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ETHICAL APPROVAL REPORT

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Project Number	690211	**Acronym**	CAREGIVERSPRO-MMD
Full title	Self-management interventions and mutual assistance community services, helping patients with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience		
Project coordinator	Universitat Politècnica de Catalunya- BarcelonaTech Prof. Ulises Cortés, ia@cs.upc.edu		
Project URL	http://www.caregiversprommd-project.eu		

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Executive summary

This deliverable is provided to explain the approaches followed in order to submit pilot protocol to the different ethical committees.

As a pilot study will be conducted in four countries involved in the project, ethics approval is required in all the pilot sites. However, legislation and requirements are different in each country. We will describe the process and the specificities and requirements of each country.

List of Acronyms

Acronym	Title
C-MMD	CAREGIVERSPRO-MMD
CDR	Clinical Dementia Rating
CEIC	Comité de Ética de Investigación Clínica
CERM	Comitato Etico Regionale delle Marche
CERNI	Comité d'Ethique pour la Recherche Non Interventionnelle
CPP	Committee of Protection of Persons (Comité de Protection des Personnes)
DSM	Diagnostic and Statistical Manual of Mental Disorders
GDS	Geriatric depression scale
HRA	Health Research Authority
ICT	Information and Communication Technology
IRAS	Integrated research Aplication System
MCI	Mild Cognitive Impairment
MMSE	Mini Mental State Examination
NHS	National Health Service
PLWD	People living with Mild Cognitive Impairment and with Mild to Moderate Neurocognitive Disorders.
UNIVPM	Università Politecnica delle Marche

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1 INTRODUCTION

CAREGIVERSPRO-MMD (C-MMD) platform is an ICT tool developing a new approach for taking care of patients living with dementia (PLWD) and their caregivers by providing new services such as social networks communities services, screening services (clinical, psychological, behavioural), treatment adherence service, tailored interventions, gamification services. Moreover, this approach involves professional careers by sharing information with clinical and social report.

To evaluate the benefits of the C-MMD platform, a pilot study will be conducted in four countries (France, Italy, Spain and United Kingdom) during 18 months.

For this pilot study, ethics approvals are required in each country participating in the research.

Ethics approval is necessary to recruit dyads (PLWD and his/her primary caregiver) in the intervention group and for evaluating the experimental use of the platform and for the storage and analysis of personal data. For the control group, ethics approval is also needed to recruit dyads, to evaluate, store and analyse data of the pilot study.

Different problematics, in this study, are raised for the ethics approval:

- Recruitment of dyads with:
  - People living with neurocognitive impairment that may interfere with their informed consent and the platform use
  - Caregivers which are “healthy” volunteers
  - Necessity of obtaining consent of the both members of the dyad
- Multicentre study in four European countries with different legislation and requirements
- Use of ICT and data collected by the platform
- Data management for the pilot study
- Study risks and their management
- Adherence to good clinical practice in research is required.

In this deliverable, we will develop the characteristics of the ethical approval procedures, the specificity and requirement in each country. We will report the progress of this task that is still ongoing.

2 Background information

2.1 Pilot study

To evaluate the benefits of the C-MMD platform, a pilot study will be conducted in four countries (France, Great Britain, Italy and Spain) during 18 months.

This pilot study is entitled: *“Multicentre pilot study to determine the benefits of CAREGIVERSPRO-MMD platform use based on the information and communications technology (ICT), dedicated to the support and assistance of dyads living with neurocognitive*

diseases including persons living with mild cognitive impairment or mild to moderate dementia and their primary caregivers".

This study is a prospective, randomised, multicentre, controlled, parallel and longitudinal study.

Biostatisticians have determined that 602 PLWD and their primary caregivers should be recruited (202 in Spain, 200 in Italy, 100 in Great Britain and 100 in France). Dyads will be randomised in intervention group using the C-MMD platform and in control group without access to the C-MMD platform.

Different objectives were determined to evaluate the benefits of the C-MMD platform use during 18 months:

Primary objectives

- perceived burden for primary caregivers
- subjective quality of life of PLWD

Secondary objectives related to persons with MCI or PLWD

- activities of daily living
- treatment adherence
- behavioural and psychological symptoms
- neuropsychological functioning
- total number of hospitalisations

Secondary objectives related to primary caregivers

- subjective quality of life
- treatment
- behavioural and psychological health and wellbeing
- perceived social support, success in relationships, self-esteem, purpose and optimism
- use of psychotropic drugs

Secondary objectives related to dyad

- quality of caregiving relationship between caregiver and persons living with mild cognitive impairment or dementia (mild to moderate dementia) in dyads,

Secondary objectives related to economic and financial benefits

- direct and indirect costs of care

Secondary objectives related to CAREGIVERSPRO-MMD platform users

- degree of satisfaction of use of the C-MMD platform

Many data will be collected regarding these objectives. In addition to sociodemographic variables, comorbidity, medications and concomitant treatments, cognitive-clinical symptoms, depression and anxiety symptoms, some parameters will be evaluated on health,

quality of life, daily living, social and economic domains.
For C- MMD platform users, the satisfaction regarding platform use and the use (frequency, kind of use) will be evaluated.

For this study inclusion criteria are:

For persons living with mild cognitive impairment or dementia

- People, aged 50 and over, living in the community, who are able to give informed consent (or the legal tutor).
- Diagnosed with mild cognitive impairment (MCI) according to Petersen criteria [Albert et al, 2011] or mild to moderate dementia diagnosed according on DSM-IV criteria (Diagnostic and Statistical Manual, 4th edition) [American Psychiatric Association, 1994].
- Having a Clinical Dementia Rating (CDR) of 0.5 for MCI, 1-2 for mild to moderate dementia.
- Having a Mini-Mental Exam score (MMSE) [Folstein et al, 1975] between 30 and 25 (inclusive) for MCI, and between 24 and 10 (inclusive) for dementia.
- Having a primary caregiver, familiar (or not), informal (or not) identified and also included in the study.
- Be willing to use Information Technology and Communications (ICT) according to the investigator criteria.

For primary caregivers

- People, aged 18 years and over, with no diagnosis or no evidence of mild cognitive impairment or mild to moderate dementia (according DSM-IV criteria), who are able to give informed consent and with an intention to complete the study.
- Primary caregivers, informal (or not), familiar (or not), of person with mild cognitive impairment or mild to moderate dementia.
- People with Internet access and basic knowledge and skills in managing internet and social networks, or keen to learn, according to the investigator criteria.
- Having a Geriatric Depression Scale (GDS-Yesavage - 15 items) score less than 11 at the time of entry into the trial indicating no severe depressive symptoms.
- Having no specific conditions (evaluated by the investigator) reducing their physical abilities below the norm for their age that would limit or impair C-MMD platform use.
- Be willing to use Information Technology and Communications (ICT) according to the investigator criteria.

Moreover, people enrolled should not have:

- Terminal or severe illness with survival prognosis less than 18 months.
- Delusions, hallucinations, behavioural disturbances, that may interfere with the use of Information and Communications Technology (ICT) tools for PLWD

And

- Speak the language of the country where the pilot is conducted.

2.2 Ethical Proceedings

2.2.1 Valid legal dispositions

All development of the study will be conducted according to the principles of the Declaration of Helsinki, Seoul, Korea, Fortalezza revision for research involving human beings. (http://www.wma.net/en/30publications/10policies/b3/) and European Regulation (Directive 2001/20/EC: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:121:0034:0044). Harmonised rules that states should apply are defined.

The study will be executed according to the protocol that ensures compliance with rules of Good Clinical Practice (GCP), as described in the Harmonized Tripartite Guidelines for Good Clinical Practices (1996).

The study will take into account the international rules concerning realization of health-related research and recorded in International Guidelines for Ethical Review (Council for the International Organizations of Medical Sciences-CIOMS-Geneva, 2002 and revision 2016) and in the Convention for the protection of human rights and dignity of the human being with regard to the application of biology and medicine (1997 and additional protocol in 2008).

For these reasons, the present study has to be submitted for evaluation to ethics committee and has to be notified and classified by the respective country Agency of Medicines and Health.

2.3 Specificities of research in neurocognitive diseases and adaptation for CAREGIVERSPRO-MMD study

2.3.1 Participants' rights and informed consent

Persons living with dementia are considered frail and vulnerable and are often excluded from biomedical researches [Vellas]. To participate in clinical trials, participants have to give informed consent. This consent may be difficult to obtain from people with neurocognitive disorders such as dementia. However, a dementia diagnostic does not mean a person is incapable to understand and give an inform consent. Ethically, researchers may be very precautious before including them in a clinical trial.

New guidelines, which were discussed during the CIOMS meeting (2016), suggest that people who are incapable to give informed consent should be included in research unless a good scientific reason for exclusion. Appropriate safeguards must be in place and ethics committees have to evaluate the risk of the study [Van Delden]. Considering this research having minor health risks for the participant, recruitment of PLWD is not prohibitive.

The problem is to determine when a participant is no more competent to give his/her informed consent. The assessment of competency is sometimes difficult to determine.

However, in early stages of dementia, a patient is capable to understand, to reason and express a decision to participate or not in aresearch study if information is clear. [Warner]

Moreover, research indicates that willingness to participate is similar for people living with Alzheimer's disease with decisional impairment and healthy subjects. PLWD are able to distinguish between research protocols with varying risk/benefit profiles. [Kim]

In mid-stages of disease, the person may be given the opportunity to decide his participation in research [Whitehouse].

In this study, we decided to limit the enrolment to people living with MCI or with mild to moderate dementia at inclusion. At this stage, it is possible to discuss, explain the study and obtain consent from participants. Researchers will provide simple information easy to understand in both written and verbal formas, they will ensure that participants have timeto ask questions and to talk with others about there decision to participate if they so wish.

In case, it would be difficult to obtain informed consent from the person, the legal authorized representative is within right to give the consent. The legal tutor is often a member of the family. However, it can be an obstacle course to obtain in time the consent in some countries if the judge's view is necessary.

The duration of the study (18 months) is likely to beshort enough to maintain informed consent of participants during the period of the study. However, the capacity and the will to continue the study of the participants will be re-established at each testing session.

A person who refuses to participate will not be included even if his/her caregiver wants him/her to participate.

2.3.2 Caregivers

In studies involving PLWD, caregivers fill the role of study partner. They are essential in enrolment process, in providing medical information, ensuring study compliance, reporting adverse events, helping filling questionnaires [Cary].

PLWD often refer to a caregiver to help them in decision-making.

In this study, caregivers are key partners of the study. They are involved in double ways: as subjects with data collected (health status, quality of life, burn-out, etc.) and as study partner for PLWD.

They will collaborate with research team and monitor patient's condition by collecting information as well as their own data will be collected in order to follow their caregiving role.

2.3.3 The dyad

The dyad consisting of PLWD and his primary caregiver is inseparable for this study. Informed consent must be obtained of the two members of the dyad. This may be a difficulty for recruiting enough dyad during the study.

