An Evaluation of Telemedicine Systems in Patient-Centred Care Teams

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Abstract. The research project 3P- Patients and Professionals in Productive Teams has studied different patient-centred teamwork models for patients with chronic conditions and multi-morbidities. This paper presents outcomes from a qualitative study on the information flow and technology use in patient-centred care teams utilizing telemedicine, located in three health regions of Norway and Denmark. The aim was to identity barriers for collaborative work and propose models for the e-solutions of the future. The study showed fragmentation in information storage with limited interoperability causing that several systems had to be used for telemedicine follow-up and there was limited teamwork support functionality.

Keywords. technology assessment, patient-centred care, telemedicine

1. Introduction

Due to demographic changes, health services face challenges in providing individualized treatment to a population prone to long-term conditions and multi-morbidities [1]. In many countries, reforms, strategies and national projects have urged a re-organization of health service models with an increased use of technology-assisted interventions. For instance, telemedicine are remote electronic clinical consultations using technology for the delivery of health care and exchange of medical information across distance. In this context, the research project *3P- Patients and Professionals in Productive Teams* (2015-2019) aimed to study health services models that are run with an inter-disciplinary patient-centred teamwork approach [2]. This paper presents a study on the information flow and use of technology in patient-centred health care teams utilizing telemedicine for follow-up of chronic pulmonary obstructive disease (COPD), located in three different health regions of Denmark and Norway. The aim was to identify barriers for collaborative work in teams and across organizational borders and propose e-solution models for the future. The research question stated was:

What are the benefits and constraints of the telemedicine technology in a patient-centred care perspective?

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2. Methodology

Qualitative methods were used for data collection, including observations and interviews. The interviews were both individual and in groups, targeting the use of technology, information flow and barriers for collaborative work in teams. 27 informants participated from 3 health regions. They all had relevant work in health care services, technical departments or represented patients. The data collection was executed from 2017-2019. The Norwegian Centre for Research Data approved the study with project number 53771.

3. Results

The study showed that the organizations used three different telemedicine systems for remote follow-up [3][4][5][6]. The technologies were all tailored for telemedicine and described as well-functioning by the users, but the systems were run beside the electronic health record and administrative information systems of the organizations.

The telemedicine installations were proprietary solutions and a standalone system, not integrated with the main information system of the organizations, meaning that the operator needed to log in separately to use the service and the information was available only for users of the telemedicine systems. Two of the organizations had digital communication with other health care providers such as general practitioner and municipal health care services, where standardized massages could be exchanged. For the patients, there was no access to own health information stored in the telemedicine solutions, except for self-recorded data.

4. Conclusion

The study concluded that telemedicine technologies need to be implemented as sustainable solutions, fully integrated with the information system of the organization, to support person-centred telemedicine follow-up of COPD patients and complex team work collaboration. There is a need for information flow that includes all health care organizations, as patients might be receivers of multiple types of services.

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