Personal Chronic Disease Platform for Diabetes & Patients’ Experience

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SIS6: eHealth and Patient Participation: User Needs and User Perspectives
Technology

• CRF Inc. TrialMax™ technology has been used in more than 120 programs across 58 countries in 57 languages for all major therapeutic areas.

• Number of patients: 150000
• Number of sites: 7434
• Countries: 58
• Cumulative languages: 57
• Average compliance: 95%
City of 200,000 population, target group about 30,000 over 40-year-old men in occupational health care system

1. **Screening** with Internet or PDA for 30,000 men
   - **Segmentation** based on:
     - a) risk screening
     - b) lifestyle
     - c) Motivation for 10,000 men

2. 1 week
   - **Intervention** concepts:
     - Path 1: Diet
     - Path 2: Oral
     - Path 3: Insulin
     - Path 4: Exercise
     - Path 5: Combi
     - Path 6: Other

3. 1 month
   - **Self care**:
     - Self measurements
     - Mobile phone

4. Continuous
   - FEED BACK ACT
   - Intelligent support system

Segmentation based on:
- a) risk screening
- b) lifestyle
- c) Motivation
Managing of medical treatment in the future

KNOWLEDGE
Guidelines
Graded evidence
Databases: drugs, laboratory, genome
Images and videos for training skills
Ethical summaries
Patient information

- Decision support
  -Probably beneficial therapy
  -Patient’s values and choices
  -Doctor’s interpretation and experience
  -Selection of Treatment / Medication

Self Measurements

Database of ”all” previous patients

Individualized prediction of the effects of treatment

Paid by Insurance? Available nearby? Etc????

Modified source Kunnamo
Some eHeal features

- Automatic PHR creation (Personal Health Record)
- Multiple user profiles
  - Pharmacy and/or other service providers
  - Nurse, Care Giver, Doctor (Medical Professional)
  - Close family members
  - Patient him/her self or the Guardian
  - In-Case-of-Emergency
- Multiple User Interfaces
  - Any mobile phone (also old ones!)
  - Internet
  - PDA / Smart phone
- High data security and safety
  - Anonymous users
  - Username and (dynamic&temporary) pin code
- Individually adjustable alarms
- Automatic intelligent feedback

AUTO-RUN SOLUTION – START SIMPLE & GROW COMPLETE
## Technology Choises

<table>
<thead>
<tr>
<th></th>
<th>Technical functionality</th>
<th>Cost effectiveness</th>
<th>Easyyness of use</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>Screening</td>
<td>XX</td>
<td>XX</td>
<td>X</td>
<td>Cell Phone, PDA and Internet ok</td>
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<td>Segmentation &amp; Monitoring</td>
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<td>Cell Phone and PDA work well</td>
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<tr>
<td>Intervention</td>
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<td>Cell Phone &amp; Internet OK PDA best</td>
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<tr>
<td>Self Care</td>
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<td>Cell Phone is the best choise</td>
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- **Mobile Phone**
- **PDA**
- **Internet**
Healthcare Arena

Insurance networks $$$
Public health insurance
Private health insurance
Occupational health insurance
Travel insurance
Out-of-pocket

Pharmaceutical networks $$
Regulatory bodies
Pharmaceutical companies
Pharmacies network
Health food products

Networks of care providers
Primary care clinics
Occupational health care providers
Secondary care hospitals
Speciality treatment organizations
Out-patient programs
Alternative care provider networks
Public health & disease prevention

Clinical lab networks $
Long history of clinical chemistry
Regulatory bodies
Clinics & hospitals (& homes)
Clinical labs (&POC)

Location based services
Satellite network for GPS
Cell network for positioning
POI network for services
RSS for interactive use

Information networks
Personal Health Record PHR
Health Information Portals
Communication Networks
  - Body
  - Local
  - Mobile
  - Internet

Citizen networks
(Ethical and legal matters)
Personal
Family
Community
Area
Country
Continent

Other important networks
Medical specialty areas
Local and Global

Personal Health Record?
Poor care quality results

<table>
<thead>
<tr>
<th>Target value</th>
<th>NOT in target (%)</th>
<th>NOT in target (n)¹</th>
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<tbody>
<tr>
<td>T2: HbA1c &lt; 7,0 %</td>
<td><strong>69 %</strong></td>
<td>139 400</td>
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<tr>
<td>T2: RR &lt; 135/85</td>
<td><strong>82 %</strong></td>
<td>190 500</td>
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<tr>
<td>T2: LDL-kol &lt; 2,6</td>
<td><strong>72 %</strong></td>
<td>167 300</td>
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¹) Numbers Finland on 31.12.2004

Source: Valle T & Tuomilehto J, 2004
Poor care quality costs

€ / patient / year

Type 2

No Complications

With Complications

10331

19 x

534

City of Helsinki 2004

©TK 2005
Case Espoo

- In the City of Espoo eHeal diabetes management system pilot was taken in use in March 2006
- The system used PDA, mobile networks, Internet, and TrialMax™ technology.
- eHeal supports/manages therapy intervention where patients start using insulin, need to adjust the insulin, or have difficulties in learning good self care
Patients’ Experience

• Male 50-years-old. Learned adjusting the insulin dose using eHeal. Earlier had difficulties in learning the use of insulin.
• Female 80-years-old. Was able to use the eHeal system, was enthusiastic about it. Earlier didn’t use even a mobile phone.
• Male 60-years-old. ”The ’machine’ is great. With it’s help the nurse and me are in the core of the problems instantly.”
• Nurse: We are missing automatic alarms for easier monitoring) and feedback from the patients for easier communication.
• Nurse: Motivates patients to more responsibility for their own treatment compliance.
Data must be available at the point and time they are needed

- if not, it is useless
Quality & Economics

- The real-time data significantly improve effects of treatment.
- Numerous ‘studies’ show economic benefits of telecare.

Significant economic savings and quality of care improvements may be expected.

BUT

More and better clinical trials on mobile healthcare are needed!
Draft - version 0.1

Study Sponsor

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and

GoodIT Oy
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FIN-02150 Espoo
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GoodIT CRF Confidential

CLINICAL STUDY PROTOCOL SYNOPSIS

Safety and efficacy of the developed eHeal® diabetes and MBO lifestyle and self-care methodology consisting of the minimum set of diabetes care standards for achieving treatment balance and wellbeing of the type II adult diabetes patients:

multi-center, open-label clinical study

Multicenter study
2-10 sites in each EU Member Country

Sponsor's responsible medical expert

[open]

Telephone: XXX
Fax: XXX
Email: XXX

Signatory of the Sponsor
Thank You for Your Attention.

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