

New connected device makes injectable insulin easier to monitor for diabetes type 1 patients

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Credit: INSULCLOCK

The number of diabetics in the world, both insulin dependent and not insulin dependent, is 415 million and it is expected to grow to 600 million in 2040. If their treatment fails, there is high risk of complications related to vascular and nerve affection and even death. The EU's INSULCLOCK project is putting forward a solution to help diabetics manage their disease.

The device the project has developed, the Insulclock system, is attachable to any disposable insulin pen, turning it into a 'smart', connected pen. This can then be used with a [mobile application](#), enabling patients to automatically know and record the amount and type of insulin

injected, and when the insulin injection took place.

Apart from the registration of the information when the insulin pen is used, Insulclock also measures the temperature to which the insulin pen has been exposed, in order to prevent possible insulin spoilage by being exposed to high or low temperatures. "All this information collected and recorded by the Insulclock system can be shared by patients with their endocrinologists, diabetes educators and caregivers, who will be informed on patients' evolution in [real time](#)," explains project coordinator Mr José Luis López Sánchez-Pascuala .

The system has been developed to fill the unmet needs of patients: something Mr Sánchez-Pascuala, who is also the CEO of the company, knows first-hand, having been a diabetes sufferer for more than 20 years. He found he regularly couldn't remember if he had injected his insulin and realised that he was not the only person to whom this was happening. So he decided to find a solution for this and other problems related to his disease, with the mayor goal of improving his quality of life.

The team is passionate about making diabetes management easier and safer. "We have a mission. We are going to improve the quality of life of millions of diabetic people by increasing the adherence to their treatment, through tracking all what is happening in the moment of the insulin administering, with the use of a device connected to their insulin pens and keeping track of their blood glucose levels," he says.

The device is so small that it does not change how patients use their insulin pens. Some are already benefitting from the knowledge that their vital data is being recorded and updated to their personal diaries, ready for sharing with their healthcare professionals.

The project is carrying out a clinical trial with Emory University in

Atlanta (Georgia, USA) lead by Dr. Guillermo Umpiérrez. "We are setting out to show patients adhere to [insulin](#) treatment more effectively, reducing their HbA1c values." Insulclock collects all this information and records it in the mobile application, automatically filling out the diabetic diary for the patient. "We also want to show the device keeps [patients](#) on top of what their condition demands on day-to-day basis," says Mr Sánchez-Pascuala.

Insulclock are starting two more [clinical trials](#) in Europe: one with Quiron Group (Jiménez Díaz Foundation) in collaboration with Comunidad de Madrid, and another clinical trial with Hospital General de Segovia (Segovia, Spain). The development of the product is completed and it is now available for purchase.

Provided by CORDIS

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