Finding the benefits and outcomes from health IT: global challenges

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Global health – complex multi-dimensional space!

Overview

Telecare
Electronic records
Telemedicine

Same issues again & again
How do we learn? Impact?

Designing for care in institutions - Electronic records

In 2003 ... at the beginning...

On team of short listed LSP consortia
Number of diverse partners
Team of approx 70 people
‘User Experience’
Specification document over 700 pages
every bullet point – specific plan

“This isn’t going to work... it’s going to be a disaster”

How I ‘knew’ ..Late 80s, early 90s

Breaking the rules
saved lives
When ‘users’ don’t know
& products don’t transfer

Messy paper medication sheet

Electronic medication sheet

(www.target4.com/hc/home)

Medication sheet at work

FOOD/FLUID CHART
Changing technology – not changing practice

Change management = system training

Review with Gunnar Ellingsen:
Healthcare work highly situated, complex, collaborative, social, technical

An ‘outsider’s’ assessment of CSCW & EPR:
“…collaborative clinical work involves the ordering and coordination of tasks, which requires real-time processing of local information
… that clinical knowledge is often tacit, context-bound and ephemeral rather than codifiable, transferable and enduring
… that high-tech healthcare environments … often make extensive use of paper charts, white boards, sticky notes, and oral communication.”


IJMI July 2011 issue
International Journal of Medical Informatics Vol 80: 7

Going paperless at the emergency department; A socio-technical study of an information system for patient tracking  Vaziyidis et al
► Paper-based practices persist inside the cubicles.
► Scepticism in overdependence on technology because of system downtime.

Paper persistence, workarounds, and communication breakdowns in computerized consultation management! Saleem et al
► We identified cases of paper persistence, workarounds, and communication breakdowns.
► Understanding these challenges is important to design enhanced informatics tools.

Evaluating the medication process in the context of CPOE use: The significance of working around the system  Niazkhani et al
► Sociotechnical and organizational factors’ linkage aids workaround generation.
► The situatesness of workarounds helps users to tackle local workflow obstacles.
► CPOE orders do not mean that the paper or verbal orders are not used any more.

90% Informal communication

90% of information transactions involve informal communication rather than interaction with formal information sources

[Coiera 2002]

‘Maturing’ Electronic Health Record Initiatives

From small scale – pilots & localised initiatives:
1967 Dr Lawrence Weed - PROMIS project

To large scale national agendas
UK: 2002 National Programme for IT -> Connecting for Health £12-14bll
US: Nationwide Health Information Network; recent US$20 billion to digitize health system
Canada: 2001 Canada Health Infoway 2001 CAD$2.1 billion
Australia: 2001 National eHealth Project -> HealthConnect
Denmark: Connected Digital Health program

Recent report on English NHS ‘Summary Care Record initiatives

Requires integration & standardisation across Institutions however…

“Successful introduction of SCRs depended on interaction between multiple stakeholders from different worlds (clinical, political, technical, commercial) with different values, priorities, and ways of working.

… Benefits of centrally stored electronic summary records seem more subtle and contingent than many stakeholders anticipated, and clinicians may not access them. Complex interdependencies, inherent tensions, and high implementation workload should be expected when they are introduced on a national scale.”

[BMJ - Greenhalgh et al 2010]
Recent JAMA “Tale of Two Studies”

The Use & Misuse of ICU Telemedicine

Similar size and scope studies – dramatically different results:

- Thomas et al (JAMA 2009)
  “Association of telemedicine for remote monitoring of intensive care patients with mortality, complications, and length of stay.”
  => no demonstrable clinical benefit

- Lilly et al (JAMA 2011)
  “Hospital Mortality, Length of Stay, and Preventable Complications Among Critically Ill Patients Before and After Tele-ICU Reengineering of Critical Care Processes”
  => increased evidence-based prevention & lower ICU complications

Outcomes measured
Mortality, complications, length of stay

Key differences include:
Limited physician buy-in: limited vs full discretion for all patients
Reactive vs proactive linked to specific quality improvements

Main lesson / message:
“Telemedicine alone does not equate to quality improvement but is merely a tool for quality improvement.” [Kahn 2011]

Again not new

“Identical CT scanners occasioned similar structuring processes in two radiology departments yet led to divergent forms of organization”
[Barley 1986]

