Telemedicine in Daily Clinical Work Now? Tomorrow?

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Back to the future

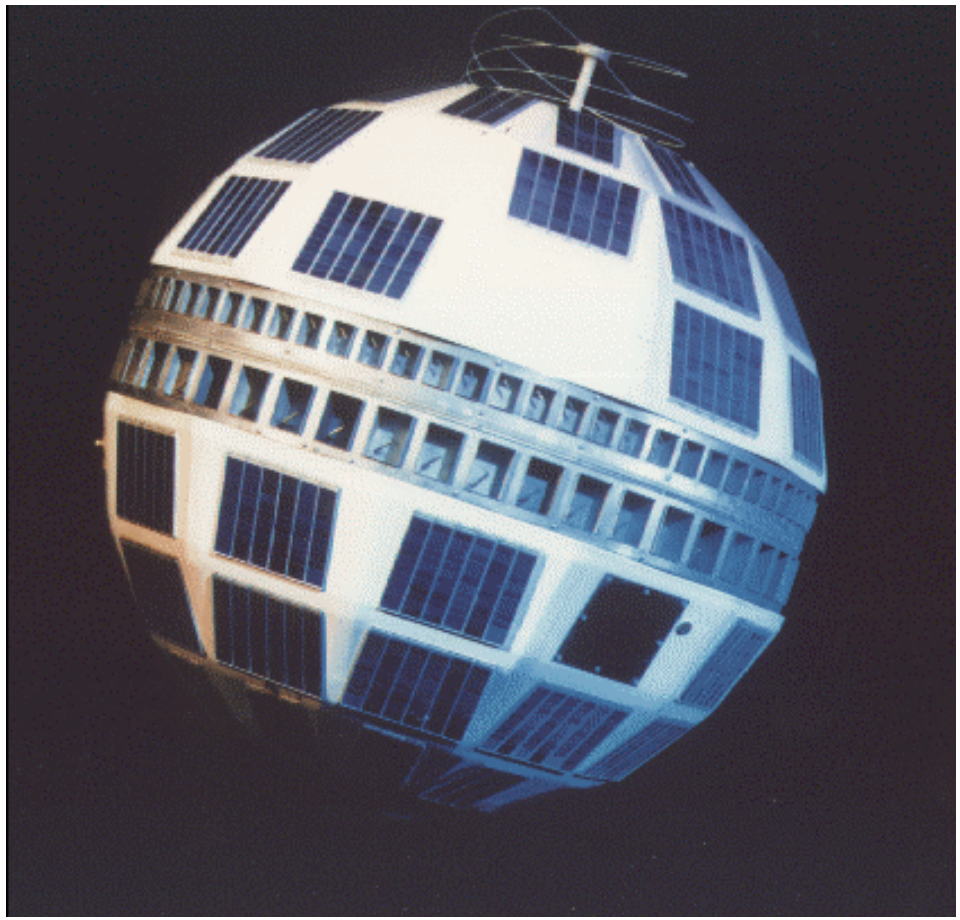
- **1843 Telegraph Samuel Morse**
- **1876 Telephone Alexander Graham Bell**
- **1881 Telephone Company Zürich: first private clients**
- **1936 Swiss telephone subscribers use their phone for 3 calls per day**

The Lancet, 1879

PRACTICE BY TELEPHONE.

THE Yankees are rapidly finding out the benefits of the telephone. A newly made grandmamma, we are told, was recently awakened by the bell at midnight, and told by her inexperienced daughter, "Baby has the croup. What shall I do with it?" Grandmamma replied she would call the family doctor, and would be there in a minute. Grandmamma woke the doctor, and told him the terrible news. He in turn asked to be put in telephonic communication with the anxious mamma. "Lift the child to the telephone, and let me hear it cough," he commands. The child is lifted, and it coughs. "That's not the croup," he declares, and declines to leave his house on such small matters. He advises grandmamma also to stay in bed; and, all anxiety quieted, the trio settle down happy for the night.

Nothing new on earth



- July 10th 1962 telecommunication satellite "Telstar"
- Michael E. De Bakey revolutionizing open-heart surgery
- Live transmissions of his operations by television using "Telstar" as a relay

Arguments: now and then

- **Contra: impoverished communi-cation, fostering social isolation, loss of culture.**
- **Pro: "Fern-Sprecher" will be useful for long distances and emergencies.**
- **Facts: Phone is a "Nah-Sprecher", mainly used for calls within a narrow geographical radius, to members of the closer social surroundings.**

Today's background

Discontinuous processes, redundancy and discoordination of medical and caregiving processes stand for a worldwide cost factor.

Our vision: integration of ICT will decisively contribute to the optimization of processes in healthcare.

Redundancy

20% of B-mode sonograms, CT or MRI scans are double examinations.

19,6 % ultrasonographic, CT, or MR examinations of the same organ system had been carried out during the last 4 weeks without evidence of any clinical changes.

