminology throughout eMAR →

   Inconsistent…Consistent

7. Terminology is related to task you are doing →

   Never…Always

See one…………
Conduct testing

- ☐ Both means of recording – data collection instrument & Camtasia®
- ☐ Extent of direction & interaction
- ☐ Debriefing
- ☐ Evaluation

Do one………

10 scenario-based simulations this afternoon with report back tomorrow on results

Questions?