RENEWING HEALTH
Evaluation, outcome, costs

Roberto Mantovan
Claudio Saccavini

Cannes, 22 March 2010

Our real knowledge in telemedicine
Primary end point: percentage of the correct decisions on the necessity of a scheduled follow-up decided upon the analyses of Cardio Reports.

Methods: The physician analyzed the Home Monitoring data before the routine follow-up (FU) visit and gave a forecast on the necessity of the pending FU, which was compared with the evaluation after the FU
Conclusion

Home Monitoring + Physicians’ background knowledge + 
New patient management scheme results in:

- 46% Reduction of Routine FU Visits
- Safe patient management
- Individualized follow-up


It looks like good, but...

Which are possible resistances?
OPEN ISSUES

- **Patient concerns:**
  - **Anxiety:** Is the transmission working? Are they really checking me and my device?
  - **Trust:** I’d like to see my doctor
  - **Pride:** I’m a patient not a device

- **Physician concerns:**
  - **Anxiety:** what about of Friday evening alerts? (legal questions)
  - **Trust:** I’d like to see my patient
  - **Pride:** I’m a doctor not a technician
  - **Claim:** who assess and pay this extra job?
OPEN ISSUES

- **Administrative concerns:**
  - **Anxiety:** how to organize this job?
  - **Distrust:** I don’t like to pay an extra job (is it really cost effective?)
  - **Pride:** I’m a politician! Don’t bother me with patients/physician concerns

Which are the expected impacts of telemedicine?

- **Reduce hospitalisation and improve disease management**
- **Increased links and interaction between patients and health professionals**
- **Improvement of quality of life for patients suffering from chronic conditions**
- **Increased use of existing or commonly agreed standards and demonstration of interoperability of the new solutions in regular healthcare practice**
Are these end points demonstrated?

NO!

Systematic review of cost effectiveness studies of telemedicine interventions
Pamela S Whitten, Frances S Mair, Alan Haycox, Carl R May, Tracy J Williams, Seth Helmich

BMJ 2002;324:1434-7

- 55 of 612 identified articles that presented actual cost benefit data.
- Only 24/55 (44%) studies met quality criteria justifying inclusion in a quality review
  - 20/24 (83%) restricted to simple cost comparisons.
  - No study used cost utility analysis
- Only 7/24 (29%) studies attempted to explore the level of utilisation that would be needed for telemedicine services to compare favourably with traditionally organised health care.
- None addressed this question in sufficient detail to adequately answer it.
**Conclusion**

There is no good evidence that telemedicine is a cost effective means of delivering health care.

---

**Medicare payments, healthcare service use, and telemedicine implementation costs in a randomized trial comparing telemedicine case management with usual care in medically underserved participants with diabetes mellitus (IDEATel).**

- **Conclusion**
  
  Telemedicine case management was not associated with a reduction in Medicare claims in this medically underserved population. The cost of implementing the telemedicine intervention was high, largely representing special purpose hardware and software costs required at the time.

- **Lower implementation costs will need to be achieved using lower cost technology in order for telemedicine case management to be more widely used.**
Telemedicine: An unfruitful experience of tele-expertise in nephrology.

Alamartine E, Thibaudin D, Maillard N, Sauron C, Mehdi M, Brovet C, Mariat C.
PRES, université de Lyon, 69000 Lyon, France; Université Jean-Monnet, 42055 Saint-Etienne cedex 02, France; CHU de Saint-Etienne, 42000 Saint-Etienne, France.

- The cost of the website was prohibitive 75 000 euros for 3 years.
- Therefore, we had no choice but to close the experience.
- Telemedicine needs juridical rules and specific finances to work on a long run.

### Economic Evaluation of Telemedicine:

Review of the Literature and Research Guidelines for Benefit–Cost Analysis

Man’ a E. Da’ valos, Ph.D. (ABD),1 Michael T. French, Ph.D.,2 Anne E. Burdick, M.D., M.P.H.,3,4 and Scott C. Simmons, M.S.3

**Table 1. Research Gaps, Limitations, and Challenges with the Economic Evaluation of Telemedicine**

- Limited generalizability: Given the heterogeneity of telemedicine programs, most of the results cannot be generalized.
- Disparate estimation methods: There is no uniform methodology or guidelines to conduct standardizing economic evaluation in telemedicine.
- Few completed BCAs: Most economic evaluations focus on program costs and have not deeply researched a broad range of economic benefits from a variety of perspectives.
- Lack of RCTs: The use of RCTs in telemedicine is scant.
- Lack of long-term evaluation studies: Long-term studies in telemedicine are rare so that sustainability of these initiatives cannot be studied.
- Absence of quality data and appropriate measures: Shortage of appropriate data undermines the quality and reliability of economic evaluation.
- Small sample sizes: Telemedicine programs usually involve small samples, thus producing important statistical limitations.

BCAs, benefit-cost analysis; RCTs, randomized control trials.
Economic evaluations of telemedicine, however, remain rare.