Krug et al.: Röfo Fortschr Geb Röntgenstrahlen Bildgeb Verfahr 2002 + 2000

Costs of Disorganisation

Swiss healthcare system costs

CHF 45 Mia / year

Theoretical potential of optimization 10-20%

≥ CHF 8 Mia / year

"Classical" Telemedicine (1)

- Tele-pathology
- Tele-Radiology
- Tele-Dermatology
- Tele-Consulting
- Tele-Teaching

Primary focus: expert-centric

Goal: diagnostics

Content: visualisation of data

"Classical" Telemedicine (2)

- **Potential: high quality level of clinical work**
- **Strength: focussed on structurable aspects, transfer of medical data over a distance**
- **Weakness: lack of integration into patients' process, lack of critical evaluation, projects do not survive grants' funding end, no transition of knowledge to other clinicians.**

Few systems seem to have a real consumer, user or outcome focus. There is no good evidence that telemedicine is a cost effective means of delivering health care.

Whitten P et al.: BMJ 2002;324:1434–7

"Extended" Telemedicine

Primary focus: Public Health, Managed Care

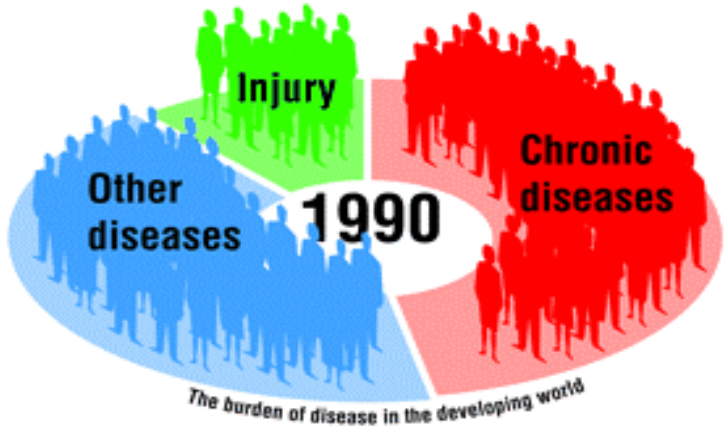
Goal: Optimization of administration and delivery of healthcare, continuous support

Potential: Point of care at home, case and disease management, medical networks

- **Tele-Health**
- **Tele-Homecare**
- **Tele-(Bio)Monitoring**
- **Tele-Reminding**

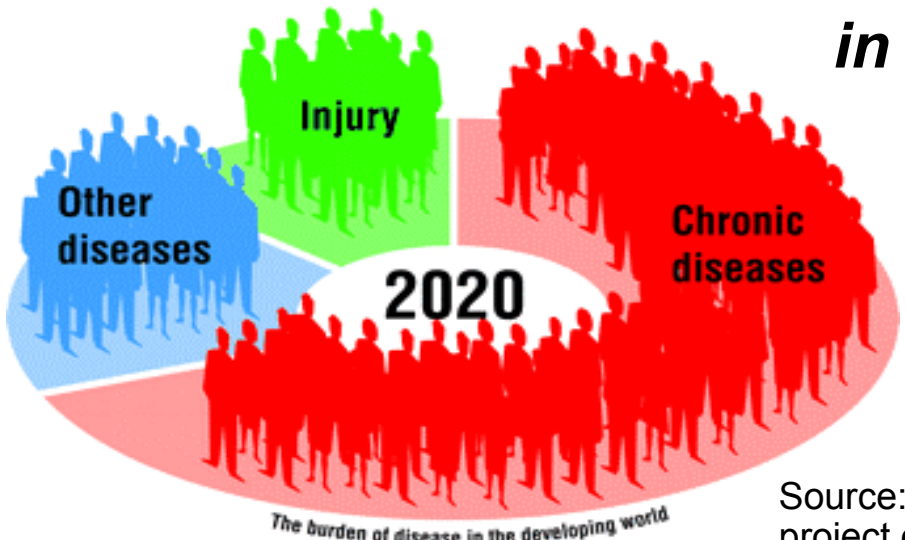
Weakness: Perception as insurance driven activity, poor funding in fee for service systems (incentives!)

polymorbidity



British Medical Journal
26 October 2002

Chronic diseases
in a changing world



Source: Harvard Public School of Health's project on the global burden of disease

"Patient-oriented" Telemedicine (1)

Primary focus: Internet, communication, patients' and consumers' needs, quality of services, coordination of healthcare.

Goals: Ubiquitous acces to information, quality and transparency of information, data and knowledge management, privacy.

- **Patient empowerment, shift of data-ownership**
- **Patients' and health profs' cards, networks, decentralised and mobile communication**
- **New services, e.g. virtual patient record**
- **Disease management, contact centers**

"Patient-oriented" Telemedicine (2)

Potential:

Optimization of processes, organizational development, ICT as enabling technologies for change management in healthcare systems.

Weakness:

eBusiness-hype as legacy, disadvantaging of cross-border and trans-disciplinary approach, transaction-oriented business model versus financial incentives based on health preservation, lack of integrated concepts.

