CSCW in Healthcare

Gabriela Avram
CS4458
Main issues

- Electronic Patient Records (EPR, HER, EMR)
- CSCW Concepts: collaboration, coordination, communication of healthcare practitioners
- Different agendas: the physician, the administrator, the policy-maker, the patient
- The future: participatory medicine?
An electronic health record (EHR), or electronic medical record (EMR), refers to the systematized collection of patient and population electronically-stored health information in a digital format. These records can be shared across different health care settings. Records are shared through network-connected, enterprise-wide information systems or other information networks and exchanges. EHRs may include a range of data, including demographics, medical history, medication and allergies, immunization status, laboratory test results, radiology images, vital signs, personal statistics like age and weight, and billing information. (Wikipedia)
Electronic Patient Records

- Important coordination and awareness mechanism
- Aimed at connecting doctors, nurses, health authorities, insurance companies
- Keeping them up-to-date – different actors, in different locations
- Privacy & confidentiality concern
The majority of CSCW interventions – small scale

The latest developments:

- EPR,
- radiology and Picture Archiving and Communication systems (PACS),
- laboratory systems,
- order entry and results reporting systems,
- surgery schedule planning systems,
- prescribing systems, nursing care plan systems
- in various medical devices
- as part of various telecare and telehealth scenarios to support an increasing move to self-care and supported care in the community and at home
ICT in Healthcare
The Need for International Standards

- Development of standards to ensure interoperability; this is a difficult problem, because:
  - Healthcare work is highly institutionalised and complex,
  - involves multiple stakeholders,
  - Takes place across primary, secondary and tertiary care sectors, in private or public funding arrangements, and
  - depends on a highly collaborative approach.
  - it involves diverse professional groups and services.
  - Some are in direct contact with the patient such as nurses, general doctors, medical specialists, allied health professionals
  - while others are just as critical but more indirectly involved, such as health administrators, insurance providers, medical suppliers, epidemiologists, health economists and so on

- “many software products have been built and acquired from heterogeneous sources during a long period of time, and the systems have differences in implementation technologies and architectures.”

- Consensus that problems with ICT projects “are due to sociological, cultural, and financial issues, and hence, are more managerial in nature than technical.”
The role of CSCW

- CSCW has strongly focused on the intertwined agendas of understanding cooperative work and designing tools to support that work.
- CSCW studies tend to take the starting point from within (bottom-up) the organisation rather than from the outside (topdown).
- Overlapping research fields such as Human Computer Interaction (HCI), Participatory Design (PD) and Science and Technology Studies (STS), as well as medical, biomedical, and nursing informatics.
- CSCW – emphasis on the collaborative, user-oriented perspective.
Augmenting the Physician

**Tools:**
- Laparoscopy
- Imaging
- Stethoscope
- Pulse/ heart rate

**Procedures:**
- Microfluidics
- Genomics
- Robotics
Imaging

CT scan
PET scan
MRI scan
Digital medical equipment

- ultrasound
- stethoscope
Surgery Robots
Key Themes

1. Artefact and technology mediated healthcare work
   - Paper and electronic records at work in general practice
   - Paper records in hospital settings
   - Moving to electronic patient records—hospital settings
   - Patient records at work—between clinical settings

2. Locating healthcare work in space and time
   - Spatial specialisation of hospital services
   - Mobility work in healthcare
   - Temporal coordination, shift changes and handovers
   - Mobility work and the integration with EPRs
   - Plans, schedules and whiteboards

3. Expanding contexts of healthcare work
   - Multidisciplinary team meetings and telemedical consultations
   - Large-scale implementations – integration and standardisation challenges
   - Vendors, consultants and policy-makers
   - Moving care into the home
Key Themes(2) and Future Developments

4. Designing systems to support healthcare work
   ▪ Designing to support healthcare in hospitals, GPs and community
   ▪ Designing to support care at home
   ▪ Designing CSCW healthcare systems in developing contexts

▪ strong focus on process rather than outcome per se, drawing attention to the ways in which processes are dynamically situated in, and contingent on, local practices and contexts, and the ways in which all co-evolve.

▪ CSCW now needs new ways of measuring outcomes in large scale evaluations that allow for the ongoing situated nature of this integration.
Collaboration, coordination, communication of healthcare practitioners

- interrelated digital & non-digital artifacts serve as coordination mechanisms (Bardram 2005)
- whiteboards, work schedules, examination sheets, care records, post-it notes etc.
- Artefacts - multiple roles and functions which in combination facilitate:
  - location awareness,
  - continuous coordination,
  - cooperative planning
  - status overview.
The Collaborative work of Hospital Porters: Accountability, Visibility and Configurations of Work

Authors: Claus Bossen, Martin Foss


Quiz last week

- **Q1** – Coordination mechanism:
  - Timetable, maps, Slack – CORRECT
  - Computer, Snapchat, Messenger (without context) – INCORRECT

- **Q2** – mutual awareness

- **Q3** – which ones represent “articulation work”?
  - Checking the text of the assignment on Sulis
  - Looking for literature
  - Writing the report
  - Submitting the report via Sulis
Today’s Quiz
Telemedicine

- Specialist conferences over special teleconference facilities or Internet;
- Bringing in a consultant in remote areas to ask for a second opinion;
- Consultant – Patient sessions over the Internet;
Augmenting the patient

- The most important part of healthcare is prevention.
- Aware patients are an under-utilised resource.
- The Quantified Self movement
- Sources of information: WebMD
- Patient-support groups
Patient-centred healthcare

- Empowering patients to take control
- Actively monitoring their condition and making informed decisions
- Keeping in touch with the health practitioner
- Having access to his/her own records, understanding his condition and managing it.
A medical model that proposes the customization of healthcare - with medical decisions, practices, and/or products being tailored to the individual patient.
Patient support groups

- Children with diabetes
- People with rare conditions – the Pituitary Foundation
- Usually these are started by health authorities for information purposes
- Some initiated by patients for psychological support and exchanging information
Patients Like Me

- an online patient network headquartered in Cambridge, Massachusetts. Its website was launched on October 10, 2005 with the goal of connecting patients with one another, improving their outcomes, and enabling research.
- PatientsLikeMe was inspired by the life experiences of Stephen Heywood, diagnosed in 1998 at the age of 29 with ALS or Lou Gehrig’s disease. The company was founded in 2004 by his brothers Jamie and Ben Heywood and long-time family friend Jeff Cole.
Patient groups and pages on Facebook

Irish Dysautonomia Awareness

Anyone had surgery for an impacted wisdom tooth or similar. It's where they have to cut into your gum and remove part of the jaw bone to get it out. It's also severely infected and I'm on strong antibiotics to clear this as much as possible before the surgery. How did your AI react / did it affect recovery time? Thanks.
Empowering patients with knowledge

- https://www.youtube.com/watch?v=2vejkd0Rl3o - 7:30
Participatory Medicine

“...a movement in which networked patients shift from being mere passengers to responsible drivers of their health, and in which [medical care] providers encourage and value them as full partners.” (The Society for Participatory Medicine)
REFERENCES:


FOR FRIDAY (NO CLASS)

- you should have selected your collaboration tool by now
- write a detailed description of the tool and its functionalities. Define the family of tools it belongs to and search information about how that family of tools evolved over time.
- write about your motivation for choosing that specific tool