

A mobile application for diabetes

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Credit: Eduardo Jørgensen

Diabetes is a chronic disorder affecting millions of individuals worldwide. European scientists plan to improve patients' lifelong adherence to treatment through a mobile application.

Accumulating evidence underscores the role of mobile-health [applications](#), sensors and telemonitoring in [disease management](#). Especially when it comes to chronic disorders, mobile health interventions promote engagement of [patients](#) in their own treatment, improving adherence and reducing relapse. Apart from empowerment, mobile disease management solutions facilitate continuous monitoring of patients, integrating assistance from various healthcare professionals.

The EU-funded [MedicSen](#) project focused on the management of diabetes by developing a personalised telemedicine approach. "Our long-term goal was to change how diabetes and other chronic diseases are treated. For this purpose, we designed an application that learns from the patient?" explains project coordinator Dr. Eduardo Jørgensen.

The design of the diabetes application

Researchers designed an application that measures various patient parameters such as temperature, blood pressure and heart rate to recommend insulin doses and adapt the therapy on an individual basis. Routine tracking is an

inherent part of living with diabetes, and the application promises to facilitate continuous monitoring.

By connecting to third party wearable devices that patients currently use such as continuous glucose monitors and smartwatches, the application automatically receives information and stores data. Using a learning algorithm, it accurately predicts glucose levels for the next hour and shows recommended actions to avoid any risk.

The MedicSen technology supports a daily friendly interaction with the patient through voice or written messages to ease treatment adherence. It also acts as a lifestyle and behaviour coaching programme, sending recipes and activity plans specially designed to improve glucose performance on a daily basis. The system learns from the routine of the individual patient, taking into account allergies, previous conditions and type of diabetes to schedule a lifestyle intervention programme.

Available at Google Play, the [MedicSen application](#) includes gamification where patients learn more about diabetes. Importantly, the MedicSen system can be connected to a proprietary needle-free drug dispenser that is guided by the algorithm to ensure that the patient automatically receives personalised doses through the skin.

The impact of mobile diabetes monitoring

For an innovative solution to be successful as a [disease](#) management tool and therapeutic intervention, it is important that patients, caregivers and professionals all actively participate in its testing. As such, the next step of MedicSen researchers is to validate the system in clinical environments.

According to the International Diabetes Federation, in 2017 there are over 420 million people between 20 and 79 years old living with diabetes. Apart from the enormous healthcare expenditure, diabetes is associated with high mortality with an estimated 4

million [diabetes patients](#) dying in 2017.

The MedicSen system aims to promote the necessary change in the structure of treatment of chronic diseases, leading to a movement towards personalised telemedicine. The long-term plan is to function as a non-invasive artificial pancreas.

With the company winning EU Startups summit and the CEO, Dr. Jørgensen being awarded as one of the top EU innovators under 35, the future certainly looks bright. In Dr. Jørgensen own words: "[diabetes](#) is the first case study and MedicSen intends to adapt the system to other [chronic diseases](#) such as cardiovascular diseases and obesity.?"

Provided by CORDIS

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