Demography, Biometry and Monetary Influences – A Health Economic Evaluation of the Potentials of Short Cycle Monitoring for Elderly Cardiovascular Patients with Help of Tailored Telemedical Services

Alexander Mertens[a], **Daniel Dünnebacke**[b], **Jan Henrik Dornberg**[b], **David Koch-Körfges**[a]

[a] *Chair and Institute for Industrial Engineering and Ergonomics of RWTH Aachen University, Germany*
[b] *Research Institute for Operations Management (FIR) at RWTH Aachen University, Germany*

Abstract

The approach presented in this paper defines a framework of new telemedical services for homely aftercare: The integration of all involved medical service providers (MSP) enables a media break free information flow and therefore offers a swift response in the case of an impending decompensation of the monitored patient. The collected data is locally independent and context rich accessible to all MSPs and supports a short cycle adaption within the rehab process. Incorporating the usability specifications required for elderly and retarded users, a cost efficient and adequate access to medical services in poorly developed regions becomes possible. Additionally, the quality of life itself is being raised with individualized value added services which offer a universal access to products and services that is also locally independent. This concept helps to engage the financial burden to the medical health system caused by the demographic change and actively reduces it. The medical support throughout the anastasis is systematically improved as well as the previously mentioned quality of life.

Keywords:

Telemedicine, Age distribution, Man-machine system, Computer communication network

Methodology

The MeDiNa project evaluates a way to disburden rehab clinics and upgrading the state of health of the patients. An important component of this approach is the integration of various devices for the capturing of vital signs (e.g. blood pressure, pulse, blood sugar) with a database in a rehab clinic via the internet. This lays the foundation for the introduction of new healthcare services and business models through the integrated approach of innovative information and microsystem technology. This approach is developed and evaluated within a nationally funded research project started in autumn 2008 with a runtime of three years and conducted by a consortium of research organisations, technology partners, service providers and different rehab clinics. The evaluation shall approve that the presented methodically approach leads to a better rehab of

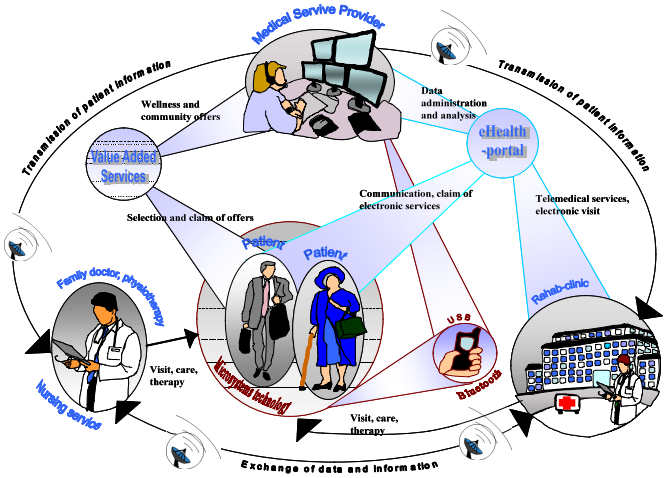

Figure 1 - Scenarios for telemedical monitoring of elderly patients.

the patients associated with a higher state of health and a better competitive ability of the rehab clinics. Here the focus is on developing an adequate user interface for the primary senior users to provide an self-reliant access to telemedical aftercare and value added services in homely aftercare. The interconnection of all medical actors involved and the common access to the relevant patient information allows full scale rehabilitation and simultaneous reduces the costs for the medical aftercare. To summarize, both patients and rehab clinics have an advantage by further research during this project.

References

[1] Mertens, A.; Dünnebacke, D.; Kausch, B.; Laing, P., Schlick, C. M.: Innovation of homely rehab with help of telemedical services. In: IFMBE Proceedings of World Congress on Medical Physics and Biomedical Engineering, Dössel, Schlegel (Eds.), Munich. Springer, 2009.

[2] Mertens, A., Kausch, B., Dünnebacke, D., and Laing, P.: Adequate Requirements Analysis in Homely Rehab. In: eChallenges e-2009 Conference Proceedings, Paul Cunningham and Miriam Cunningham (Eds), IIMC International Information Management Corporation, 2009.