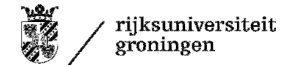


# CDRM-Study: Telematic-assisted Care Model for an Intensified Diabetes Risk Management

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## Objectives

The CDRM-Study (computer-assisted diabetes risk management) will analyze a new integrated care approach for diabetes patients.

The study will focus on the evaluation of this approach using a diabetes management and monitoring system for all relevant risk factors and will examine its potential in daily care. It consists of a digital device integration component transferring vital parameters to a diabetes monitor software used by the primary care doctor and a personal health record as a data exchange platform for the patient. A further component is a CDRM-Tool creating individual risk reports for an intensified diabetes management.

The approach promises to improve secondary prevention and aims to identify and reduce the risks of long-term complications. The doctor and the patient take a centre stage within this approach which ...

- supports services of health care professionals,
- eases patients' management of their disease,
- enhances the value of diagnostic information by improving the integration of different health care services.

Today, besides the challenge of financing prevention and therapy, the critical question is less 'if' but much more 'how' preventive or therapeutic measures should be realized in medical practice. Thus, this research will look at the effect of CDRM on **medical effectiveness**, **patients' cardiovascular risk profiles** (et al. UKPDS Risk Engine) and **patients' reported outcomes** (EuroQoL, DTSQ). Furthermore, the impact of the intervention on processes and utilization of care, development of costs, and patient knowledge and behavior shall be under examination.

Results of the CDRM Study will show if the new approach will improve diabetes management and patient compliance. Prior goal is to optimize primary diabetes care and to improve medical outcomes. It is hoped that this will contribute to reduce incidence or at least severity of diabetes related complications and thus lead to a better quality of life for affected individuals in the long run.

You will find further information on the study please refer to: [www.study-on-diabetes-management-systems.de](http://www.study-on-diabetes-management-systems.de)

## Background

Improving diabetes management in primary care:

Today the collection of health parameters is very time consuming and not automated • Today the context of relevant parameters is missing

Guideline based recommendations  
Diabetes Mellitus  
Prevention Metabolic Syndrome  
Disease Management  
Patient Education  
Therapy  
New Technologies  
Motivation  
Compliance  
Decision Support Systems

Individualised treatment  
Personalised medicine  
HMS  
Health Management  
doctor-patient-relationship  
early diagnosis  
MEDICAL INTERVENTION  
EDM  
Statistical models

(often there is only information on BG) • Decision support tools considering individual risk and potential for disease monitoring • Home measurements of vital parameters have got great potential for disease monitoring • Electronic reminding systems in a PHR may help improving compliance and disease management strategies

Graph 1. Context and key words

## Study Design and Methods

To gain this information we use a prospective, **cluster randomised, longitudinal, controlled trial design** with baseline measurement and one and a half years follow-up on relevant outcome measures.

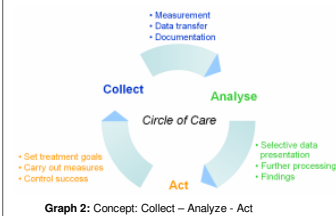
Approximately 24 general practitioners and 1200 of their outpatient type 2 diabetes patients, aged between 40 and 68 years, will be enrolled. GPs of the intervention group will use a diabetes monitoring and management system during consultations and will be connected to the regional telematic infrastructure. The control group will represent the local diabetes care standard treated without intensified telematic-assisted software solutions. The study region will be the Rhein-Neckar-Kreis in Baden-Württemberg in the south-west of Germany.

A multilevel analysis will be used to evaluate the effect of the intervention.

## Care Model

The integrated care model CDRM is based on the concept *Collect, Analyze, Act* (see graph below). Within the scope of the research project the effectiveness and the quality of diabetes care shall be improved. Therefore the platform of a personal health record (PHR), a managed care software (Diabetes Monitor) at the physicians practice in charge, a device integration solution to realize a home care data collection and a computer-assisted diabetes risk management instrument (CDRM-Tool) shall be used. With the help of the diabetes management system physicians and patients will be able to continuously monitor outcomes and therapy processes. They can use the system to systematically reduce individual risks and can realize a prospective planning of their individual therapy goals.

The medical care in the intervention group of the pilot project will be realized by one specialist and twelve general practitioners who attend approximately 600 type 2 diabetes patients for a 23 months time period. With biannually health check visits the continuous data monitoring shall be realized.



Graph 2: Concept: Collect - Analyze - Act

## Expected Benefit

- Target-oriented **improvement of health outcomes and individual risk reduction**
- Advancement of secondary prevention to **avoid complications** and expensive **in-patient treatment**
- Improvement of **patient empowerment and patient compliance** via motivating easy to understand information
- Software automation **eases documentation** routines and **workflows in daily practice**
- A personal health record (**PHR**) for the patient and an electronic health record (**EHR**) for professionals allows several **value added applications**
- **Improved transparency** by planning and monitoring therapy goals and treatment processes

## Technology

The diabetes management system consists of several different software components as well as digital measurement devices:

### Electronic Personal Health Record - LifeSensor

LifeSensor is a web-based personal health record allowing the user to store, manage, and view his/her medical history. Ubiquitous and independent from time and place it offers this information to anyone authorized and involved in the treatment process.

### Diabetes Monitor - CDM/ICW Professional Suite

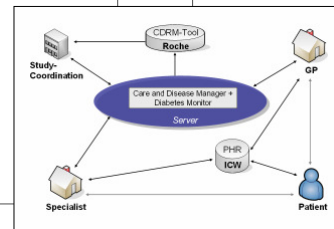
The Diabetes Monitor supports a secure - if needed sector integrated - exchange of all relevant information between professionals and the PHR. It is able to represent different kinds of specific managed care scenarios and processes. The enhanced software solution is based on the platform of the ICW Care and Disease Manager. The Diabetes Monitor presents its users an aggregated overview on all diabetes relevant information, forms and reports. It enables the physician to keep track of current medical history at any time and to intervene in due time if appropriate.

### Medical Devices - Accu-Chek Diagnostic Measurement Devices

Digital Home Care Measurement enables an easy and continuous documentation of parameters important for an intensified diabetes management. Digital automation avoids manual operations to document data and aims at improving compliance treating diabetes patients.

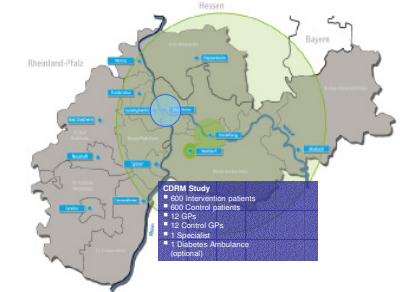
### CDRM-System - Accu-Chek Mellibase

Computer-assisted diabetes risk management instruments support physicians' therapy planning and ease patients' handling of their chronic disease. CDRM-Tools calculate evidence-based individual risk and potential for getting long-term complications. That way it enriches diagnostic information. These risk calculations are based on complex algorithms and on the evidence of many epidemiologic studies (e.g. UKPDS, DCCT, HOPE).



Graph 3. Actors in the CDRM Scenario

## Medical Partners of the CDRM-Study



## Universities

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## Sponsors and Partners

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