3 Proceedings in ethics approval

As legislation and requirements may vary in the four countries involved in the pilot study, we will describe the process of ethical approval proceedings of each country.

3.1 Classification

Table 1 : Classification of the study

	Italy	Great Britain	France	Spain
Classification	Observational study	Interventional study	Interventional study	Observational study
Decision made by	Comitato Etico Regionale delle Marche (CERM)	National Institute for Health Research (NIHR)	Comité d'Ethique de la Recherche Non-Interventionnelle (CERNI)	Agencia española de medicamentos y productos sanitarios
Date			July 2016	14th October 2016

3.2 Organisations for submission

For submission of the study, different institutions are involved. Approval is necessary from different organisations

Table 2: Procedures in each country and institutions involved

Country	Italy	Great Britain	France	Spain
Name of the organisations or institutions from which you have to obtain an approval	**Comitato Etico Regionale delle Marche (CERM)**	**Faculty of Health and Social Care, University of Hull** and **National Health Service (NHS) through IRAS form**	**Centre Hospitalier Universitaire de Rouen** and **Comité de Protection des Personnes**	**Fundació Universitària del Bages** (FUB) – **Universitat de Vic** – Universitat Central de Catalunya (UVic-UCC) and **Comité de Ética de Investigación Clínica** CEIC Fundació Unió _ Unió Catalana d'Hospitals
Contact details of these institutions Postal address: Internet details:	Azienda Ospedaliero Universitaria "Ospedali Riuniti Umberto I, G.M. Lancisi, G. Salesi" di Ancona Via Conca, 71 - 60126 Ancona	Faculty of Health and Social Care, University of Hull: http://www2.hull.ac.uk/fhsc/research-1/researchethicscommittee.aspx Contact: **Dr Judith Dyson** Chair of the Faculty Research Ethics Committee Email: J.Dyson@hull.ac.uk NHS: https://www.myresearchproject.org.uk/Signin.aspx	Comité de Protection des Personnes https://vrb.sante.gouv.fr/vrb/	Comité de Ética de Investigación Clínica CEIC Fundació Unió _ Unió Catalana

Modality of submission	Paper and CD version	Internet forms	Paper and Internet forms	Internet forms
Response delay	Within 30 days	Faculty of Health and Social Care (University of Hull) reviews ethics applications once per month. NHS: within 60 calendar days	Within 60 days	Within 30 days
Do you receive a response to confirm approval (y/n)	Yes	Yes, but they are not asked to confirm approval.	yes	yes
Failure to reply within the prescribed time-limit is treated as a positive decision (y/n)	No	N/A	No	N/A
Is this institution local, regional, national, european?	Regional	The Faculty of Health and Social Care (University of Hull) is a local/institutional committee. The NHS committee is national.	National	Local+National

3.3 Requirements for the study in each country

Table 3: List of administrative forms needed for submission to ethical committee in Italy

	Yes	No	Number of copies	language
Protocol	X		1 paper + 1 CD	Italian and/or English
Protocol synopsis or summary	X		1 paper + 1 CD	Italian and/or English
List of collected data	X		1 paper + 1 CD	Italian and/or English
Case report forms				
Information sheet for patient or legal representative	X		1 paper + 1 CD	Italian
Informed sheet for caregivers	x			
Informed consent for patient legal representative	X		1 paper + 1 CD	Italian
Informed consent for caregivers	x			
Curriculum vitae of principal investigator	X		1 paper + 1 CD	Italian and/or English
Curriculum vitae of co-investigator	n.a			
Curriculum vitae of sponsor	n.a			
Need insurance (Y/N)	X (if requested)		1 paper + 1 CD	Italian
If yes, insurance form copy needed				
Study number EUDRACT				
Listing of national institutions in which the protocol is submitted	n.a.			
Listing of EU countries in which the protocol is submitted		X		
Listing of EU authorities in which the protocol is submitted		X		
Final decision of EU authorities		X		

Approval of your own institution	X			
Others	Ethical approval form		1 paper	Italian

Table 4: List of administrative forms needed for submission to ethical committee in Great Britain

	Yes	No	Number of copies	language
Protocol		Not the entire protocol already written		
Protocol synopsis or summary	Fulfill the form of ethical committee			
List of collected data	No			
Information sheet for patient or legal representative	Yes		100	English
Informed sheet for caregivers	Yes		100	English
Informed consent for patient legal representative	Yes		100	English
Informed consent for caregivers	Yes		100	English
Curriculum vitae of principal investigator		No, only the qualifications are needed		
Curriculum vitae of co-investigator		No		
Curriculum vitae of sponsor		No		
Need insurance (Y/N)		No, we already have it.		
Study number EUDRACT				
Listing of national institutions in which the protocol is submitted	Yes			
Listing of EU countries in which the protocol is submitted		No		
Listing of EU authorities in which the protocol is submitted		No		
Final decision of EU authorities		No		
Approval of your own institution	Yes			

Table 5: List of administrative forms needed for submission to ethical committee in France

	Yes	No	Number of copies	language
Protocol	X		4	English or French
Protocol synopsis or summary	X		4+15	French
List of collected data	X		4	English or French
Information sheet for patient or legal representative	X		4+15	French
Informed sheet for caregivers	X		4+15	French
Informed consent for patient legal representative	X		4+15	French
Informed consent for caregivers	X		4+15	French
Curriculum vitae of principal investigator	X		4	
Curriculum vitae of co-investigator	X		4	
Need insurance (Y/N)	X		4	
Study number EUDRACT	N° IDRCB			
Listing of national institutions in which the protocol is submitted	X			
Listing of EU countries in which the protocol is submitted	X			
Listing of EU authorities in which the protocol is submitted	X			
Final decision of EU authorities		No		
Approval of your own institution	X			
Other: - Letter and administrative form for request - Letter from thesponsor who promote the study -Justification of the suitability of the human, material and technical resources for the research project and their compatibility with the safety requirements of patients	 X X x		 4 4 4	

Table 6: List of administrative forms needed for submission to ethical committee in Spain

	Yes	No	Number of copies	language
Protocol	X		1	Spanish
Protocol synopsis or summary	X		1	Spanish
List of collected data	X		1	Spanish
Case report forms		X		

Information sheet for patient or legal representative	X			Spanish
Informed sheet for caregivers	X			Spanish
Informed consent for patient legal representative	X			Spanish
Informed consent for caregivers	X			Spanish
Curriculum vitae of principal investigator		X		
Curriculum vitae of co-investigator		X		
Curriculum vitae of sponsor		X		
Need insurance (Y/N)		X		
Study number EUDRACT		X		
Listing of national institutions in which the protocol is submitted		X		
Listing of EU countries in which the protocol is submitted	X			Spanish
Listing of EU authorities in which the protocol is submitted		X		
Final decision of EU authorities		X		
Approval of your own institution		X		
Others (AEMPS classification)	X			Spanish

4 Study risks

Study risks were evaluated. These risks were detailed in D4.1 (Pilot Operation manual). A list of risks must be provided to ethics committees for ethics approval.

4.1 Benefit-risk evaluation for the subjects under investigation

During the study, only data on regular clinical practice will be collected. The participant dyads in the intervention group will undergo no invasive tests other than those under clinical practice for management of dementia.

There are several risks that need to be managed:

1. For example, there is a possible psychological harm or distress because of inappropriate use of the platform (inappropriate language in post and comments/inappropriate posts)
2. Another risk concerns safe internet use. Participants from the control and the experimental groups will be able to use the tablets to connect to internet in general, not only to connect to the platform.
3. Participant distress: although we do not any expect participants to feel distress, it is possible that completing platform questions and reflecting on their own health and wellbeing might increase feelings of distress. Possible that for MCI/PLWD conducting memory assessments might be upsetting. Reading posts of

others we hope will be supportive and helpful but may be distressing. They will be informed that they are free to ask for a break at any point. In the event that a participant becomes distressed they will be referred to their health professional, like their general practitioner.

4. Time considerations: The tasks related to the platform might be time consuming for participants. However, they will be able to use the platform on their own pace and place, when they feel they have time.
5. Loss of ability to consent of the duration of the pilot.
6. Participants reporting that they are a risk to themselves or others, or given that they may be vulnerable adults if they reveal that they are at risk from others. This could be via information posted online in forums or in meetings with researchers or indiated via the use of questionnaires to assess mood or burden.

4.2 Considerations on information to participants and informed consent

Participants will be given a Participant Information Sheet (PIS), and will be informed about the aims of the study, methodology and how are they will be required to use the platform, and confidentiality of data. Because the platform works as a social network, and because caregivers, health professionals, helpers etc will have access to MCI/PLWD data, participants will need to be informed about this. Then, participants will be asked to give their written informed consent to participate in the study by signing a consent form. Consent will be taken following the principles of the mental capacity act and in accordance with the procedures outlined by Warner, McCarney, Griffin, Hill & Fisher, 2008.

Participants will be informed of their right to withdraw at any time without giving a reason. Participants will also have the right to withdraw their data by a given time, prior to data analysis and writing up.

5 Adherence to good clinical practice

In order to conduct the study in respect to good clinical practices, meetings were organized in Great Britain and France to train researchers to good clinical practices in clinical studies.

A meeting will be held in Manresa (Spain) in February 2017 to harmonize clinical practice in each pilot site. During this meeting, we will ensure the ways to obtain adherence to protocol and good pratices in each countries and to manage adverse events.

6 DATA management

6.1 Confidentiality of data

Information regarding the identity of participants is considered confidential for all purposes. Identity of PLWD will not be revealed nor spread. Their data collected in the database during the study will be documented in a dissociated way linking it with a study code (MCI/PLWD code) so that only investigator, in the country where the pilot is done, may associate such data to identified or identifiable persons.

If by law or audit, it was mandatory the knowledge of the MCI/PLWD identity, the sponsor of the study for each pilot site should always maintain confidentiality rules. The database generated in the study will not contain any identification of the people with MCI/PLWD, only a numerical code from which is not possible to reveal his/her identity. This identity will be maintained between the participants and researchers relationships and will not be achieved without the consent of both.

Personal data (name, address, workplace of investigators) involved in the study will be stored electronically in UPC servers for the sole purpose of facilitating those logistical and organizational aspects required for the development of the study. The file is subject to confidential treatment under the provisions of the applicable law of the country.

Quotes from interviews: Participants will be informed in the information sheets that researchers might use direct quotes from their interviews for publication. However, these quotes will be anonymised, or will be presented under a different name.

Data are property of each pilot site but also of participants involved in the study. Participants have the right to withdraw from the study or withdraw their data as stated in the informed consent form.

An agreement with UPC will be signed with each pilot site in order to place their data on UPC server with the security requirements. The data will follow encryption standard procedures to ensure confidentiality.

Data management plan for the study is detailed in D7.3.

6.2 Study recommendations and withholding of records

In order to obtain ethical approval, this study will respect all guidelines of studies.

