



Open Telecare Initiative

Towards open standard, open source telecare

Vision

- Great problem: how to provide care in the future?
- More demand, insufficient people
- Productivity increase in care needed in home environment
 - Innovative paradigms
 - Innovatieve health care processes
 - Innovative applications of technology

Vision

- Productivity increase
- Scarce professionals should help more patients in a given time
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- Strategies:
 - More client self-management
 - More group approaches
 - Substitution

Vision

- Medical technology becomes consumer product
- Focus: high performance technologies that can be produced at high volumes at low cost
- Information and Communication Technologies are vital

Vision

- Technology for client centered care needed
- “Provider lock-in” is unacceptable
- Open source / open standards
- User centered design

Traditional care system

- Creation of medical data by care professionals at their workplace (practice, hospital)
 - Diagnostics
 - Treatment
 - Monitoring
- Care provider and patient/client at same place and/or same time
- Professionals communicate *about* patient/client
- “The electronic medical record”

Innovation: client centered care

- Creation of medical data by patients/clients in their home environment
 - Treatment
 - Monitoring
 - Self-directed learning
- Patient/client en care provider do not have to be at same place and same time
- Professionals communicate *with* patient/client
- “Client self-management record”



The task: Re-design care processes and tools

Processes and tools

- Help the client to achieve optimal quality of living
- Help the informal carer to achieve optimal quality of living
- Help the care professional to achieve optimal quality of working
- Contribute to productivity growth



The starting point

Ideas about process and tools

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Client centred care

- “D.I.Y.” healthcare
- Empowers patients to become clients
- Care professionals as facilitators
- Acknowledges valuable role of informal carers
- Learning is key process

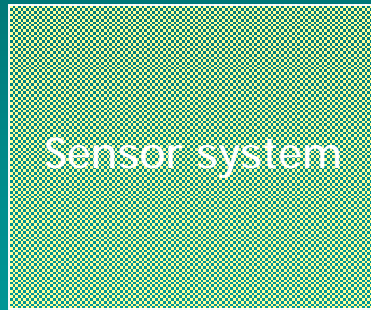
- Client centred approach
 - Carl Rogers [1902-1987]

Enabling tools

- Ubiquitous technologies
 - Telephone
 - Laptop, Desktop PC, PDA, mobile phone
 - Internet
- Unobtrusive
 - Wireless
 - Implanted
 - Hidden in environment
- Easy to use
 - Web interfaces
 - Touch screens
- Small sized, low cost, low power

Proposed telecare home infrastructure

Phone number



Sensor system



Protocols

Internet
Bluetooth
Wi-fi

IP address



Physical link:

Wires
Wireless



Proposed telecare home infrastructure

Use what is available

Use what client prefers

Use what client can afford

Use what client sees as useful

Use only what is necessary

Starting points (1)

- Information generated in the home network is presented in such a way that it can be accessed using a web browser at the home IP address
- Information generated anytime, anywhere around the world

Starting points (2)

- User interfaces present themselves as web pages
- The client authorizes use by providing access to the information

Scenarios (1)

- Emergency scenario
 - Emergency medical record can be retrieved from the home address from anywhere, anytime with written consent and access details from owner
 - Even with web-enabled phone

Scenarios (2)

- On-the-move scenario
 - Client dials in at his ISP
 - Connection to Internet
 - Link to appropriate webpage at home
 - Add clinical data
 - Transfer measurement data
 - Client ends connections

Scenarios (3)

- Telephone consultation scenario
 - Client wishes to consult professional
 - Makes phone call
 - Provides professional with password
 - Data in webpage used in decision making
- Face to face consultation scenario
 - Client grants professional access to data

Scenarios (4)

- Remote monitoring scenario
 - Care professional wishes to inspect data
 - Makes phone call
 - Client provides professional with password
 - Client and professional discuss situation

Scenarios (5)

- Self management scenario
 - Client regularly records information
 - Using appropriate web “input” pages

 - Client reviews recorded information
 - Using web browser
 - Discuss over the phone with others

Scenarios (6)

- Risk analysis and alarm scenario
 - Client regularly records information
 - Using appropriate web “input” pages
 - Measurement data and clinical data

 - Software process analyses data
 - In case of alarm: send sms or e-mail

Scenarios (7)

- Equipment support scenario
 - Equipment for home care generates web page describing system status
 - Remote technical support staff can access information in helping solving problems
 - Discussion using telephone

Solution for equipment at home

€ 100 thin client



video



Home local area network



€ 50 server



Target: three telecare processes

- Open telecare in COPD
- Open telecare in bipolar disorder
- Open telecare in renal failure

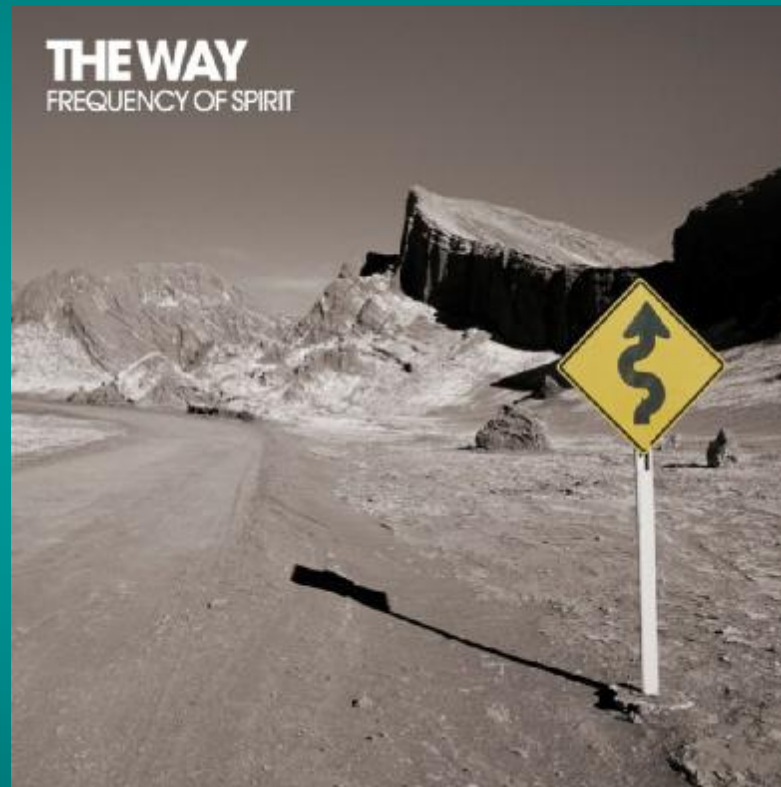
- Research Questions
 - What is the design of an effective telecare process?
 - What are the required tools?
 - How effective is this telecare ?

Diagnostic groups

- Prevalence in the Netherlands (2003)
 - Alzheimer: 209.000
 - Chronic pain: 1.500.000
 - **COPD 316.000**
 - Stroke: 190.000
 - **Bipolar disorder: 60.000**
 - Diabetes: 600.000
 - Epilepsy: 61.400
 - **Renal failure: 40.000**
 - Parkinson: 41.900

Source: RIVM, Nationaal Kompas Volksgezondheid and other

Thank you



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