



Improving the treatment of diabetes during pregnancy

Gestational diabetes occurs when the body cannot produce enough insulin – a hormone that helps control blood sugar levels – to meet the extra needs during pregnancy. It does not usually cause any symptoms but can lead to premature birth or difficulties during childbirth. Fujitsu is supporting an app to visualize patients' data, enabling healthcare professionals to recommend personalized treatment.

About the customer

Helsinki University Hospital (HUS) is Finland's largest operator in secondary care. This position gives HUS the opportunity to solve the challenges encountered in health care and also to act as a pioneer. They manage the most demanding specialist medical care in the country. The CleverHealth Network development projects bring together the health technology competence of Finnish enterprises, leading experts in health care and high-quality health data collected by HUS. The main partners in the gestational diabetes project are HUS, Elisa, Fujitsu, Aalto University and the University of Helsinki, with funding provided by Business Finland.



Industry: **Healthcare**



Location: **Finland**



People: 26,000+ **employees**



Web: **hus.fi/en**



“People are expecting high quality public care but with no additional investments. This is the equation we have to solve and this is why we have to go digital.”

Seppo Heinonen, Senior Medical Director, Professor Director, Gynecology and Obstetrics, Helsinki University Hospital

Challenge

Of the 52,000 women who give birth in Finland every year, approximately 18 per cent – or nearly 10,000 – are diagnosed with gestational diabetes. Of these, roughly half develop type 2 diabetes at a later date. This amounts to 5,000 new diabetics per year, whose total treatment costs can accumulate to 28 million euros.

Solution

A mobile application has been developed for measuring and storing data relating to the mother’s blood glucose levels, physical activity, nutrition, pulse and daily weight – and making it available to healthcare professionals in real time.

Outcomes

- Better monitoring and visibility of how diet, physical activity, sleep and stress influence patient health
- Clearer communications with patients
- Smarter insights for physicians

Combining health and social care for better well being

Due to diet and lifestyle changes there are more and more women with gestational diabetes. This is very expensive to treat, is bad for women’s health, and also for the health of their unborn children. There is currently insufficient gestational diabetes monitoring of individuals. Blood glucose levels are measured a few times a week with fingertip measurements and instructions are dated.

That’s why HUS wanted to develop an easy-to-use mobile application that improved the treatment and monitoring of gestational diabetes without needing additional human resources. The application would forward the data in real time to health care personnel, who can provide guidance as needed.

Using data to transform patient outcomes

Fujitsu Finland is supporting this new initiative to leverage artificial intelligence to improve the detection and treatment of diabetes during pregnancy. Fujitsu is delivering data integration and modelling services in addition to creating a user interface to visualize patients’ data, enabling healthcare professionals to recommend personalized treatment.

The project is making use of machine learning to provide guidance and treatment tailored to each patient’s individual needs, based on her unique risk profile. The deployment of AI also makes it possible to predict both the mother’s and the child’s future health in a previously unprecedented way. For example, AI-powered insights can anticipate a mother’s future blood glucose levels in addition to her newborn baby’s birth weight and body mass index (BMI), making it possible to provide very targeted preventative advice in terms of lifestyle and food choices.

A data-driven transformation making healthcare more efficient

Fujitsu is designing the mobile application for patients and a user interface that will enable health care professionals to easily interpret information. Fujitsu is responsible for delivering the data in to HUS Data Lake (Microsoft Azure based) to enable the secondary use of the data for further use cases.

Seppo Heinonen of HUS says: “The unique data collected from HUS and by the Helsinki University Hospital maternity center – one of the largest in Europe – provides an excellent starting point for collaboration between multiple stakeholders. We have a remarkable opportunity to revisit how we go prevent and treat many medical conditions by integrating high-quality research into clinical practice to develop an entirely new service. The agility of the CleverHealth Network ecosystem has enabled us to progress rapidly so far, and we are now starting the development of new services for this first development project.”