Investigators will be identified with a specific code. MCI/PLWD and their caregivers included will be coded with a correlative number assigned by the researcher behind the identification number of the investigator. Principal investigator of each centre will be in charge of keeping copies of the documentation of the study, the original signed informed consent and the records of participants' identities. Regarding how long data must be kept will depend on the country.

6.3 Responsibilities of study participants

For ethics committee, we listed in Deliverable 4.1 all responsabilities of participants.

6.3.1 Participant investigators

By signing the investigator commitment, participant investigators agree to efficiently and diligently carry out the study following this protocol according to generally accepted standards of good clinical practice and all standards and legal requirements related to realization of the study.

6.3.2 Obligations of members of the research team

- Ensuring all time for the welfare and safety of participants.
- Comply with the commitment to carry out the study according to the protocol as well as inform people with MCI/PLWD or their legal representatives about the aims of the study and obtain their informed consent.
- Keep the documentation depending on the rules of the country.
- Aim to contribute to the dissemination of results in scientific articles and conferences.
- Be responsible for assuring that information collected and annotated in the database is accurate according to the information provided in this in the protocol.
- Know the origin of the collected data and associate them with participants' identification data, being responsible for not appearing in the database any information that could identify the participant (name, identification code, zip code, telephone...).
- All participating investigators will have to prepare and maintain a complete and accurate documentation of the study in compliance with standards of good clinical practice and national and local legal requirements

and regulations. They will also have to register all data in the database for each participant within a reasonable period as required by this protocol.

6.3.3 Coordinator investigator

Coordinator investigator will have to comply with all obligations as participant and will also have to sign the final version of the protocol and any modification together with sponsor. He/she will be co-responsible of follow-up and final reports together with sponsor and diffusion of study results prior sponsor authorization.

6.3.4 Study monitor

Study monitor will have too to verify that information recorded in the database is reliable and consistent for which he/she will have to obtain collaboration of investigators participating in the study. Study monitor will follow the course of study and will inform doctors or professionals about it. He/she will also notify any significant incidence damaging the course of the study of any issues arising during the pilot (slow participant enrolment, no complying of any inclusion/exclusion criteria…).

6.3.5 Study sponsor

Study sponsor will be responsible for complying with current legislation. Also, it will have the following duties:

* Signing with coordinator investigator the protocol and any amendments of it providing investigators for eCRF and protocol submitting the protocol to the ethics committee or delegate this task to whom designate the sponsor presenting the study protocol and follow up and final reports if required, provide a copy of the protocol and documents vouching for follow up procedures to entities supplying services to healthcare where the study will take place or delegate this task to whom designate the sponsor.

7 Risks management for ethics committee approval

To conduct the pilot study, ethical approval must be obtained in all four countries were the plot will be done.

As legal and regulatory requirements are different in each country, obtaining approval may be delayed or may fail.

To cope with these issues, measures have been taken:

- To facilitate the obtaining of ethical approval, legal and regulatory framework has been done in all aspects of the study (computer sciences, social and health ciences,etc).
- Ethical process has been started earlier as legal process is long is some countries
- Third parties participating in the study have been involved early in the process even if the amendment was not approved at the time of the starting process.
- Adaptations have been discussed in order to ajust the study to the legal process and requirements of each country.
- Legal process has started ahead from the beginning of the study in order to have time to do changes in the study if ethical committees require changes.
- In case of delay in ethical approval, measures should be taken to delay the start of the pilot study.
- In case of refusal decided by ethical committee, advisory board will decide the measures to be taken such as:
    - Delaying the start of the study.

- Recruiting additional users in some pilot sites even in neighbouring/partner care organizations (*e.g.,* other care centres in their territory/region).
- Changing the study design in case none of the above alternatives work.

8 Report on progress on ethics approval

8.1 Ethical approval progress in Italy (COOSS)

Being UNIVPM (Università Politecnica delle Marche) – Department of Neurological Sciences – involved in the CAREGIVERSPRO-MMD as Third Party, their suggestions and advice on the procedures to obtain the ethical approval was sought for.

A first meeting between COOSS project staff and the staff of the University Neuro-rehabilitation Clinic, was held to identify the features and characteristics of the study, in order to undertake the right steps towards the Ethical approval. An informal meeting with the head of the Regional Ethical Committee (whose office is within Hospiytal premises) was held in that same day, to have their suggestions and advise. It was suggested to be the University to present it, to shorten and facilitate the procedures, with COOSS mentioned as project beneficiary.

The pilot protocol (D.4.1, which was then in its draft version), was sent to UNIVPM and the proper template for Ethical approval was identified: according to the study characteristics, different templates are available and CGP-MMD study was classified among the observational ones.

A long interruption in the process occurred, due to the amendment times, and the transaction restarted on the 6th of December 2016, with a new meeting between COOSS and UNIVPM to fix dates and steps.

The final version of the protocol and the signed request for Ethical authorization will be submitted to the Ethical Committee in the next days. An answer is expected by the end of January 2017.

8.2 Ethical approval progress in France

For ethical approval, the local Ethical Committee on non-interventional study (CERNI) was asked on classification of the study in July 2016. As the study was classified as interventional study, the national ethics committee approval is required.

Because of its classification as interventional study, many legal obligations are required. A study promotor is needed to manage the study and adverse events have to be followed in each country were the pilot is done. As the classification is different depending on countries, we cannot follow in the same way adverse events.

Accordingly, to respect the rules, the study was presented as a local pilot after minor modifications of the protocol (adaptation of biostatistics for a study involving 100 dyads and objectives). CHU is the promotor of the study in France, in accordance with UPC and will follow all the requirements for the study.

As legislation has changed on 16th November 2016, we followed the new procedures and the CPP is randomly assigned by connecting on website (https://vrb.sante.gouv.fr/vrb/). The protocol and administrative forms will be examined by CPP (Ile de France 1) on 17th January 2017. The process will be finalized in February 2017 unless the CPP requestes amendments to the protocol.

An agreement for data management is in discussion between CHU and UPC in order to place data on UPC server with the security requirements.

8.3 Ethical approval progress in Great Britain

In order to obtain ethical approval, UHULL submitted an ethics application to the local sponsor (Faculty of Health and Social Care ethics committee, University of Hull). The application was successful and UHULL team has not completed minor changes that the ethics committee asked for. Paperwork for the sponsorship will be prepared. Then, UHULL team will apply for ethical approval to the National Health Service (NHS).

The application submitted to the Faculty of Health and Social Care ethics committee (University of Hull) has the same format with the NHS ethics application, which can be created from the following link: https://www.myresearchproject.org.uk/Signin.aspx

8.4 Progress in Spain

The research was submitted for classification in October 2016. The study was classified as observational study by Agencia española de medicamentos y productos sanitarios. The administrative was submitted to Comité de Ética de Investigación Clínica (CEIC) Fundació Unió _ Unió Catalana.
An ethics approval was obtained on 27th November 2016.

9 ANNEXES

9.1 Documentation for Italy

In Italy, the documentation for ethics committee is composed of the protocol and the documentation below:

- request for ethics committee
- pilot study protocol

9.1.1 Request for ethics committee

Allegato n. 1

DOMANDA DI AUTORIZZAZIONE AZIENDALE E RICHIESTA DI PARERE PER SPERIMENTAZIONE CLINICA

di tipo commerciale

MODULISTICA A CURA DELLO SPERIMENTATORE RESPONSABILE E DEL DIRETTORE DELLA STRUTTURA COINVOLTA

Per ulteriori informazioni consultare:
il Portale della Ricerca Clinica dell'AIFA
la Segreteria del Comitato Etico Regionale delle Marche

AIFA:
http://ricerca-clinica.agenziafarmaco

Comitato Etico Regionale delle Marche
comitato.etico@ospedaliriuniti.marche.it

Sezione A: Modulo per l'analisi dei costi correlati allo studio

Sezione B: Modulo di previsione di impiego del compenso per lo studio

Sezione C: Modulo relativo al coinvolgimento del personale di assistenza

Sezione D: Assunzione di responsabilità a cura dello Sperimentatore Responsabile dello studio e del Direttore della struttura

La sottoscritta

- Prof. Maria Gabriella Ceravolo

in qualità di Direttore (e di Medico Responsabile dello Studio)

della SOD.di Clinica di Neuroriabilitazione

Dipartimento di Scienze Neurologiche

Presidio Ospedaliero Umberto I – AO Riuniti di Ancona

tel 071 596 4526 fax 071 596 5651 e-mail m.g.ceravolo@univpm.it

cell. 3396265575

CHIEDE

il parere del Comitato Etico Regionale delle Marche all'esecuzione del seguente studio sperimentale clinico:

Codice Studio **CAREGIVERSPRO-MMD - PHC-25-2015 - RIA (research and innovation actions) – PIC number: 690211**

Codice EUDRACT :

Data dello studio _____

Versione n. **Pilot study protocol**

Titolo dello **Studio "Self-management interventions and mutual assistance community services, helping people with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience"**

CAREGIVERSPRO-MMD - PHC-25-2015 - RIA (research and innovation actions) - PIC number: 690211.

Tipologia dello Studio:

FASE I ☐

FASE II ☐

FASE III ☐

FASE IV ☐

ACCESSO ALLARGATO ☐

DISPOSITIVI MEDICI ☐

ALTRO (specificare) **Studio randomizzato controllato sull'efficacia di un intervento educativo basato sull'utilizzo di una piattaforma informatica** X

PROMOTORE

Dott. _____ _____

Ditta/Ente **COOSS Marche ONLUS S.c.p.a.**

Referente Aziendale del Promotore a cui indirizzare tutte le comunicazioni:

Dr.ssa Francesca Scocchera

Indirizzo - COOSS Marche, Via Saffi 4 – 60121 Ancona (IT)

Tel +39 071 50103 215 Fax +39 071 50103 206 E-mail f.scocchera@cooss.marche.it

C.R.O. (Clinical Research Organization) (se presente):

Ditta Università Politecnica delle Marche – Presidio ospedaliero Umberto I – AO Riuniti di Ancona – Dipartimento di Scienze Neurologiche

Referente Aziendale del Promotore a cui indirizzare tutte le comunicazioni:

Dr.ssa Maria Gabriella Ceravolo

E-mail m.g.ceravolo@univpm.it

STUDIO MULTICENTRICO SI X NO ☐

Se SI CENTRO COORDINATORE

Prof./Dr

Francesca Scocchera

COOSS Marche Onlus Scpa – Via Saffi 4 – 60121 Ancona

Tel **+39 071 50103212** Fax _____ e-mail –f.scocchera@cooss.marche.it

Se il promotore non è afferente all'Ente, l'esecuzione dello studio prevede l'utilizzo o la trasmissione di **dati personali** (*) SI ☐ NO X

(*) per "dati personali" si intendono i dati di riconoscimento del paziente es. nome, cognome, diagnosi, codice fiscale, ecc.

