Interaction between COPD patients and healthcare professionals in a cross-sector telerehabilitation programme

Birthe DINESEN, Stig Kjaer ANDERSEN, Ole HEJLESEN, Egon TOFT
Aalborg University, Department of Health Science and Technology, Denmark
1. Background and aim of the study
2. Presentation of the TELEKAT-project
3. Methods
4. Findings
5. Conclusions
Background (1)

- Over 400,000 Danes have chronic obstructive pulmonary lungediseasease (COPD)
- Rehospitalisation
  - After 1 month 14%
  - After 1 year 46%
- Prognose
  - Death during hospitalisation 9%
  - Death after 1 year 36%

(Eriksen et al: Ugeskrift for Læger 2003; 165: 3499-502)
Background (2)

- COPD patients often live with
  - Reduced physical functionality
  - Frustrations
  - Social isolation
  - Reduced quality of life

- Medical treatment can only ease the symptoms to a certain degree
Aims of the Telekat project

• To prevent readmissions of COPD patients by promoting homebased rehabilitation

• To develop new methods and concepts for COPD patients to monitor themselves at home by the use of telehomecare technology across sectors

• The research question for this presentation is to explore how technology affects the interaction between COPD patients and healthcare professionals in a telerehabilitation programme.
Target group

Patients with server and very server COPD
User driven innovation
The programme of telerehabilitation
The telerehabilitation programme

• The patients have the telehealth technology for 4 months
• A doctor prescribe how often the patients have to measure values fx blood pressure, spiometry, etc.
• Individual instruction from a physiotherapist
• Patients use Stepcounter, Wii consol
• The patients can see their data and communicate with the healthcare professionals via the portal
Methods

• Case study (Yin 2009) as the overall strategy
• Randomised study (n=111)
• Triangulation of data collection techniques:
  – Documentary materials
  – Participant-observation (total hours: 163 hours)
  – Qualitative interviews:
    • Healthcare professionals: GPs (n=6), nurses and doctors at hospital (n=6), nurses at the healthcare center (n=6), district nurses (n=11), management district nursing (n=4), management healthcare center (n=1), management hospital (n=4), IT and administration municipality (n=3)
    • COPD patients (n=22) in the intervention group were interviewed three times while doing home monitoring (n=64 interviews; drop out of two) interviews).

• Analysis perspectives
  – Clinical; economical; organizational and patient perspective
Theroretical framework

• Learning theory “communities of practice”, as inspired by Etienne Wenger
• Wenger has defined “communities of practice” as groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly
• Learning is a social practice centering around knowledge-sharing and learning process is more than an individual cognitive process.
• Over time and in sustained interaction, the participants develop a shared practice and repertoire of resources: they exchange experiences, stories, tools, and ways of addressing recurring problems
Total number COPD patients screened (n=122)

Excluded (n=11)
  - Not meeting inclusion criteria (n=8)
  - Declined participation (n=3)

Suitable for inclusion and consented to be randomized (n=111)

Allocated to intervention (n=60)
  - Received allocated intervention (n=59)

Lost to follow-up (n=3)
  - Declined participation

Tele-rehabilitation group (n=57)
  4 months of tele-rehabilitation

Allocated to intervention (n=51)

Lost to follow-up (n=3)
  - Declined participation

Control group (n=48)
  4 months of conventional rehabilitation
<table>
<thead>
<tr>
<th>Variable</th>
<th>Telerehabilitation group (n=57)</th>
<th>Control group (n=48)</th>
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<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Number</td>
<td>23</td>
<td>34</td>
</tr>
<tr>
<td>Age in years, interquartile range (IQR)</td>
<td>69.6 (53.20; 82.30)</td>
<td>67.20 (44.60; 81.10)</td>
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<td>Forced expiratory volume in 1 second, in litres (IQR)</td>
<td>1.10 (0.62; 2.09)</td>
<td>0.75 (0.26; 1.49)</td>
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<td>Weight in kg (IQR)</td>
<td>79.61 (45.00; 116.00)</td>
<td>67.53 (39.00; 118.00)</td>
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<td>Body mass index in kg/m² (IQR)</td>
<td>25.74 (17.00; 35.70)</td>
<td>25.31 (16.00; 41.00)</td>
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<tr>
<td>Oxygen saturation (% on ambient air)</td>
<td>93.3 (90.00; 97.00)</td>
<td>93.6 (89.00; 99.00)</td>
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<tr>
<td>Blood pressure in mmHg (IQR)</td>
<td>137/79 (107/62; 180/90)</td>
<td>136/82 (97/52; 179/126)</td>
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<td>Heart rate in minutes (IQR)</td>
<td>77 (57; 106)</td>
<td>85 (61; 111)</td>
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<tr>
<td>MRC dyspnea score (IQR)</td>
<td>3.5 (2; 5)</td>
<td>3.6 (3; 5)</td>
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Findings
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<tr>
<th>Themes</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Mutual learning process</td>
<td>Healthcare professionals state that they learn more about COPD patients and rehabilitation in their everyday life. COPD patients’ state that they were able to integrate and maintain changes of lifestyle in their everyday life.</td>
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<td>“Community of rehabilitation”</td>
<td>Healthcare professionals and COPD patients have developed a joint commitment and perception of telerehabilitation.</td>
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<td>From authority to dialogue</td>
<td>Dialogue between hospital and patient’s home breaches the healthcare professionals’ knowledge monopoly. Patients express the view that they have developed dialogue with the healthcare professionals on a more equal basis.</td>
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<tr>
<td>Themes</td>
<td>Examples</td>
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<td>Technology as network creator</td>
<td>The design of the web portal makes it possible for the healthcare professionals, e.g., doctor at hospital, patients’ GP and the patients to be able to access the same data.</td>
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<td>Technology as a pedagogical tool</td>
<td>Measured values that were accessible and visualised through graphics provide the patients with an overview of the development of their own symptoms.</td>
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<td>Looked after and feeling secure</td>
<td>The COPD patients articulate the view that they feel looked after and secure through the interaction with the healthcare professionals.</td>
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Conclusions

• Technology became a “driver” for development of a “community of rehabilitation” in the interaction between COPD patients and healthcare professionals in the telerehabilitation programme.

• The interaction between the parties has evolved with dialogue as the basis for mutual learning processes and new relationships.
The project is sponsored by

- The Danish Enterprise and Construction Authority
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- All partners

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Thank you for your attention

For further informations please contact:

Birthe Dinesen, Associate Professor, bid@hst.aau.dk
Department of Health Science and Technology
Aalborg University, Denmark

See www.telecat.eu