



REMO

Remote patient monitoring to reduce clinical workload

To support patients and clinicians in rehabilitation, preventive and supportive care while reducing clinical workload, the ITEA project REMO (Remote patient-targeted health monitoring) will develop and validate remote monitoring solutions based on patient-centred data collection, monitoring technologies, artificial intelligence (AI) and workflow integration.

Addressing the challenge

Healthcare systems are under increasing pressure due to ageing populations, shortages of healthcare professionals, rising costs and the growing need to support people with chronic and long-term health conditions. These challenges are particularly relevant in areas requiring continuous follow-up, rehabilitation, preventive care, mental well-being support and sleep-related monitoring, where traditional hospital-centred models are often insufficient.

Proposed solutions

REMO will address this need by developing remote monitoring approaches that combine patient-centred data collection, interoperable platforms, dashboards, sensing technologies, AI-supported analysis and clinically meaningful feedback for professionals and patients. In doing so, the project will develop and validate solutions that support more continuous, personalised and data-driven healthcare beyond traditional care settings. This focuses on two main clinical use cases:

SPIDA (Monitoring system for spinal disorders rehabilitation) will support remote monitoring in spinal disorder rehabilitation, helping professionals follow patient progress, assess rehabilitation outcomes and provide more personalised support between clinical appointments. Innovations will include electromyogram (EMG) monitoring and analysis, muscle load analysis, algorithms for exercise quality control, and AI-

supported muscle behaviour reporting.

MIND-SLEEP (Integrated Monitoring of Sleep and Mental Well-being for Preventive and Supportive Care) will explore how sleep and mental well-being data can be combined to support preventive and supportive care,

Projected results and impact

With these technological building blocks, REMO will contribute to a shift from episodic and reactive care towards more continuous, preventive, and data-informed follow-up. By applying remote monitoring to spinal disorders rehabilitation and to sleep and mental well-being support, the project aims to help healthcare professionals obtain more meaningful information from patients' daily-life contexts and enable more timely and personalised interventions. The expected impact includes improved continuity of care, reduced pressure on



contributing to a better understanding of factors that influence health, recovery and quality of life. This will include very low-power radar to detect micrometre-range movements, touch-free extraction of vital parameters and body position via sensors, and an iterative, human-centred approach to demonstrator development.

Additionally, the project will address key requirements related to privacy, security, usability, interoperability and trustworthiness, ensuring that the proposed solutions are aligned with practical healthcare workflows.

healthcare professionals, better patient engagement, earlier identification of relevant changes, and more efficient use of healthcare resources. Rather than focusing only on isolated devices or standalone applications, REMO also aims to demonstrate how remote monitoring and AI-supported analysis can be connected to broader healthcare and supportive care processes. Through these factors combined, the project intends to take a vital step towards its ultimate end goal: patient-centred monitoring virtually anywhere, anytime.



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Project website
<https://itea4.org/project/remo.html>

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