INDAGINE CLINICA CON DISPOSITIVI MEDICI SI ☐ NO X

Se SI la ricerca clinica è svolta con il dispositivo recante la marcatura CE, non modificato in alcuna parte e sperimentato nella stessa indicazione d'uso presa in considerazione nelle procedure di valutazione di conformità seguite ai fini dell'apposizione di tale marcatura? SI ☐ NO ☐

Il dispositivo medico è a carico dell'ente sede della sperimentazione? SI ☐ NO ☐

- **Se SI**

Il dispositivo medico in oggetto è utilizzato nella corrente pratica clinica?	SI ☐	NO ☐
La struttura è già in possesso del quantitativo sufficiente?	SI ☐	NO ☐
E' necessario procedere all'acquisto del dispositivo?	SI ☐	NO ☐
La sperimentazione inciderà sulla quantità routinaria usata nella struttura?	SI ☐	NO ☐

Riportare nel dettaglio tipologia e quantità necessaria nel paragrafo "Materiali/attrezzature/servizi necessari per lo svolgimento dello studio" della Sezione A

Sezione A: Modulo per l'analisi dei costi correlati allo studio

Corrispettivo a paziente proposto dal Promotore	Euro
N° pazienti previsti nel centro	200

Altre strutture coinvolte nell'esecuzione dello studio

Elencare, le strutture eventualmente coinvolte e le attività svolte nell'ambito del presente studio

Es: cardiologia per l'esecuzione di 2 ECG/paziente, radiologia per l'esecuzione di 1 TAC/paziente, laboratorio centralizzato per l'esecuzione di analisi …, 1 biostatistico afferente a … per l'analisi statistica, etc.

Struttura coinvolta	Attività svolta
…	

Studio in regime:

- Ambulatoriale SÌ X NO ☐
- di Ricovero SÌ ☐ NO X

Prestazioni studio specifiche

N.B.: Resta inteso che il costo di prestazioni studio-specifiche non può gravare né sul SSN né sul paziente e pertanto non può essere previsto il pagamento di alcun ticket da parte di quest'ultimo. Tale costo è da intendersi a totale carico del Promotore.

➢ **Laboratorio Analisi** SÌ ☐ NO X N.A ☐

A) Esami previsti in termini quantitativi e temporali e concordati per il processo diagnostico e terapeutico standard della patologia in esame SÌ ☐ NO X

B) Vengono svolte prestazioni che non fanno parte di una normale gestione del paziente con la patologia in studio (o del normale follow up) ma sono eseguite, come tipologia della prestazione o come frequenza, ai fini specifici dello studio? SÌ ☐ NO X

Se sì, elencarle di seguito:

Tipologia di prestazione	Quantità/paziente	Tariffa come da Nomenclatore Regionale
1 …		
2 …		
3 …		
…		

Se sì al punto B:

Presa visione dell'impegno richiesto al Laboratorio Analisi per lo svolgimento della sperimentazione, si dichiara la disponibilità nell'esecuzione delle attività di cui sopra.

Il Direttore

Data _____ _____

- **Strutture radiologiche** SÌ ☐ NO X N.A ☐

A) Esami previsti in termini quantitativi e temporali e concordati per il processo diagnostico e terapeutico standard della patologia in esame SÌ ☐ NO ☐

B) Vengono svolte prestazioni che non fanno parte di una normale gestione del paziente con la patologia in studio (o del normale follow up) ma sono eseguite, come tipologia della prestazione o come frequenza, ai fini specifici dello studio? SÌ ☐ NO ☐

Se sì, elencarle di seguito:

Tipologia di prestazione	Quantità/paziente	Tariffa come da Nomenclatore Regionale
1 …		
2 …		
3 …		
…		

Se sì al punto B:

Presa visione dell'impegno richiesto alla struttura radiologica per lo svolgimento della sperimentazione, si dichiara la disponibilità nell'esecuzione delle attività di cui sopra.

Il Direttore

Data _____ _____

- **Altro: Malattie apparato Digerente** SÌ ☐ NO X N.A ☐

A) esami previsti in termini quantitativi e temporali e concordati per il processo diagnostico e terapeutico standard della patologia in esame SÌ NO X

B) Vengono svolte prestazioni che non fanno parte di una normale gestione del paziente con la patologia in studio (o del normale follow up) ma sono eseguite, come tipologia della prestazione o come frequenza, ai fini specifici dello studio (es. ricoveri, visite, esami strumentali)? SÌ ☐ NO X

Se sì, elencarle di seguito:

Tipologia di prestazione	Quantità/paziente	Tariffa come da Nomenclatore Regionale
1 …		
2 …		
3 …		
…		

Se sì al punto B:

Presa visione dell'impegno richiesto alla struttura **sotto indicata** per lo svolgimento della sperimentazione, si dichiara la disponibilità nell'esecuzione delle attività di cui sopra:

_____ Il Direttore_____Data_____

_____ Il Direttore_____Data_____

_____ Il Direttore_____Data_____

_____ Il Direttore_____Data_____

Coinvolgimento della Farmacia

Lo studio prevede il coinvolgimento diretto della Farmacia? SÌ ☐ NO X

Se SÌ, il coinvolgimento della Farmacia è richiesto per (*barrare tutte le voci pertinenti*):

- la preparazione del/i farmaco/i sperimentale/i (compreso il placebo) per:
  - ricostituzione prima dell'uso
  - operazioni di confezionamento primario, secondario e di presentazione
  - operazioni di preparazione che non richiedano particolari procedimenti di fabbricazione/imballaggio, se realizzate con specialità medicinali provviste di AIC
  - controllo, gestione, distribuzione, recupero dei farmaci e dei dispositivi medici specialistici
- la randomizzazione;

In caso di allestimento dei farmaci presso i laboratori di Farmacia, il personale della Farmacia, responsabile del procedimento, va indicato di seguito:

_____
_____

Si precisa che la preparazione di cui sopra dovrà essere eseguita secondo Norme di Buona Preparazione e limitata al singolo centro per il quale la Farmacia opera.

La disponibilità ad effettuare le attività suindicate è stata preventivamente concordata direttamente con la Farmacia?
SÌ ☐ NO ☐

Se sì, fornire il parere del referente della Farmacia e dare riscontro nella bozza di convenzione economica del compenso concordato per l'esecuzione delle suddette attività.

Presa visione dell'impegno richiesto alla Farmacia da parte dello Sperimentatore, si dichiara la disponibilità nell'esecuzione delle attività di cui sopra.

Il Farmacista Responsabile _____ data _____

Materiali/attrezzature/servizi necessari per lo svolgimento dello studio

N.B.: Resta inteso che gli oneri connessi alla fornitura di tali materiali/attrezzature/servizi sono da intendersi a totale carico del Promotore.

È previsto l'utilizzo di materiali e/o attrezzature necessari allo studio attualmente non disponibili presso il centro?
SÌ ☐ NO X

Se sì, elencarli di seguito:

Tipologia	Quantità
1 …	
2 …	
3 …	
…	

Copertura assicurativa

In base a quanto previsto dal D.M. 14/7/2009 "Requisiti minimi per le polizze assicurative a tutela dei soggetti partecipanti alle sperimentazioni cliniche dei medicinali" pubblicato sulla G.U. n. 213 del 14/9/2009 è stata stipulata una polizza Assicurativa[1]? SI ☐ NO X

Se la risposta è affermativa

La copertura assicurativa è garantita da _____

Polizza n._____valida dal _____ al_____

Se la risposta è negativa indicarne le ragioni : Non è una sperimentazione clinica dei medicinali _____

_____

In questo caso la copertura assicurativa, redatta in base alla precitata normativa, è stata richiesta alla Direzione Generale SI ☐ NO ☐

(in caso affermativo allegare documentazione specifica)

[1] Art. 1 Il promotore della sperimentazione clinica deve presentare al comitato etico un certificato assicurativo,redatto in lingua italiana e sottoscritto dalla compagnia assicuratrice, in applicazione del vigente contratto assicurativo, che faccia esplicito riferimento allo studio interventistico proposto, con la descrizione degli elementi essenziali, previsti dal presente decreto. Il comitato etico, nel rilasciare il proprio parere, tiene conto del certificato assicurativo presentato dal promotore della sperimentazione clinica che viene redatto conformemente ai requisiti di cui al presente decreto

Sezione B: Modulo di previsione di impiego del compenso per lo studio

PREVISIONE IMPIEGO CORRISPETTIVO	
PREVISIONE DI RIPARTIZIONE DEL CORRISPETTIVO COMPLESSIVO	IMPORTO COMPLESSIVO (EURO) € 48.000
	VALORE PERCENTUALE
COMPENSI AL PERSONALE MEDICO COINVOLTO NELLA SPERIMENTAZIONE CLINICA (*specificare il/i nominativo/i del personale interessato)*	75% (38.400 €) Dr.ssa Maria Gabriella Ceravolo
Maria Gabriella Ceravolo, Marianna Capecci, Elisa Andrenelli	
COMPENSI AL PERSONALE NON MEDICO COINVOLTO NELLA SPERIMENTAZIONE CLINICA	
ATTIVAZIONE DI CONTRATTI/BORSE DI STUDIO	
ACQUISIZIONE DI BENI E SERVIZI (*specificare*)	
ACQUISIZIONE DI ATTREZZATURE (*specificare la tipologia, es. sanitarie, arredi, informatiche*)	
Attrezzature sanitarie elettromedicali per la valutazione strumentale del movimento e la riabilitazione	
CONGRESSI, CORSI DI AGGIORNAMENTO, ALTRE INIZIATIVE DI FORMAZIONE	
ALTRO (*specificare*): costi indiretti	25% (9.600 €)
TOTALE	48.000 €

Sezione C: Modulo relativo al coinvolgimento del personale

Personale medico coinvolto presso la struttura proponente

Elencare il personale medico coinvolto (si intende personale dipendente e non), l'impegno orario e globale richiesto per l'espletamento della sperimentazione*:*

Cognome e Nome	Qualifica	Impegno orario mensile presunto (dedicato all'attività sperimentale)	Dipendente / non dipendente	Impegno globale presunto per anno solare (espresso in ore)
Ceravolo Maria Gabriella	Direttore SOD	2	Non dipendente	24
Capecci Marianna	Dirigente SOD	5	Non dipendente	60
Andrenelli Elisa	Medico in formazione	5	Non dipendente	60

Per l'espletamento del presente studio deve essere coinvolto personale dell'Assistenza? SÌ ☐ NO X

1. Se sì, specificare il ruolo d'appartenenza:

   infermieri ☐

   tecnici di laboratorio ☐

   tecnici di radiologia ☐

   fisioterapisti ☐

   altro …….. ☐

2. Servizi/Sezioni coinvolti ……
3. Il coinvolgimento è relativo a:

   supporto all'informazione al paziente/volontario sano ☐

   sorveglianza al paziente ☐

   somministrazione terapia ☐

   attività diagnostica ☐

   valutazione dei risultati ☐

   altro …… ☐

4. Breve elenco delle AZIONI richieste e loro entità/frequenza

   (es: 3 prelievi/dì, 1 radiografia/settimana, 5 centrifughe di provette/dì, somministrazione di farmaci sperimentali, somministrazione farmaci, rilevazione parametri)

_____
_____
_____

5. Il tipo di coinvolgimento riguarda tutta la componente assistenziale? SÌ ☐ NO ☐

   Se NO quante persone saranno coinvolte? ……

6. Le attività richieste sono svolte

   Totalmente in orario di servizio ☐

   Totalmente fuori orario di servizio ☐

   Parzialmente in orario di servizio ☐ indicare % .....