To facilitate more advanced economic evaluations, this article presents research guidelines for conducting benefit-cost analyses of telemedicine programs.

Many small/medium size studies have been performed.

Most of them demonstrated the “usefulness” of telemedicine.

Why telemedicine is not widely diffused in health systems?
Possible reasons of telemedicine poor diffusion

- Technology (?)
- Money (?)
- Organizational models
- Physician/patients concerns
- Legal aspects
- Cost/effectiveness

QUESTIONS FOR RENEWING HEALTH: REGIONS of Europe Working together for HEALTH

How to implement telemedicine in real “health world”?
QUESTIONS FOR RENEWING HEALTH:
REgions of Europe WorkInG toGether for HEALTH

- 1. Current use of the technology (implementation level)
- 2. Description and technical characteristics of technology
- 3. Safety
- 4. Accuracy
- 5. Effectiveness
- 6. Costs, economic evaluation
- 7. Ethical aspects
- 8. Organisational aspects
- 9. Social aspects
- 10. Legal aspects

Questions to EHRA

- Which pathologies/group of patients should be tele-monitored?
- What patient should be not monitored?
- How long should a patient be monitored?
Programme: Competitiveness and Innovation Framework Programme CIP runs for the years 2007-2013

Funding Scheme: Information and Communication Technologies Policy Support Programme ICT PSP, Funding Instruments: Pilot Type A

Principle Actor Involved: Regional Healthcare Authorities

Content of the 3rd Call of Proposals in 2009

- Theme: ICT for Health, ageing and inclusion
- Objective: ICT for patient-centered health
- Budget: € 14 M - European Co-financing: € 7 M
- Duration: 32 months
- Starting: 1st February 2010 - Kick Off Meeting: 8th February 2010, Venice

The Consortium Arsenàl.IT:
Veneto’s Research Center of eHealth Innovation

- Founded in 2005 as “Telemedicine Consortium”, currently groups together all the 23 Local Health Authorities of Veneto Region.
- Director: dr Claudio Saccavini
The Consortium Arsenàl.IT: Veneto’s Research Center of eHealth Innovation

- Has acted as an **Observatory** by performing **systematic surveys on Telemedicine applications** developed over time by the member Health Authorities.
- Has succeeded in highlighting the critical issues of **interoperability, standardization and organizational impact** as factors for driving the diffusion of Telemedicine applications in the care delivery process.

**Telemedicine eHealth Projects:**

**HEALTH OPTIMUM** - **HEALTHcare Delivery OPTIMisation through teleMedicine** is a Telemedicine Project aimed to support different specialties thanks to Application of Telemedicine.

- **Phase 1: Market Validation** (18 months May 2004 – January 2006)
  - **Purpose**: market validation of organizational models based on telemedicine services
  - **11 healthcare Providers in Veneto Region**
  - **3 European Member States**: Italy, Spain, Denmark

- **Services involved**:
  - **Historical Services**: Telecounselling Service for Neurosurgery and Telelaboratory
**Telemedicine eHealth Projects:**

- **Phase 2: Initial Deployment** (24 months) June 2007 – May 2009
  - **Purpose**: deploy organizational models based on telemedicine services
  - for all the 23 healthcare Authorities
  - 5 European Member States: Italy, Spain, Denmark, Sweden, Romania

- **Services involved:**
  - **Historical Services**: Telecounselling Service for Neurosurgery and Telelaboratory
  - **New Services**: Telecounselling Service for Stroke Management, Oral Anticoagulation Therapy (OAT)

---

**Diagram:**

- XDS Registry
- XDS Repository
- Provincial area of Vicenza
- Provincial area of Belluno
- Provincial area of Padova
- Provincial area of Treviso
- Provincial area of Venezia
- Provincial area of Verona
- Provincial area of Rovigo
RENEWING HEALTH: REgionNs of Europe WorkINg toGether for HEALTH

- Programme: Competitiveness and Innovation Framework Programme CIP runs for the years 2007-2013
- Funding Scheme: Information and Communication Technologies Policy Support Programme ICT PSP, Funding Instruments: Pilot Type A
- Principle Actor Involved: Regional Healthcare Authorities
- Content of the 3rd Call of Proposals in 2009
  - Theme: ICT for Health, ageing and inclusion
  - Objective: ICT for patient-centered health services
- Budget: € 14 M - European Co-financing: € 7 M
- Duration: 32 months
- Starting: 1st February 2010 – Kick Off Meeting: 8th February 2010, Venice

RENEWING HEALTH: The Consortium

EUROPEAN ASSOCIATIONS
- European Patients’ Forum (EPF) Luxembourg
- European Health Telematics Association (EHTEL) Belgium

COMPETENCE CENTER
- Arsénàl IT Italy
- Medcom International Denmark
- Català Agency for Health Technology Assessment and Research (CAHTA) Spain
- Center for Distance-spanning Healthcare Sweden
- Norwegian Center for Integrated Care and Telemedicine Norway
- Center for Health Technology Assessment and Research (CARTA) Finland
- e-Health All Greece
- TSB Innovationagentur Berlin GmbH Germany

ADVISORY BOARD
- Continua Health Alliance Private Consortium (C4A) Belgium
- Integrating the Healthcare Enterprise (IHE) Italy, Spain, UK
Background: the overall background of the project is a number of EU conferences and reports describing telemedicine and the potential benefits of a wider use of telemedicine applications in Europe.

