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D4.2 ValueCare implementation plan for each pilot site

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04-Nov-2021	1.0	Final version

EXECUTIVE SUMMARY

The purpose of this deliverable 4.2 is to provide the ValueCare implementation plan in each pilot site. This deliverable includes sample recruitment and recruitment strategies, preparatory activities and implementation plan. The methodology is based on the deliverable D4.1. "Guidelines to adapt the ValueCare model to pilot sites".

In this deliverable each pilot site provided their own specific criteria for inclusion and exclusion, recruitment strategies of four target groups (older adults, health and social care professionals, formal and informal caregivers, and organisational/IT experts. The preparatory activity prior to real implementation includes obtaining ethical approval from institutional/regional or national authority, engagement of stakeholders, initial training towards the stakeholders, older people, and caregivers.

Finally, implementation phase includes pilot specific assessment, development of personalized care plan (based on the clinical condition and ICHOM questioners results of the user/patient) - supported by ValueCare mobile app, specifically designed for the needs of pilot`s target group of older people - and face-to-face support of older people if needed. The social, health professionals and caregivers will monitor the patient progress via ValueCare web app to achieve greater patient experience, improve job satisfaction and wellbeing of health and social care providers and lower their burden (formal and informal). In conclusion, this document serves as a guide to each ValueCare pilot site, during the implementation phase of the project.

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LIST OF ABBREVIATIONS

ACEIs	Angiotensin-converting enzyme inhibitors
ADL	Activities of Daily Living
AMC	Athens Medical Centre
AfIC	Alliance for Integrated Care
APP	Application
ARBs	Angiotensin II Receptor Blockers
AULSS2	Azienda ULSS n.2 Marca Trevigiana
BMI	Body Mass Index
BP	Blood Pressure
CarerQoL	Care Related Quality of Life
CDC	Cáritas Diocesana de Coimbra
CME	Continuing Medical Education
COVID-19	Coronavirus Disease 2019
CHO	Community Health Care Organisation
CREC	Cork/Kerry Clinical Research Ethics Committee
D	Deliverable
ECHA	European Connected Health Alliance
EMC	Erasmus Medical Centre
EOF	National Medicines Organisation
EOPPY	National Organisation for the Provision of Healthcare Services in Greece
ESEnfC	Nursing School of Coimbra
EU	European Union
F2F	Face-to-face
FBK	Fondazione Bruno Kessler
FFQ	Food Frequency Questionnaire
GA	Grant Agreement
GDPR	General Data Protection Regulation
GP	General Practitioner
GR-DMSES	Greek Version of the Diabetes Management Self-Efficacy Scale
Hg	Mercury
ICIC	International Conference on Integrated Care
ICF	Informed Consent Form
ICP	Integrated Care Pathway
ICHOM	International Consortium for Health Outcomes Management.
ICMJE	International Committee of Medical Journal Editors
ICPOP	Integrated Care Programme for Older Persons
ICT	Information and Communications Technology
IFIC	International Foundation for Integrated Care
INCLIVA	Fundación Investigación del Hospital Clínico Universitario de Valencia
IPAQ	The International Physical Activity Questionnaires
ISRAA	Istituto per Servizi di Ricovero ed Assistenza agli Anziani
ISRCTN	International Standard Randomised Controlled Trial Number
IT	Information Technology
M	Month
MM	Millimetre
MCI	Mild Cognitive Impairment
MEDRI	University of Rijeka, Faculty of Medicine
METC	Medisch Ethische Toetsings Commissie (Medical Ethics Review Committee)
MOCA	Montreal Cognitive Assessment
MRQ-10	Medication Risk Questionnaire

NGOs	Non-governmental Organisation
PAR-Q	Physical Activity Readiness Questionnaire
PC	Personal Computer
PDF	Portable Document Format
PIL	Participant Information Leaflet
PICP	Personalised Integrated Care Plan
POSSASDIA	Panhellenic Federation of Associations of People with Diabetes Mellitus
PRO55+	The Protein Screener 55+ Questionnaire
PREMs	Patient Reported Experience Measures
PROMs	Patient Reported Outcome Measures
Q&A	Questions & Answers
RAPA	Rapid Assessment of Physical Activity Questionnaire
RSS	Rotterdam Stroke Service
SHAFE	Smart Healthy Age-friendly Environments
SPMSQ	Short Portable Mental Status Questionnaire
SNAQ65+	Short Nutritional Assessment Questionnaire 65+
SPPB	Short Physical Performance Battery
SUS	System Usability Scale
T	Task
T2DM	Type II Diabetes Mellitus
TICE	Technology, Information, Communications and Entertainment sectors
ToC	Table of Contents
UCD	University College Dublin
UCLA	University of California, Los Angeles
VI	Vodafone Innovus
WHO	World Health Organisation
WP	Work Package

1 Introduction to the ValueCare project

Healthy ageing along with independent living have become fundamental challenges for Europe, as all EU member states (and virtually every country in the world) are experiencing growth in the number and proportion of older persons in their population. Several international organisations (Council of Europe, 2014; International Longevity Centre Brazil, 2014; WHO, 2002) have remarked the importance of the independence, participation and autonomy of older people to remain healthy and, consequently, to ensure their quality of life.

WHO defines health as "...a state of complete physical, mental and social wellbeing and not merely the absence of disease". The idea of health as the absence of disease has long been considered insufficiently broad and not covering all aspects of health. Unfortunately, it is at present likely unobtainable for many, particularly with the rise in chronic disease in an aging population, with many people with multi-morbidity and frailty who require a coordinated care plan involving numerous health providers, social and other care services. The concept of health promoted by WHO is also hard to measure, is not tailored to the individual and, according to Gentry et al. (2017), of limited use for assessing whether a health system is providing value to citizens. Greater acknowledgment of areas of wellbeing providing wider value to older people and those with chronic illnesses, such as societal participation and coping capacity, may allow for a more practical and thorough assessment of value in healthcare, particularly in high-income countries. Shilton et al. (2011) propose a definition of health focused on giving people the income, education, and power to control their lives, highlighting the role of supportive systems, environments, and policies in enabling health.

In this context, ValueCare's vision of healthy ageing is that any older individual in society can live the best life possible according to what they value, facilitated by access to high quality, person-centred, evidence-based and affordable health and social care services, supported by strong and integrated health and social services. ValueCare partners believe that taking an "enhanced value-based approach" (including not only health but also lifestyle and social care in the concept of value-based care), supported by secure and robust digital technologies will help to achieve this. In addition, the project will also take into account the health and social service providers: Not only satisfying the Triple Aimof (i) improving the experience of care (including quality and satisfaction); (ii) improving the health of populations; and (iii) containing and potentially reducing, by means of a better use of the available resources, the per capita cost of care, which mainly focuses on the person's side, but also integrating the care providers' satisfaction in the job and wellbeing in order to truly optimize ValueCare's performance.

1.1 Objectives of the project

ValueCare addresses Horizon 2020 Call: SC1-DTH-2018-2020 – Digital transformation in Health and Care. The project aims to deliver personalised integrated (health and social) care services, better outcomes for citizens, improved care experience, improved staff satisfaction and greater efficiency in the use of resources and coordination of care, in a setting that ensures trust of users and policy makers with regard to data access, protection and sharing and which can be replicated at large scale in other EU countries. In alignment with the above, ValueCare will focus on the following general objectives:

- Objective 1. To deliver efficient outcome-based integrated (health and social) care to older people suffering from cognitive impairment, frailty, and multiple chronic health conditions, in order to improve their quality of life (and of their families),
- Objective 2. To contribute to the sustainability of health and social care systems in Europe,
- Objective 3. To provide a secure, scalable, and robust digital solution for integrated care.

2 Introduction to the deliverable

2.1 Deliverable objectives and scope

The main objective of Work Package (WP) 4 is to implement the ValueCare concept and supporting ICT solution, to validate them and guarantee their replicability. The purpose of deliverable 4.2 (D4.2) is to provide the ValueCare implementation plan in each pilot site, that is based on the practical guidelines for the implementation of the ValueCare concept in each pilot site provided in D4.1 "Guidelines to adapt the ValueCare model to pilot sites".

In D4.2 the following objectives are envisaged:

- Describe the sample recruitment in the seven pilot sites according to the recruitment strategies.
- Determine the preparation activities in the seven large scale pilot sites.
- Provide individual implementation plans for the seven large scale pilot sites.

2.2 Relation to other WPs and deliverables

This deliverable is strongly linked with the following WPs tasks, and deliverables (see Table 1).

WP	Deliverable [N=11]	Relation
WP2	D2.3, D2.7	D2.3 Engagement of older citizens and professionals – Describes the strategies to engage end-users in the co-design activities and in the piloting of the ValueCare project's implementation. The aim is to define the strategies needed to engage the main target (stakeholders, older people, families, professionals and managers) in the co-design activities and the needed profiles in order to actively participate in the creation process of the ValueCare concept essential for the implementation process; D2.7 Report on the co-design activities for the ValueCare concept mid-term - concerns the feedback from the first round of engagement actions undertaken in each ValueCare pilot site in relation to the target groups foreseen by the ValueCare project, namely: patients/service users and informal caregivers, care practitioners, and public and private decision makers responsible for the adoption of the project's results and their exploitability.
WP3	D3.2, D3.3	D3.2 Technical requirements and architecture: The aim is to specify the technical requirements of the essential elements of architecture that needs to be developed for the ValueCare Digital solution; D3.3. Conceptual design: the final objective of this deliverable is to provide the overall picture of how the different technical components of the solution, namely the ValueCare web platform, the mobile app and the virtual coach interact with each other based on the requirements; D3.5 Report on digital solution testing, security and privacy mechanisms – This deliverable aims to deliver proper functioning of the system and performance of the integrated ValueCare digital solution.
WP5	D5.1	D5.1 Formative evaluation: The aim is to evaluate the ValueCare approach in a pre-post controlled design in terms of effects for the target groups (older people, their families, and health and social care providers).
WP6	D6.2, D6.3	D6.1 Project Website, Branding and Templates: This deliverable is an accompanying document for the set-up of the ValueCare project website

		(accessible at projectvaluecare.eu) and the project's style guide, consisting of its branding elements and guidelines for easing internal communication between partners and maximising the impact of external communication and dissemination activities.; D6.2 Dissemination and Communication Plan – This deliverable aims to identify stakeholders and their communication needs and will create communication campaigns that include key messages and utilise the most appropriate communication tools for each stakeholder audience in pilot sites.
WP7	D7.1, D7.2	D7.1 Innovation Management: This deliverable aims to include identification of potential opportunities which will emerge during the implementation phase to be exploited within open approach; D7.2 ValueCare business models – With this deliverable and tasks aim is to guarantee for the transfer of project results which will be gained during the implementation phase beyond its lifetime
WP8	D8.1, D8.2, D8.4	D8.1 ValueCare Ethical management plan start-term – This plan identifies the ethics and research integrity principles that govern ValueCare project, and describes the guidelines and procedures put in place in order to ensure compliance with ethical requirements., D8.2 ValueCare ethical management plan mid-term– Based on D8.1 this deliverable contains ethical management plan that needs to be followed along the project implementations. ; D8.4 ValueCare ethical guidelines and templates start-term – This deliverable aims to report with the ethical guidelines to facilitate the implementation of the ethical issues in pilot sites and corresponding templates.

Table 1. WP4 relation to other WPs and deliverables

3 List of ValueCare pilot sites

A comprehensive overview of each pilot site is provided in D2.3. "Engagement strategy for the ValueCare concept co-design start term" and summarised in the following table (Table 2).

Pilot site	Population	Health system financing model	Target group
Athens (Greece)	664,046[1]	Public health system based on Beveridge model	Older patients with diabetes and hypertension living independently in the community.
Cork/Kerry (Ireland)	147,707[2]	Public-private mix in financing and provision of healthcare	Older persons (≥75 years old) with mild to moderate frailty.
Coimbra (Portugal)	143,397[3]	Public and universal welfare system	Older citizens (65+) with a lack of social support, suffering from none to mild cognitive impairment and/or co-morbidities, at risk of social isolation.
Rijeka (Croatia)	128,345[4]	Public financing – Social Health Insurance (mixed Bismarck)	Older people who had a heart attack and finished their rehabilitation.
Rotterdam (the Netherlands)	638,714[5]	Public-private mix in financing based on Enthovens' model of managed competition[6]	Older people that have had ischemic stroke.
Treviso (Italy)	85,200[7]	Public and universal welfare system	Older citizens with (mild) cognitive impairments with cardiovascular diseases and/or diabetes.
Valencia (Spain)	800,666[8]	Public and universal welfare system	Older people wild mild to moderate frailty and their families.

