

#### DIPARTIMENTO DI SCIENZE NEURORIABILITATIVE

CCP (Casa Cura Policlinico) – Milano

### The shift of care from hospital to home

An example in the neuro-rehabilitation domain



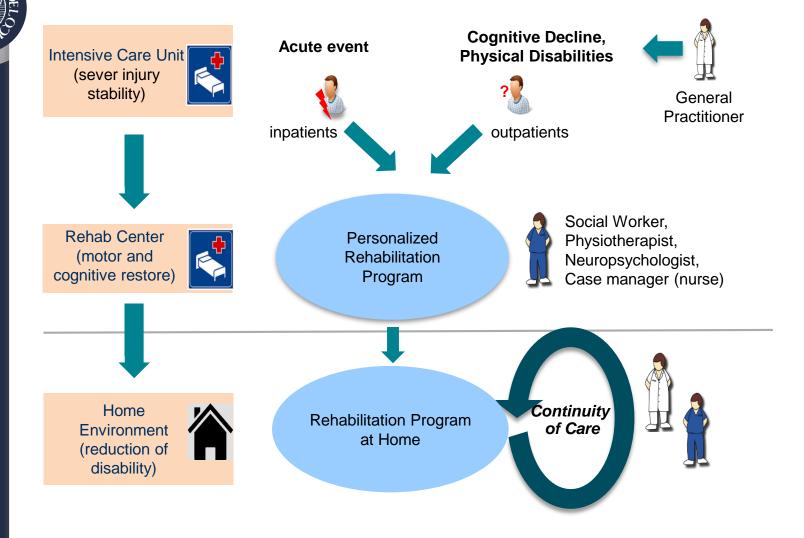
Massimo Caprino: CIO, Casa Cura Policlinico (CCP)

Riccardo Re: Research Physiotherapist

Exploring Digital Therapeutics (DT), Artificial Intelligence (AI), and Virtual Coaches (VC)

EHTEL Innovation Initiative, 3 June 2020

# Stages of neurorehab pathway





# Digital therapeutics: needs coverage at home

Motor impairment





Cognitive decline





Reduction of Disability and Quality of Life Enhancement

Activity of Daily Living support







# CCP and Digital Therapeutics: The Journey

Digital Therapeutics R&D timeline involving CCP in 2012 2013 2017 2018-19 2015 2016 2022 Neurorehabilitation landscape. SIDE EFFECTS **ENGAGEMENT** From a single commercial **TESTING ON TESTING ON** solution to a clinical **STROKE STROKE** evidenced based «as a **PATIENTS PATIENTS** service» solution COMMERCIAL **MOTOR AND FINAL CLINICAL ACCESSIBILITY** Designed in HOSPITAL but **COGNITIVE REHAB SOLUTION VALIDATION TESTING ON** addressed for HOME **TESTING ON EFFECTIVENESS THROUGH STROKE TESTING ON THERAPISTS VCARE PROJECT PATIENTS** STROKE PATIENTS



# Findings of innovation

Presence of effective rehabilitation approaches

Presence of different clinical landscapes

Presence of multiple interventions regarding quality of life, including multi professional skills

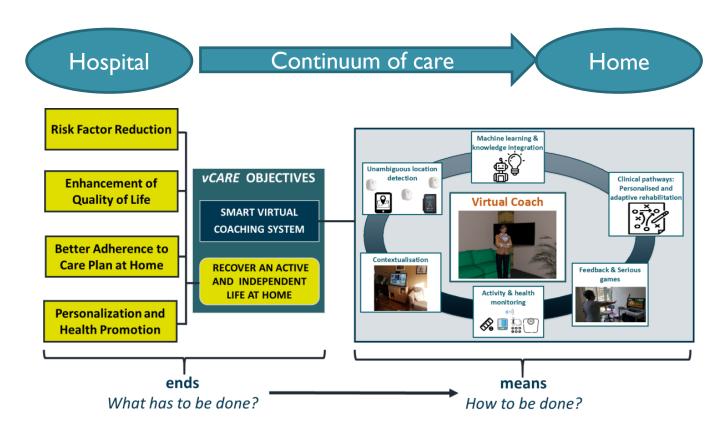
Presence of automated and customized pathways in the execution of home care

