The Distributed Use of Electronic Emergency-Department Whiteboards

Morten Hertzum
Computer Science
Roskilde University
Denmark
mhz@ruc.dk
Emergency departments (EDs) receive unpredictable numbers of acute patients and must be able to prioritize and treat them safely and efficiently.

ED whiteboards are a key tool in achieving this.

Dry-erase whiteboards are being replaced by electronic whiteboards.
- Mimicking the structure and content of dry-erase whiteboards.
- Main difference: possibility for *distributed access* to whiteboard information.

Aim
- Analyse distributed access to whiteboard information over time.
- Assess the related goal of attaining ‘warmer hands’.
From dry-erase to electronic whiteboards
Method

The ED
- 40-45,000 patients a year, part of a medium-sized Danish hospital
- Consisted of fast-track area, acute area 1, acute area 2, and long-term area
- Acute area 2: the most severe cases, 7 beds

Logging of 18 computers
- 5 in patient rooms (1 room had no computer, 1 computer replaced)
- 8 in hallways – preparing to see patients, looking up info, documenting
- 5 in secretaries office – overview, recording new patients, completing records

Data
- 2 months (before) + 5 months (after) = 3827 days of log data
- Logs contained no info about the user
Results: all 18 computers

• Significant effect of month: application use evolved over the March-September period

• Significant effect of location: differences in application use across hallway, patient-room, and secretary computers

• No change in distributed use of electronic whiteboard in the May-September period
Results: patient-room computers

- Average monthly use of the electronic whiteboard (0.04 hours/month) not significantly different from non-use
- Not a result of non-use of the patient-room computers
- Aim of getting ‘warmer hands’ by providing an overview of the ED in patient rooms has, so far, failed
Results: secretary computers

- The secretaries made considerable distributed use of the electronic whiteboard!

Not planned, but emerged as an efficient way for the secretaries to:
- maintain an overview of the occupancy level of the ED
- inform walk-in patients about waiting times
- keep track of patients’ progress toward discharge
Discussion and Conclusion

Distributed use of whiteboard information is mainly by the secretaries
• They work at a computer → facilitated their adoption
• Whiteboard supports multiple professional groups → spawns distributed use

Clinicians mainly access whiteboard info from the dedicated wall-mounted displays
• Visit info hubs anyway → dedicated displays at hubs suit their mobile work
• Prefer to access, e.g., treatment instructions from a hallway computer → ‘Warmer hands’ not attained
• Informal interviews: senior clinicians access from their offices and homes

Little work-practice experimentation → possibilities not yet fully comprehended
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Project Clinical Overview

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Contact info
- Morten Hertzum, mhz@ruc.dk
Results: hallway computers

- Electronic whiteboard used an average of 1.0 hours/month
- Before/after increase in the use of the electronic whiteboard and the treatment instructions