   Parzialmente fuori orario di servizio ☐ indicare % .....

7. Durata prevista del coinvolgimento……

Presa visione dell'impegno richiesto alla componente assistenziale da parte dello Sperimentatore, si dichiara la compatibilità con le attività assistenziali di reparto.

Il/I Coordinatore/i della//e struttura/e coinvolta/e ……...

……...

Sezione D: Assunzione di responsabilità a cura dello Sperimentatore Responsabile dello studio e del Direttore della struttura

Il sottoscritto Sperimentatore Responsabile e il sottoscritto Direttore della struttura coinvolta nello studio dichiarano, sotto la propria responsabilità,

dichiarano che

- La sperimentazione inizierà solamente dopo l'autorizzazione con determina del Direttore Generale e terminerà il 31 dicembre 2018

  (Eventuali modifiche al periodo della sperimentazione verranno immediatamente comunicate).
- Non sono previsti oneri a carico del paziente arruolato nello studio.
- Nessuno dei ricercatori coinvolti a vario titolo nella ricerca ha interessi diversi da quelli di tipo scientifico con lo sponsor della ricerca.
- visti i criteri per l'arruolamento dei pazienti previsti dal presente protocollo, essi non confliggono con i criteri di arruolamento di altri protocolli attivati presso la struttura;
- il personale coinvolto (sperimentatore principale e collaboratori) è competente ed idoneo;
- la struttura presso cui si svolge la ricerca è appropriata;
- la conduzione della sperimentazione non ostacolerà la pratica assistenziale;
- lo studio verrà condotto secondo il protocollo di studio, in conformità ai principi della Buona Pratica Clinica, della Dichiarazione di Helsinki e nel rispetto delle normative vigenti;
- ai soggetti che parteciperanno allo studio, al fine di una consapevole espressione del consenso, verranno fornite tutte le informazioni necessarie, inclusi i potenziali rischi correlati alla sperimentazione;
- l'inclusione del paziente nello studio sarà registrata sulla cartella clinica o su altro documento ufficiale, unitamente alla documentazione del consenso informato;
- si assicurerà che ogni emendamento o qualsiasi altra modifica al protocollo che si dovesse verificare nel corso dello studio, rilevante per la conduzione dello stesso, verrà inoltrato al Comitato Etico da parte del Promotore;
- comunicherà ogni evento avverso serio al Promotore secondo normativa vigente o secondo quanto indicato nel protocollo di studio;
- ai fini del monitoraggio e degli adempimenti amministrativi, verrà comunicato al Comitato Etico l'inizio e la fine dello studio nonché inviato, **almeno annualmente**, il rapporto scritto sull'avanzamento dello studio e verranno forniti, se richiesto dal Comitato Etico, rapporti ad interim sullo stato di avanzamento dello studio;
- la documentazione inerente lo studio verrà conservata in conformità a quanto stabilito dalle Norme di Buona Pratica Clinica e alle normative vigenti (Decreto Legislativo n. 200 del 6/11/2007 art. 18 – 19 – 20):
  - a conservare, sotto la diretta responsabilità e per un periodo di tempo di almeno 7 anni, copia dei documenti originali utilizzati per le registrazioni dei dati e trasmessi allo sponsor; a non fornire in nessun caso allo sponsor o a qualsiasi richiedente copia delle documentazioni cliniche;
  - a conservare i documenti essenziali relativi alla sperimentazione clinica per almeno 7 anni dal completamento della medesima (debbono conservarli per un periodo più lungo qualora ciò sia richiesto da altre norme applicabili o da un accordo tra il promotore e lo sperimentatore). Qualsiasi trasferimento di

proprietà dei dati o dei documenti deve essere documentato. Il nuovo proprietario assume la responsabilità della conservazione e dell'archivio dei dati. Qualsiasi modifica dei dati deve essere rintracciabile.

- la ricezione del medicinale sperimentale utilizzato per lo studio avverrà attraverso la farmacia della struttura sanitaria e, successivamente, il medicinale stesso verrà conservato presso il centro sperimentale separatamente dagli altri farmaci;
- non sussistono vincoli di diffusione e pubblicazione dei risultati dello studio nel rispetto delle disposizioni vigenti in tema di riservatezza dei dati sensibili e di tutela brevettuale e, non appena disponibile, verrà inviata copia della relazione finale e/o della pubblicazione inerente;
- la convenzione economica sarà stipulata fra UNIVPM e COOSS entro il 31 dicembre 2016;
- lo studio verrà avviato soltanto **dopo** aver ricevuto:
  - l'autorizzazione, con determina, della Direzione Generale previo, obbligatorio, parere favorevole del Comitato Etico Regionale delle Marche

Data, ……...

Firma dello Sperimentatore Responsabile

Firma del Direttore della struttura

9.1.2 Pilot study protocol

PROJECT:

"Self-management interventions and mutual assistance community services, helping people with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience"

CAREGIVERSPRO-MMD
PHC-25-2015

RIA (research and innovation actions)
PIC number: 690211

Participant no.	Participant organisation name	Short Name	Country
1 (Coordinator)	Universitat Politècnica de Catalunya	UPC	Spain
2 (participant)	MobilesDynamics	MDA	Spain
3 (participant)	University of Hull	HUL	United Kingdom
4 (participant)	Q-Plan International LTD	QPL	Greece
5 (participant)	COOSS Marche	COO	Italy
6 (participant)	FUB - UVic-UCC	FUB	Spain
7 (participant)	Rouen University Hospital	CHU	France
8 (participant)	Centre for Research and Technology Hellas	CERTH	Greece

<u>Biomedical Research Protocol</u>

"Multicentre pilot study to determine the benefits of CAREGIVERSPRO-MMD platform use based on the information and communications technology (ICT), dedicated to the support and assistance of dyads living with neurocognitive diseases including persons living with mild cognitive impairment or mild to moderate dementia and their primary caregivers"

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 690211"

"Multicentre pilot study to determine the benefits of CAREGIVERSPRO-MMD platform use based on the information and communications technology (ICT), dedicated to the support and assistance of dyads living with

neurocognitive diseases including persons living with mild cognitive impairment or mild to moderate dementia and their primary caregivers"

Project
"Self-management interventions and mutual assistance community services, helping people with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience"
CAREGIVERSPRO-MMD - PHC-25-2015 - RIA (research and innovation actions) - PIC number: 690211

General Project Coordinator
PhD Ulises Cortés
Universitat Politècnica de Catalunya - Barcelona Tech

Research coordinator
PhD Xavier Gironès García
Fundació Universitària del Bages (FUB), Universitat de Vic - Universitat Central de Catalunya (UVic-UCC)

Clinical-Research coordinator in Ancona (IT)
Università Politecnica delle Marche – Presidio Ospedaliero Umberto I – AO Riuniti di Ancona
Dipartimento di Scienze Neurologiche

Promotor
COOSS Marche Onlus (COOSS)
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 690211

D4.1 is the first deliverable of WP4, aimed to develop the methodology to be used along the recruitment period, the pilot stage and the data analysis. In order to ensure that all pilots operate in the same way, we will define a Pilot Operation Manual, which all pilot sites will commit to follow. FUB will be the main contributor of this document for clinical aspects receiving the support, feedback and agreement from the rest of pilots. This document contains:

- General description of the study design and the pilot composition
- Define the inclusion and exclusion criteria
- User recruitment methodology best practices
- Ethical documentation preparation (Informed Consent Forms, Information Sheet, authorisations for collection and processing of personal data, etc.)
- Definition of the standard user assessment
- Schedule of the user assessment along the pilot
- Summary of the minimum data to be collected by CAREGIVERSPRO-MMD
- Schedule for data collection
- Schedule for data analyses

Index of contents

Version	Date	Status	Author	Description
0.1	31-05-2016	Draft	FUB	First draft version
0.2	04-07-2016	Draft	FUB	New version collecting contributions from CHO, COO, HUL and MDA
0.3	12-07-2016	Draft	FUB	New version collecting contributions from CHO, COO, HUL and MDA
0.4	22-07-2016	Final Draft	FUB	New version collecting contributions from CHO, COO and HUL
0.5	12-08-2016	Revision	FUB	Version revised after internal experts comments and contributions from CHO, COO and HUL
1.0	31-08-2016	Final	FUB	Final version
1.1	20-10-2016	Revision	FUB	Version revised after internal experts comments and contributions from HUL

1 Acronyms

AD	Alzheimer's disease
BADL	Barthel ADL Index / Barthel Index of Activities of Daily Living
C-MMD	CAREGIVERSPRO-MMD
C-MMD-USE	CAREGIVERSPRO-MMD User Satisfaction Scale
CDR	Clinical Dementia Rating
CG	Caregiver
CRO	Clinical research organization
DAS	Dyadic Adjustment Scale
DEMQoL	Dementia Quality of Life Measure
DSM	Diagnostic and Statistical Manual
FS	Flourishing Scale
GDS	Geriatric Depression Scale
IADL	Lawton Instrumental Activities of Daily Living Scale
ICD	International Classification of Diseases
ICER	Incremental cost-effectiveness ratio
ICT	Information and communications technology
INB	Incremental net benefit
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
KSS	Kuppuswamy's Socioeconomic Scale
MCI	Mild Cognitive Impairment
MMAS-8	8-item Morisky Medication Adherence Scale
MMSE	Mini-Mental State Examination
MRRC	Memory Resource and Research Centres
MSPSS	Multidimensional Scale of Perceived Social Support
NICT	New Information and Communication Technologies
NPI	NeuroPsychiatric Inventory
OECD	Economic Co-operation and Development
PDC	Proportion of days covered
PLWD	People Living with Dementia
QoL	Quality of life
RUD	Resource Utilization in Dementia

SES	Socioeconomic status
SF-36v2	Medical Outcomes Study (MOS) 36-Item Short Form 2nd version
STAI	State Trait Anxiety Inventory
WHO	World Health Organization
WHO-DD	World Health Organization's Drug Dictionary
WHOART	WHO Adverse Reactions Terminology
ZBI	Zarit Burden Interview

2 Synopsis

Study title	"Multicentre pilot study to determine the benefits of CAREGIVERSPRO-MMD platform use based on the information and communications technology (ICT), dedicated to the support and assistance of dyads living with neurocognitive diseases including persons living with mild cognitive impairment or mild to moderate dementia and their primary caregivers" Project: "Self-management interventions and mutual assistance community services, helping people living with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience"
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Study design	Prospective, randomised, multicenter, controlled, parallel and longitudinal study.
Population and sample	Dyads: People living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers.
Hypothesis of the study	**Primary hypothesis** ● The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the dyad, in the subjective quality of life of persons living with mild cognitive impairment or dementia (mild to moderate dementia) and in the level of burden experienced by the primary caregiver.

