

## **Research and innovation project**

### **Telehomecare, chronic patients and the cooperating health system**

#### **The TELEKAT Project**

The target group for this experimental project are people diagnosed with chronically obstructive pulmonary (COPD). The project attempts to prevent re-admissions of COPD patients promoting home-based rehabilitation. The rehabilitation takes place by offering COPD patients and their families the possibility to utilize telehomecare technology. Telehomecare is understood as the care and treatment between the citizen's home and health professions with the support of communication and information technology. In the experimental project, a telehealth monitor box is installed in the patient's home. Using wireless technology, the telehealth monitor can collect and transmit data about the patient's blood pressure, pulse, weight, oxygen level, lungfunction, etc. via the telephone network to health personnel. In this way, the health personnel obtain the possibility to monitor the citizen's disease and training inputs, and can provide advice to the patient.

The purpose of the experimental project is to use telehomecare technology in the citizen's home in order to:

- Prevent re-admissions of people with COPD by promoting rehabilitation in their own homes.
- To describe which needs and wants of patients and family members in order to monitor the training inputs and disease process.
- To develop and test new methods and technologies for how people with COPD can monitor their own training efforts and the disease.
- To develop and test new preventive forms of care and treatment for people with COPD in cooperation with actors from the health system.
- To investigate the experiences, attitudes and insights of COPD patients and their family members in using telehomecare in their daily lives.
- To explore the causal dynamics and changes in user-driven innovation in a health-professional network over time.
- To investigate economic aspects of the use of telehomecare technologies for people suffering from COPD.

Today, COPD patients are offered rehabilitation when the clinical symptoms limit their functional level and quality of life. The rehabilitation includes physical training, instruction in the disease, nutrition, pulmonary physiotherapy, assistance to stop smoking, etc. The rehabilitation typically takes place as an instructional course of some weeks' duration away from the home. There is scientific documentation that rehabilitation has positive effects just after a rehabilitation process. Through user-driven innovation, the experimental project focuses on developing the rehabilitation offerings so that they can also take place in patients' own homes. Rehabilitation can thus become a part of everyday life and eventually help break an often downward spiral of well-being for the person suffering from COPD. There is a need for further research in this area.

Through a random selection processes, patients with COPD are assigned to either a control group or an experimental group. The purpose of having a control group is to be able to compare whether a

difference can be observed for those COPD patients who use telehomecare technology to monitor their own disease and training input in their own home. A total of 132 patients with COPD are participating in the experiment, with 66 patients in each group. Data will be collected through questionnaires to the patients regarding their view of their own health and life quality, through workshops and via interviews with the patients and their family members.

The trials will take place over four phases in the period from January 2008 to June 2011. Phases 1 through 3 take place with the Aalborg Health Center; Lung disease Department, Aalborg Hospital, Aarhus University Hospital; family doctors and district nursing in Aalborg Municipality. Phase 4 takes place with the Hjørring Health Center, the Lung Medical Department of Vendsyssel Hospital, Hjørring; and family doctors and district nursing in Hjørring Municipality.

In each of these phases, there will be a process where researchers from Aalborg University will outline the needs and wants for use of telehomecare technologies for COPD patients, family members and health professionals. This description of needs and wants creates the background for further development of new methods of care and treatment with the help of telehomecare and for possible development of new paths of communication for the use of existing telehomecare technologies. This will be tested in practice between the citizens' home and cooperation with health personnel through various scenarios.

It is estimated that there is no risk connected with participation in the trial, as that medically certified equipment is being used. If the COPD patient becomes anxious about the use of the equipment, they can at any time contact a visiting nurse. If the patient perceives his or her condition to be worsening, they are informed by a participant information letter that they should follow customary practice by contacting their family doctor, the duty physician or go to the emergency ward if they have acute need.

The project is financed by the Center for Health Technology, Aalborg University, and the Danish Business and Construction Bureau, and with co-financing from all the cooperating partners in the project.

The project has been certified by the Scientific Ethics Committee for North Jutland Region (N-20080049), and by the Bureau for Control of Personal Data, August 2008.

#### **Facts about the TELEKAT project**

The project is being carried out from January 2008 to June 2011. Financing is provided by the Center for Health Technology, Aalborg University (DKK 327.168), the Bureau of Business and Construction (DKK 6,824,879) and with co-financing from all cooperating partners in the project.

The following firms and organisations are participating in the project:

Tunstall (RTX) Healthcare A/S; Rambøll Informatik A/S; KMD A/S; Health Center Aalborg; District nursing Vest /Centrum, Aalborg Municipality; Lung Medical Department, Internal Medicine Center, Aalborg Hospital, Aarhus University Hospital; Aalborg Municipality; family physicians in Aalborg and Hjørring municipalities; District nursing Hjørring Municipality; The COPD outpatient clinic, Internal Medicine Center, Vendsyssel Hospital, Hjørring; North Jutland Vocational College; Institute for Health Services Research, University of Southern Denmark; Institute for Business Studies, Aalborg University (AAU); Institute for Sociology, Social Work and Organisation, Aalborg University and Institute for Health Sciences and Technology, Aalborg University. Read more at <http://www.telekat.dk>