PNC
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Ministero dell'Università e della Ricerca

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ANTHEM

ADVANCED TECHNOLOGIES FOR HUMAN-CENTRED MEDICINE

SCHEDA INIZIATIVA

Ministero dell'Università e della Ricerca

Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA

PNC
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Dati di sintesi Iniziativa

Denominazione dell'Iniziativa: ANTHEM: AdvaNced Technologies for Human-centrEd Medicine

Main Topic: Monitoraggio a distanza

Data avvio Iniziativa: 01/12/2022

Durata Iniziativa (espressa in mesi): 48

Costo totale (€): 125.223.504,32

Agevolazione MUR (€): 123.477.500,47

Abstract

Relevance. Frail and chronic populations represent a challenge for the health system at the level of organisation, process efficiency, quality and effectiveness of care, and healthcare economy. In fact, the WHO estimated that Non-Communicable Diseases (NCD) such as cancer, degenerative, cardiovascular, pulmonary diseases are responsible for 71% of the total deaths worldwide. The Italian National Plan of Chronicity indicates that the most representative pathologies or co-morbidities in the chronic and frail population are cardiovascular diseases as a whole (32,8%), followed by chronic respiratory diseases (24,5%), diabetes (20,3%) and tumours (12,7%). In addition, the efficiency of Italian medical care has peaks of excellence and disparities due to geography, variations in population density, connectivity services, and local socio-economic conditions.

Mission and objectives. The ANTHEM (AdvaNced Technologies for Human-centrEd Medicine) project is a multidisciplinary Initiative whose vision is to cover the existing gap in healthcare of frail and chronic patients within specific target territories and communities characterised by high-incidence and/or orphan diseases. ANTHEM will develop innovative sensors, digital-based advanced diagnostic, monitoring and therapeutic systems integrated with the latest methodologies in the field of Artificial Intelligence (AI including Data Mining) to improve territorial medicine and home-care approaches for the management of NCD and rehabilitation. ANTHEM adopts a patient-centred approach for personalised care and for re-engineering unsatisfactory care processes.

ANTHEM will bring innovation in four main areas:

1) Smart Monitoring: developing new sensors and technologies to monitor in real-time patients, frail populations and environments (i.e. home, Point of Care, mobile units);

2) Prevention and Diagnosis: developing new technologies and AI-methodologies to improve early diagnosis and implement digital pathology;

3) Personalised Medical Treatments: developing advanced treatments for orphan cancers, chronic conditions in target populations and territories;

4) Technological enhancement and transferability: developing methodologies for heterogeneous health data management, protection, interoperability and for data integration with existing or developing information technology platforms.

Reference communities have been selected on the basis of geographical and demographic issues as well as on the basis of the incidence of specific chronic diseases.

To ensure rapid translation into a social benefit, the project activities, where possible, will be carried out directly in operational environment conditions (e.g. Point of Care, hospitals) in synergy with existing national (including the NRRP) and regional initiatives as well as in compliance with existing health data management and communication guidelines (e.g. the National Guidelines on Telemedicine).

Project structure and long-term sustainability. The project team consists of 23 top-level partners located throughout the Country and representing the key actors needed to develop, validate, scale-up, and implement innovative health solutions: universities and research institutes, healthcare system institutions and private companies from the pharmaceutical and medical devices sectors. The partners will act through a legally recognized institution operating under Italian law, "Fondazione ANTHEM".

R&D activities are organised in four Spokes dedicated to innovative technologies:

Spoke 1. Data and technology driven diagnosis and therapies;

Spoke 2. Connecting patients and therapists through adaptive environments and intelligent sensors to enhance proximity medicine;

Spoke 3. Risk factors monitoring, diagnostic tools and therapies in chronic diseases;

Spoke 4. Preclinical and clinical breakthrough theranostic and treatments for cancer.

Each Spoke includes a set of Pilots aimed at bringing technologies and solutions closer to real-world operational applications.

To ensure long-term sustainability of the project activities and goals, multidisciplinary joint training courses at the doctoral level will be planned to train future scientists in the field of digital medicine. In addition, to guarantee an efficacious level of implementation, training activities will be planned for the professional healthcare staff across the territory, and for the patients.

Impact of the project. The intervention of ANTHEM will address the main challenges of national healthcare system:

- contributing to reduce the current geographical and territorial gaps in health care system thanks to the harmonisation of the standards of care by means of technology;

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- ensuring a better "care experience" for patients and healthcare professionals;

- improving the efficiency levels of regional health systems by promoting home care and remote monitoring protocols;

- allowing innovative diagnostic processes based on "digital pathology" data.

Partner

Soggetto Proponente
Università degli Studi di Milano - Bicocca

Soggetto attuatore (Hub)
Fondazione Anthem - Advanced Technologies for Human-Centred Medicine

Spoke

Spoke 1 - Data and technology driven diagnoses and therapies
Leader
Università degli Studi Di Bergamo

Affiliati
Università degli Studi Di Milano-Bicocca
Università degli Studi Di Messina
Università degli Studi Della Campania Vanvitelli
Azienda Socio Sanitaria Territoriale Bergamo Est
Fondazione Europea Ricerca Biomedica Onlus
Diapath Spa
Azienda Socio Sanitaria Territoriale Papa Giovanni XXIII
Istituto di Ricerche Farmacologiche Mario Negri
Fondazione IRCCS San Gerardo dei Tintori

Spoke 2 - Connecting patients and therapists through adaptive environments and intelligent sensors to enhance proximity medicine
Leader
Università degli Studi di Milano-Bicocca

Affiliati
Azienda Socio Sanitaria Territoriale Bergamo Est
Fondazione Europea Ricerca Biomedica Onlus
Fondazione IRCCS San Gerardo dei Tintori
Università degli Studi Di Bergamo
Azienda Socio Sanitaria Territoriale Papa Giovanni XXIII
Agenzia di Tutela della Salute Milano
Artemide Spa
Università della Calabria

Spoke 3 - Risk factors monitoring, diagnostic tools and therapies in chronic disease

Leader
Politecnico di Milano

Affiliati
Humanitas University
Università degli Studi del Salento
Ab Medica S.p.A.
Chiesi Farmaceutici S.p.A.

Spoke 4 - Preclinical and clinical breakthrough theranostic and treatments for cancer

Leader
Università degli Studi di Catania

Affiliati
Università degli Studi Del Salento
Università della Calabria
Università degli Studi di Messina
Università Degli Studi della Campania Vanvitelli
Istituto Nazionale di Fisica Nucleare
Azienda Ospedaliera Cannizzaro Catania
Humanitas University
Biogem Scarl
Istituto Oncologico del Mediterraneo
Politecnico di Milano