Physicians interrupted by mobile devices – relations between devices, roles and duties

Terje Solvoll[ab], Jeremiah Scholl[a], Gunnar Hartvigsen[ab]

[a]*Norwegian Centre for Integrated Care and Telemedicine, University hospital of North-Norway, Tromsø, Norway*
[b]*Department of Computer Science, University of Tromsø, Tromsø, Norway*

Abstract

A common denominator for modern hospitals is variety of communication problems. In particular, interruptions from mobile communication devices are a big concern for many physicians. This study adheres to an interpretive research approach. 11 physicians were observed for a total of 135 hours during May and June 2009, and shows in which degree physicians are interrupted by mobile devices in their daily work, and in which situations they are interrupted. This study contributes to knowledge that could help us in designing and developing an interruption management system for mobile communication in hospitals.

Keywords:

Mobile communication, Context-aware systems, Pagers, Wireless phones, CSCW, HCI

Introduction

The work setting in hospitals is communication intensive and can lead to significant difficulties related to interruptions from other co-workers. A wireless phone system offers a number of advantages over the traditional paging systems, such as not requiring staff to find a landline phone after being contacted. Their adoption has the potential to creating additional problems related to interruptions compared to traditional paging systems. This causes some hospital staff to resist the adoption of wireless phone systems when given the opportunity.

In this poster we present an interpretive case study regarding interruptions from mobile devices at a hospital in Norway which began implementing a pervasive wireless phone system in 2006. The goal of the study was to learn about a physician's workday focusing on interruptions from mobile devices, and generally the health care workers communication pattern, and then use this learning as input when designing a context aware mobile communication system for physicians in hospitals.

Methods

The study adheres to an interpretive research approach, and was conducted at St. Olavs Hospital, Trondheim University Hospital, Norway, which has one of the world's most modern hospital communication systems, based on wired and wireless (Internet Protocol) IP-phones combined with a traditional paging system. Data gathering conducted by the first author consists of participatory observations, open non-structured and mostly ad-hoc interviews, and open ended discussions of 11 physicians, including 2 cancer teams and 2 surgical teams at two clinics, for a total of 135 hours during May and June 09.

Results

Each physician at both clinics carried at least a wireless IP-phone, an on-call-duty pager and a private mobile phone. Some of them, mostly assistant physicians, also carried a personal pager, and on evening and night watch, a backup GSM phone was also required to carry. To use the wireless IP-phone, the physician had to personally log on to the phone, and if they also were responsible for a role, they also had to log on to that role. The study shows how frequently the physicians are interrupted by mobile devices in their daily work, and in which situations they are interrupted, like; surgery, examinations, and during serious patients/relatives conversations. The participants attending the study expect, and also indicate that wireless phones probably leads to more interruption right after introduction to a clinic, compared to only pagers, but suggest that it would probably change to fewer interruptions from the phone after a while.

Conclusion

Physicians in hospitals interrupted unnecessary by mobile devices is a problem in today's hospital settings, and a solution to reduce such unnecessary interruptions is needed and wanted. We believe that by knowing and understanding the physicians work situation and the nature of such interruptions, and also by involving the participants in the design process, it is possible to make a system suited for their communication pattern and work situation. This study contributes to such knowledge and will be used as input when designing such a system. A system like this is supposed to sense the context automatically, change the physicians' availability and the phones profile according to the context information, and also give the caller feedback about the physicians' availability.

Address for correspondence

Terje Solvoll, Norwegian Centre for Integrated Care and Telemedicine, University Hospital of North Norway, Tromsø, Norway
Email: terje.solvoll@telemed.no