	Secondary hypothesis ● The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the persons living with mild cognitive impairment or dementia (mild to moderate dementia), in their treatment adherence, behavioural and psychological symptoms and use of psychotropic drugs. ● The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the persons living with mild cognitive impairment or dementia (mild to moderate dementia), in their activities of daily living and psychological and neuropsychiatric disorders. ● The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the primary caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in psychological and neuropsychiatric disorders. ● The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the primary caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in perceived social support, success in relationships, self-esteem, purpose and optimism. ● The use during 18 months of CAREGIVERSPRO-MMD platform improves treatment adherence for the dyad (persons living with mild cognitive impairment or dementia (mild to moderate dementia) and their primary caregivers. ● The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the dyad (persons living with mild cognitive impairment or dementia (mild to moderate dementia) and their primary caregivers), in the quality of the caregiving relationship. ● The use during 18 months of CAREGIVERSPRO-MMD platform reduces total costs of care (direct and indirect costs) for the dyad (persons living with mild cognitive impairment or dementia (mild to moderate dementia) and their primary caregivers. ● The use during 18 months of CAREGIVERSPRO-MMD platform reduces total number of hospitalisations for the persons living with mild cognitive impairment or dementia (mild to moderate dementia).
objectives of the study	**Primary objectives** ● For persons living with mild cognitive impairment or dementia (mild to moderate dementia): to evaluate their subjective quality of life in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. ● For primary caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia): to evaluate their perceived burden in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. **Secondary objectives** **Secondary objectives related to persons with MCI or PLWD** ● To evaluate the activities of daily living for persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. ● To evaluate the treatment adherence for persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify an improvement from use of the CAREGIVERSPRO-MMD platform during 18 months. ● To evaluate the behavioural and psychological symptoms for persons

	living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. ● To evaluate the neuropsychological functioning of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. ● To evaluate the total number of hospitalisations for persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. **Secondary objectives related to primary caregivers** ● To evaluate the subjective quality of life for caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. ● To evaluate the treatment adherence for caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify an improvement from use of the CAREGIVERSPRO-MMD platform during 18 months. ● To evaluate the behavioural and psychological health and wellbeing of caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. ● To evaluate the perceived social support, success in relationships, self-esteem, purpose and optimism to caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. ● To evaluate the use of psychotropic drugs for caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. **Secondary objectives related to dyad** ● To evaluate the quality of caregiving relationship between caregiver and persons living with mild cognitive impairment or dementia (mild to moderate dementia) in dyads, in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. **Secondary objectives related to economic and financial benefits** ● To evaluate the direct and indirect costs of care to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months. **Secondary objectives related to CAREGIVERSPRO-MMD platform users** ● To evaluate the degree of satisfaction of use of the CAREGIVERSPRO-MMD platform during 18 months.
Inclusion criteria	**For persons living with mild cognitive impairment or dementia** ● People, aged 50 and over, living in the community, who are able to give informed consent (or the legal tutor). ● Diagnosed with mild cognitive impairment (MCI) according to Petersen criteria [Albert et al, 2011] or mild to moderate dementia diagnosed according on

	DSM-IV criteria (Diagnostic and Statistical Manual, 4th edition) [American Psychiatric Association, 1994]. ● Having a Clinical Dementia Rating (CDR) of 0.5 for MCI, 1-2 for mild to moderate dementia. ● Having a Mini-Mental Exam score (MMSE) [Folstein et al, 1975] between 30 and 25 (inclusive) for MCI, and between 24 and 10 (inclusive) for dementia. ● Having a primary caregiver, familiar (or not), informal (or not) identified and also included in the study. ● Be willing to use Information Technology and Communications (ICT) according to the investigator criteria. **For primary caregivers** ● People, aged 18 years and over, with no diagnosis or no evidence of mild cognitive impairment or mild to moderate dementia (according DSM-IV criteria) [American Psychiatric Association, 1994], who are able to give informed consent and with an intention to complete the study. ● Primary caregivers, informal (or not), familiar (or not), of person with mild cognitive impairment or mild to moderate dementia. ● People with Internet access and basic knowledge and skills in managing internet and social networks, or keen to learn, according to the investigator criteria. ● Having a Geriatric Depression Scale (GDS-Yesavage - 15 items) score less than 11 at the time of entry into the trial indicating no severe depressive symptoms. ● Having no specific conditions (evaluated by the investigator) reducing their physical abilities below the norm for their age that would limit or impair CAREGIVERSPRO-MMD platform use. ● Be willing to use Information Technology and Communications (ICT) according to the investigator criteria.
Exclusion criteria	**For persons with mild cognitive impairment and people living with dementia** ● Terminal or severe illness with survival prognosis less than 18 months. ● Having delusions, hallucinations, behavioural disturbances, that may interfere with the use of Information and Communications Technology (ICT) tools. ● Relevant sensory problems (visual or hearing impairment) or motor disability (such as paralysis of upper limb or disabling arthritis or disabling tremor, etc...) evaluated by the investigator that would interfere with the use of Information and Communications Technology (ICT) tools. ● Not speaking the language of the country where the pilot is being conducted. **For primary caregivers** ● Terminal or severe illness with survival prognosis less than 18 months. ● Relevant sensory problems (visual or hearing impairment) or motor disability (such as paralysis of upper limb or disabling arthritis or disabling tremor, etc...) evaluated by the investigator that would interfere with the use of Information and Communications Technology (ICT) tools. ● Not speaking the language of the country where the pilot is being conducted.
Study exit criteria	● If the primary caregiver changes or if the caregiver can't continue his role of caregiver.

	• Primary caregiver who do not use the platform during 2 months due to a justifiable reason according to the investigator criteria. • Primary caregivers showing malicious or inappropriate CAREGIVERSPRO-MMD platform use according to the investigator criteria. • Severe illness for the persons living with mild cognitive impairment or dementia (mild to moderate) or their caregivers evaluated by the investigator that interfere with the ability or potential to use Information and Communications Technology (ICT) tools. • One member of the dyad wants to retire informed consent and wants to withdraw from the study. • Hospitalisation or institutionalisation >2 months not related to the role of care.

Parameters to be evaluated	**Screening**
	• **For people with mild cognitive impairment (MCI) or dementia (PLWD) and their caregivers:**
	  ○ Sociodemographic variables
	  ○ Comorbidity
	  ○ Medications
	  ○ Concomitant treatments
	  ○ Cognitive-Clinical symptoms
	• **For primary caregivers:**
	  ○ Depression
	Primary outcomes
	• **For MCI and PLWD**
	  ○ Subjective quality of life
	• **For primary caregivers**
	  ○ Perceived burden
	Secondary outcomes
	• **For MCI or PLWD and their caregivers:**
	  ○ Physical health
	  ○ Medication and concomitant treatments
	  ○ Comorbidity
	  ○ Adverse events
	  ○ Treatment adherence
	• **For MCI or PLWD:**
	  ○ Cognitive-Clinical symptoms
	  ○ Activities of daily living
	  ○ Behavioural and cognitive symptoms
	  ○ Depression
	• **For primary caregivers:**
	  ○ Subjective quality of life
	  ○ Depression
	  ○ Anxiety
	  ○ Perceived social support, success in relationships, self-esteem, purpose and optimism
	• **For dyads**
	  ○ Social relationship of the dyad
	• **For CAREGIVERSPRO-MMD platform users**
	  ○ Satisfaction
	  ○ Platform use
	• **Economic variables**
	  ○ Resource utilization
	  ○ Direct and indirect costs of care

Intervention strategy	Intervention group using the platform "CAREGIVERSPRO-MMD" platform versus control group.
Sample included in the study	602 dyads: - Intervention group: 301 dyads (person with mild cognitive impairment or person living with dementia and his primary caregiver). - Control Group: 301 dyads (person with mild cognitive impairment or person living with dementia and his primary caregiver).
Sample included in the local study (Italy)	202 dyads: - Intervention group: 101 dyads (person with mild cognitive impairment or person living with mild or moderate dementia and his primary caregiver). - Control Group: 101 dyads (person with mild cognitive impairment or person living with mild or moderate dementia and his primary caregiver).
Number of clinical research teams involved	1. University of Hull (United Kingdom) 2. COOSS Marche (Italy) 3. Rouen University Hospital (France) 4. Fundació Universitària del Bages (FUB) - UVic-UCC (Spain)
Number of local clinical research centers involved	1
Statistical analysis	**Primary analysis:** Change in PLWD QoL (DEMQoL) and caregiver burden (ZBI score) defined as difference between 18 months value and baseline value will be compared between groups fitting an analysis of covariance.. **Secondary analysis related to people living with mild cognitive impairment and living with dementia and their caregiver** Comparisons at 18 months of IADL score will be done fitting a polytomous logistic regression. Comparisons of proportions of people living with dementia who reduce ⩾3 points in Mini Mental at 18 months between groups will be done computing the confidence interval for the estimate of difference. Differences in SF-36v2 PCS and MCS component summary measures will be performed according to Quality Metric's Health Outcomes ™ Scoring Software 5.0 available. Comparison of NPI questionnaire at 18 months will be performed fitting a polytomous logistic regression with group as independent variable. Comparisons of proportions of caregivers using psychotropic drugs between groups will be done computing the confidence interval for the estimate of difference. The rate of change comparisons between groups of ZBI and DEMQoL will be assessed fitting a random coefficient model. IADL score and NPI questionnaire will be fitted with a two populations polytomous response for repeated measures. A rank analysis of covariance combined with Cochran-Mantel-Haenszel statistics will also be fitted to evaluate differences between groups for other non-centered scores. Treatment adherence will be compared using the proportion of days covered (PDC) Comparisons at 18 months of DAS and MSPSS score will be done computing the confidence interval for the estimate of difference of median values using the Hodges-Lehmann approach for independent data. A rank analysis of covariance combined with Cochran-Mantel-Haenszel statistics will also be fitted to evaluate differences between groups. MMAS-8 will be fitted with a two populations polytomous response for repeated measures. Overall efficiency savings to family and costs associated in both people living with dementia and caregivers will be done computing the confidence interval for the estimate of difference

	of median values using the Hodges-Lehmann approach for independent data. Overall efficiency savings will be performed in the same way. Comparison of median time to institutionalisation will be done computing the confidence interval for the estimate of difference of median values using the Hodges-Lehmann approach for independent data. Exploratory cost-effectiveness analysis of the platform related to caregivers will be performed computing incremental cost-effectiveness ratio (ICER) and incremental net benefit (INB).
Implementation schedule	Duration of recruitment and information period: 4 months [From January 2017 to April 2017]. Duration of randomization and data collection: 18 months [From April 2017 to September 2018]. Number of scheduled medical visits: ● 1 Session of training on CAREGIVERSPRO-MMD platform for the intervention group after randomization. ● 1 Research visit every 6 months for both groups of dyads. Total duration: from the first dyad inclusion until the last visit of the last dyad: 22 months Duration of data analysis statistical report and clinical report: 14 months [From October 2017 to October 2018]. Duration of dissemination of study results: 4 months [From September 2018 to December 2018].

