

Thesis summary

Implementation of telehomecare technology: impact on chronically ill patients, healthcare professionals and the healthcare system

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The aim of this thesis is to explore the impact of telehomecare interventions as experienced by patients, healthcare professionals and the healthcare system in a cross-sector cohesive patient-care process. The term 'telehomecare' in this context denotes care and treatment cutting across sector lines by means of information or communications technology.

The patient groups in focus are chronically ill patients diagnosed with diabetes, heart failure or heart arrhythmia. Two case studies with a focus on the implementation of telehomecare technologies were conducted in cooperation with Vendsyssel Hospital, Frederikshavn and district nurses in the Municipality of Frederikshavn in Denmark. The case studies were:

- *Implementation of DiasNet.* DiasNet is a web-based Diabetes Insulin Advisory System for diabetes patients.
- *Development and implementation of the concept of home hospitalisation for heart patients by means of telehomecare technologies.* By the use of wireless equipment a district nurse collected and transmitted data on blood pressure, pulse, weight, blood samples and electrocardiograms (ECGs) from the patient's home to the hospital. Via a joint web-portal healthcare professionals across sectors were able to share the data. The responsibility for the patient care process remained at the hospital.

In both cases a triangulation of data collection techniques was used. The data thus included documentary materials, participant observation, and qualitative interviews with health care professionals and managers (n=49), patients (n=17), spouse/partner (n=9) and focus group interviews (n=5).

The case studies are interdisciplinary. This is reflected in the theoretical framework that was based on learning theory, inter-organisational theory (Scandinavian tradition) and an inter-professional approach. The patient aspects were based on everyday life theory.

The findings in the study of diabetes patients showed that the use of DiasNet helped the patients gain an insight into their own disease as well as increasing their disease self-management skills. The project brought about changes in the tasks and duties performed by all professional groups in the diabetes team.

Findings among the heart patients were as follows: *Firstly*, during the design and implementation phases of a telehomecare system, several types of controversies emerged as part of the inter-organisational and inter-professional agenda. These controversies involved competing claims of jurisdiction, controversies over knowledge technologies, or differences in network visions and network architecture. *Secondly*, the clinical decision-making and task-implementation became multidisciplinary and integrated with the implementation of telehomecare and was therefore complex in terms of the prescription and adjustment of patient medicine. Workflows between healthcare professionals across sectors changed from sequential to collective client flows. Pre-existing procedures for patient care, treatment, and responsibility were challenged. In addition, the number of tasks for the district nurses increased. Integration in the carrying out of clinical tasks increased fragmentation in the knowledge technologies in a network perspective. *Thirdly*, there was an impact on patients during home hospitalisation in terms of security, freedom, increased awareness of own symptoms, being 'looked after' but annoyed with their spouse/partner. The patients experienced a seamless cross-sector patient care process. The impact on the spouse/partner involved responsibility, nervous tension, and invasion of privacy.

For the readers of the IJIC, it is of special interest to learn in the case of the diabetic patients that the use of a web-based Diabetes Insulin Advisory System gave the patients an insight into their own disease as well as increasing their disease self-management skills. The diabetes team experienced changes in their tasks and duties.

Among the heart patients, we can discern emerging controversies in the design and implementation process when using telehomecare technology. These issues should be taken into account when initiating a

telehomecare project and implementing telehomecare technology. Technology in a network and bringing together different professional groups poses a challenge to this new field. There is a particular need to precisely define the claims of jurisdiction, and the accompanying controversies that can arise in connection with knowledge technologies, network visions and network architecture. Further observation related to integration showed that the use of telehomecare technology will result in a more integrated clinical task-implementation process between healthcare professionals from various sectors with a direct benefit for patients.

The results presented in this review are based on the author's thesis presented at Vendsyssel Hospital, Frederikshavn in Denmark on 25 May 2007.

Further information on this research has been published by this author in the *International Journal of Integrated Care*:

Birthe Dinesen, Jeppe Gustafsson, Christian Nøhr, Stig Kjær Andersen, Holger Sejersen, Egon Toft. Implementation of the concept of home hospitalisation for heart patients by means of telehomecare technology: integration of clinical tasks. *International Journal of Integrated Care* [serial online] 2007 May 30; 7. Available from: <http://www.ijic.org/>.

Birthe Dinesen, Jeppe Gustafsson, Christian Nøhr, Stig Kjær Andersen, Holger Sejersen, Egon Toft. Telehomecare technology across sectors: claims of jurisdiction and emerging controversies. *International Journal of Integrated Care* [serial online] 2007 Nov 21; 7. Available from: <http://www.ijic.org/>.

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