Table 2. Pilot site characteristics

[1] Census of population: Athens [https://www.statistics.gr/en/greece-in-figures]. Accessed 21 September 2021.
[2] Census of population: Cork/Kerry [https://www.cso.ie/en/census/]. Accessed 21 September 2021.
[3] Census of population: Coimbra [https://www.ine.pt/xportal]. Accessed 21 September 2021.
[4] Census of population: Rijeka [https://www.dzs.hr/default_e.htm]. Accessed 21 September 2021.
[5] Census of population: Rotterdam [http://statline.cbs.nl/]. Accessed 21 September 2021.
[6] Kroneman, M et al. Health Systems in Transition. Netherlands Health system review. 18 (2), 2016.
[7] Census of population: Treviso [http://www.comune.treviso.it/trevisostats/]. Accessed 21 September 2021.
[8] Census of population: Valencia [http://www.valencia.es/ayuntamiento/webs/estadistica]. Accessed 21 September 2021.

4 ValueCare individual implementation plan for each pilot site

The implementation phase is divided in two main components: (1) a common approach to all pilots before and during the implementation, and (2) a pilot specific approach, which varies according to the target population specificities.

4.1 Common approach in pilot sites implementation

4.1.1 Target groups

All pilot sites should include required number of target participants in the implementation process: older people (N=120 in intervention and N=120 in control group), caregivers – formal and informal (N=50-70), health and social care professionals (N=30-40), as well as managers and IT experts (N=5-10). Detailed description of pilots' inclusion and exclusion criteria for each target group is available in the deliverable 9.1 "H- Requirements No. 1", while general description is available in D4.1 "Guidelines to adapt the ValueCare model to pilot sites".

4.1.2 Ethical approval

Prior to the implementation process, all pilot sites need to obtain formal ethical approval from their institutional/regional/national authority to be able to involve the pilot participants in the study. Additionally, the project was also registered at ISRCTN (https://www.isrctn.com/), a primary clinical trial registry recognised by WHO and ICMJE.

Besides, pilot sites have been pursuing full agreement with GDPR directives, also by contributing to and complying with the Joint Controllership Agreement for the processing of personal data and the Data Protection Impact Assessment report for the ValueCare project.

4.1.3 Engagement of stakeholders

The main goal of stakeholder engagement is to establish a regular communicating and interacting structure that helps older people to get services and opportunities according to their real needs. For communication strategies of pilots with stakeholders IFIC colleagues, in close cooperation with pilot members, created ValueCare pilot videos for each pilot site. Additionally, for the purpose of communication with stakeholder's, leaflets, banners and other dissemination materials were developed for (and translated to) each pilot site.

4.1.4 Train the trainers

Prior to the implementation phase, all pilot sites will attend the Train the Trainers education, which was developed by ISRAA and MEDRI team. The Train the Trainers serves as a common knowledge for education of all stakeholders in pilot sites. The Train the Trainers activity among pilot sites, i.e., internal staff/project members will be organised in November 2021. The preliminary program and modules of the Train the Trainers for internal staff/project members is shown in Table 3.

Module		Content	Target Group	Responsible partner
1.	1.1.	▶ Introduction to VBHC Model: What matters? ▶ Introduction to integrated care ▶ Different ways of integrated care ▶ Who are the key actors? ▶ Comparison between standard care, VBHC and integrated care, with examples in specific target populations.	Health professionals	EMC and IFIC
	1.2.	▶ Clinical outcomes: PROMS, PREMS. ▶ How can we improve and make a better patient experience happen? ▶ Shared decision-making process. ▶ How can we achieve value creation? ▶ Support the VBHC transformation and adoption by health and care social services ▶ Examples of VBHC in practice ▶ Implementation tips		
	1.3.	▶ Introduction to the ValueCare model and pathway		
	1.4.	▶ Evaluation outcomes		
2.	2.1.	▶ ValueCare ICT ecosystem: Mobile application (app); Devices; Dashboard; Goal setting; Ongoing coaching; Ways of interaction between users, informal caregivers, and practitioners' team.		VIDAVO and VODAFONE
3.	3.1.	▶ Integrated Care Pathway (ICP) structure. ▶ Relationship between ValueCare mobile app, care management decision making process and user agreement.		MEDRI and IFIC
	3.2.	▶ Pilot actions; User journey and research design; Ethical and privacy structure and related documentation; Consent forms to be acquired. ▶ Pilot sites presentations: Athens, Coimbra, Cork/Kerry, Rijeka, Rotterdam, Treviso and Valencia.		
4.	4.1.	▶ ValueCare ICT ecosystem. ▶ Data flow and GDPR related issues. ▶ Cybersecurity issues.	IT experts	VIDAVO and VODAFONE

5.	5.1.	▶ Social and health services integration in the perimeter of the ValueCare project. ▶ Added value of the ValueCare model for health and social care organisations and other stakeholders	Health and social care organisations management	EMC and ECHA
	5.2.	▶ Impact analysis. ▶ Cost-effectiveness and outcomes of VBHC implementation. ▶ Sustainability for further permanent adoption (presenting the evidence needed to take informed decisions for adoption of the ValueCare model)		
6.	6.1.	▶ Added value of the ValueCare app and model for a different group of stakeholders – key messages	Stakeholders	IFIC and ECHA
	6.2.	▶ ▶ Ways of engaging the stakeholders for the co-creation activities and pilots based on the mapping of stakeholders (incl. national seminars)		

Table 3. Train the Trainers modules and content.

4.1.5 Assessment

Assessment of participants will occur at To (baseline), T1 (after 12 months end of the intervention) and T2 (after 18 months) for older people, caregivers and health and social care professionals alike. Before the start of the study, the questionnaire will be tested in all pilot sites to assure its user-friendliness in terms of appropriateness, comprehensibility, and length.

The assessment for older people giving Informed Consent Form (ICF) and participating in the project, includes the completion of the Older People Questionnaire, that uses validated instruments and items from validated instruments. In addition, each pilot will be able to use additional instruments, according to their target group specificities. The questionnaire results and participants' data will be captured online using GemsTracker/Lime survey software.

For caregivers (formal and informal) and health and social care professionals, assessment will be done using the respective ValueCare questionnaires, developed for each target group through the project at To (baseline), T1 (after 12 months end of the intervention) and T2 (after 18 months). Complete list of the instruments used in the questionnaires is available in D5.1 "Agreed-upon pilot sites evaluation framework".

4.1.6 ValueCare ICT solution

The ValueCare concept includes the value-based integrated care approach supported by the ValueCare mobile app (used by older people) and the ValueCare dashboard (used by informal caregivers and health and social care professionals involved in the service deployment). Enhanced

integrated care will be provided to participants by their multidisciplinary team, and support provided to participants through the ValueCare mobile app. This innovative approach is based on the general framework for pilot sites implementation, which was adapted in terms of processes and mechanisms to each pilot. Multidisciplinary, personalized, coordinated integrated care will be provided to participants (patients) supported by the ValueCare mobile app and the included Virtual Coach. Informal caregivers of patients/users and (affiliated to patients but external to the project) health and social care professionals, once included in the pilot, will be granted access to the analytics of the patient they care for, according to his/her own given permissions.

Informal caregivers and healthcare providers will have their own web-based application (i.e., the ValueCare dashboard) in which they can also monitor the user/patient, depending on the respective permissions. External care professionals will be able to have access to the analytics of a patient on the web platform since it has been provided the due authorization to do so.

The ICT solution consists of the ValueCare mobile app and web platform for social and health care professionals and caregivers. While ValueCare mobile app is pilot specific (as better described in below sections, per site), according to needs that were detected during the co-design process, web platform is common for all pilot sites.

The web platform for the multidisciplinary team will contain:

- The Health Record of the Patient (specific for the purposes of informing the clinical team of the project) containing necessary variables (lab tests, anthropometric measures like waist to hip circumference, BMI, etc.), that can be added manually by the clinical team or calculated automatically.
- The Personalized Integrated Care Plan (PICP) with goal setting capabilities related to the Virtual Coach intervention areas, by case managers.
- Internal messaging system for the multidisciplinary team to discuss case studies.
- Analytics per older person (or group of them) and reporting functions.

Formal/informal caregivers will have their own web-based application in which they can monitor the parameters and goals achievement of their family members. The same will be for the multidisciplinary care team that will monitor the status of the user progress towards the goals in the different areas of intervention and help older people to increase the compliance and eventually change the goals if needed.

5 Pilot specific implementation

5.1 Athens, Greece

5.1.1 Target groups

The target group in Athens is composed of older people over the age of 65 with Diabetes Mellitus Type2 (T2DM) and hypertension, as stated in the latest Amendment of the Grant Agreement Proposal, which was officially approved in October this year (06/10/2021) by the Amendment Ref. No AMD-875215-6. In addition, caregivers (informal and formal) and health and social care professionals involved in the care of older people will participate, as well as relevant patient advocacy groups and the municipal authority of Palaio Faliro, where the recruitment and implementation of the pilot is taking place.

5.1.2 Recruitment of target groups

Older people

Recruitment of older people will start from the patient records of the AMC network of hospitals (for the intervention group), as well as from the Association of Patients with Diabetes from Piraeus and Islands for the patients that are recruited in the control (usual care) group.

Caregivers (informal and formal)

As far as informal caregivers are concerned, they will be friends, relatives, or companions of the participants (in the intervention group). Upon inclusion in the study at baseline, in the premises of AMC, the older person will be asked by the researchers of AMC to name one person who can act as an informal caregiver and have access to the analytics on the ValueCare mobile app. The researchers will then contact the informal caregiver and will arrange for a meeting for inclusion in the study. Informal caregiver will be asked to sign an Informed Consent Form (ICF) in paper format in order to be included in the study, and will fill in the ValueCare questionnaire at T0, T1 and T2.

Health and social care professionals

Healthcare professionals to be recruited are those that are the attending physicians of older people. The attending physicians are not necessarily those that are involved in the study in the Greek pilot. They are private physicians that are contracted with EOPYY (the National Organisation for the Provision of Healthcare Services) or other health and social care professionals that are providing health and social care services (physiotherapists, psychologists, dieticians). Upon signing of the ICF by involved older people at baseline assessment (in the intervention group), they will be asked to provide the contact details of the attending physician and/or the other health and psychosocial care

professionals that they deem necessary to be informed about their progress and outcomes achieved during the pilot duration. Following collection of this information by the researcher at baseline (in paper), the clinical team at AMC will send e-mails and/or information letters to the professional, explaining the reason for contacting him/her, the benefits for following the project, the assessment process using the standardized questionnaire and the way to be informed about the older person progress through themselves (analytics can be available to professionals at the older person's discretion). The professionals will be asked to sign an ICF for participating in the project and to fill in the ValueCare questionnaires at T0, T1 and T2.

Organisational and IT experts

Organisational and IT experts will be recruited internally from AMC. They will be contacted by the Pilot Medical Coordinator, to participate in the WP2 activities of the second phase of co-design. They will be also asked if they wish to receive regular information by receiving the online project newsletter on the developments of the project.

5.1.3 Preparatory activities

Ethical approval

The Athens pilot site team is developing a new study protocol that will obtain AMC scientific committee ethical approval necessary for the deployment of the ValueCare services and the service process model to take place. The contents of the study protocol are currently under development and the first draft is expected to be submitted to the Scientific Committee of AMC by late October 2021 and all efforts will be made to achieve approval within November 2021. Study protocol will not need approval as a clinical trial or testing a medical device (including software as a medical device) and as such will not need to be approved by the National Medicines Organisation (EOF).

Stakeholder engagement activities

Due to the late approval of the amendment regarding the target group change in the Athens pilot site, AMC and AfIC were not able to develop a stakeholder engagement plan so far. However, it is the intention of the pilot partners to communicate with The Diabetics Association of Piraeus and the Islands and the Municipal Authorities of Palaio Faliro by the last week of October 2021, in order to formally inform them about the project aims, expected results and impact and ask to participate in the local ValueCare Alliance for promotion of the ValueCare concept in the Diabetes and Hypertension domain. The National Organisation for Quality Assurance in HealthCare will be asked to join the core network as well, however participation cannot be guaranteed at this early stage.

In addition, the project partners are considering liaising directly with ICHOM and the Diabetes Group in order to get expert support for implementation of the Athens pilot site and with local stakeholders

that are active in the field of active and healthy ageing such as fitness centres that can offer services to older people that participate in the intervention of the study.

Training activities

The Athens pilot team will provide the following training to its local stakeholders: (1) Training to health and social professionals will be offered face-to-face, in the value-based approach once the research team has attended the Train the Trainer sessions. Further training will be provided to health and social care professionals regarding the ValueCare mobile app, the Virtual Coach, the dashboard and the GemsTracker software (for researchers of AMC involved in recruitment). AfIC online support professionals will receive ValueCare training and the use of the videoconferencing functionality of the mobile app.

(2) Training for accessing and using the dashboard and the analytics part of the web platform, will also be provided to the informal caregivers that participate in the study.

(3) Older people who participate in the study will receive face-to-face training by a member of the AMC team (the Case Manager), to use the ValueCare mobile app, either on a one-to-one basis or in small groups, depending on their availability. The training will be conducted in a location that is easily accessible to them in Palaio Faliro. Older people and their caregivers will be supported (level one support) in using the ValueCare mobile app, web platform and the wearables, through a helpdesk service provided by a case manager appointed by AMC (one Case Manager per forty participants in the intervention group). Level two support (problems with bugs and software problems, malfunction, or destruction of equipment) are not to be provided by case managers. In the case of serious malfunction of equipment (wearables) provision will be replaced by the vendors. In case a wearable is destroyed, this will not be replaced.

