Designing man-machine Interactions for Mobile Clinical Systems: *MET* Triage Support using Palm Handhelds

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Outline

- Clinical triage process;
- \textit{MET} system: brief overview;
- Man-machine interactions: medical domain + mobile device;
- \textit{MET} implementation with examples;
- Conclusions.
Clinical triage process

1. Evaluation
2. Triage
   - Further observation
   - Specialist consult
   - Discharge to family physician
Mobile Emergency Triage system
http://www.mobiledss.uottawa.ca

The MET system is a clinical triage support system that aids physicians in making triage decisions as to whether a child presenting in the Emergency Department of a hospital with a specific pain complaint should be discharged to the family physician, needs to be admitted for further investigation/observation, or requires urgent specialist consult.
**MET architecture**

Client – *extended* client-server architecture with mobile clients working under **weak connectivity** conditions.

Complex triage system with several clinical modules that need to be executed on “lean” mobile clients.

System designed as *flexible* DSS
MET Server

- **Model Subsystem**
- **Database Subsystem**
- **Sync Subsystem**

MET Server:
- **Modules**
- **Patients**

Clients:
- **Web-based MET Client**
- **Mobile MET Client**
Mobile MET Client

Sync Subsystem
Database Subsystem
Patients
Modules
Dialog Subsystem
Triage Subsystem
Interface Subsystem

MET Server

Local replica
Man-machine interactions

• **Medical domain:** need to eliminate potential for errors; need to support clinical task; discontinuity between design and development.

• **Mobility and limited hardware capability:** need to adjust for device characteristics; need for non-ambiguous data entry; need for “clean” interactions’ framework.
**MET** interactions: design principles

**Objective:** to develop a system that does not deter medical residents and physicians from routine patient management.

- Keeping interactions transparent, simple, and “clean”;
- Making efficient use of display;
- Eliminating data entry using graffiti;
- Using cognitive clues.
**MET interactions**: examples

Navigation between screens/activities

Using icon-based models
**MET** interactions: examples

Inputting data

- using checkboxes
- using pictograms
**MET interactions: examples**

Entering numerical values

Writing comments
Conclusions

• Early consultations with the end users;
• User-centered and domain-specific design;
• Enforcing task at hand instead of obstructing it;
• Understanding of the application domain.

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AppForge MobileVB

http://www.mobiledss.uottawa.ca