



# IBERUS

## BIOMEDICAL ENGINEERING TECHNOLOGY NETWORK APPLIED TO NEUROMUSCULOSKELETAL SYSTEM DEGENERATIVE PATHOLOGIES WITHIN CLINICAL AND OUT-OF-HOSPITAL SETTINGS



INSTITUTO DE BIOMECÁNICA DE VALENCIA



**Neuromusculoskeletal diseases (NMSD)** are a key demand on the healthcare system and society.

Nowadays, around **2% of the Spanish population** suffer from some of these diseases and many of them are estimated to grow fourfold in the next 50 years. So, this implies a big challenge both on societal and clinical sides.

Challenge

### Clinical Assessment

- Classical measures based on kinematics, forces and clinical questionnaires

### Remote monitoring

- Movement analysis, dynamic shape scan and AI motion capture

### Decision support systems on rehab

- IoT in real scenarios is raising and widespread use of VR in rehabilitation

### Big Data architecture

- Standards on interoperability and cybersecurity, but challenges on regulation
- Big Data and AI is raising while telehealth on chronic disease is becoming popular

Goals of the network

Tackling the use of biomechanical assessment and smart health technologies by enabling data gathering to apply AI underpinned on Big Data scalable architecture to:

- Provide new evidence on innovative indicators for clinical assessment,
- Establish a functional characterization and monitoring in clinical settings and real world scenarios,
- Define new clinical criteria and methods for clinical decision support,
- Effectively share and manage Smart Health Data for the prognosis, treatment and care of neuromusculoskeletal pathologies.

SOTA of key elements

### Clinical Assessment

- Development of cost-efficient technology assessment
- Identifying new clinical indicators
- Defining assessment procedures tailored to clinical needs

### Remote monitoring

- Sensor technologies for human physiology

### Decision support systems on rehab

- VR in rehabilitation of NMSD
- AI in assessment and treatment of NMSD

### Big Data architecture

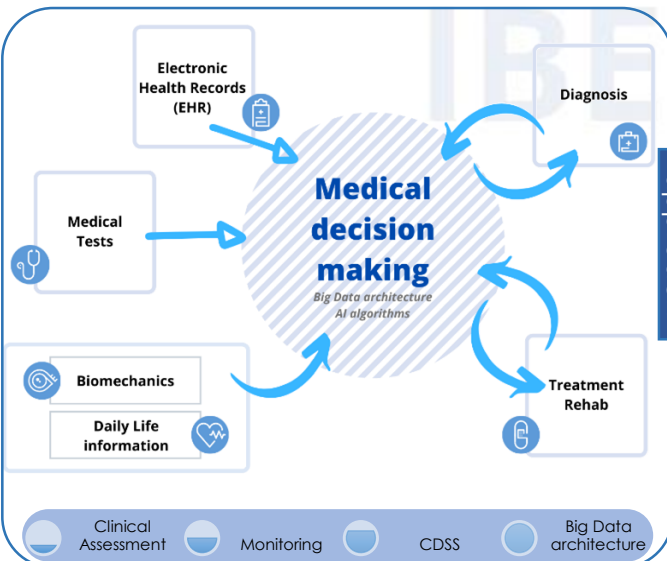
- Emerging technologies in privacy and security
- Defining interoperable clinical standards

Mission

IBERUS approach

Benefits

- To **promote** the transition to prevention and tailored health care model
- To **empower** the population on self-care 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
- To **transfer** cutting-edge innovation to business on health and care sector



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