Experiences of patients and nurses with an interactive Web-based diabetes support program

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The Diabetescoach

Web-based disease management program to support the care of diabetic patients
Objectives diabetescoach

- Changes in lifestyle of patients by means of a diabetes self-management education program
- Optimizing metabolic control through e-monitoring with interactive feedback
- Improvement of patient-physician communication by means of secure message exchange: e-contact
Welcome A de Vries
Welcome to your personal Diabetes coach.

My Diabetes coach
Your diabetes treatment consists of several items. Depending on your personal situation, your nurse has set up an individual programme. She will be your personal consultant.

Last logged on: 10-8-2006
Under treatment since: 1-8-2006

Last D.I.E.P. chapter worked on: Hoge bloedglucosewaarden

Your personal lifestyle coach

Sportsselector
This test helps you select the sport that suits you best. Answer ten easy questions about your personal preferences and find out which sport fits you.
Measurements, weight

Weight
Do I have a healthy weight? The Body Mass Index is a commonly used measure for a healthy weight. The waist girth is also a good predictor of a healthy weight.

Measurement of: 19 - 04 - 2007

- Height (in cm): 185
- Weight: 80
- Your BMI is: 23.3
- You have a healthy weight
- Waist girth: 130
# Measurements, blood glucose

**Blood glucose**

On this page you can keep record of your blood glucose levels. Click on the button 'save data' when you have filled in the page to store your information. If you click on 'restore data' the information will not be saved and the earlier data will be restored.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>16 - 12 - 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fasting</td>
<td>mmol/l</td>
</tr>
<tr>
<td>After breakfast</td>
<td>7.7 mmol/l</td>
</tr>
<tr>
<td>Before lunch</td>
<td>5.3 mmol/l</td>
</tr>
<tr>
<td>After lunch</td>
<td>4.3 mmol/l</td>
</tr>
<tr>
<td>Before dinner</td>
<td>mmol/l</td>
</tr>
<tr>
<td>After dinner</td>
<td>mmol/l</td>
</tr>
<tr>
<td>All bedtime</td>
<td>mmol/l</td>
</tr>
<tr>
<td>All night</td>
<td>mmol/l</td>
</tr>
</tbody>
</table>

**Bloedglucose**

**Alert values adjusted by nurse**

![Blood glucose measurement chart](image)
**Wat is diabetes?**

Diabetes is een stofwisselingsziekte met teveel glucose in het bloed

Het hormoon insuline speelt daarbij een sleutelrol

Insuline wordt gemaakt in de alvleesklier

Diabetes wordt veroorzaakt door een tekort aan insuline, al dan niet in combinatie met ongevoeligheid voor insuline
Lifestyle coach

Different tools appear on demand: e.g. healthy living test, sport selection guide, activity scale, nutrition guide, weight manager, diet guide, mobility exercises
Supervision by nurse

Patients at risk

<table>
<thead>
<tr>
<th>Name</th>
<th>Blood Pressure</th>
<th>Weight</th>
<th>Cholesterol</th>
<th>Blood Glucose</th>
<th>Messages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harm van der Woude</td>
<td>✗</td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Francine van den Akker</td>
<td></td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Robert Jansen</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Patients with alert values are listed for contact by the nurse.
Why research?

- Prove the **added value** of the Diabetescoach
- Better understanding of **patients’ needs** for telecounseling
- Better understanding of the **conditions** for telecounseling
- Directions for **improvement** of telecounseling via the Diabetescoach
Focus of the study

Implementation
- Motives for use & non-participation
- Adoption process, drop-outs
- Conditions for successful implementation

User-friendliness
- Navigation, ease of use, lay-out, instruction

Quality of care
- Efficiency and quality of patient-caregiver communication

Research methods

Usability tests
- Experiences of patients and nurses with e-care via the Diabetescoach
- Focus on implementation, user-friendliness, quality of care

Log-files
- Frequency of use of Diabetescoach
- Content analysis of patient-caregiver e-contact

Survey
- Patient characteristics
- Quality of life, self-efficacy, diabetes knowledge
## Pilot participants

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Gender</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>51</td>
<td>37 male</td>
<td>Average: 62 (SD = 8.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14 female</td>
<td>Min: 43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Max: 80</td>
</tr>
<tr>
<td>Active users:</td>
<td>39</td>
<td>(76.5%)</td>
<td></td>
</tr>
<tr>
<td>Nurses</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Reasons for non-participation N=226

64.6% no computer or Internet
11.0% not interested in project; no added value
10.2% not in the mood to use computer at home
  4.4% not skilled enough for using computer/Internet
  4.4% not in the mood to be occupied with disease
  2.7% moving to another town
  1.8% too busy, no time
  0.9% many hospitalisations
Results usability tests  
19 patients, 5 nurses

Frequently used items
- Measurements (e-monitoring)
- Question & Answer (e-contact)
- More info (education)

Diabetescoach meets expectations \( (N=19) \)
- 73.7% satisfied about Diabetescoach
- 78.9% Diabetescoach is useful
- 79.0% satisfied about lay-out
- 79.0% satisfied about instruction (meeting)
- 79.0% satisfied about user manual
- Mean score: 7.5 (range 1-10)

Improvement user-friendliness
Results log-files (July 2007 - June 2008)

E-contact
- 185 messages, 373 utterances in total
- 77 messages of patients, 147 utterances
- 108 messages of nurses, 226 utterances

Content analysis
- Roter Interaction Analysis System (Roter and Larson, 2002)
- Categorization: task-focused vs. socio-emotional exchange

Literature:
Content patients’ messages

73.5% Task-focused
- Medical/therapeutic
- Lifestyle
- Psychosocial
- Social context
- Other, diabetescoach

26.5% Emotional
- Personal remarks, social talk
- Approval; showing respect, thanks
- Showing concern
- Showing optimism
- Asking for reassurance
Patients’ messages

“Hello, just a question about my feet. I have got a blue toenail already after three runs. My shoes fit perfectly. Could this be an extravasation? (bruise) Is this harmful or is it normal?”

“I am very pleased with you and with...!!!”

“Lately, I am somewhat stressed and my blood sugar is high. Do I need to take precautions, like taking extra medication?”

“It has been a bad week, because..”

“I would like to reschedule our appointment”
Content nurses’ messages

68.6% Task-focused
- Medical/therapeutic
- Lifestyle
- Surveillance measurements
- Administrative
- Other, diabetescoach

31.4% Emotional
- Personal remarks, social talk
- Encouragement
- Compliments
- Empathy
- Reassurance
Nurses’ messages

“Today, I looked at your measurements and I saw that you have been active with self-control. Weight and blood pressure look great! Keep going on!”

“I/we will keep an eye on your blood pressure”

“How are you?”, “Take care”

“Best wishes for a healthy new year”

“My holiday is from ... until ...”
Summarizing...

Implementation
- All parties need to be involved, especially the end-user

User-friendliness
- Technology needs to be simple, training is essential

Quality of care
- Telecounseling is a practical and reliable way of delivering worthwhile health care service to diabetics; patient-centered care

Thank you for listening!

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