5.1.4 Implementation of the ValueCare concept

Assessment

Further to the Older People Questionnaire, the ICHOM standard set for Diabetes will be completed online by older people aided by the researcher. To support collection and analysis of PROMs and PREMs and as well as other variables, a comprehensive data dictionary, as well as scoring guides for patient-reported outcomes, in Greek, will be used. In addition, pilot and disease specific questionnaires will be used to assess the self – efficacy of the intervention group (using the Greek version of the Diabetes Management Self-Efficacy Scale GR-DMSES). The IPAQ and RAPA questionnaires will be used in the Physical Activity Pathway in order to adjust goals related to the quality of physical activity an older person is doing, and to monitor achievement goals for different types of exercise (muscle building exercise, flexibility/balance exercise, aerobic exercise) that are important for older people with hypertension and diabetes according to European Guidelines for

Hypertension and Diabetes. The FFQ (Food Frequency Questionnaire – short version) will be used to set and quantify the goals in terms of food groups for the nutrition pathway of the Virtual Coach and to monitor nutrition goals in alignment with current guidelines for diabetes and hypertension. The SUS (System Usability Scale) will be used to assess at T0, T1 and T2 the usability of the mobile app and the Virtual Coach by the patients themselves. A questionnaire for assessing the coordination of care is also under consideration as is a questionnaire to assess the willingness to pay. These two questionnaires are under discussion with WP5 Leader.

The results of the questionnaires will be available to the AMC clinicians in order to discuss with the engaged older person during the medical examination/medical history and consultation session that follows, and the case manager, the clinician and the older person (also the informal caregiver should the patient consents to that), will discuss the outcomes of the assessment and identify priorities for prevention and care and goals that need to be set for improvement in the main intervention areas (nutrition management/physical activity/glucose management and medication management). As a result, the initial personalised integrated care plan will be set together with the person, that contains goals to be reached over specific timelines and presentation of solutions to the patient and the informal caregiver, if the goals are not reached.

Personalised integrated care plan

As a result of the previous process, each older person will develop an initial personalized integrated care plan designed specifically for his or her needs together with the clinical team. The initial care plan will be developed based on the outcomes of the baseline assessment and with the older person's input. The older person, his or her caregiver and healthcare provider periodically will review the plan and progress towards targets set in the three pathways of the Virtual Coach and allow for corrections when deemed necessary after discussion between all of them. The care plan might contain activities that the older person undertakes but are external to the project evaluation framework e.g., participation in activities such as dancing, social participation activities in clubs, etc. The older person can enter these activities in the online calendar on the mobile app and create reminders to participate in these activities and record their thoughts in a text editor.

ICT support

The assessment and personalised integrated care plan implementation will be supported by the ValueCare mobile app for older people. Through co-design activities, the mobile app will be tailored to the needs and preferences of older people with regard to content and usability and persuasive characteristics to the extent possible.

The mobile app for the patients, will contain the following modules:

- Appointment scheduler with case managers.

- Notifications and reminders.
- Vital sign input (glucose and BP) by the case manager on the platform and/or the patient on the mobile app and monitoring via the activity tracker (Athens pilot site is looking for a trustworthy, safe, GDPR compliant and cost/effective wearable that is able to integrate with the mobile app and provide measurements on blood pressure and blood glucose in addition to other data such as step count, minutes of activity, heart rate and sleep related data).
- The Virtual Coach interventions on (1) nutrition management for diabetes and hypertension, (2) physical activity management for diabetes and hypertension and (3) blood glucose and blood pressure monitoring and medication management.
- Messaging to Case Managers.
- Health Literacy videos, Exercise Videos based on the Otago Exercise Program for strength and balance improvement and Healthy Snacks Creating Videos.
- Teleconferencing with case managers for review of monthly progress towards goal setting and level 1 support.
- Online support sessions delivered by psychologists and community care workers from AfIC to motivate and empower older people to achieve goals and get back on track if goals are failing and to detect early signs of mood deterioration.
- Analytics and reporting.

Face-to-face support

No face-to-face support is envisaged in Athens pilot site.

5.2 Coimbra, Portugal

5.2.1 Target groups

The Coimbra pilot site target group in ValueCare consists of three end-user primary, secondary and tertiary profiles: (1) older people aged over 65, at risk of isolation (lacking social support), with chronic health conditions, frailty or mild cognitive impairment; (2) their main health and social care providers from CDC's psychosocial care teams working in homecare and day-care services (social workers, psychologists, operational assistants – represented by the case managers); (3) their main informal carer (e.g., family member, friend, neighbour) – both (2) and (3) aimed at supporting the achievement of the older person objectives and Personalized Integrated Care Plan (PICP).

Besides those, also the managers of social and health care organisations, as relevant regional and national experts and policy makers in the areas of health and social care will be involved in the Coimbra pilot site, both through the co-design, the implementation and the dissemination activities.

5.2.2 Recruitment of target groups

After receiving formal ethical approval from the competent Ethics Committee (foreseen for November/December 2021), Coimbra pilot site will start the recruitment process, based on the defined inclusion and exclusion criteria. Eligible candidates will then be identified and directly or indirectly contacted by the project team, in order to understand their willingness to participate and to start the necessary recruitment procedures, better described below. In all cases, the project leaflet and factsheet (part of the ICF), translated to national language will be used to promote participants' inclusion. Also, social media communications, as public dissemination actions performed so far were intended to promote eventual interest in participating in the project.

In pursue for gender balance purposes, the Portuguese pilot will select the participants according to a real-life representation of the gender proportion in CDC, aiming at the inclusion of both women and men in the trial samples and research team, so to improve the generalization of findings and to ensure that they both benefit equally from the ValueCare digital solution and outcomes.

Older people

Eligible older people (aged over 65) will be referenced to their case managers (care professionals from CDC) who will invite them to a clarification session where the project scope and objectives will be presented, their expected role described, and eventual risks or benefits associated to their participation in the study explained. Then, ICF will be deployed, and 3 days will be given for candidates to decide on their interest to participate. If requested by the candidate, more time will be given for him/her to provide an answer or ask for clarifications. Once the candidate agrees to participate and signs the ICF (in paper format), they will be assigned to intervention or control groups, according to the location of the CDC services they are benefiting from and will be requested to complete the baseline assessment (To). In this view, participants from one specific centre will all belong to the same group, either receiving (or not) the ValueCare approach and intervention.

Health and social care professionals

During the process of older people assignment, eligible health and social caregivers will be directly contacted by the project team and invited to a clarification session where the project scope and objectives will be presented, their expected role described, and eventual risks or benefits associated to their participation in the study explained. Then, a similar ICF procedure will be activated, as described above. Once the professional agrees to participate and signs the ICF (in paper format), he/she will be requested to complete the baseline assessment (To).

Caregivers (formal and informal)

During the process of older people assignment, they will be requested to indicate a relevant informal carer (family member, friend, neighbour), who will be directly contacted by the project team and

invited to a clarification session, where the project scope and objectives will be presented, his/her expected role explained, and eventual risks or benefits associated to his/her participation in the study described. Then, a similar ICF procedure will be activated, as described for the older people. Once the informal caregiver agrees to participate and signs the ICF (in paper format), he/she will be requested to complete the baseline assessment (To) and enrolled in the ValueCare study

Organisational and IT experts

Regarding the Portuguese pilot, several managers from social and healthcare organisations (both inside and outside CDC) participated in the first and second rounds of the co-design activities (see D2.7). Further, their engagement in the pilot implementation will be as formal caregivers (see section above), since many of them accumulate social assistance and managing roles, both in CDC's day care and homecare services for older people. In turn, IT experts from CDC (as obviously, also the technical partners in the consortium) will be supporting the implementation of the ValueCare technology (both mobile app and web platform), according to their knowledge and ability, if and whenever necessary.

5.2.3 Preparatory activities

Ethical approval

Coimbra pilot site has already started the preparation of the documents and procedures (according to the guidelines provided in D8.4) needed for submitting an ethical request to our external regional Committee (from Administração Regional de Saúde do Centro). At this point, it is only pending the translation and adaptation of the final version of the ICF template, which is being coordinated by WP8. The usual time interval to get formal feedback from this Committee is between one and two months, reason why there is the risk of some delay in starting the recruitment phase. Once we receive the formal ethical approval for the pilot implementation, the respective probative documentation will be also provided to EMC, the project coordinator.

Stakeholder engagement activities

The involvement of different types of stakeholders, at different levels (local, regional and national) in the ValueCare project was planned to be implemented since an early stage, mainly through:

- The first and second rounds of the co-design activities (involving older people, informal caregivers, health and social care professionals and managers, decision and policy makers). In February 2021, 2 co-design sessions took place gathering members of the National Association of Informal Caregivers (Associação Nacional de Cuidadores Informais), to listen to the needs and preferences of informal caregivers, who shared their experience of taking care of older people with different levels of autonomy/dependency. These opinions were collected to ensure that the ValueCare digital solution would correspond to their real needs and preferences, thus increasing their satisfaction and efficacy, while reducing their care burden

(https://en.caritascoimbra.pt/2021/noticias-cdc/caritas-coimbra-organizes-co-creation-sessions-with-the-national-association-of-informal-caregivers/)

- The pilot implementation phase (engaging more directly older people, health and social care professionals, and informal carers). Besides the primary end-users and private organisations involved in social and health care, the Portuguese project also planned to involve public health care services, namely, from Primary Care. To that purpose, several (although useless) remote contacts were made with ACES Baixo Mondego (Group of Health Centers of Baixo Mondego), since August 2020. Further, in December 2020, a face-to-face meeting was held with one of the Community Continuing Care Units in Coimbra (UCC Norton de Matos), composed by a multidisciplinary team providing healthcare services at patients' home, directly linked to a Family Health Unit providing Primary Care services in the city (USF Briosa).

  Alternatively, in April 2021, a second Group of Health Centers (of Pinhal Norte - another region) was contacted to set a face-to-face meeting aimed at presenting the ValueCare project scope and main objectives, which occurred in June. Significant efforts are still being made to promote the inclusion of regional public healthcare services in the Coimbra pilot, although it cannot be guaranteed at this stage. If not, health and social care professionals from CDC's private services will be engaged instead.
- The dissemination and exploitation actions (involving public and private institutions and companies related to the deployment of social and healthcare for older people, academia, policy and decision makers, and civil society). In October 2021, to celebrate the International Day of Older Persons, CDC participated in the event "Ageing in times of pandemic", organised by a private healthcare company in Coimbra (DCRFuncional). The event aimed at gathering several entities providing health and social services to older people in the region to share the challenges posed by the Covid-19 pandemic to professional care teams, older persons and their families. There was also time to reflect on the new perspectives to be adopted regarding the ageing process, as well as on the need to adapt the intervention strategies to be implemented in this scope. The implementation plan for the Portuguese large-scale pilot of the ValueCare project - led by CDC - was presented, as the mobile application in development for older adults in lack of social support, suffering from physical or (mild) mental comorbidities, at greater risk of isolation (both in physical and social aspects) due to the pandemic contingency measures.
- Also the ValueCare project website (https://projectvaluecare.eu/), as well as the project page in CDC's website (https://caritascoimbra.pt/project/valuecare/) and CDC's social networks have been used to promote the Portuguese pilot regionally, nationally and European wide.

In fact, Coimbra pilot site has been working on the consolidation of a local network of stakeholders dedicated to supporting the older people in achieving the accomplishment of their

PICP. This set of connections includes the active involvement of the main social and healthcare professionals from private social support services (in this case, from CDC), as also from public Primary Care services (depending on the availability and related consents still to be given), and local community (e.g., neighbours, service providers, volunteers). Additionally, academia, health and care managers and policy makers were also involved in both the co-design phases, as in the dissemination initiatives. Finally, they shall also be engaged in future exploitation actions related to the possible outcomes and contributions of the ValueCare project to an effective implementation and adoption of integrated care through a value-based model and supported by ICT.

During next year (2022), a national webinar will be organised for the Portuguese Network on SHAFE – Smart Healthy Age-friendly Environments – which is coordinated by Cáritas Coimbra in partnership with the Nursing School of Coimbra (ESEnfC). This network incorporates more than 70 organisations officially registered as members, bringing together partners from all regions of Portugal committed to promoting a joint agenda for the implementation of Inclusive Environments for all ages, with particular focus on Health, Social Support, ICT and Infrastructures. The Portuguese Network also favours a quadruple helix participation and actively promotes the collaboration between research/academia, public authorities, companies, and civil society/citizens, with the aim of finding common solutions to national challenges in this theme.

Training activities

Training activities in the use of the ValueCare ICT tool are intended for all the main target groups involved in the Coimbra pilot site: (1) the pilot facilitators from CDC, (2) the health and social care professionals, (3) the informal carers, and (4) the older people (from the intervention group).