“Yet just as with all applications of health information technology, good outcomes should not be assumed. The challenge is ... to continue to explore how telemedicine can be used in clinical settings.”
[Kahn 2011]
Aging population

Challenge & costs of LTC

Overview & Main message

Article June 7 2011

Obesity

Challenge for Selfcare, Health & well being

Telecare, remote monitoring, AAL…

Physiological monitoring

Telecare systems (eg Docobo)

Safety/security monitoring

Assistive Technologies (eg Tunstall)

Evidence challenge

Systematic review: evidence base weak [Brownsell et al, 2011]

Implementation challenge

Design of COPD telehealth trial: [Fitzsimmons et al, Jan 2011]

Gap: Resources/expertise for installation & monitoring

Approach: Health authority partner with local authority

- detailed planning, training, flowcharts, responsibilities etc

Largely still at pilot stage

“Shift to the primary sector… more difficult to enact than initially anticipated”

Challenge dealing with ADL data

Making sense of ‘real’ daily living
‘Neat’ models – Situated chaotic Systems

Lessons from workflow experiences?
Suchman’s 1987 Plans & Situated Actions?

What outcomes for whom?
Highest category of logged calls false alarms

Same patterns?
WHO mHealth report

- “Mobile health will advance through country-based eHealth strategies that incorporate it into the existing eHealth domain. Policies need to be complemented by standards, architectures, and solid partnerships to help pilot mHealth initiatives mature and realize their full potential – utilizing mobile and wireless technologies to improve health and well-being.” p3 [7 June 2011]

Designing for global care
-Reflecting on our own practices


Everything old is new again
Or ... why haven’t we learnt yet?

It’s not the technology, it’s how it is used
It’s socio (organizational, cultural etc) – technical
It’s about process and practice, as well as data and information
It’s the same lessons and experiences again and again and again
Social/organizational complex & difficult
Local situated practices – integration, standardisation
Which outcome measures, etc
It’s costing us huge amounts of money ... even more so as we move more to ‘global’ health care

It’s time to find new ways of engaging
Social, ethical, moral, economic imperative!

Lessons not learnt
from pilots to deployments to global scale

At home
Informal care network
Pilots

Commercial ▲ National/Int

In institution
Professional care network
Deployments

Prototypes ▼ Local
What is our research for? Are we making a difference

“[…] we were witnessing some of the ‘grand’ themes of CSCW research being played out in this very specific healthcare setting.

Yet little, if anything, that we have learned in the field, about designing technology to support, enable or mediate cooperative work over distance, appeared to have had any input or benefits to the MDTM settings we observed.” (p. 510)


Philosophical Challenges

We can make deliberate choices as researchers

Retrospective/reactive —— Proactive

Describe —— Influence

Observe —— participate

Theory —— action

Methodological/theoretical challenges

“The challenge is thus obvious: how to square the CSCW attentiveness to complex normative and technical practice with a project politics focusing on swift roll out of new technologies. […]

Yet, it may be suggested that, rather than endeavouring to have our cake and eat it too, it might be a worthwhile task to develop some new and different ways of articulating our expertise […]

It may even be a way of getting us some flexibility to try out new modes of intervention and participation in technical projects, much needed if we really want to figure out what goes into facilitating dependability in action.” (p440)


Methodological/theoretical challenges (cont)

Identify and collate:
 multi-site lessons & ‘operational’ alternatives
 cross-domain & cross-disciplines lessons

Understand how to communicate for different audiences, to engage at different levels:
 Policy – rhetoric, packaging
 Vendors, authorities – partner in large scale deployments
 Clinicians – empower, reflect, engage
 Patients, carers – empower, reflect, engage

Evolve/use new theories, methods, …

Towards making a difference

How do we scale, engage, make a difference?

Will require new skills & reflective mindful practitioners

Will require a move from local to ‘global’ researcher mindset and research impact

Maybe getting there
 … many great examples

… mediating role? the network between?

[Gunnar, Pernille]

In summary
Summary Reflections

- Many recent reports and articles
  - Not surprising, same lessons, similar themes
  - From pilots to large scale deployments
  - From EPRs to telemedicine to telecare

- Why aren't we learning to do things differently?

- Why aren't we having an impact?

- Challenge to us as designers, practitioners
  - Where and how to engage
  - How to make a difference, become global

- Societal importance