Diabeloop to Patients: An Artificial Pancreas solution to improve the balance, safety and autonomy of 20 million people

Rendicontazione

Informazioni relative al progetto

D2P

ID dell'accordo di sovvenzione: 849157

Sito web del progetto

DOI
10.3030/849157

Progetto chiuso

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8 Marzo 2019

Data di avvio
1 Aprile 2019

Data di completamento
31 Marzo 2021

Finanziato da
INDUSTRIAL LEADERSHIP - Innovation In SMEs

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€ 2 793 190,00

Contributo UE
€ 1 955 233,00

Coordinato da
DIABELOOP
France

Periodic Reporting for period 2 - D2P (Diabeloop to Patients: An Artificial Pancreas solution to improve the balance, safety and autonomy of 20 million people)

Periodo di rendicontazione: 2020-04-01 al 2021-03-31

Sintesi del contesto e degli obiettivi generali del progetto

The problem / issue being addressed is that 20 million people in the world including 2 million people in Europe suffer from Type 1 Diabetes, an autoimmune disease making it impossible for a person's pancreas to produce insulin. Insulin is the hormone that the human body uses to control blood sugar levels. People with Type 1 Diabetes require an external insulin input on a very regular basis. It is supremely difficult for a human brain to accurately predict exactly how much insulin is needed to keep the blood sugar levels in the safe range. Yet it is indispensable. If there is too much insulin, there is not enough sugar, a phenomenon also known as hypoglycemia. A person under hypoglycemia may feel weak, faint, and possibly fall in a coma. If there is not enough insulin, there is too much sugar, a phenomenon also known as hyperglycemia. Hypoglycemia inflicts long-term damages on organs. This is why diabetes is one of the principal causes for amputations, blindness, kidney failures, and other serious complications. Most people who live with Type 1 Diabetes today suffer from a poorly controlled glycemia. A typical person living with diabetes experiences both hypo- and hyperglycemic episodes on a regular basis. The number of people with type 1 diabetes keeps growing at a rate of about 5% per year. It is a major, and growing public health problem across the world.
Our project addresses this problem by bringing to patients a medical device that dramatically improves the blood sugar control of patients.
It is important for society because it can contribute to improving the lives of millions of human beings.

The overall objective of this project is to scale up the commercial development of the DBLG1 System and to make it available to European patients. The goal is to continue improving the device by adding new sophisticated and robust features. Another goal is to kick-start industrialization, by getting ready for production and delivery on a mass scale. Through this project we are also seeking to develop our brand in Europe, as well as awareness of our product.

Lavoro eseguito dall’inizio del progetto fino alla fine del periodo coperto dalla relazione e principali risultati finora ottenuti

Since the beginning of the project, Diabeloop has worked on improving the existing DBLG1 System device in order to provide an enhanced service to patients and to stay ahead of the competition. An entirely new remote visualization platform was created. More powerful algorithms have been implemented to reduce the need for patients to manually enter data (meals, physical exercise). An automatic download of software updates has been implemented. Auto-learning capabilities have been inserted, which pushes personalization further and makes insulin delivery even more accurate. In terms of preparing for industrialization, we have upgraded all of our capabilities to be ready to serve a large number of patients once the commercial launch is effective. Our IT infrastructure and our cybersecurity defenses have been beefed up. In terms of dissemination and communication, we have been part of all the major European and global events to publicize the results of our medical device. We have engaged with renowned scientists and doctors across Europe to tell them our story and convince them that our solution is key for the future.

Progressi oltre lo stato dell'arte e potenziale impatto previsto (incluso l'impatto socioeconomico e le implicazioni sociali più ampie del progetto fino ad ora)

Many of our new features in the algorithms that our software uses go well beyond the state of the art. As a result, the DBLG1 System is also able to deliver insulin doses with an increased precision.
The potential impacts are enthralling. People with Type 1 Diabetes who will choose our system would benefit from a much higher time-in-range, and more peace of mind. Hopefully, this should translate into a higher life expectancy as well. In the shorter run, the lives of people with type 1 diabetes could become easier, free from the many interruptions of therapeutic decisions they had to take. They could get closer to live the lives they choose to live. Healthier and less burdened people thanks to the DBLG1 System would also imply a lower societal cost due to the disease.

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