Through the Train the Trainers initiative, planned for November 2021 (M24), the facilitators of the Portuguese pilot will be trained by expert consortium members (EMC, IFIC, VFI, VIDAVO and ECHA), after the ValueCare concept, also on the use of the digital app and web platform functionalities, as on the evaluation protocol application through GemsTracker software.

This training will later be replicated by the project team – through collective face-to-face or online sessions - for knowledge transfer to the various target groups of pilot participants (older adults from the intervention group, formal, informal carers, and eventually, volunteers), according to their specific role in the trial. In Coimbra, it shall include a video or online demonstration of the functioning of the ValueCare mobile app for the psychosocial teams, as also, if possible, some user and facilitators guides (translated to Portuguese). Further, additional face-to-face sessions may be organised, if necessary, to better explain the concept and implementation of the ValueCare model to the research participants, or to promote their digital literacy, through the use of the ValueCare mobile app.

5.2.4 Implementation of the ValueCare concept

The ValueCare concept consist of the value-based integrated approach to health and social care, supported by the ValueCare mobile app (used by older adults with frailty, social isolation, and scarce familiar support), and the ValueCare dashboard (used by family/informal carers and health and social care professionals). Enhanced integrated care will be provided to participants by their multidisciplinary team and collaboration using the ValueCare mobile app. This innovative approach is based on the general framework for pilot sites implementation, which was adapted in terms of processes and mechanisms by the Coimbra pilot site to its specific target group context and needs.

Assessment

The evaluation protocol in ValueCare includes the assessment of users, health and social care professionals, and informal caregivers at 3 different moments in time: To (baseline), T1 (end-term) and M2 (follow up), both for intervention and control groups. The corresponding questionnaires will be translated and adapted to ensure its user-friendliness, adequacy, and comprehensibility.

Older people: In Coimbra pilot, the assessment includes screening through self-reported validated online questionnaires (using GemsTracker/Lime survey software), aimed at providing an overview of the mental, physical and overall wellbeing of the participant (see. D5.1 "Evaluation Framework").

In addition, the Short Portable Mental Status Questionnaire (SPMSQ) - for assessing organic brain deficit in older patients -, the Loneliness Scale and the System Usability Scale (SUS) are also foreseen. The questionnaire can be completed either at their own home or at a CDC care facility that is part of the pilot implementation, and assistance will be provided to older persons (by a research assistant, or a formal care provider), to complete the questionnaire, if needed.

The questionnaire results from older users will be assessed by the participant's main social or health care provider (i.e., the case manager – globally a social assistant, and the general practitioner, if applicable) through a digital tool that provides a scoring framework for each measurement, allowing to quickly analyse results. The participants' results will be discussed in a multidisciplinary care team (social worker, psychologist, nurse, physician, operational assistants), ideally gathering representatives of social and health care providers over the full cycle of care. This discussion will lead to a consultation with the older person, where the main social and health care provider and participant discuss the outcomes of the assessment and identify priorities for preventive and care interventions. Subsequently, a personalised integrated care plan is set for each participant, as better explained next.

Health and Social Care Professionals and Informal Carers: will be assessed through the respective ValueCare questionnaires in development, according to their roles in the pilot. In the Portuguese site, this evaluation will include Care Related Quality of Life (CarerQoL) and SUS.

Personalised integrated care plan

Based on the outcomes of the initial assessment (self-reported by the user), a personalized care plan will be specifically designed by the multidisciplinary team and negotiated with each participant, considering his/her main needs and individual context within three main intervention areas: Physical wellbeing, Social connection, and Emotional balance. Therefore, personal goals will be defined for each participant, within each of the available intervention modules - (1) Food and hydration, Sleep, Physical activity; (2) Family and social interaction, Care appointments, Leisure and community participation; (3) Managing negative emotions (see Table 4). This PICP will be aligned with the usual care pathway in CDC and will follow both the care team guidance and the user interests and priorities.

This plan will be periodically reviewed by the main formal caregiver (in a monthly basis) to allow for adjustments (always negotiated with the user), if and whenever necessary, according to the individual progress made. The Integrated Care Plan will be supported and monitored by the ValueCare digital solution - mobile app for older people and web platform for formal and informal caregivers - aimed at promoting the participant's progress and achievements in each one of the activated modules, while simultaneously supporting the health and social team along their provision of care.

ICT support

The assessment of progress regarding the accomplishment of the personalised integrated care plan will be supported by the ValueCare mobile app for the older people (better detailed next) and by the web platform for carers (to be developed according to the general description in section 4.1.6).

ValueCare mobile app: Considering that the Portuguese pilot was not meant to be dedicated to any specific disease or condition and following the results from the first round of co-design activities, 3 main intervention areas were explored within the Virtual Coach (a conversational lifestyle coaching agent to support participants' self-management of health and wellbeing): Physical wellbeing, Social Connection and Emotional balance. Based on the previous co-design process, this mobile app was tailored to the user needs and preferences with regard to content and usability, allowing older people to access a range of functionalities, where several aspects can be managed, including:

- Assessment of their overall wellbeing, through a self-reported questionnaire.
- Personalised integrated care plan, within seven main Virtual Coach intervention modules:
  - Physical wellbeing (including food and hydration, physical activity and sleep);
  - Social connection (with family, friends, local community and carers network);
  - Emotional balance (managing negative emotions).
- Individualized goal setting to encourage a healthier lifestyle.

- Automatic alerts/reminders and notifications to the user and to caregivers (formal and informal) as well as to health and social care professionals in case a certain goal is reported as not reached, repeatedly over time.
- Informative / educational thematic material on wellbeing as people age (video, audio, image, text).
- Motivational content and incitement to behavioural change towards a healthier lifestyle.
- Communication with integrated social-health professional network involved in the care plan.
- Appointments scheduling with health and social care professionals.
- Motivational content and incitement to behavioural change towards a healthier lifestyle.

Intervention Area	Intervention Module	Content / Functionalities	Duration
PHYSICAL WELLBEING	Food and hydration	✓ Educational material ✓ Motivational text ✓ Reinforcement text ✓ Related videos, audios, images ✓ Reminders ✓ Alerts and notifications to caregivers ✓ Interaction with main formal carers (through videocall, chat message) ✓ Care appointments scheduling ✓ Self-reported progress / achievements through Virtual coach interaction	3 months
	Sleep		
	Physical activity		
SOCIAL CONNECTION	Family and social interaction		3 months
	Care appointments		
	Leisure, cultural, and community participation		
EMOTIONAL BALANCE	Managing negative emotions: Sadness Anxiety Anger		3 months

Table 4. Virtual Coach main section to be addressed in the Coimbra pilot site

Table 4 summarizes the main areas to be addressed by the Virtual Coach in Coimbra's pilot site, as also the contents to be included in the related intervention modules. Each participant is foreseen to test one module every 3 months, using the last trimester to try the whole system at the same time.

Face-to-face support

Assuming an optimistic evolution of the COVID-19 pandemic, the Portuguese participants will be able to rely on face-to-face support provided by their formal caregivers from CDC's psychosocial teams (namely from day-care and homecare services – or others, if necessary), on a regular basis, either within their usual care routine at home, at the CDC centre or in the context of a consultation /appointment. After receiving due training on the ValueCare solution management, these professionals will be able to contribute to monitoring, validating, and motivating participants' engagement. In turn, they will also be directly or remotely supported by the project team, based on CDC's Innovation Department, which will act as a researcher, of course, but also as the manager of the Coimbra pilot site and the link between all the involved stakeholders. Periodically, face-to-face

(or virtual) group meetings may be organised with CDC's centres involved in the pilot, to better understand the progress, emerging issues or hurdles experienced by each subgroup of participants, both from intervention and control samples.

5.3 Cork/Kerry, Ireland

5.3.1 Target groups

The ValueCare population in Cork/Kerry pilot site consists of older people (75+) living with mild to moderate levels of frailty, their family/informal caregivers (when nominated by the older person) and health and social care providers and organisational/IT experts. The population will be identified through Ireland's Health Service Executive's Integrated Care Programme for Older People (ICPOP). This care pathway focuses on providing integrated care to older people nationally and will be the primary recruitment setting for the target group in Community HealthCare Organisation, i.e., CHO4 (Cork/Kerry). The study will be situated in, and participants will be recruited from the ICPOP Community Hubs which provides care to older people with frailty involving a multidisciplinary team (i.e., geriatrician, physiotherapist, dietician, occupational therapist, speech and language therapist, nursing staff and more).

5.3.2 Recruitment of target groups

Participants who provide signed ICF and complete the baseline questionnaire will be enrolled in the study. Specific recruitment details of each participant group are listed below.

Older people

Older people will be recruited from the ICPOP Hubs in Cork and Kerry. They will be approached by a member of ICPOP clinical team and asked whether they would agree to be contacted by a member of the research team when they have returned home. Upon agreement, the research team will make telephone contact with the older adult to assess their interest in participating. The research team will post the Participant Information Leaflet (PIL) and ICF to the older adult. Potential participants will be given 72 hours to consider their participation and allowed time to ask questions. If more time is needed to consider their participation, the researcher will facilitate this request. Once the individual has agreed to participate, the research team will arrange a meeting with the individual to obtain written consent, include in the study and allocate to a study group.

Caregivers (formal and informal)

Once an older person has agreed to participate in the study, they will be asked whether they would like to nominate a family or informal caregiver to take part also. If relevant, a member of the research

team will contact the caregiver with information about the study and send the relevant PIL and ICF. Potential participants will be given 72 hours to consider their participation and allowed time to ask questions. If more time is needed to consider their participation, the researcher will facilitate this request. Once agreed, the research team will arrange a meeting with the individual to obtain written consent, include in the study and allocate to a study group.

Health and social care professionals

Both health and social care professionals will be purposively sampled from the ICPOP Hubs and related care networks. Potential participants will be approached by a member of the research team (in order to reduce participation bias or feelings of obligation) to discuss the study and provide the relevant PIL and ICF. Potential participants will be given 72 hours to consider their participation and there will be no consequences should they wish not to take part.

Organisational and IT experts

Cork/Kerry pilot site established a *Living Lab* advisory group to specifically guide the IT implementation of the pilot. Organisational and IT experts will be recruited from the designated ICPOP Community Hubs in Cork and Kerry. Therefore, our pilot involves the implementation phase engagement of national and local IT experts in terms of any kind of technological support. IT experts were also involved in the co-design sessions for the development of the mobile app.

5.3.3 Preparatory activities

Ethical approval

The UCD team submitted an application to conduct the ValueCare pilot to the University College Dublin Research Ethics Committee in July 2021 and were granted approval in August 2021. With university ethical permission confirmed, the team developed a local study protocol and submitted an application to the Cork/Kerry Clinical Research Ethics Committee (CREC) on September 14th, 2021. The CREC responded on October 22nd, 2021, with minor revisions recommendations before they can provide full ethical approval. The team are due to submit the revised ethics application early November 2021.

Stakeholder engagement activities

Due to several circumstances related to COVID-19 and a national ransom cyberattack on the Irish healthcare system in 2021, the team were not able to physically visit Cork and Kerry until September 2021 but have built relationships with key stakeholders in online settings (i.e., teleconferencing, phone calls, emails). The team have virtually presented the project to older people groups and advocacy organisations, family/informal caregiver advocacy and research groups and the multidisciplinary teams dealing with the treatment of frailty in Cork and Kerry. Other stakeholder engagement activities include:

- The UCD team established a National Steering Committee in September 2020 to advise on the direction of the project on a local level. This committee feature the Health Service Executive's Director of Digital Transformation, Age Friendly Ireland, national and local ICPOP managers, academic expert in frailty care at University College Cork and all members of UCD ValueCare team. Committee meetings are being held every 6 weeks.
- The ValueCare project has been appointed as one of Ireland's Health Service Executive's Digital Health Living Labs which may help promote the adaptation of the ValueCare concept on a local and national level. More details about the function of Living Labs in Ireland can be found here: https://www.hse.ie/eng/services/news/media/pressrel/digital-health-living-labs-accelerate-healthcare-solutions.html
- The UCD team presented their pilot work at International Conference on Integrated Care (ICIC21) in May 2021. The team presented the project at UCD School of Medicine Research Showcase in December 2020. The project was also presented at Ireland's Health Service Executive's Digital Health Academy Forum which has a national audience of clinicians, researchers, academics, and technology developers. They raised the awareness of the ValueCare Project in Ireland and received significant feedback and interest from attendees.
- The UCD team have contributed and written blogposts for the ValueCare official website and have promoted the project on social media which have garnered attention from researchers, health and social care professionals and age advocacy groups.
- The UCD team have also liaised with the Chief Investigator of a community-based eHealth project for older people in Ireland to knowledge share regarding the implementation process.
- The team visited the Cork pilot sites in September 2021. The research team presented the project aims, how it is hoped it will be implemented and a prototype of the mobile app and dashboard. Attendees included key health and social care professionals and managers in the care of frailty in Cork. Feedback was collected regarding their views on the project which will be included in the co-design activities.
- The research team virtually presented the project to the lead geriatrician in Kerry to discuss how the study could be implemented in the Kerry ICPOP Hub. Key information regarding the patient profile and care pathways in Kerry were gathered which will inform the pilot study implementation. This information will also be included in the co-design activities.
- A Clinician Working Group is to be established with clinicians across Cork and Kerry to inform the content and functionality of the mobile app, given that the app needs to be identical and work in both settings. While Cork and Kerry are under the same jurisdiction (CHO4) their services, patient profile and staff members are different, and these factors will need to be considered for the implementation.

