

Innovative mattress aims to prevent cases of Sudden Infant Death Syndrome

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EU researchers have developed and are now in the process of patenting an intelligent monitoring system to prevent unexpected deaths in otherwise healthy infants.

The EU-funded project, BABYCARESLEEP, has developed a novel, non-invasive intelligent monitoring system which is able to detect risky situations at an [early stage](#) and will help to prevent Sudden Infant Death Syndrome (SIDS). A patent of the prototype system is now being prepared by project partner, Elastic Confort.

Continuous baby monitoring

Integrated into the baby's cot, the specially-designed mattress uses

biosensing textiles and matrices of sensors to detect and constantly monitor the baby's most relevant biological parameters, including its breathing rate, temperature, pressure and pH levels.

Sensors detect if the baby stops breathing and if CO₂ levels inside the child increase in parallel to a falling oxygen level.

In the event of such a situation, the specially-designed mattress then vibrates gently, stimulating the baby's brain and prompting it to breathe. This avoids hypoxia but is gentle enough to not wake the baby from its sleep.

In order to be able to accurately detect a potentially dangerous situation from the infant, the system is enabled with a Risk Assessment and Actuation Algorithm that sets the rules and thresholds for which the baby's biological parameters are measured against. The algorithm also determines the level of corrective actions to take, such as the level of vibration applied within the mattress.

In the event that a baby does not react to stimulation following the detection of a potentially emergency situation, the BABYCARESLEEP system alerts the parents with alarms and online alerts via both smartphone and computers.

SIDS is the highest cause of death in the post-neonatal period – from the second to the sixth month of life.

In Europe alone, 2,400 infants still die of SIDS annually. The condition is most common to preterm newborns, which equates to around 385, 000 babies born each year in Europe. It is an unexpected disease which occurs in infants where there is no evidence of accidental asphyxia, inflicted injury or organic disease.

Next steps for the project

With the patenting process now well underway, it is hoped that full commercialisation will be achieved within four years, achieving cumulative benefits of more than €10 million for the SMEs involved in the project.

Project partners estimate that the BABYCARESLEEP system will reach approximately 31, 000 families over the first four years of commercialisation and will lead to an increase in the quality of life for more than five million European infants and their families.

More information: For more information please see the BABYCARESLEEP project website: babycaresleep.com/

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