Summary

In September 2019, the Dutch Cabinet named three Dutch National Icons, companies that illustrated the innovative power and diversity of the Netherlands. One of them was Inreda Diabetic, founded by Robin Koops, who has been diagnosed with type-1 diabetes. In 1994, he started the company to develop an Artificial Pancreas (AP) system, which regulates blood sugar levels for type-1 diabetics. The system was designed in an iterative manner, involving its prospective users in the different steps of its development.

Robin Koops was driven to invent such a semiautonomous AP due to his dissatisfaction with diabetes treatments and the support provided by products and software applications. He built the device and tested it on himself. The system ensures that blood glucose levels stay within a healthy range most of the time, without restrictions with respect to factors such as diet and exercise. We conducted a case study and held interviews on the development and use of the AP system for diabetes management. Effective ICT support for people with diabetes requires organisational changes such as the development of new ICT services and a viable financial model to support these services.
In *Designing information and communication technology to enable person-centred care in chronic disease management*, we state that a Person-Centred Care (PCC) approach is ignored in (the design of) most eHealth interventions, and with it the patient-professional partnership. We argue that integrating principles of PCC into Information and Communication Technology (ICT) interventions could maximize their potential. These principles are based on the PCC approach that encourages and empowers patients to actively take part in their care process by building a collaborative partnership between the patient and the healthcare professional.

ICT can help enable a person-centred approach that supports the patient-professional partnership, in which patients are involved and empowered to play an active part in their care and shared decision-making process. Vice versa, a person-centred approach to care might also benefit from ICT as an enabler to strengthen remote patient-professional partnerships.

Since insight is lacking on how ICT enables a person-centred approach to care that supports both patients and healthcare professionals in disease management, our study connected the concepts of ICT and PCC. To expand the knowledge on person-centred care and ICT, and specifically on how ICT supports the patient-healthcare professional partnership in chronic disease management, our study is guided by the overall research question: *How does information and communication technology support patients and healthcare professionals in chronic disease management in a person-centred approach to care?*

We increased the understanding of the relational aspects of introducing technology in a health care setting by explaining how ICT supports the partnership between patients and healthcare professionals towards chronic disease management. In doing so, we gave rise to a new field of research that combines person-centred care with Information Communication Technology for healthcare purposes, which we coined Information Communication Technology enabled Person-Centred Care (ICT-PCC).

We revealed a discrepancy between intended and reported actual outcomes in terms of realising person-centred care through ICT, as it turned out that the intended outcomes of ICT-enabled person-centred care did not always come to pass in practice. In our study, we distinguished four user-related preconditions of ICT-enabled PCC that, together, strengthen the partnership between the patient and the healthcare professional in ICT-PCC. In addition, we included affordances of ICT-PCC interventions during the design and development phase to help ICT-PCC reach its full potential.

We also concluded that using ICT to support chronic disease management in a person-centred way changes the relationship between healthcare professionals and patients, strengthens the interests of the patient (self-management), and yields precise data on the clinical phenomenon in question. This multinodal system is more complex than either the patient-technology or patient-professional partnership alone. Because of this complexity, the outcomes of ICT interventions are difficult to predict in advance.

Finally, when developing and designing eHealth interventions, emphasis should also be put on supporting the patient-professional partnership; interventions benefit when this partnership is strengthened, and vice versa.