Training activities

Training will be provided to participating health and social professionals and will be offered in the value-based approach once the research team have attended the Train the Trainer sessions (Table 3). These sessions will be conducted either in person or online depending on COVID-19 circumstances. Further training will be provided to health and social care professionals regarding the ValueCare dashboard. Training regarding the dashboard will also be provided to the family/informal caregivers, either online or in-person. Older people who participate in the study will receive in-person training by a member of the research team to use the ValueCare mobile app, either on a one-to-one basis or in small groups, depending on recruitment rates. The training will be conducted in a location that is easily accessible to them. Older people and their caregivers will be supported in using the ValueCare mobile app through a helpdesk.

5.3.4 Implementation of the ValueCare concept

Assessment

Participant assessment includes screening by a self-reported baseline questionnaire that provides an overview of the mental, physical, and overall wellbeing of the participant (cf. D5.1 Evaluation Framework). This questionnaire features validated instruments that are specific to our target group. Assistance can be provided to complete the questionnaire (i.e., research assistant, family/informal care provider) where necessary. The questionnaire can be completed either at home or at the ICPOP Hub that is part of the pilot implementation. Once complete, the responses to the questionnaire will be assessed as well as scores of their standard Comprehensive Geriatric Assessment to decide on the health goals while using the mobile app. The participant will have a consultation with the healthcare provider to discuss outcomes of the assessment and establish the personalised integrated care plan which will include the ValueCare mobile app.

Personalised integrated care plan

Older people are given an individualised care plan designed specifically for their needs. The plan will be developed based on the outcomes of the assessment and with the participants' individual preferences. Older people, their family/informal caregiver and clinicians within the ICPOP team will periodically review the plan to allow for course corrections, when necessary. The care plan will contain one or more components regarding physical activity, nutrition, medication adherence and socialisation.

ICT support

The assessment and personalised integrated care plan will be supported by the ValueCare mobile app for older people. The mobile app will be referred to as the "ValueCare Wellness Plan App" in the Cork/Kerry pilot site, as they are not collecting medical information for the intervention, rather their

aim is to promote sustained healthy behaviours. Participants will be able to download the mobile app to their own personal smartphone or will be provided with a device. The mobile app will be based on a Virtual Coach that will enable users to set goals in any of the relevant components, which will be reviewed and monitored by the multidisciplinary team in ICPOP. The mobile app content and goal setting functions will be based on guidelines currently used within the ICPOP Hubs and Ireland's Health Service Executive for Older People regarding physical activity, nutrition, medication adherence and socialisation.

Face-to-face support

Face-to-face support will be offered to older people throughout various stages of the implementation phase. The PICP meeting when joining the study will involve a face-to-face meeting between the participant and informal/family caregiver, where relevant, with a member of the multidisciplinary team in the ICPOP Hubs to decide on the wellness plan components together. This meeting will also involve an in-person meeting with the researcher to complete the baseline questionnaire. The researcher will support participants in its completion, where required. Further in-person or teleconference appointments may be planned by the multidisciplinary team based on their health progress or according to standard care. The wellness mobile app will contain a library of local support, activity and exercise groups available to participants in their area. Participants will be encouraged within the 'Social Prescription' wellness plan component to participate in activities of their preference and engage with their peers and community for support. The follow-up questionnaires at study completion and 6-month follow-up will also be conducted in person with the support of the research team. All face-to-face support will be dependent on and compliant with the epidemiological circumstances regarding COVID-19 pandemic.

5.4 Rijeka, Croatia

5.4.1 Target groups

The Rijeka pilot site target group are older persons (65+) who suffered from myocardial infraction and finished the rehabilitation after which they were released to their respective homes. Besides older people, the target group consist of health care professionals (cardiologists, nurses, GPs, community patronage nurses) as well as social care professionals, informal caregivers, policy makers, managers of the health institutions and IT experts. Older people will be recruited with help of health care professionals (cardiologists and nurses) from Thalassotherapia Opatija, the Clinic for rehabilitation, treatment and prevention of diseases of the heart and blood vessels. On other side, further monitoring of participants will be conducted by health care professionals (GPs and community

patronage nurses) from the Community Health Center of Primorje-Gorski Kotar County. Policy makers, managers of the health institutions and IT experts will have advisory role during the implementation phase.

5.4.2 Recruitment of target groups

Participants who provide signed ICF and complete the baseline questionnaire will be enrolled in the study. Participants from Rijeka pilot site will be recruited with the support of public administrations and health and social service local and regional providers. Besides that, recruitment will also take place with the support of different engagement campaigns (e.g., public events, information sessions, social media communication) developed in D2.3 Engagement Strategy for the VALUECARE concept co-design start-term and supported by WP6. D2.3 Engagement Strategy for the VALUECARE concept co-design start-term and 6.1 Project Website, Branding and Templates comprise a detailed plan for engagement and communication with the target groups. During the recruitment process, Rijeka research team will take all measures to promote gender equality principles as the same or almost same number of men and women will be engaged in the implementation phase of the project.
Specific recruitment details of each participant group are listed below.

Older people

Older people from Rijeka pilot site will be recruited in collaboration with health care professionals (cardiologists, nurses) from Thalassotherapia Opatija, the Clinic for rehabilitation, treatment, and prevention of diseases of the heart and blood vessels. Before eligible participants that successfully went through the rehabilitation process after myocardial infarction exit the clinic, the ValueCare concept will be presented by the research team and corresponding health care professionals, and they will be asked whether they would agree to participate in the study. Afterwards, the research team will provide the project leaflet and ICF to older people. Potential participants will be given up to 3 days to consider their participation and during which they can ask questions. Once the individual has agreed to participate, the research team will arrange a meeting with the individual to obtain signed ICF, include in the study and allocate to a study group.

Caregivers (formal and informal)

Once an older person has agreed to participate in the study, they will be asked whether they would like to nominate a family or informal caregiver to take part also. If relevant, a member of the research team will contact the caregiver with information about the study and send the project leaflet and ICF. Potential participants will be given up to 3 days to consider their participation and during which they can ask questions. Once agreed, the research team will arrange a meeting with the individual to obtain signed ICF, include in the study and allocate to a study group.

Health and social care professionals

Health and social care professionals will be purposely sampled from the public administrations and health and social service local and regional providers. Potential participants will be approached by a member of the research team to discuss the study and provide the project leaflet and ICF. Potential participants will have up to 3 days to consider their participation and during which they can ask questions. There will be no consequences should they wish not to take part. Once agreed, the research team will arrange a meeting with the individual to obtain signed ICF and include her or him in the study.

Organisational and IT experts

Organisational experts and IT experts will be recruited internally from the Faculty of Medicine, University of Rijeka. They will be contacted by the Pilot ValueCare Coordinator, to participate in the intervention phase. They will be also asked if they wish to receive regular information by receiving the online project newsletter on the developments of the project. if needed, IT experts will be contacted to provide support regarding any ValueCare digital solution technical issues.

5.4.3 Preparatory activities

Ethical approval

In accordance with WP8 objectives, Rijeka pilot site team firstly began the preparation of the documentation for the Ethic Committee of the Faculty of Medicine (University of Rijeka) related to the conduction of predefined co-design activities. On May 25th, 2020, Ethical Committee of the Faculty of Medicine, University of Rijeka approved the conduction of interviews and focus groups with participants within Rijeka pilot site (class: 003-08/20-01/53; registry number: 2170-24-09-8-20-2). On August 31st, 2021, Ethical Committee of the Faculty of Medicine, University of Rijeka also approved the conduction of the interventions phase in Rijeka pilot site (class: 003-08/21-01/48; registry number: 2170-24-04-3-21-11). The ethical approvals are in accordance with all applicable guidelines, which aim to ensure the proper conduct of research and the safety of persons participating in this scientific research while respecting the Fundamentals of Good Clinical Practice. This research will ensure respect for fundamental ethical and bioethical principles – personal integrity (autonomy), justice, charity, and innocence – in accordance with the Nuremberg Code and the latest revision of the Declaration of Helsinki, the Health Care Act of the Republic of Croatia (OG 158/08, 71/10, 139/10, 22/11, 84/11, 12/12, 35/12, 70/12, 82/13, 100/18 and 125/19) and the Patients' Rights Act of the Republic of Croatia (OG 169/04, 37 / 08) as well as GDPR.

MEDRI team is currently involved in further creation of ethics management plan and related documentation preparation for the application to the Ethic Committees of the Community Health Centre of Primorje-Gorski Kotar County and Thalassotherapy as their health care professionals will be involved in the implementation phase of the project.

Stakeholder engagement activities

As one of preconditions to the preparatory phase, Rijeka pilot site research team made a stakeholder analysis within the City of Rijeka (community level), Primorje-Gorski Kotar County (regional level), and national level, i.e., general society, policy makers, service managers and non-recruited service users, Rijeka pilot site research team identified stakeholders and their communication needs through communication strategy. After the identification, the process of communication plan creation with a comprehensive strategy of communication campaigns started.

Rijeka pilot site achieved communication with all relevant stakeholders on regional level (Thalassotherapia Opatija, Community Health Centre of Primorje-Gorski Kotar County, Faculty of Health Studies, Clinical Hospital Centre Rijeka, City of Rijeka, Primorje-Gorski Kotar County) and plans to engage other stakeholders on national level such as Ministry of Health. For now, City of Rijeka and Community Health Centre of Primorje-Gorski Kotar County accepted to participate (signed confirmation) in forming the *ValueCare Local Alliance*. Other aforementioned stakeholders will also soon be introduced to the Alliance, which will be the main framework that will support the local, regional and national communications flow, ValueCare marketing initiatives, and the involvement of the local authorities.

The Association for Civil Society Development-SMART from the City of Rijeka is also engaged. The main aim of the Association is directed at promoting volunteering as well as providing consultations to other associations that need volunteers in their everyday work. They are also providing contextual knowledge about citizens and needs that they recognise while they support seniors in the everyday life.

Further engagement of local, regional and national stakeholders is in progress and will continue, not only until the end of the project, but also after. Rijeka research team hopes that the collaboration with other local, regional, and national stakeholders will continue also after the project ends.

Training activities

Together with ISRAA, Rijeka pilot site research team developed the training modules which will be the core for the education/train the trainers of internal staff/project members, health and social care professionals, IT experts, managers as well as stakeholders. The modules were developed during a two-day face-to-face meeting with ISRAA research team (July 5th & 6th, 2021).

The Train the Trainers activity among pilot sites, i.e., internal staff/project members will be organised in November 2021.

After the conduction of training for internal staff/project members, Rijeka pilot site research team plans to organise an initial training towards health and social professionals that are part of the alliance, about the techniques that should be used in the face-to-face relations with older people, volunteers, and caregivers to improve the motivational level needed to join a Pilot experience and to

use the ICT solutions that will be deployed. Training regarding the dashboard will also be provided to the family/informal caregivers. Older people who participate in the study will receive training by a member of the Rijeka pilot site research team to use the ValueCare mobile app.

Digital skills will be the main "learning target" to be addressed to allow older people to keep on using the devices and their versions, along the time, and especially the ones foreseen by the project. This approach will surely present a sense of trust and reliability that are essential to have a transparent and strong user engagement along time.

5.4.4 Implementation of the ValueCare concept

Assessment

Older people assessment includes screening by a self-reported baseline questionnaire that provides an overview of the mental, physical, and overall wellbeing of the participant (see also D5.1 "Evaluation Framework"). Assistance can be provided to complete the questionnaire (i.e., research assistant, family/informal care provider) where necessary. The questionnaire will be completed on a smartphone/tablet before the participant will have his or her examination with their respective family doctor. Once complete, the responses to the questionnaire will be assessed. The participant will have a consultation with the healthcare provider to discuss outcomes of the assessment and establish the personalised integrated care plan, which will be inserted, monitored, and supported by the ValueCare mobile app.

Personalised integrated care plan

Each older person will be given an individualised care plan designed specifically for their needs. The specific patient-centred plan will be developed based on the outcomes of the assessment and with the participants' individual preferences. Older people, their formal/informal caregiver and the ValueCare integrated care team will periodically review the plan to allow for course corrections, when necessary. The care plan will contain one or more components regarding physical activity, nutrition, and medication adherence and will based inside the Virtual Coach.

ICT support

The assessment and personalised integrated care plan for older people will be supported by the ValueCare mobile app. The mobile application content is based on the results of the first round of co-design activities with all relevant stakeholders (end-users/older people, informal caregivers, health and social care professionals, health and social care managers and IT experts). Participants will be able to download the mobile app to their own personal smartphone or will be provided with a device for which funds have been provided by the approved project budget.