Objective: to validate, in real life settings and with a common rigorous assessment methodology, the use of existing Personal Health Systems for innovative types of telemedicine services used to monitor chronic patients with Cardiovascular Disease (CVD), Chronic Obstructive Pulmonary Disease (COPD) and Diabetes and to prepare for their wider deployment.

What are the expected impacts?

- **Reduce hospitalisation** and improve disease management
- Increased links and interaction between patients and health professionals, facilitating more active participation of patients in the care processes
- **Improvement of quality** of life for patients suffering from chronic conditions
- Increased use of existing or commonly agreed standards and demonstration of interoperability of the new solutions in regular healthcare practice
- Provide a **convincing business case** to be presented to National, Regional and Local Health Authorities and to stimulate them to speed up the deployment of patient-centered eHealth service solutions
**Work Package 3 Evaluation Methodology and Pilot Evaluation**

The main objectives are ensuring that:

- the evaluation of each pilot is based on the FAST assessment model to produce a systematic and multi-disciplinary assessment of the impact of telemedicine services;
- each pilot is evaluated in accordance with the agreed trial protocol and therefore produces valid and reliable data about:
  - the clinical outcomes,
  - the quality of life of patients,
  - the satisfaction of the different categories of users,
  - the organisational and economic impact of the service,
- by using common primary indicators for each cluster of pilots to obtain comparable results.
A multi-disciplinary process that summarizes and evaluates information about the medical, social, economic and ethical issues related to the use of telemedicine in a systematic, unbiased and robust manner.

The methodology used follows the principles of the Health Technology Assessment in its general structure with reference to the Core Model Project EUnetHTA.

WP 4 User Advisory Board Management - EPF, EHTEL

Bringing together representatives of the different categories of users of the services foreseen in the context of RENEWING HEALTH to advise the Project Team about the real need of the users and to give feedback services actually piloted in order to improve the fit between the latter and the user needs.

WP 5 Industrial Advisory Board Management - CHA and IHE

An Industrial Advisory Board will be created to provide advice to the Consortium from companies and people with profound market knowledge. The Board will bring together experts with competence in management of clinical data, standards, open sources, business trends in the Personal Health System sector, semantic integration etc.
RENEWING HEALTH: Work Packages 6 and 7

WP 6 Standard and interoperability framework definition

This work package aims at creating a group of clinicians from the various pilot sites, bringing together key technical experts using the membership of CHA and the external support of IHE and performing a profiling exercise as described in the M403 Phase 1 report liaising with the appropriate standardisation bodies and industrial associations.

WP 7 Security, privacy and ethical issues

The main objective of this work package is analysing the regulations, laws and practices concerned with security, privacy and ethical issues relating to the handling of clinical data in force in the participating countries/regions and formulating recommendations to the entire Project Team about how to deal with these aspects.

WP 8 Real life pilot in Veneto

For the Veneto Region, the following are involved:

- 6 Local Health Authorities and 2 Hospital Trusts
- 4000 patients with CVD and 500 patients with COPD

This work package aims at testing, with FAST, in real life conditions the set of telemedicine services which have been selected for the pilot site and collecting the values of the indicators specified by the assessment methodology before and after the trials.

The main tasks are:

- Integration of existing services
- Patients and professionals recruitment and training
- Field trials
**WP 18 Scalability of the RENEWING HEALTH Initiative**

The objective is to initiate an extension of RENEWING HEALTH by creating an open environment for the exchange of knowledge and information with other regions that are interested in following or cooperating with RENEWING HEALTH.

**WP 19 Further Deployment**

This WP prepares the ground for the deployment in regions not yet mature enough to join the RENEWING HEALTH Initiative during the lifespan of the Project. The WP will also produce both guidelines and a Deployment Plan.

**RENEWING HEALTH: The Outcomes**

- Provide a structured framework for assessing the effectiveness and contribution to quality of care of telemedicine and PHS.
- Provide a tool for self-evaluation that allows to identify the areas needing improvement to re-shape the existing services into a new Model of Telemonitoring Service that:
  - Allows the monitoring of patients anywhere and anytime.
  - Provides patients with the means to manage their health conditions outside traditional care setting.
  - Enables, on a large scale, continuity of care enhanced interaction among patients and Primary Care Settings as well as Secondary Care Settings.
  - Provides health professionals with more comprehensive monitoring and diagnostic data for decision making.