

POSTER ABSTRACT

Cutting-edge innovation on Artificial Intelligence for integrated care on neuromusculoskeletal disorders

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Neuromusculoskeletal diseases represent a key demand on the healthcare system and society, due to the fact that their symptoms require continuous care and monitoring, especially considering the ongoing demographic ageing trend.

Nowadays, around 2% of the population in Spain suffers from one of these diseases. However, some of them are estimated to grow fourfold in the next 50 years. Added to this trend, is a relevant problem on disease-masking effects linked to the natural ageing process on these diseases and their consequences.

Fortunately, the emergence and spreading of innovative technologies and infrastructures in the healthcare context is making it possible to promote the evolution of the health care model from intensive care to prevention. This new approach aims to empower the population as a key agent in managing, monitoring and guiding the processes that promote self-care, as the backbone of the real and effective development and deployment of so-called personalised medicine.

Cutting-edge technologies offer the possibility of gathering continuous objective patient information, including Real World Data, being able to identify, at an early stage, any sign/symptom that may generate a risk or accelerate decline, and carry out an early personalised intervention to improve or extend quality of life. To this end, IBERUS is tackling the use of biomechanical assessment and smart health technologies that enable data gathering to apply Artificial Intelligence underpinned on a Big Data scalable architecture to:

- Provide new evidence on innovative indicators for clinical assessment,
- Develop cutting-edge technologies to provide a functional characterisation and monitoring of people both in clinical settings and in their daily-life scenarios, as well as making possible to generate real-time responses of the assessment algorithms in rehabilitation,
- Define new criteria and methods for clinical decision support in treatment and rehabilitation,
- Applying third-generation Artificial Intelligence techniques integrating synthetic data and images of neuromusculoskeletal pathologies,

- Effectively share and manage Smart Health Data for the prognosis, treatment and care of neuromusculoskeletal pathologies, through innovative technologies based on the recording, integration, interoperability and advance data exploitation.

- Physicians and expert researchers will have an active involvement both at co-design and co-validation phases of several innovative high-impact solutions at a clinical and professional level.

As a result, emerging digital tools, innovative technical architectures and expert knowledge will be provided to improve clinical care and integrated care through new products and services for the diagnosis, rehabilitation, treatment and care of degenerative diseases of the neuromusculoskeletal system in clinical and out-of-hospital settings.

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