3 Abstract

According to the World Health Organisation [WHO, 2015] there are 46.8 million people living with some form of dementia worldwide for which there is currently no treatment or effective strategy that can halt or reverse their progressive cognitive impairment. As Europe's population is aging, and longevity is the main risk factor for developing dementia, long-term care for older citizens will represent an increasing financial cost for society. There are currently 19 million people living with dementia in Europe, and this figure is expected to reach 31.5 million by 2050. To manage this transition, health policies of the EU and its member states are focused on enhancing elderly people's longevity and preventing their dependency. This has the double aim of increasing their subjective quality of life while reducing costs and increasing the effectiveness of healthcare. That is why the European project "CAREGIVERSPRO-MMD" (RIA, PHC-25-2015, PIC: 690211), with participating partners: the Universitat Politècnica de Catalunya (UPC), MobilesDynamics (MDA), University of Hull (HUL), Q-Plan International LTD (QPL), COOSS Marche (COO), Fundació Universitària del Bages (FUB), Rouen University Hospital (CHU) and the Centre for Research and Technology Hellas (CERTH), aims at evaluating the web platform "CAREGIVERSPRO-MMD", accessible for computers, phones and tablets, and defined as an mHealth application specifically for caregivers and people living with mild cognitive impairment or mild to moderate dementia, which will provide value-added services based on social networks, tailored interventions, clinical strategies and gamification to improve the subjective quality of life of those living with cognitive impairment or dementia as well as that of their caregivers (dyads), thus supporting them to live in the community for as long as possible.
In order to evaluate the effectiveness and impact of the platform in people living with mild cognitive impairment or dementia (mild to moderate) together with their caregivers, a prospective, randomised, multicenter, controlled, parallel and longitudinal study was devised with 602 dyads (carried out in a multicentre study: 100 followed by HUL, 200 by COO, 202 by FUB and 100 by CHU), divided into two groups of equal numbers. The groups will be comprised of one "intervention" group with access to the platform and another "control" group without any access to it. During the following eighteen months, aspects related to the individuals' health (general health, neuropsychological functioning, activities of daily living, subjective quality of life, adherence to pharmacological treatment and

comorbidities), social aspects (cohesion of the dyad, social support, success in relationships, self-esteem, purpose and optimism) and economic aspects (cost-effectiveness of the use of the platform) and the degree of satisfaction and usability of the platform by all users will be evaluated.

4 Introduction and background Information

4.1 The population profile associated with dementia in Europe

According to the Organisation for Economic Co-operation and Development [OECD, 2013], in its report Health at a Glance, life expectancy has increased significantly in Europe (by 10 years in the last half century) to reach the age of 80.1 years in 2013. Topping the statistics: Italy (82.7 years), followed by Spain (82.4 years), France (82.2 years) and the United Kingdom (81.1 years) [OECD, 2013]. In parallel, the Statistical Office of the European Commission [Eurostat, 2013] published population statistics revealing that the average age of Europeans has already reached the figure of 41.2, with people under 14 years old representing 15.6% of the population and people of working age (15 to 64 years) making up 66.9%. The remaining 17.5% are aged 65 years old or older and about 4.8% are over 80 years old, a figure which reaches 6% in Italy (the highest value). All these figures demonstrate that the European population has aged considerably over the last 10 years, with two significant factors coinciding in a short time: on the one hand longevity is increasing, and on the other hand there is a low fertility rate of 1.5 births per woman per year [Eurostat, 2013].

Europe's ageing population has led to an increase in age-related diseases (cardiovascular diseases, cancer, diabetes, Parkinson disease, osteoporosis...), especially, dementia. According to the analysis of several epidemiological studies in Europe on the prevalence of dementia, carried out by the European Collaboration on Dementia [EuroCoDe, 2013] prevalence working group of the organisation "Alzheimer Europe", there are currently 6.36 million people over the age of 65 living with various neurodegenerative diseases, a figure that could exceed 10 million people in 2040. In this context of neurodegenerative diseases, Alzheimer's disease is the most common type of dementia, representing between 50% and 60% of all dementias diagnosed, causing memory loss, decline in brain function and personality changes, directly affecting the executive functions of the person and impacting their work and social life [Gironès et al, 2002]. Because of the number of people living with Alzheimer's disease, the number of family caregivers which provide care and support is around 20 million (about 3 people per person with dementia).

4.2 The "Alzheimer Europe" Paris Declaration

As a result of the growing concern about the significant consequences of dementia, institutions such as "Alzheimer Europe" (alzheimer-europe.org) are trying a gain a better understanding of population needs, issuing warnings to organisations and institutions of the European Union, the World Health Organization, the Council of Europe and European national governments on the need to act urgently.

In the "Paris Declaration" [Alzheimer Europe, 2009], experts linked to Alzheimer Europe called on European and national policy makers to give Alzheimer's disease and other forms of dementia both the political and public health priority they deserve, putting forward various proposals in the fields of research and medicine, healthcare and social support and ethics and law.

The most important points to consider are the following ones:

- People with dementia and their caregivers need actions and tools that cover all aspects of their care and support needs and that are tailored to the specific needs of each stage of the illness.

- Caring for people with dementia can have a significant impact on the subjective quality of life of caregivers. Consequently, it is necessary to promote active policies for the recognition of potential significant burden of caregivers of people with dementia and promote the support and development of adequate support services and help.

Therefore, Alzheimer Europe recommends fostering initiatives which truly support the caregiver, since in practice, this will directly result in a better quality of life for people with dementia [Alzheimer Europe, 2009]. By definition, primary caregivers are those people who, being a relative or not of the person with dementia, are in closest human contact with them. Their main task is to meet the physical and emotional daily needs of the person. They also keep the person connected with society and are affectionate with the person as they empathise with their experiences. Caregivers' work takes on a great significance for other people in the person's circle as the illness progresses, because as well as providing direct care, they also take on an important role in the reorganisation, maintenance and cohesion of the group around the person living with dementia [Astudillo et al, 2010].

4.3 The aim of European Health Policy: To give support and respite to non-professional caregivers

In Europe, one important objective of health policy is to foster and maintain networks of non-professional care of people living with dementia. This objective can be achieved through economic support to people living with dementia with difficulties in performing activities of daily living, in order to encourage the use of a professional service and therefore ease the burden of the non-professional caregiver. Given the reality that non-professional care accounts for over 80% of the total use of non-medical care; it is essential to identify strategies associated with giving respites and support for caregivers so that they will be less likely to seek for residential care, with consequent savings in public and private healthcare spending [Rapp et al, 2011].

The European health plans have put forward measures to improve care for people living with dementia with a more personalised and tailored approach aimed at both people living with dementia and their caregivers' needs. The main goal is to implement an integration process through an active and participatory network in the care of people with dementia, giving both assistance and support. This model should include tools and mechanisms to improve the process of comprehensive care, in particular, case management for older people in complex situations and the necessary resources provided to their caregivers. In this way, this aim could move on from just focusing on medical treatment for dementia to work towards the comprehensive and holistic care of both those living with dementia as well as their families and caregivers. This approach could concentrate its efforts on improving understanding and care and in this context, the caregiver is a key part of the process [Pimouguet et al, 2013].

Numerous studies on caregivers providing support to people living with neurodegenerative diseases postulate that the role of caregiver is vital in the monitoring and reporting of symptoms and the effects of the individual therapeutic interventions. It is therefore very important to establish an effective therapeutic alliance between the health system and caregivers in the medical management of the person living with dementia [Jicha, 2011]. In this context, support for creating tools that foster this relationship would be in line with improved information flow between those living with dementia, healthcare and medical teams, caregivers and family members.

4.4 Attention and follow-up of the caregiver: A crucial part in providing support.

People living with dementia are likely to need different degrees of assistance and help in their daily lives during the various stages of the disease's progression, especially when it begins to progress to a more advanced stage. Daily assistance may come from various sources, both from clinical staff as well as from members of the family. It has been found that if the primary caregiver is the spouse or a child of the person, they have to cope with a significant level of responsibility. Consequently, the effects on the caregiver's health and daily life may result in sleep

disturbance, anxiety, depression and stress that could end up affecting the caregiver's quality of life and endangering their own health and wellbeing [Callan et al, 2009; Varela et al, 2011].

Thus, non-professional caregivers of people living with dementia are often under a lot of pressure and have increased risks of suffering physical and psychiatric illnesses. In this regard, providing caregivers with medical and healthcare knowledge concerning dementia and the necessary tools and/or support to cope with stress would bring rewards for both the caregiver and the people living with dementia as far as quality of life and health monitoring are concerned [Cheng et al, 2012].

In this context, family caregivers should assess their well-being and quality of life when dementia is diagnosed, in order to keep track of these and meet the challenges of the illness progression with the proper and adequate tools [Välimäki et al, 2012]. There are many risk factors associated. Caring for someone living with dementia is linked to an increase in depressive symptoms, with 50% of caregivers reporting symptoms of depression within 2-3 years of caregiving [Joling et al, 2010], and an increased risk of cardiovascular disease, and it has been shown that the right intervention in the caregiver's lifestyle can decrease depression and improve their overall health [Moore et al, 2013]. Studies which have focused on the analysis of health monitoring of caregivers have always reported a deterioration of physical and mental health of this group, with a common occurrence of family conflicts and even suicide after the death of the person being looked after [Shaji et al. 2003].

Recent systematic reviews on the subject suggest that there is evidence to show that support interventions for the caregiver can help reduce their psychological distress as well as improving other aspects of their health and wellbeing. These findings recommend that doctors involved in the monitoring of people living with dementia should investigate and ask caregivers about their concerns and questions as a strategy for improving the people living with dementia health. The information contained in their answers will be of great interest and support for creating the best assistance plan [see Candy et al, 2011].