The mobile app will be based on a Virtual Coach that will enable the users to set goals in any of the relevant components which will be reviewed and monitored by the multidisciplinary team. The main

goal setting segments of the Virtual Coach in Rijeka pilot site will be physical activity, nutrition, and medication adherence.

Virtual Coach

- Nutrition:
  - Goal reminder and care plan adjustment regarding daily meals according to the Mediterranean diet.
  - Goal reminder and care plan adjustment regarding nutrients intake (high intake of fruits, vegetables, whole grains, pulses – peas, beans, lentils and chickpeas, nuts, seeds, olive oil and fish, moderate intake of dairy products and white meats, and low consumption of red meat and sugars).
- Physical activity:
  - Goal reminder and care plan adjustment in relation to the duration of weekly physical activity.
- Medication adherence:
  - Goal reminder and care plan adjustment in relation to the Intake of medications according to the defined care plan.

Additionally, the participants will get fitness trackers that will monitor their number of steps, daily/weekly/monthly distance covered, type of physical activity and duration, calories burned, sleep quality, heart rate, stress level as well as movement reminder and achievement of daily activity targets. To test the reliability and functionalities of a fitness tracker compatible with the Google Fit application which can be synchronized with the ValueCare mobile app, Rijeka research team tested the Xiaomi Mi Band 6 fitness tracker from August to October 2021. The fitness tracker lived up to the expectations, reliability, and functionality. But, because of GDPR compliance, the Xiaomi Mi Band 6 will not be considered, and technical partners are in ongoing communication with a European manufacturer which is GDPR compatible and whose devices meet the pilots' requirements.

In that sense, the mobile app will be used for promotion of sustained healthy behaviours. Panic button, online consultations with health professionals and different media (physical activity tutorial videos, recipes, etc.) will be also integrated in the mobile app.

Features that will be part of the ValueCare mobile app, its corresponding web-based platform and the Virtual Coach (described before) are summarized as it follows:

Web-based platform

- Care plan definition:
  - General data: gender, name, surname, date of birth, address, telephone number, height, weight, marital status, and household composition.

- Health data: the presence of chronic and other disease/health condition/allergies to food or medication, usage of medications (which).

- Account creation: name and surname, e-mail, username, password, language choice

ValueCare mobile app

- Nutrition:
  - Manual input of ingredients and calories intake analytics trends.
  - Recipe videos or PDF; Q&A/tips regarding nutrition for persons with myocardial infarction.
- Physical activity:
  - Exercise videos or PDF; Q&A/tips regarding physical activity for persons with myocardial infarction.
- Medication adherence:
  - Questionnaire on medication intake (name of medication, dosage – number of pills, shape and the colour of the pill, the time and day at which the pill should be taken and duration of therapy) = Compliance to medication prescription.
  - Information about prescribed medications and their side effects (PDF, leaflet, etc.).

Additional features:

- Information (PDF) regarding the myocardial infarction patients' rights within the Croatian social system.
- Inclusion of a social group in the mobile app, where the project participants can join together and play cards/Pictionary/word games, etc. This area will include chat and video calls so members can get to know each other.
- Encouragement of users to participate in local community activities (after COVID-19 restrictions).
- Dashboard analytics trend regarding number of emails and video calls with GPs.

Face-to-face support

Depending on the COVID-19 pandemic, Rijeka research team plans to organise support groups and exercise groups for older people two times a week to motivate them in maintaining healthy lifestyle after myocardial infarction. Meeting with professionals (GPs, community patronage nurses, cardiologist, etc.) will be also organised to monitor the progress of participants.

Additionally, the Public Health Lab will be established at the Department of Social Medicine and Epidemiology, Faculty of Medicine, University of Rijeka with the aim to monitor the older people during the implementation phase and to track their vital parameters (vessel blood pressure, central blood pressure, BMI, etc.), as well as questionnaires assessment will be also conducted. These check-ups will be organised every three months.

5.5 Rotterdam, The Netherlands

5.5.1 Target groups

The target population in Rotterdam will be older people who have had ischemic stroke, their families, and health and social care professionals.

5.5.2 Recruitment of target groups

The target groups will be recruited in collaboration with the ValueCare Stroke Pilot project partners, including Erasmus Medical Center (Erasmus MC), and two rehabilitation clinics (Rijndam Revalidatie and Transmitt Revalidatie). Another hospital (Franciscus Gasthuis) in the Rotterdam region will recruit the control group participants. The following strategies are considered to recruit participants of each target group:

Older people

- An Erasmus MC healthcare provider will invite an eligible older person two weeks before their scheduled consultation by sending a letter or email.
- The healthcare provider of eligible older people in the control group will invite other older persons who have had stroke in the past 12 months by sending a letter or email.

Caregivers (formal and informal)

- When an eligible older person is invited to participate in the study, the informal caregiver will also be asked to participate.
- By means of public announcements and advertisements, the project team may invite informal caregivers to enrol in the study

Health and social care professionals

- Head of departments or health centre directors engaged in the ValueCare project will invite eligible employees to participate.
- Health and social care professionals engaged in the ValueCare project will be invited to participate in the study.

Organisational and IT experts

- Eligible organisational and IT professionals engaged in the ValueCare partnership and working in one of the participating hospitals or health centres will be invited to participate.
- Organisational experts will support the context of care coordination or healthcare management in one of the participating hospitals, rehabilitation or health centres.
- On the other side, IT experts engaged in the ValueCare project or working at one of the participating hospitals, rehabilitation or health centres will provide technological support.

5.5.3 Preparatory activities

Ethical approval

The EMC team submitted their ethics application to the Medisch Ethische Toetsings Commissie (METC) – Erasmus Medical Center Rotterdam in September 2021. The application is currently under review by the ethical committee.

Stakeholder engagement activities

A local partnership was established including the local academic hospital (Erasmus Medical Center), two rehabilitation clinics (Rijdam Revalidatie, Transmitt Revalidatie), a nursing home (Zorginstelling Laurens), the Rotterdam Stroke Service (RSS), stakeholders in primary care (GPs and general practice nurses), social care civil servants (Municipality of Rotterdam), and IT/data experts from private companies (DHD, QULI, Silver Fit). Several engagement activities have been organised:

- During a kick-off meeting in January 2020 the EMC team presented the ValueCare project to relevant local stakeholders engaged in the Stroke Pilot.
- A follow-up meeting with local stakeholders took place in January 2021. During this session, the EMC team presented the progress of the project. Participants were engaged to think about the implementation of the ValueCare intervention in Rotterdam.
- The EMC team established a "ICT team" of clinicians over the full cycle of care (i.e., neurologist, nurse practitioner, rehabilitation physician, community nurse, physiotherapist) who gathered several times to provide more detailed feedback on the ValueCare digital solution.

Training activities

An online course in Value-Based Care will be provided to health and social care professionals, managers and coordinators of care participating in the ValueCare Stroke Pilot. The course is open to all participating organisations in the ValueCare Stroke Pilot. The course will be provided by the EMC team and includes training on how to implement the ValueCare approach with regard to value-based care as well as ICT training to use the ValueCare web application.

The training for older people and informal caregivers will be performed either face-to-face in small groups or in the form of video tutorials. The focus will be how to use the ValueCare mobile app or ValueCare web application. We also intend to have technical support by providing a telephone number to older people, informal caregivers, and professionals which they can contact.

5.5.4 Implementation of the ValueCare concept

Table 5 provides an overview of end-users/stakeholders engaged in the Rotterdam pilot and their roles. In the text below their roles with regard to the implementation of ValueCare concept will be explained in more detail.

End-user	Role
Older person/ patient	▶ Care recipient. ▶ Fills in the questionnaires provided by the care organisation. ▶ User of the ValueCare mobile app.
Informal caregiver	▶ Provides informal care to their relative or friend who has had ischemic stroke. ▶ Fills in the questionnaires provided by the care organisation. ▶ User of the ValueCare web application.
Neurologist	▶ Physician who cares for the patient while hospitalized for the acute stroke. ▶ Is part of the care team of the older person/patient. ▶ Supervises neurology nurse practitioner. ▶ User of the ValueCare web application.
Neurology nurse practitioner	▶ Receives the results of the self-reported questionnaire filled in by the older patient (and their caregiver). ▶ Discusses the questionnaire with the older person and their caregiver during the consultation in the outpatient clinic. ▶ Sets the personalised care plan in collaboration with the older person and their caregiver. ▶ User of the ValueCare web application and GemsTracker dashboard.
Community nurse specialised in stroke	▶ Part of the care team of the older person/patient. ▶ Involved in the follow-up (i.e., monitoring) after the older person/patient is released from the hospital. ▶ User of the ValueCare web application.
General Practitioner (GP) / general practice nurse	▶ Part of the care team of the older person/patient.
Physiotherapist	▶ Part of the care team of the older person/patient depending on the status of the older person/patient.
Social worker	▶ Part of the care team of the older person/patient, depending on the status of the older person/patient.
Rehabilitation physician	▶ Part of the care team of the older person/patient depending on the status of the older person/patient.
Researcher/ assistant	▶ Provides support to the older person/patient to fill in the questionnaire. ▶ Makes follow-up calls to ensure older people/patients and informal caregivers fill in the questionnaires. ▶ User of the GemsTracker dashboard. ▶ Explains the mobile app to patients and informal caregivers. ▶ Answers any questions by patients, informal caregivers or health and social care professional. ▶ Assists community nurse when needed in monitoring older person/patients (e.g., check upon any issues regarding the Virtual Coach, answer questions, refer to ICT support).

Table 5. Engaged end-users in Rotterdam pilot site and their roles

Assessment

The assessment includes screening by a self-reported questionnaire (baseline questionnaire) that provides an overview of the mental, physical and overall wellbeing of the participant. The aim of this assessment is to identify the individual care needs of older persons, and to monitor and discuss the outcomes with them and their caregiver. Eligible older people will be invited to complete the questionnaire online in LimeSurvey. They can be divided in two groups: A) older people who go directly home after being hospitalized for acute stroke, or B) older people who are referred to another care facility for rehabilitation. The link to the online questionnaire will be sent by the healthcare provider two weeks before the consultation. Older people in group A have their appointment in the outpatient clinic two-four weeks after their stroke. Older people in group B will visit the outpatient clinic approximately three months after their stroke, when they have returned home. The questionnaire can be completed at home. Assistance, in person or via telephone, can be provided to complete the questionnaire (i.e., research assistant, informal care provider) if needed.

Personalised integrated care plan

Older person and their caregiver are invited for a consult in the neurology outpatient clinic of EMC. The nurse practitioner can log in to the GemsTracker dashboard to see the results of the older person questionnaire. The nurse practitioner will discuss the results of the questionnaire with the him or her and their informal caregiver. Based on the assessment's outcomes and detected needs, each older person will be given a personalised care plan which is co-produced by the him or her, their caregiver and healthcare provider. This care plan contains the personal goals, how these goals can be reached and the required care. The shared care plan will be periodically reviewed (e.g., after three or six months) and can be adjusted in line with people's health and wellbeing. The care plan can contain for example information modules, exercises or support groups and will be supported by ICT. After the PICP has been set, a researcher/ assistant will take over to explain the ValueCare mobile app and web application to the older person and their informal caregiver.

ICT support

The assessment and personalised integrated care plan will be supported by the ValueCare mobile app for older people. Through the co-design activities, the mobile app was tailored to the needs and preferences of older people with regard to content and usability. In this mobile app, older people will have access to broad range of functionalities, such as lifestyle coaching, management of their health (e.g., medication monitoring) and care provider-participant communication. The Virtual Coach will support the goals set by the ValueCare mobile app user. This Virtual Coach will act as a conversational agent that can interact with older people through a chat bot function on artificial intelligence basis. If

the older person provides consent, informal caregivers and care team members can have access to the ValueCare web-based application which monitors the progress of the participants.

In Rotterdam the following modules are considered as part of the Virtual Coach:

- Physical activity;
- Healthy lifestyle;
- Emotional wellbeing.

Physical activity

The module *physical activity* comprises prescribed rehabilitation exercises and "free" physical activity. The "free" physical activity function can only be used by older people who have a wearable connected to the ValueCare mobile app. Based on the goals set in the PICP, the Virtual Coach will monitor the older person. The rehabilitation exercises are prescribed by a clinician (i.e., physiotherapist) who will define the type, frequency, and duration of the exercise. Virtual Coach will ask the older person to provide feedback on how the exercises went two time a week. Older people can also set their own (specific) goals with regard to physical activity (e.g., walking 2000 steps, two times a week). When an older person uses a wearable, the mobile app will use this data input for monitoring. Based on the wearable data, the Virtual Coach can provide feedback. Motivational messages are sent to encourage older people to reach their goals.

Healthy lifestyle

The module *healthy lifestyle* is about education. Older people can select a topic they want to learn more about nutrition, physical activity, medication, smoking, wellbeing, alcohol, or random. The Virtual Coach will provide information and will sent motivational messages about the chosen topic. The older person can set the frequency of the interaction, for example once or twice week. The material will also be stored in a dedicated folder in the mobile app. In this way, it is possible to access previously provided material and the messages of that week.