Patient Empowerment

Shift from expert-centered to patient-centered healthcare

- ***"knowledge sharing"***
- ***"comprehensible knowledge"***
- ***"shared decision making"***
- ***"informational self-determination"***
- ***quality-based choice of docs + hospitals***

Doctor Empowerment

Two future roles of physicians

The "classical" general practitioner

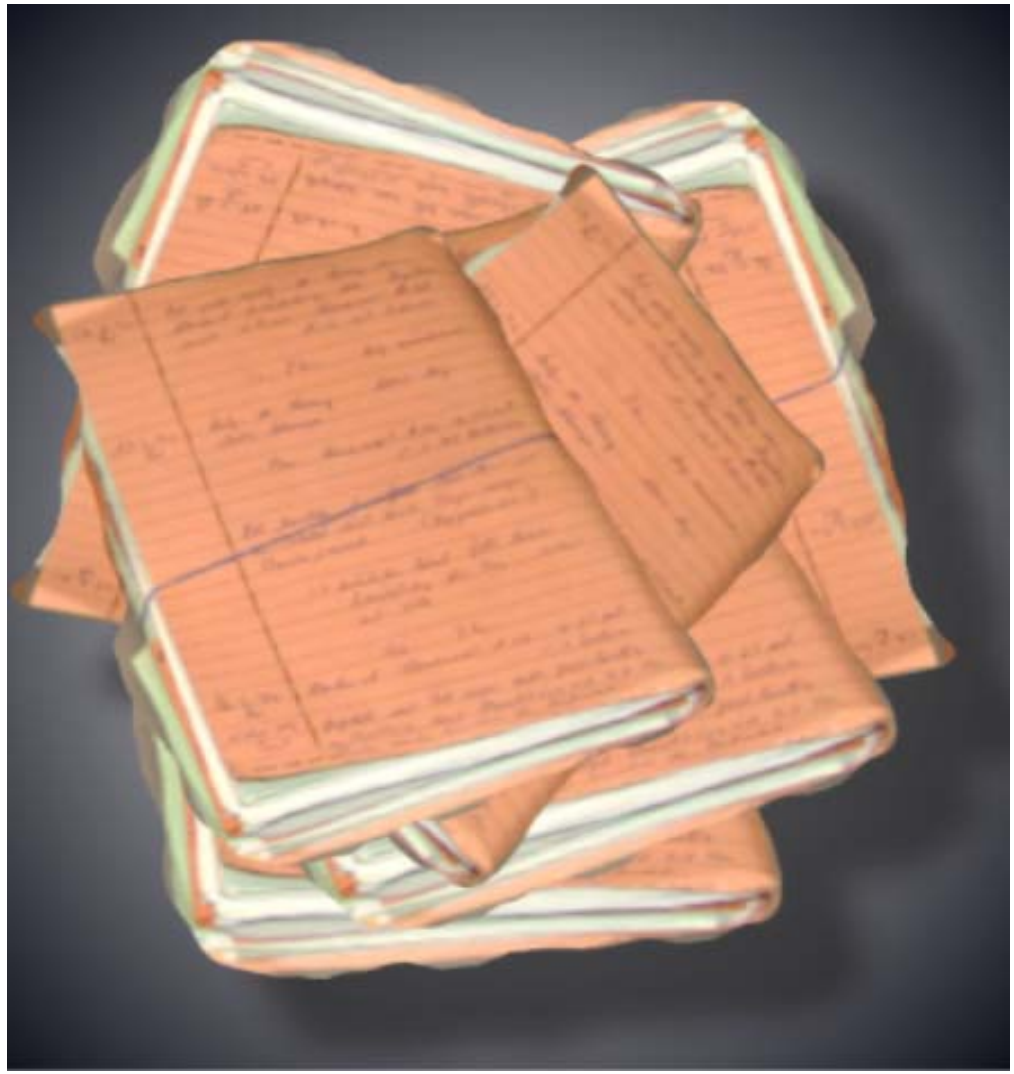
- curing illness-sequences

The "managing" general practitioner

- partner, companion, enabler
- process coordinator, guide
- pilot, knowledge navigator
- life-time health coach

Shift electronic medical record…

- **EMR is NOT a paper record in a computer**
- **Increases quality and amount of available data, quality of care**
- **Permits additional functionality**
- **Reduces uncertainty**
- **Contributes to medical knowledge and efficiency**



...towards integrated practice systems

- Support of care and patients' process coordination
- Increased availability
  - Storage and retrieval of medical records
  - By more providers or collaborative treatment (networks)
- Support of medical procedures
  - Context-sensitive decision support and ePrescribing
  - Facilitating communication with and information of patients
  - Preventive medicine, monitoring, continuous support
  - Practice- and reality-based medicine ("real" EBM!)
- Support of administrative tasks (coding, accounting)
- Quality control and economical self-controlling
- Vehicle for research and education ("instant" CME)
- Registration tool for policy making (parity of data)

What skills are needed?

Basical cultural techniques

The incorporation of information and communication technologies (ICT) into our society and particularly into health-care requires new cultural techniques.

Skills in using ICT will be as fundamental and invaluable as the three "r's" of reading, writing and arithmetic.

It's up to you!

...how to use Telemedicine (ICT) in daily practice

...to develop apropriate usage and skills

Technology is never the solution – use technology as means to an end!