Iterative Methodology and Usability Improvement for Clinical Decision Support
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Summary
A visual-based interactive clinical decision support (CDS) tool was designed and is currently undergoing phased usability testing. Simultaneously, an iterative methodology for evaluating the usability of CDS user-interfaces (UI) is being developed and refined. Phase I of the project developed and evaluated a UI. Results revealed methodological challenges and the need to better align the UI with clinical workflows. This poster covers lessons learned regarding the specific gaps in the evaluation methodology and some UI refinements. The current UI is called Phase II UI.

Clinical Workflow
Typical Workflow Path for Mental Health / Med-check
1. Patient Identify
2. Diagnose
3. Current Treatment
4. Patient condition
5. Schedule Return Appointment
6. Treatment Decisions
7. Patient Information
8. Summary
Phase I Evaluation Results
Subject’s Performance on Different Tasks
Task: Data view needed complete task
1. Time line
2. Patient Rx Profile
3. Rx Recommendation
4. Treatment Guidelines
5. Treatment Guidelines
6. Filtering
7. Predictive
Data View
Efficiency in correctly communicating the info
Like-ability Factor
Timeline: 17% (1/6)
Patient Rx Profile: 66%
Rx Recommendation: 100%
Treatment Guidelines: 66% - 85%
Filtering: 80%
Predictive Insights: 80%
Medicine is Risk-Averse
- Favors knowing more
Challenge to UI design
- One size doesn’t fit all tasks

Methodology Aims and Steps
- Improve clinical workflow analysis and documentation
- Redesign usability tools (pre & post test questionnaires, task questions, orientation, etc.)

Refined Methodology
Future Steps: Phase II
- Apply the new evaluation methodology with a expanded pool of subjects and new tasks
- Analyze findings and generate a research report
- Refine UI

Quantify user experience
For each user task, a baseline was established:
- Time needed to complete the task
- Steps needed to complete the task
- Defined successful task completion
- Documented user strategies for task completion

Refined Methodology
- Redesigned Pre-test and Post-test questionnaires to reflect UI refinements

UI Comparison
Phase I
Phase II
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- Time needed to complete the task
- Steps needed to complete the task
- Defined successful task completion
- Documented user strategies for task completion

Reference:

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