Emotional wellbeing

The module emotional wellbeing includes a face-to-face group training or online individual training. The older person can enrol in the group of his/her preference. It will be possible to subscribe for a training in the mobile app. The content of the training will be discussed with a certified trainer in this field and will be available in the mobile app (online individual training). This certified trainer will also provide the face-to-face training sessions. Examples of topics that can be included in the training are management of your health, healthy lifestyle, risk factor reduction, etc.

Face-to-face support

The PICP might contain physical meetings such as support groups, exercise groups or meetings with the care provider depending on the epidemiological situation regarding the COVID-19 pandemic. Face-to-face support will also be provided in the *emotional wellbeing* module.

5.6 Treviso, Italy

5.6.1 Target groups

The ValueCare target group consists of older people with chronic health conditions (e.g., cardiovascular diseases, diabetes), frailty or (mild) cognitive impairment, their informal caregiver (e.g., family members, friends) and health and social care providers. Below the inclusion criteria to be eligible to participate and exclusion criteria for participation are described per target group.

5.6.2 Recruitment of target groups

Older people

Eligible older people will be recruited in the project at the AULSS2 Centre for Cognitive Diseases, where they will sign the ICF. In the two to three weeks before implementation start, older people with MCI already referring to the Centre will be contacted and invited to participate: a new visit might be scheduled in case of older people not recently followed up in order to check whether the cognitive status is worsened meanwhile. The team will first address older people already involved in the "Camminando, Leggendo, Ricordo" initiative, then they focus on other MCI patients at the Centre – both new diagnosis and recently confirmed. Among both intervention and control, two subgroups are foreseen and specifically MCI with T2DM and MCI with hypertension. They will autonomously decide to be included in the intervention group or the control group. According to previous studies conducted in the Centre with similar sample groups, this option revealed to be appropriate and successful.

Caregivers (formal and informal)

Informal caregivers will be invited to participate concomitantly with the older people, as they usually are present during the outpatient visit. When an older person agrees to participate in the ValueCare intervention, the team will also ask the caregiver whether he/she is willing to be involved as well.

Health and social care professionals

The involvement of professionals and experts has already started thanks to the co-design activities. Anyway, in the preparatory phase before implementation (end of October-first half of November) they will be newly contacted and invite to formally take part to the project activities, in order to create the ValueCare local stakeholder alliance.

Organisational and IT experts

Recruitment trends are going to be constantly monitored and in case of low rates, some contingency measures are already foreseen, such as the addition of other AULSS2 enrolment sites (other Centres for Cognitive Diseases, Neurology dept. etc.) or the organisation of info days for general public.

5.6.3 Preparatory activities

Ethical approval

As soon as the first round of co-design ended, Treviso pilot site team started working on the ValueCare study protocol with the aim of submitting it in summer, in order to have enough time to make any adjustment required by the Ethic Committee before the start of the implementation phase (November 2021). Unfortunately, up to now there are still open issues related to wearable integration that forced us to stop until they are solved. In fact, this kind of information must be clearly described, and the technical sheet of the selected wearable should be attached to the protocol.

As a final decision is expected in the very next days, Treviso team plan to submit the protocol by the end of October in order to get the approval in November.

Stakeholder engagement activities

As public bodies responsible for the healthcare and wellbeing of citizen, and of older people in particular, AULSS2 and ISRAA are closely linked to Treviso local stakeholders, to municipalities but also to NGOs and volunteers' associations. The ValueCare team plan to invite the Municipality of Treviso Social Services and the most representative associations (such as Centro Servizi del Volontariato) to be part of the local stakeholders' network that will actively contribute to the management of the ValueCare study participants. To this aim, what has been done so far for the co-design activities is paving the way to the involvement of these actors.

Local stakeholders will also be engaged through public events and promotional materials. Up to now, three online events were already organised by AULSS2 in collaboration with ISRAA. The two partners, during the 2020 annual World Alzheimer's Day conference, presented ValueCare in front of a large audience. The aim and future steps of the project were presented in that occasion.

On the 21 September 2021 AULSS2, in collaboration with ISRAA, organised the first ValueCare national seminar with the aim to present the ValueCare concept and the digital solution to national group of policy makers, stakeholders and health care professionals. More than 100 participants were introduced to the project and their feedback was gathered through Mentimeter (https://www.mentimeter.com/).

To engage other stakeholders in October/November 2021, the Italian ValueCare website will be published online. The site has been created in collaboration between AULSS2 and ISRAA.

Training activities

Treviso pilot team deems the training as one of the key aspects for a smooth implementation of the model, also in terms of drop-out prevention. On October 22nd, 2021, the Centre for Cognitive Diseases professionals are going to be trained on the ValueCare solution in Treviso: the older person workflow will be presented and discussed with them, as they will play a key role in the implementation plan. For the enrolled older people (and their involved caregivers), a short training on the ValueCare solution will be provided together with the device, then the ValueCare team will be available for consultation by phone or in presence for problem solving.

In addition to this, specific training Train the Trainers on value-based healthcare was designed for practitioners and patients/caregivers. These modules will be delivered in the first months of 2022. Furthermore, the team plans to get CME (Continuing Medical Education) credits for attending the course, in order to turn it more attractive for professionals and to reach out a large number of attendants.

5.6.4 Implementation of the ValueCare concept

Assessment

Both groups (intervention and control) will be contacted soon after their engagement to fulfil evaluation questionnaire and – in case of intervention group – start preliminary talks with professionals. The questionnaire provides an overview of the mental, physical and overall wellbeing of the participant (see also D5.1 "Evaluation Framework"). Older people will be asked to complete the questionnaire in a dedicated session with assistance of care team if requested. The questionnaire will be completed online on a smartphone/tablet/PC with the help of psychologists of the care team. Paper version of the questionnaire will be considered if the older person will be able to complete alone and will be not familiar with the online version. Once complete, the responses to the questionnaire will be assessed. The older person will have a consultation with the ValueCare care team to discuss outcomes of the assessment and establish the personalised integrated care plan which will include the ValueCare mobile app.

Personalised integrated care plan

Following the questionnaire results and the clinical assessment, the local professionals will propose a possible care management plan that will be discussed in an individual meeting with older people, following a shared-decision making process. According to this plan, specific objectives will be agreed and set with every older person.

After three weeks, the Care Management Team will discuss goals achievement (or failure) with older persons and agree on the next three-week challenge. According to the results, older people may decide to confirm the goals or to change them (for instance, increase or decrease difficulty).

The Care Management Team (composed by AULSS2 and ISRAA professionals) will meet on a regular basis to monitor the integrated care plan trends, and an extra meeting to discuss it with informal caregivers and other relevant stakeholders will be scheduled every three months.

ICT support

The assessment and personalised integrated care plan will be supported by the ValueCare mobile app for older people. They will then be provided with a fitness tracker and the ValueCare mobile app, and they will attend a specific training session on their usage. Besides the session, a helpdesk will also be granted to support older people in case of technical or general problems that may occur especially at the beginning.

The ValueCare ICT solution will include the Virtual Coach that will enable users to set their goals, to modify them if needed and to reach them, with the help of the multidisciplinary care team when needed. The Virtual Coach areas of intervention for the Treviso pilot site are:

- Cognitive Stimulation;
- Socialization;
- Awareness.

The Cognitive Stimulation area of intervention consists in the opportunity to set a goal of twelve weeks of cognitive activity through brain training games developed by VODAFONE. Each week the older person can decide to do from thirty to ninety minutes of games and every three weeks, a meeting with the multidisciplinary care team will be organised in a face-to-face or online modality in order to get feedback and evaluate if it is necessary to change or not the goal.

The Socialization area of intervention consists in monitoring the social activities through detection of messages and phone calls made by older people to encourage them in improving the social activities with brief suggestions and reminders on importance of social activities.

The Awareness area of intervention consists in stimulating participants in doing the Mindfulness practices in order to improve the awareness of their health condition. The goal will be reached after eight weekly practices that could improve the healthy lifestyle of older people coordinated by the multidisciplinary care team.

During the definition of the PICP with older people, it will be defined the area of the Virtual Coach where they will focus and some face-to-face extra activities on healthy lifestyle (nutrition educational activities or physical activities groups) will be proposed to work on wellbeing. If older people are willing to work more on self-management of health and the care team detect it could be useful to do it, Treviso pilot site team could take into consideration to discuss with the technical partners to add some more Virtual Coach areas of intervention/support related to nutrition and physical activities.

Additionally, physical activity, heart rate and quality of sleep will be monitored through a dedicated fitness tracker: the collected data will be displayed within the mobile app and be available for professionals and informal caregivers monitoring the care plan.

Face-to-face support

The PICP might contain physical meetings such as support groups, exercise groups or meetings with the care provider depending on the epidemiological situation regarding the COVID-19 pandemic.

The local stakeholder involvement will lead to a mapping of already existing initiatives (mostly F2F) that might be proposed to the older person while discussing his/her own integrated care plan, complementary with the Virtual Coach modules described in the previous section. This might include walking groups, healthy cooking courses, etc., that might be a good proposal for diabetes/ hypertension sub-clusters if the assessment shows the need to work also on these pathologies.

With regard to meeting with care professionals, when older people are recruited to participate in the project activities, they will meet with the care team, with whom they will set the specific goals in the Virtual Coach. After three weeks the person will meet again to verify the achievement or not of the objectives.

The care team will be available to older people for further meetings during this period. The meetings can take place either in person or by phone. The goal is to create a helpdesk, to help people and make the experience as personalized as possible.

5.7 Valencia, Spain

5.7.1 Target groups

The Valencia pilot site target group consists of older people with mild to moderate frailty, their informal caregiver (e.g., family members, friends), when required by the older person, and health and social care providers. The older people participants will be included from one of the seven primary care centres participating in the Valencia pilot site that belong to the Health Department "Hospital Clínico-Malvarrossa" of Valencia.

5.7.2 Recruitment of target groups

The target groups involved in the Valencia pilot are primarily older people, informal caregivers, health and social care professionals and organisational/IT experts. The first three groups will be the end users of the digital solution and will participate directly in the intervention. On the other side, organisational and IT experts can be considered as secondary target groups as they will not directly interact with the digital solution or the intervention.

Older people

The recruitment of the older people will take place in the seven primary care centres. The professionals from the seven centres participating in the project will perform the screening process. Each of the primary care centres has committed to recruiting between them the control and intervention participants. This recruitment will be performed by any of the multidisciplinary team which includes GPs, nurses, and social care workers. The professionals are aware of the inclusion and exclusion criteria and will perform the screening process among their regular patients. When the professionals confirm that the potential participants meet the inclusion and exclusion requirements, they will explain the ValueCare project to them and the randomization process. If the older people are in agreement, they will sign the ICF. The contact information will then be passed to Las Naves and the researchers from one of the 3 organisations (Las Naves, UVEG, Kveloce I+D+i) will assign them a code, perform the randomization process and contact the recruited older people. They will then be considered as recruited participants or controls.

Caregivers (formal and informal)

The recruitment of the caregivers will be performed in accordance with the recruitment of the older people participants. Once the participants have entered the project, they will be asked if they would like to include an informal caregiver. If they wish to include a caregiver, they will be instructed to discuss with said caregiver. If the caregiver agrees to participate, they will contact Valencia pilot researchers and they will be asked to sign the ICF. They will be assigned a code that corresponds to the associated older person's participant code.

Health and social care professionals

The health and social care professionals participating in the project are all professionals from one of the seven participating primary care centres in the project. These primary care centres are Salvador Pau, Benimaclet, Alfahuir, Chile, República Argentina, Serrería and Tavernes Blanques.

All seven centres pertain to the Department of Health Clínico-Malvarrossa of Valencia. At the beginning of the ValueCare pilot, four of these centres had already expressed their interest in participating due to previous collaborations on research projects with Las Naves. As the project advanced, three centres wished to participate due to the communication activities that had been performed by Las Naves. The main entry point for recruitment of the professionals has been the managers of each of the primary care centres. In one of the centres, the social care worker was the initial recruited professional. The managers, and in other case of CS Tavernes Blanques, the social care worker, once informed of the project, organized face-to-face meetings between the researchers and the rest of the multidisciplinary team of the centre where the project was presented to them and

the role that the professionals would have in the project. The informed consent will be signed by all the professionals participating in the pilot face-to-face.

Organisational and IT experts

The organisational and IT experts who are participating in the project will be contacted directly by the researchers. In the case of IT experts, these are agents who had participated in previous research projects with the different pilot partners and will support the usage of the mobile app and the web platform. In the case of organizational experts, these people were identified as key agents in public administration of regional and local government and will contacted by the researchers to participate in the intervention phase of the project to provide advisory support in terms of care management.

