

PRESS RELEASE

A portable device to diagnose imminent preterm deliveries

- *Tekniker is currently optimising a device used to diagnose the risk of imminent preterm births in pregnant women who come to the emergency ward presenting labour systems before their scheduled date*
- *The centre, together with Innitius, is currently developing an intravaginal probe and the device's reading unit called "Fine Birth"*

[Eibar, 11 May 2020] - Preterm deliveries are the main cause of mortality affecting boys and girls under five years of age all over the world. According to [data supplied by World Health Organization](#), 2.5 million minors died in 2017 due to this reason, i.e., 40% more than in 1990. This explains why both the WHO and UN have rated this problem as a priority and have set a goal for 2030 focused on achieving 1.2% of neonatal mortality and 2.5% for children under five years of age.

It is in this context that [Tekniker](#), a member of the Basque Research and Technology Alliance (BRTA), is involved in the technological development of a device that uses torsion waves to obtain more efficacious diagnoses to address the risks associated with imminent preterm deliveries. This will make it possible to avoid unnecessary hospital admissions for pregnant women that are not going to have a pre-term delivery and will also mean that less healthy pregnant women will be treated with drugs such as corticoids or antibiotics.

The technologies used nowadays to detect false alarms connected to preterm deliveries are based on the in vitro Fibronectine and PAMG-1 tests, although their rate of false positives exceeds 70%. This means that we must have a much more accurate and predictable device at our disposal to reduce the number of hospital admissions as they have a big impact on health care systems (with associated costs caused resulting from unnecessary admissions) and are also very upsetting for their relatives.

In this regard **Innitius** designed a prototype called “*Fine Birth*”, in collaboration with the University of Granada and the Andalusian Health Service.

Fine Birth used technology based on torsion waves to observe changes taking place in the rigidity of uterine tissue during the pregnancy. By analysing these changes and using an algorithm that combines multiple variables and artificial intelligence tools it is possible to determine the extent to which a pregnant woman might have to face the risk of having a preterm delivery in the first seven days after the test. Work is also progress on future applications such as diagnosing cervical incompetence, evaluating delivery induction processes or optimising in vitro fertilisation processes.

This device, however, must be improved and optimised for perform new clinical trials and eventually be sold on the market. Consequently, Innitius noticed that technological modifications had to be made to improve and optimise performance.

A reliable and efficient model

In order to achieve this goal, Innitius has been supported by Tekniker as a technological partner to address all the changes that have to be made to obtain a reliable, robust and efficient model. The aim of these modifications is to improve, on the one hand, the development of the intravaginal probe and, on the other, the device’s reading unit.

Tekniker’s high degree of specialisation in terms of technologies used for mechanical design and development, electric-electronic design and development, prototype design, manufacturing and commissioning have made it possible to solve a number of problems related to this probe to transition from the current prototype to a “ready to market” health care product.

As regards the probe itself, the technology centre will optimise some of the already existing elements and will implement a new motor for the emitter that is more reliable and capable of delivering suitable signals. Work will also focus, among other things, on improving the use and fixation of sterile membranes, on the incorporation of new materials and on designing an improved emitter centering system.

As far the reading device is concerned, Tekniker will incorporate a battery power system and provide the electronic miniaturisation required to design a “point of care” portable autonomous device.

In short, the technology centre’s technological development actions are focused on designing new parts that are easy to scale at an industrial level, that facilitate probe assembly and can be adapted to new requirements related to the motor, fixations, etc., without modifying its behaviour and operation.

Once the design and manufacturing stage comes to a close, Tekniker will assemble the new prototypes for the probe and reading unit at its facilities. It is expected that the new devices will be available by the summer of 2020.

Concerning Tekniker

With nearly 40 years of experience in applied technology research and technology transfer to companies, Tekniker has reached a high degree of specialisation in four major areas (advanced manufacturing, surface engineering, product engineering and ICTs), which has allowed the organisation to place its cutting-edge technology at the disposal of customers to meet their requirements. The technology centre is a member of Basque Research and Technology Alliance (BRTA).

Further information:

GUK ► Javier Urtasun
urtasun@guk.es | Tel. 637 273 728