Ethics and the future of mHealth

A scenario of (chronic) disease management

Mark Coeckelbergh   [Dept. of Philosophy, University of Twente]

overview

- **mHealth and ethics**
  - mHealth, development, and the active patient
  - ethical issues
    - including: quality of knowledge, quality of care, responsibility
- **The future of mHealth: a scenario** (not only principles)
  - Using scenarios to explore ethical issues
  - A fictional scenario of chronic disease management
    - How health care might change in the future
  - Questions

mHealth: definition and context

- Definition: "the delivery of healthcare services via mobile communication devices" (2010 mHealth Summit FNIH)
- Involves participation and active contribution of (remote) patient
  - Self-management
  - Tele-care: any place can become a point of care
- Context
  - rise in mobile phone use, also in developing countries

mHealth and development
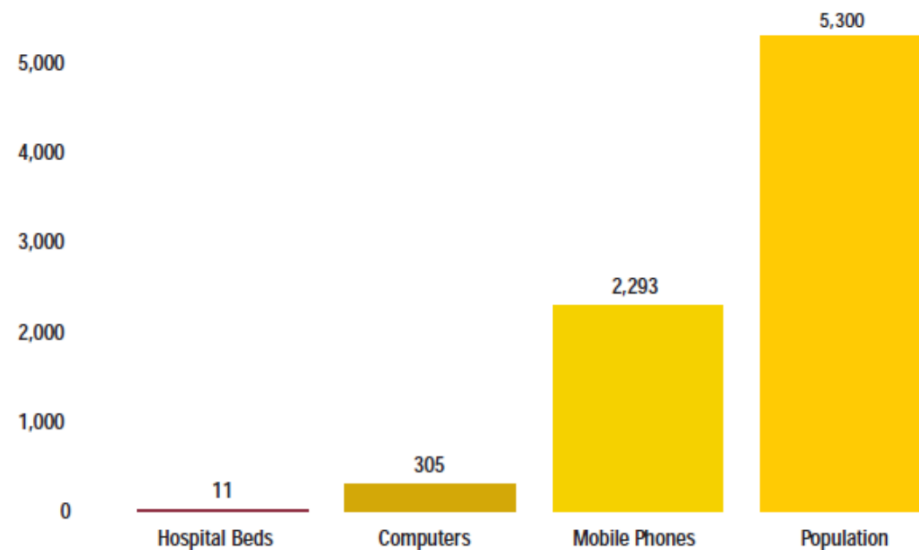
- Growing ubiquity of mobile phones

Figure 1. Technology and health-related statistics for developing countries (millions).[4]

(Source: Vital Wave Consulting. mHealth for Development: The Opportunity of Mobile Technology for Healthcare in the Developing World. Washington, D.C. and Berkshire, UK: UN Foundation-Vodafone Foundation Partnership, 2009.)

mHealth: definition and context

- Definition: "the delivery of healthcare services via mobile communication devices" (2010 mHealth Summit FNIH)
- Involves participation and active contribution of (remote) patient
  - Self-management
  - Tele-care: any place can become a point of care
- Context
  - rise in mobile phone use, also in developing countries
    - more affluence-related diseases such as diabetes and heart disease in developing countries
  - \>>> affluence, increasing life-span, and CHRONIC DISEASES

mHealth applications

- Education and awareness
- Remote data collection
- Remote monitoring
- Communication and training health workers
- Disease and epidemic outbreak tracking
- Diagnostic and treatment support

mHealth: the active patient

- Education and awareness
- Remote data collection
- Remote monitoring
- Communication and training health workers
- Disease and epidemic outbreak tracking
- Diagnostic and treatment support

>>> from medical patient to medical **agent**
care receiver + care giver

mHealth: stages and levels

- Design
- Implementation (infrastructure!)
- Use (patient and health care professional)
- Management
- Governance

mHealth: stakeholders

- patient
- medical/health care professionals
- private companies (incl. insurance companies)
  - design
  - implementation
  - use
  - management & organisation
- (other) health care institutions & organisations
- government

mHealth: ethical issues (1)