5.7.3 Preparatory activities

Ethical approval

The Valencia pilot received ethical approval from the ethical approval board of the University of Valencia in May 2020. A contract of "co-responsibility" was signed between the pilot partners (Las Naves – UVEG – Kveloce I+D+i) in May 2021 so that personal information may be shared between partners in order to carry out the necessary activities related to collection of data, baseline questionnaires, training, ICT support, etc. A contract agreement will be signed between the pilot leaders (Las Naves) and the INCLIVA (Fundación Investigación del Hospital Clínico Universitario de Valencia), the Health Department that manages the seven participating primary care centres. This ensures that that personal information may be shared between the pilot and the primary care centres participating in the project. The Valencia pilot has also adapted the ICF to the specific requirements of Valencia and the characteristics of the pilot.

Stakeholder engagement activities

The Valencia pilot site has undertaken a very active communication campaign in order to raise awareness for the ValueCare project, and also increase the public knowledge in frailty, value-based care, and integrated care. These communication activities include:

- Two pilot site brochures. The first was translated from the model provided by WP6 leaders, IFIC, and has been used to provide information to professionals, stakeholders, policy-makers, etc. The second leaflet was designed specifically for the Valencia pilot site following the validated procedure of "easy-to-read" and following the European Standards for this certification. This "easy-to-read" brochure is being used for recruitment of older people in the Valencia pilot site and has been placed in the seven participating primary care centres.
- The Valencia pilot site is very active on social media (Twitter, LinkedIn, Instagram, Facebook) and has created various posts to raise awareness for the ValueCare project and the main themes of

the project. Through the posts on social media, older people and their families have contacted the researchers in order to learn how they can participate in the project.

- The pilot partners have held two webinars in 2021 to increase awareness in ValueCare and the themes of the project (the first with a European-wide audience and the second focused on the national level). These webinars served also in the process of co-design and recruitment strategy, as to link the activities of the project with other existing initiatives at regional national and EU level.
- The Valencia pilot site has developed a poster for professionals in the primary care centres that includes the steps involved in the implementation of the pilot. This poster will serve to create awareness and interest in the project, but also as a guide to the social and health care professionals involved in the project.

In one of the areas of the primary care centres participating in the project (Serrería I), Las Naves is working in collaboration with professionals from this centre to design and paint a mural to promote the ValueCare project as also social inclusion and participation among the older people participants of the pilot. They will participate in two sessions of co-design with an artist and then they will proceed to paint a mural that incorporates the values related to ValueCare.

To celebrate the International Day of the Older Person in October 2021, Las Naves is organising an event to promote the projects underway to promote active and healthy ageing. Representatives of the ValueCare project will be present and many of the older people participants will be invited to attend. During the event, a demo for physical activity exercises especially for frailty will be given, a talk on healthy eating habits will be given, etc. The ValueCare logo will be present, and a stand will be set up in order to provide information on the project.

Training activities

In October 2021, an online course in Value-Based Care was provided to the health and social care professionals participating in the ValueCare project. The course was open to all health and social care professionals in the Valencian Community and was offered by the INCLIVA, Foundation of the Hospital Clínico of Valencia. The course was given by experts in the field of Value-based care and includes examples of real-life implementation in health and social care settings. Additional training will be provided in the ICT solution to professionals in the form of face-to-face and/or online classes by researchers from the Valencia pilot site.

The training for the informal caregivers will be performed either online or in the form of video tutorials also by researchers from the Valencia pilot site. It will be focus on the ValueCare concept and the digital solution and how they will be able to support the older person their care in all the implementation phase and beyond.

The older people will receive training in the ICT solution face-to-face and in reduced groups. The training will be offered to the participants in their primary care centres in order to offer them a location that is easily accessible for them.

5.7.4 Implementation of the ValueCare concept

Assessment

Baseline questionnaire: In order to complete the baseline questionnaire, both the intervention and control groups who have been recruited each month, will be asked to attend their primary care centre (seven centres in total), on a specific day of the month after recruitment. This procedure will facilitate the researchers and professionals in the organisation and time management of this questionnaire process. At these meetings, older people will be met by the researchers who will aid them in completing the baseline questionnaire. The results of the questionnaire will be immediately available to the researchers, professionals, and older people, on the technological solution and presented to them graphically representing the scoring in the four different areas of intervention within the Valencia care pathway (nutrition, physical activity, medication adherence, and social prescription). Within the baseline questionnaire, the specific scales and items related to the four areas of frailty have been identified and the scoring in each area has been defined for entering into each of these four areas (see Table 6).

Nutrition		Physical activity		Social prescription		Medication adherence	
Tool	Score	Tool	Score	Tool	Score	Tool	Score
SNAQ65+ (Nutrition Assessment)	Participants who score between 0-11 points	Tilburg Frailty Index (Physical frailty)	> 3 points (will be included)	Tilburg Frailty Index (Psychosocial frailty subscales)	> 2 points in both (will be included)	Medication Risk Questionnaire (MRQ-10)	Based on 5 specific questions of the scale
		Barthel Index (AVD/ dependency)	< 90 points (will be included)	UCLA 3-item (Loneliness)	6-9 points (will be included)		

Table 6. Baseline questionnaire and four frailty-related areas

Additional baseline evaluation:

Older people who are identified as candidates for the area of "nutrition" will, in addition, complete the Protein Screener (Pro55+) questionnaire. The Valencia pilot researchers have officially translated this tool to the Spanish language. Those participants and controls who are identified as candidates for the area of "physical activity" will, in addition, complete the Short Physical Performance Battery (SPPS) test. Both these tools will be performed during the same visit as the baseline questionnaire.

Professionals will be asked to complete the baseline questionnaire using the LimeSurvey/ GemsTracker software.

Informal caregivers will be asked to complete the baseline questionnaire using the LimeSurvey/ GemsTracker software, if possible. If they do not have technological skills, they will be assisted by the researchers to complete it.

Intake visit (older people group): Once older people have completed the baseline questionnaire, during the same visit to the primary care centre, they will have the initial intake visit with the professional team. During this visit, the professionals will discuss the results of the baseline questionnaire with them (and when relevant their informal caregivers).

Personalised integrated care plan

Based on the results, the knowledge and experience of the professionals, and the willingness of older people, a PICP will be developed. The plan may contain between one and four of the main "frailty-specific" areas (nutrition, physical activity, medication adherence, and social prescription), depending on the highlighted areas of the older people needs. Within each of these four areas, different objectives have been developed through the co-design activities and will be included as options in the intervention plan for each older person. Regarding the control group in Valencia pilot site, they will continue receiving their usual primary care from the primary care team.

ICT support

ValueCare mobile app: older people will be able to review and monitor their complete PICP on the mobile app. This application will be downloaded to their smartphones, if they have one, and if not, a tablet will be provided to them by the researchers of the Valencia pilot site. The data package will also be provided to them when necessary. The mobile app will include the Virtual Coach, whose dialogue is being developed currently with the support of FBK. The objectives that have been agreed upon with the professional team will be available to older people and they will be able to monitor their progress in real time throughout their intervention. Different objectives have been developed by the Valencia pilot within the four frailty-specific areas.

Details of the ValueCare mobile app – four frailty-specific areas

Nutrition:

- Eat more/less of certain food groups (fruit/vegetables/fatty foods, etc).
- Comply to the Harvard Plate healthy eating method.
- Gain or lose weight.
- Watch educational videos (we will provide the links) on the Harvard Plate, food groups information, recipes, etc. We are currently organising the development of our own educational videos on the Harvard Plate healthy eating method.

- Specific videos for educational resources are also being recorded for the Valencia pilot site by older people from the primary care centres.

Physical Activity:

- Ideally, older people will attend the group classes that are organised by the primary care centre (walks, exercise classes based on frailty, etc).
- If these activities are not running due to COVID-19 restrictions, they will be recommended to walk for X minutes, X times a week.
- If these activities are not running due to COVID-19 restrictions, they will be recommended to watch and perform at home the exercises in the Vivifrail website (as above).
- Specific videos for educational resources are also being recorded for the Valencia pilot site by older people from the primary care centres.

Medication Adherence:

- Reminders for medication will be set either for every pill/once a day in the morning/at night, etc.
- Reminder will be set for when they older person must renew their medication in the pharmacy or with the doctor.
- Reminder will be set when the older person must stop taking a particular medication.
- Reminder will be set when the older person must review the medication again with their doctor.

Social Prescription:

- Ideally, if the classes are running, older people will be recommended to participate in the group classes in the primary care centre or in their neighbourhood.
- Visit a family member or friend X times a week.
- Call a family member or friend by telephone X times a week.
- ICT solution (web app) for professionals: The professionals will have access to the PIP of all their assigned older people. They will be able to monitor the performance and modify their objectives.
- ICT solution (informal caregivers): they will have access to the PIP of older people specific to them. They will be able to monitor their performance.
- Twelve-month intervention: During the twelve months of the intervention of each older person, the professional team will monitor the performance every two weeks and decide if the objectives need to be modified or adapted based on each older person's individual capacity. This monitoring will be performed by either the GP's, social workers, or nursing staff of each primary care centre, depending on the resources of each centre.

- Specific videos for educational resources are also being recorded for the Valencia pilot site by older people from the primary care centres.

ValueCare web app:

Professionals:

The social and health care professional team from the primary care centres will have access to the professional portal on the ValueCare web application. The professional portal will allow the professionals immediate access to the results of the baseline questionnaire upon older person's completion. These results will allow them to discuss with the older person, and develop with them, the personalized care plan. This care plan will be devised under four different care areas (nutrition, physical activity, medication adherence, and social prescription. Within each care area, the professionals will be able to set the objectives and the details of these objectives within the portal. Once the care plan is set, and the intervention is underway, the professionals will be able to monitor the performance of their assigned older people. The care plan is also modifiable from the professional portal. If an older person correctly follows and controls his or her personalized care plan and the professionals are able to monitor them correctly via the web app, the older person will not have to physically attend the primary care centres and the burden of care will be reduced for the professionals.

Informal Caregivers:

Older people have the option to associate a family member or friend as an "informal caregiver". These informal caregivers will have access to the web app and will be able to monitor the performance of their older relative or friend with regard to his/her personalized care plan. The caregivers will not have the power to modify the care plan. If the older person correctly follows and controls their personalized care plan and the caregivers are able to monitor them correctly via the web app, this will mean less telephone calls/visits to check if, for example, medication has been taken and the burden of care will be reduced for the caregivers.

Face-to-face support

Face-to-face support will be offered to the older people participants throughout various stages of the pilot. After the initial screening and recruitment of older people, the control and intervention groups will be organised to meet face-to-face on an individual basis to complete the baseline questionnaire with the researchers in their corresponding health care centre. The researchers will assist them in completing the questionnaire. Once it has been completed, the results will be available to the professional team. Older people will then have the face-to-face intake meeting with the professional team where their PICP will be developed together. Throughout the twelve-month intervention, older people will be encouraged to participate in the group activities that will be prescribed to them by

within their personal care plan. These activities include healthy walks and activities among the different members of their primary care centre. In addition to the activities organised by the primary care centre, Las Naves also celebrates events where older people are encouraged to attend and meet each other face-to-face.

The evaluation questionnaires at twelve months and at follow up of eighteen months, will also be performed face-to-face in the primary care centres with the support of the researchers. With regard to the technical face-to-face support, older people will meet in small groups (up to 5 participants) in the primary care centre to receive training in the mobile app.

6 Risk detection

6.1 Delays and deviations

All the efforts carried out during this reporting period are in the line with accomplishing the aforementioned general objectives.

At this point, almost all pilot sites have delivered tasks planned, so we do not have deviations, but we can expect minor delays:

- WP4 has formally performed some changes over its original workplan through Amendment #2 (target group changes – Athens pilot, Greece), which was unofficially approved in late August 2021. So, the preparatory activities and related tasks are in little delay.
- Some issues are pending in four ValueCare pilot sites (e.g., related to participants' recruitment), due to delayed ethical approval from competent committees, which is mandatory for them to be able to start the implementation phase.
- Due to development of the ICT solution for the implementation phase

Ensuring maximum quality of work and alignment with GA's scope, MEDRI team is continuously tracking the pilot's evolution and solving any emerging problems, through communication on a daily basis and weekly teleconferences with partners.

No further deviations are detected.

7 Conclusions and Future work

7.1 Conclusion

This document is aimed to represent the activities already performed in seven large scale pilot sites, regarding the preparation and planning for the implementation phase of the ValueCare project. The document describes in much more detail target groups, plans for the recruitment of target populations, previously conducted, current, and future steps in preparatory activities for the implementation phase, as well as the conceptual frame of the implementation phase for each pilot site in ValueCare. The document is thus a result of intensive collaboration and correspondence within WP4 - between MEDRI, as lead beneficiary, and other pilot site partners - as well as with other WPs and partners (until now MEDRI has organised more than forty online and offline meetings).

7.2 Future work

Successful implementation of the ValueCare concept will greatly depend on plans and preparatory activities listed in previous paragraphs of this document. However proper implementation will depend on strict application of all planned activities within given time frames. The most important activities in the next few weeks will be focused on the introduction and testing of the application by the researchers. The ValueCare concept will be presented by the project experts to all pilot sites in order to learn how to use all the features of the application and to be enabled to transfer necessary knowledge to all end-user target groups.

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