

Digital technologies in outpatient care Flexibility through telematics and telemedicine

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The aim of the joint research and development project of the DTMD University for Digital Technologies in Medicine and Dentistry and the CCUnirent System GmbH (CCU) are in first phase technical developments that facilitate the work of doctors, nurses and caregivers and ensure immobile citizens a significant improvement in their quality of life. The cooperation partners will focus, on the following challenges.

Route Optimization

For mobile care services, route optimization is a time-consuming and administratively burdensome routine task that demands a lot of tact. A primary goal of the private Luxembourg DTMD University's research collaboration on digital technologies in the healthcare system with the European MaaS Enabler (Mobility as a Service) CCUnirent System GmbH is to minimize the time between emergency call and a qualified response. On the one hand, it is about locating the right vehicle with the right equipment as quickly as possible, contacting it and sending it to the nursing care or patients. On the other hand, the disposition of available staff should be optimized so that it is ensured that the right doctor or nurse is send to the patient. The aim is to simultaneously optimize the effectiveness and efficiency of all relevant processes.

Fleet Planning

Fleet planning represents an economic and technical challenge for care services and healthcare professionals. It will have to answer two questions simultaneously: which vehicles are needed where? And how can I access these vehicles quickly, easily and efficiently when needed?

Jürgen Lobach, CEO of CCUnirent System GmbH, comments: "At this point, we are making targeted use of CCUnirent's carsharing connections. In the future, care services can have a large pool of rental cars beyond the company's own stock of vehicles and drive to the patient without having to wait for the next vehicle from their own fleet. As a result, the fleet costs can be significantly reduced allowing for a reduction of care costs, which are already high."

The joint research project provides for an empirical analysis of real fleet data for a mathematical modelling of logistic functionalities.

Delivery Services

The linked and automatic integration of delivery services into the processes of outpatient care offers mobile care services new and innovative business fields. In rural areas in particular, many villages and towns are increasingly lacking the opportunity to meet the needs of everyday life locally, as the result that last bakeries, butchers and village shops have disappeared. Immobile people are therefore dependent on delivery services, which, however, are often hardly affordable. A nurse or caregiver accessing a car-sharing vehicle to reach the patient can bring supplies from the nearby pharmacy or grocery store. The corresponding recipe or the shopping list would be shown on the display in the vehicle.

Flexibility through telematics and telemedicine

Networking and mobility are essential components of future-oriented medicine and care. Telemedicine (doctor and patient are spatially separated) can save long distances and waiting times as well as risks of infection in the waiting room. Possible starting points for the research cooperation between DTMD and CCU are therefore in a first step, for example, the monitoring of health values, making of diagnoses and even the initiation of therapies. In addition, the virtual doctor-patient exchange is possible around the clock. Telemedicine also helps doctors with each other, for example in the transmission of patient data, to obtain second opinions and to knowledge exchange.

The whole thing is not that new. In Norway and Sweden, medical examinations and treatments have been coordinated remotely for years and in Switzerland patients can consult a doctor around the clock over the "Medgate" service by telephone or the internet. In a study conducted by the Center for Cardiovascular Telemedicine at the Berlin Charité, patients independently measure blood pressure, weight and ECG values at home and send them wirelessly to the hospital. The medical staff constantly checks the data and get in touch with the patients, if something is wrong. If necessary, patients are sent to the specialist and in an emergency case, the control point immediately calls ambulance or even helicopter.

There should be no prohibition of thinking in the testing of new forms of care, emphasizes Prof. Dr. med. André Reuter, President of the DTMD University. Above all, telematics is suitable for disabled and infirm patients who can no longer cope with complicated ways. In addition to home care services and monitoring data of elderly and dependent patients (home monitoring), the focus of the research project of the DTMD and the CCU is the remote monitoring of those in need of care, for example via pacemaker data

Accompanying research

Last but not least, the mentioned pilots, which are set up in the core areas, serve the scientific evaluation and the reduction of isolated solutions. Therewith all stakeholders of the processes of outpatient care are addressed, from the patient himself to the nurse, the caregiver and the doctor to the nursing care provider and the emergency department, including the corresponding infrastructures. The aim is to establish an information and knowledge base for a better support of immobile people. In addition to the scientific analysis, the social and economic aspiration is to improve the interaction of doctors, nurses, carers and patients.

About DTMD

The DTMD University for Digital Technologies in Medicine and Dentistry is a private university under Luxembourg law, operated by a private Luxembourg institution and headquartered in Wiltz Castle.

The DTMD is a member of the "European Competence Center for Digital Technologies in Health Care". The aim of the DTMD is the transfer of information, technologies and knowledge to promote digitization in business, science and society, especially in health care. The DTMD strives for greater efficiency and more flexibility through telematics and telemedicine.

With its postgraduate education and training programs, the DTMD University primarily addresses licensed physicians, dentists, healthcare professionals and dental technicians. The DTMD University has a forward-looking organizational structure with local campuses for face-to-face lectures and a powerful analog and digital network of distributed resources for clinical studies and hands-on trainings.