- financial and commercial issues
  - who pays? who benefits?
- freedom & consent: free (not) to use it?
  - who decides about introduction and use?
- safety
- technical, but not merely technical issues
  - different systems <> one system >>> privacy & security issues
  - what if no connection to the network?
  - reliability of measurement (technical/human)

mHealth: ethical issues (2)

- quality of knowledge/know-how
  - outside a controlled environment with no or different kind of medical supervision
  - do patient and medical professional have the skill to use the technology in a safe and effective way? problem of expertise
  - sufficient information to make a judgment?
    - does screen have sufficient detail? (see for example Papadopoulos, Pappa & Gortzis 2007)
  - reliable information?

mHealth: ethical issues (3)

- quality of care
  - is tele-care good care? what is missing in comparison to face-to-face care? what kind of care is delivered via the device?
  - forms of self-care: good quality?
- responsibility
  - many institutions, many hands, little transparency
  - shifts responsibility from professional to patient

mHealth: ethical issues (4)

- social and political issues
  - changes to relations between people?
    - patient – care giver
    - between care professionals
    - between patient and family
      - example: sharing your health information in social network...
  - changes to society
    - equity / justice
    - trust

mHealth: the future

- how to explore ethical issues related to the future of mHealth?
  - science and (technology) assessment: 'realistic' scenarios, 'facts', etc.
  - narrative method and interpretation
- research project
  - write fictional scenarios of mHealth in narrative form, preferably doom scenarios
    - example: chronic disease and mHealth

A scenario: mHealth in 2050 (1)

- 'mHeart' device that monitors heart rate is compulsory for every person over age 30, direct link to medical services
- people with chronic heart problems carry mHeart life vest that can actively intervene when something goes wrong (prevention + black box)
- other measurements (mLife system)
- refusal to carry device means: no care and no insurance
- if necessary, mobile devices can inject medicine

A scenario: mHealth in 2050 (2)

- people are not advised to travel outside the 'Health Net Zone'; no one will help them
- many viruses are detected by the Health Police, who carry mobile detection devices; people who carry the viruses are 'removed' and quarantined.
- only rich people all over the world (not only in 'the West') can afford the newest devices; their life-expectancy is 20% higher than average
- some 'wild' people live without devices; they are generally regarded as irrational

A scenario: mHealth in 2050 (3)

- medical doctors become health cyborgs, linked to expert systems; they work in a kind of call centre, they interpret the data provided by the patient and her mobile devices, and a nurse or robot nurse offers treatment (fast, minimal face-to-face contact)
- nurses become nerds: they have to take many technical courses; at universities the medical faculties and the faculties of information science merge

A scenario: mHealth in 2050 (4)

- chronic patients who can afford it, live with numerous devices; they can move around within the Zone and need not stay at home or go to the hospital
- but if a device fails they feel at loss: neither patient nor doctor knows how to deal with the situation, they're no longer used to this kind of 'offline' treatment

A scenario: mHealth in 2050 (5)

- when something goes wrong, either the patient is blamed (if she didn't use the device in the right way) or the company that made the device is held liable. The medical professionals, the insurance company, and the politicians are not responsible.
- health care is your own responsibility: you have the duty to closely monitor and control your lifestyle and your actions

A scenario: mHealth in 2050 (6)

- your insurance company, the hospitals, and the state know all your health data
- Google Health has been replaced by new, better, all-round health information, communication, and monitoring systems; they know everything about you and your body, and claim that their medical expert systems deliver better diagnosis than human doctors
- people are used to take care of themselves; they are told they have all the information they need

Questions

- This is fiction, but is it unlikely to happen?
  - Why / why not?
  - Alternative scenarios?
  - Is it only different in degree or in kind from our current system and its problems?
- Do we want this kind of mHealth, and if not:
  - explain why (not)
  - what are we going to do now to avoid a Brave New Health world?
  - what kind of mHealth *do* we want, if at all?

What is your vision of mHealth?

m.coeckelbergh@utwente.nl