Presence of a sustainable solution conceptualized in the continuum between institutionalized care and home care









### Discover vCare in a nutshell

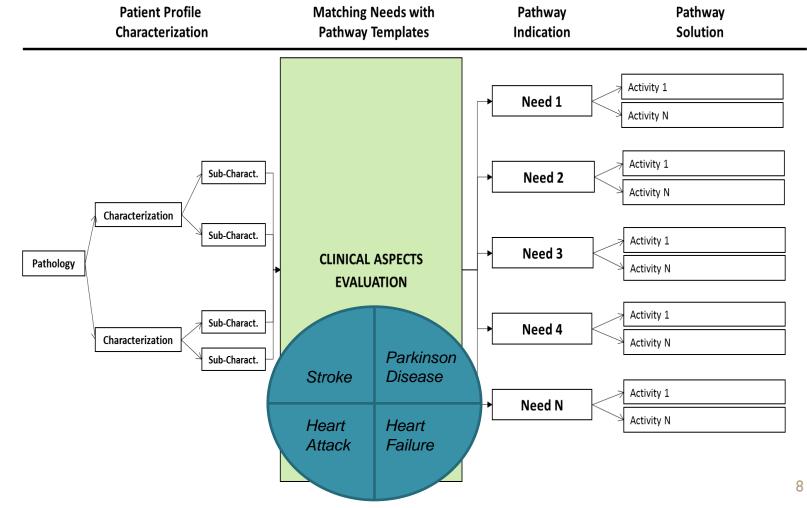
The vCare project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 769807





