Reconsidering Design Aspects for Socio-Technical Health Care Based on Experiences with an Ethnographical Study of Intensive Home Care

Markus Jelonek and Thomas Herrmann

Ruhr University Bochum
Institute for Applied Work Science
Chair of Information- and Technology-Management
Overview

Introduction to intensive home care

Method & Results

Comparison

Socio-Technical design aspects
What has to be considered for socio-technical design in intensive home care?

How far can we rely on the literature for health care?
Introduction: The case of Bran

Bran, 26 years, male
• Diagnosed with Duchenne muscular dystrophy when he was 12 years old
• Life expectancy (physicians estimation): 20 years
• Is able to move his head and two fingers of his right hand
• Orders pizza and other junk food online
• Lives alone, gets 24/7 support by a care service provider
• Loves hip hop music
• Raps, records songs
Characteristics of intensive home care

- **Client**
- **Intensive home care**
- **Caregivers**
- **Relatives**

Homes of clients

24 hours / 7 days a week

- Physicians
- Pharmacy
- Physical therapist
- ...

Introduction

Research (Study)

Comparison

Conclusion
Domain Exploration: Ethnographical Data acquisition

• Observations:
  • 10 caregivers in 5 different Intensive home care settings

• Interviews:
  • 17 caregivers of 3 different care service providers
  • 4 relatives from 4 different care settings

• Data exploration with Grounded Theory Method
  1. In vivo coding
  2. Axial coding
  3. Core concepts
Results: 8 final categories („Core concepts“)

1. Activities in intensive home care
2. Interpersonal Interaction
3. Documentation
4. Qualification
5. Interaction with technology
6. Client autonomy
7. History of medical records
8. Feedback on intensive home care by relatives and caregivers
Examples for this presentation

1. Activities in intensive home care
2. Interpersonal Interaction
3. Documentation
4. Qualification
5. Interaction with technology
6. Client autonomy
7. History of medical records
8. Feedback on intensive home care by relatives and caregivers
Intensive Home Care and Health Care

• We compared our findings with concluding design aspects of 10 case studies in health care presented in:


• Especially
  • The extended view of socio-technical perspective
  • Consequence for design
  • Challenges and problems
Comparison: Interpersonal interaction

• Socio-Technical Conclusions:
  • Health care involves complex social arrangements
  • Health care is network based -> cases of family caregivers or home-helpers

• Our study:
  • Relatives consider caregivers as a relief
  • Relatives might have misleading expectations about caregivers’ role -> Conflicts
  • Illness of caregivers might have to be compensated by a external caregiver –> No information about social environment
Comparison: Documentation

• Socio-Technical Conclusions:
  • Idea of tracking health-related data, log vital parameters automatically
  • Physicians build a holistic view over patients health conditions

• Our study:
  • Caregivers document paper based
  • Trust: Relatives and clients have a right to look into the documentation map
Comparison: Documentation

• Socio-Technical Conclusions:
  • Idea of tracking health-related data, log vital parameters automatically
  • Physicians build a holistic view over patients health conditions

• Our study:
  • Workarounds: Photo capture of ventilation machine displays or memorizing values, to document vital parameters after focusing on other tasks
  • Caregivers skipped technology-related tasks like maintenance of oxygen bottles or wheelchairs
Comparison: Technology Usage

• **ST:**
  • Lack of willingness to use new systems
  • Mistrust concerning design of technical system and also lack of transparency

• **Our study:**
  • Mostly only medical machines and systems in care setting
  
  • Smartphones for data capturing (documentation) and instant messaging apps as communication channel among caregivers and among caregivers and relatives
  • One Laptop per care setting, mostly for organizational work (e.g. planning shifts)
Design Aspects: Interpersonal Interaction

• An information system has to mirror and document social arrangements

• An information system should mirror handling formal information exchange and informal interactions
  • Formal: e.g. documentation
  • Informal: e.g. agreements between caregivers and relatives
Design Aspects: Documentation

• Information system should incorporate existing workarounds for data capturing
  • Using interfaces of far reaching documentation support?
  • Automatically documentations might reduce interaction and disturbances

• Respect data privacy

• Give workflow-oriented guidance for documentation tasks (even if it is used only in the beginning)
Design Aspects: Technology Usage

• Support communication channels between roles, even if using their private smartphones (data privacy)

• Allow transparency of data for relatives, clients and professionals

• Allow data exchange from medical machines by applying proper interfaces to use this data in other applications
Conclusions
Requirements for information system support in intensive home care

• Higher density of social interactions
  • Functioning social environment needed for good and trust-based home care setting

• Activities (in IH) are related to care and everyday life

• Transparency to gain trust

• Gap between theoretically possible data integration and practical reality, but also “self-established technical support”