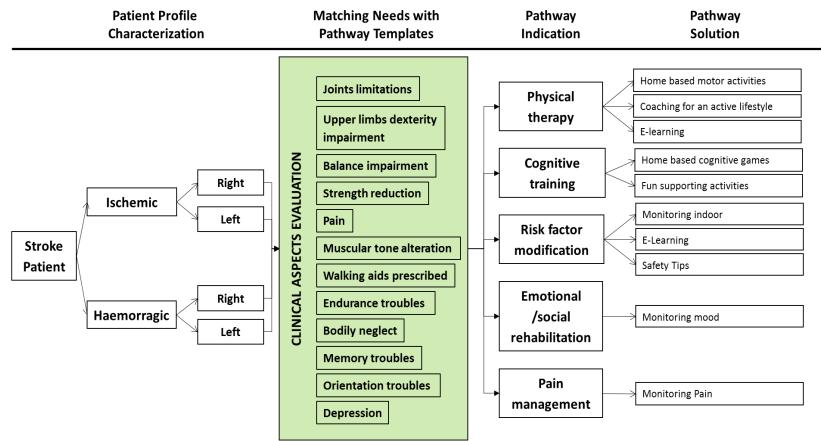


# vCARE clinical pathway



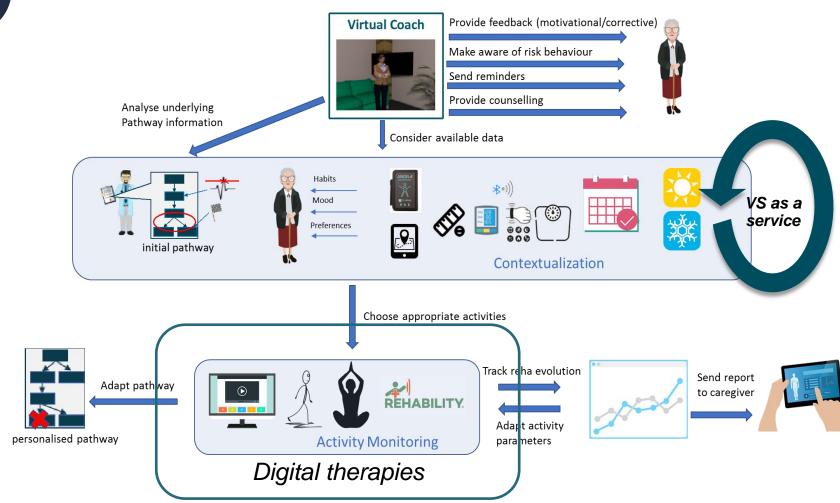


# Clinical pathway: the stroke case

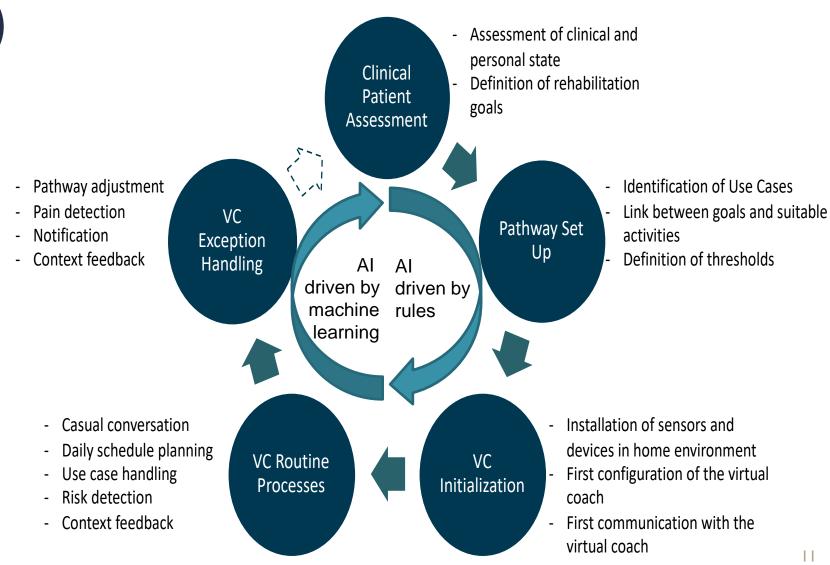




# Digital therapies & Virtual Coaching



# Digital therapies & Artificial intelligence: VC lifecycle



## Clinical Validation

Evaluation Phase

State of Prototype

Method

**Evaluation goal** 

Instrument

**M22** M15 M16 **M0 M4 M5** Tech-Labs Living-Labs Pilots Phase Phase **CONCEPTUAL FULL PROTOTYPE FULL PROTOTYPE** PRELIMINARY PROTOTYPE **PROTOTYPE** 

#### Paper prototyping

Production of narratives representing a typical end-user daily routine



## Application sketching

Translation of narratives into storyboard for a video footage

#### Think aloud study

A restricted group of elderly/ patients will be involved in focus group activities held in clinical sites where videos, mockups and other supporting materials will be presented to them.



GOAL: FUNCTIONAL FULFILLMENT



### Qualitative usability survey

The restricted group of elderly/patients and physicians will answer to **UEQ** to evaluate qualitative information about liking, feedbacks and needs.

#### Field study

20 patients for each clinical site will be enrolled and they will interact with the Virtual Coach supported by the presence of a practitioner during the first sessions and then independently



GOAL: USABILITY OF THE PROTOTYPE



### Quantitative usability survey

The patients will selfadminister the **SUS** scale at the end of the experience to collect user's feedbacks about usability

#### Clinical study

10 patients for each clinical site will be enrolled to follow a rehabilitation program with vCare at home, for one semester. 10 patients will be enrolled as a control group.



GOAL: USER'S ACCEPTANCE FOR PRE-COMMERCIAL SOLUTION

### Quantitative acceptability survey

The patients will selfadminister the **SUTAQ** scale at the end of the experience to collect user's feedbacks about acceptability

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## Contacts



r.re@ccppdezza.it



https://vcare-project.eu/

contact@vcare-project.eu

