4.5 The unmet needs of caregivers

The ageing in population in the european society will bring an increase in the number of people with dementia living in our community. This will lead to an increased demand for care and welfare services in order to provide efficient and personalised assistance, which requires a thorough understanding of subjective and objective needs. Dementia is currently an incurable illness and its treatment requires a careful approach involving both people living with dementia and their families. In this context many non-pharmacological complementary interventions have been developed whose effects continue to be evaluated to decide their importance in a multidisciplinary treatment of dementia. Therefore, in order to obtain this type of information, the primary caregiver is a key figure as they are the closest person to the living with dementia and will be heavily involved in all aspects of their care. Recent studies analysing the needs of caregivers and demonstrate the positive effects of an active programme of needs analysis and active support to the caregiver, in order to ease their physical and social burden [see Carbone, 2013].

The latest systematic reviews of studies on the identification of the factors responsible for the objective burden of non-professional caregivers reveals that there are about 39 predictors, mostly related to cognition, behaviour and daily functioning, directly or indirectly related to the caregiver's excessive burden [Thompson et al, 1998; Wolfs et al, 2012].

In this regard, it is essential to assess the needs of both people with dementia and their non-professional caregivers. Studies concerning this reveal that most of the unfulfilled needs can be found in the domains of memory, information, psychological distress and daily activities. Moreover, that people living with dementia report fewer (unfulfilled) needs than their caregivers [van der Roest et al, 2009].

The caregiver's burden is likely to be influenced by the behavioural and cognitive status of the person living with dementia, their attention span, stress, social isolation, the existing and premorbid relationship with the people

living with dementia, availability of support resources, and the personal characteristics of the caregiver. Therefore, in order to reduce the burden and support the caregiver's health and well-being, it is necessary to evaluate and recognise the associated risk factors. The identification of these factors will lead to greater knowledge about them and the ability to manage them more successfully [Sansoni et al, 2013].

In this regard, interventions like those described in De Rotrou et al (2011) study, which demonstrate that active programmes devoted to the care of caregivers can have positive direct consequences, such as a better understanding of dementia as well as improving the capacity to cope with various problems resulting from dementia.

4.6 The application of information and communication technology (ICT) to support the care of the those living with chronic illness proves to be effective

Information and communication technology (ICT) or NICT (New Information and Communication Technologies) can be defined as those technologies that group elements and techniques used for the processing and transmission of information, mainly in the field of computers, internet and telecommunications. Therefore, any communicative element can be considered to be ICT provided it helps to manipulate, disseminate and share information through accessories or devices based on microelectronics, computers and telecommunications. All ICT tools basically have two characteristics: the first is that they have a very rapid evolutionary process; for example, some consider that the electric telegraph was the first ICT tool. The second feature is that they refer to a very broad concept which covers many elements. In this respect, technologies can be classified into three groups: networks, terminals and services. Within "networks" we can find landline telephone networks, television networks, broadband, mobile telephone networks, IP television and home networks. "Terminals" are physical devices and act as an access point for citizens to enter the information society; they are in a constant state of evolution and innovation. Examples of "terminals" are computers with their respective operating systems (Linux, Windows, Macintosh), internet browsers (computer software such as Mozilla Firefox, Google Chrome or Internet Explorer), mobile phones, televisions, portable audio players and or video game consoles. And finally, the term "services" refers to those supplier-customer models applied to the definition of ICT. These services vary depending on the technological resources and the progression of the way that a service is given. Examples of the most common services are: email, search engines, online banking, mobile services, e-commerce, etc. The most important thing is that thanks to information and communication technologies, mankind has undergone a radical change in the last century. The so-called "information age" owes its definition to the development of ICT and, through it, the human being can receive, acquire, store and process all kinds of information.

The European Union has been promoting the use of ICT in the context of neurodegenerative diseases with the aim to support their caregivers for many years now. Within this framework, they initially fostered and used ICT-based intelligent navigation and geolocation systems to improve the quality of life of vulnerable older people and their family caregivers. The main objective of all these initiatives has been to seek to improve the quality of life of older people and their family caregivers, due to the ease of use of ICT tools and their low cost implications [Magnusson et al, 2002].

In this context, the effectiveness of medical and social support through ICT to non-professional caregivers, regarding people living with chronic diseases, is essential in many ways. ICT based interventions have been proven effective and turn out to be positive for social support for most non-professional caregivers. Therefore, the identification and design of appropriate ICTs for non-professional caregivers should continue and be supported in all their different contexts and tools such as the internet and social networks online support [Barrera-Ortiz et al, 2011; Lauriks et al, 2007].

ICT have been applied successfully under many viewpoints in assisting neurodegenerative diseases, being used as information measures and monitoring of associated changes in the development of dementia [Pilotto et al, 2011; Sacco et al, 2012; Romdhane et al, 2012; Van der Roest et al, 2010]. Their correct application has helped solve many

everyday problems, creating a secure environment and facilitating joint decision-making (between family members, caregivers and people living with dementia) on the necessary assistance for people living with dementia [Olsson et al, 2012].

When non-professional caregivers of people living with dementia were provided with ICT healthcare tools based on social networks, it was suggested that their use has a positive impact both in improving the care and rehabilitation of the people living with dementia as well as helping with daily support and offering a diversity of solutions to address various daily problems associated with the illness. This shows that ICT systems can help, but they must be current (updated and well thought-out) and maintain the interest of the users involved [Lundberg, 2013]. In this regard, the analysis of different experiences based on the application of social networks specialising caregivers of people living with dementia, has revealed that their correct use is associated with better performance of the caregiver's responsibilities and helps to ease the associated burden, therefore affecting positively all aspects of the caregiver's health [Cheng et al, 2013]. At the same time, the quality of the information provided by the ICT helps to protect either against the risk of dementia or the dementia's progression [Amieva et al, 2010; Zunzunegui et al, 2003].

However, there are many factors that influence the use of ICT by caregivers and these must be taken into consideration when designing a tool of this kind. These characteristics can be summarised as: the caregiver's own knowledge about the illness and their familiarity with the health system regarding available support, their personal capacity and their own needs as a person and the social support received. Moreover, the confidence they have concerning the results of the assistance received, the perceived effort undertaken when using various technological support services and their ability to assume and manage the different roles of the people involved in caring are all factors which also play an important role [Chiu et al, 2011; Chiu et al, 2010; Dröes et al, 2005; Engström et al, 2009].

A recent systematic review on internet-based support interventions for caregivers of people living with dementia reveals that they can both improve the caregiver's welfare, as well as having positive consequences for the person being looked after. However, as the available supporting evidence lacks the necessary methodological quality, the future design of better clinical studies to emphasise their impact is essential [Boots et al, 2013].

Following this last suggestion, different solutions based on ICT platforms are currently being developed to support non-professional caregivers of people living with dementia, acting on clinical studies, such as the "Diapason" programme, based on the application of a compendium of psychoeducational interventions designed to prevent the caregiver's stress and ease their burden [Cristancho-Lacroix et al, 2013]. Its results indicate little acceptance of the program and high expectations from caregivers [Cristancho-Lacroix et al, 2015]. Another example is the internet intervention "Mastery over Dementia" based on a repository of videos intended to reduce psychological disorders, especially depressive symptoms in caregivers, whose results will appear in 2014 [Blom et al, 2013]. These projects follow in the footsteps of others which have already been evaluated, such as the DEM-DISC (DEMENTIA-specific Digital Interactive Social Chart), a web platform dedicated to address the service needs of caregivers, which demonstrated positive effects for both caregivers and people living with dementia [Van der Roest et al, 2010].

4.7 The need for evaluating the cost-effectiveness of interventions concerning the caregiver

According to recent studies, Alzheimer's disease is considered the most expensive neurodegenerative disease when comparing dedication time together with its associated costs, more than other diseases like Parkinson's ($17,492 annually for Alzheimer versus $3,284 generated by Parkinson's) [Costa et al, 2013]. This scenario makes it necessary to carry out further studies on the impact of intervention programmes for caregivers, as these account for the highest cost resulting from the disease [Health Quality Ontario, 2008]. It seems logical, therefore, that interventions to improve the welfare conditions of caregivers would have a direct impact on the costs associated with dementia care.

In this line, studies show that caregivers who are more able to adapt to the changes that characterise dementia feel more competent to care for the person and experience fewer psychological problems. This underlines the urgent need for more research on caregiver interventions that improves the adaptation of their role and that includes long-term monitoring and evaluating the cost-effectiveness of these interventions [de Vugt et al, 2013].

Other studies to assess the economic impact of other services provided for the PLWD, such as memory clinics and cognition-improving services, have not shown better results than programmes which support caregivers, thus demonstrating the success of opting for policies and support programmes which give direct assistance to the caregiver [Meeuwsen et al, 2013].

5 Justification

Dementia is a neurodegenerative condition with social, emotional and economical consequences. Interventions focused on treatment must be carried out in a multidisciplinary way in order to try and achieve the maximum possible number of positive effects concerning both protective factors and the lack of risk factors. Even so, in the absence of a cure, the goal should be to slow down its advance and to be able to ensure an acceptable quality of life of both the person living with dementia and their immediate circle as far as it is possible [Novella et al, 2012].

In recent years, professionals from around the world have concurred that the advancement of research should concentrate on an earlier diagnosis, on the reduction of the administration of neuroleptics and on increasing family support [Brooker et al, 2014; Lauritzen 2015].

In this sense, innovative European projects such as the "Alcove" (Alzheimer Cooperative Valuation in Europe, alcove-project.eu) aim to reduce pharmacological treatments for people living with dementia by focusing on and providing better family support.

Therefore, focus on ICT, as is the case of CAREGIVERSPRO-MMD in the present study [see section CAREGIVERSPRO-MMD platform description], use is necessary. ICT tools can achieve many of the objectives marked a priori by current health policies: access to effective and low-cost solutions, accessible repository of information, and the ability to integrate all kinds of tools and care strategies (geolocation, social networks, neurocognitive exercises, monitoring strategies...). This makes them ideal as support and assistance to the people living with dementia, to their caregivers and entire social and health ecosystem, even to foster applied research.

6 Research objectives

In 2006, the Médéric Alzheimer Foundation released the results of a study concerning memory centres and MRRC (Memory Resource and Research Centres) in France. This study revealed that 42 of the 136 centres which responded to the survey have provided a medical consulting service for caregivers (37 memory centres and 5 CMRR). The most common health problems which formed part of the consultation are listed in order of frequency in the following table:

Health-related queries of caregivers (% cases which reported each pattern)*	
Anguish, anxiety, depression, mental exhaustion	90%
Tiredness	48%
Sleep disorders	32%

Weight loss, eating disorders	23%
Cardiovascular diseases	23%
Memory loss	23%
Social isolation	18%
Joint pain	13%
Strong emotional reactions, nervousness, aggressiveness	8%
Decompensation of chronic illnesses	5%

* 40% of the relevant cases that responded to the survey

The main diagnoses evolved concerning depressive disorders, cardiovascular problems and eating disorders (anorexia nervosa, bulimia nervosa). In most cases, the follow-up consisted of a change of doctor (either to another doctor and/or a specialist), but also in parallel with visits to a family association or psychologist.

With the publication of Eurofamcare in 2005 very different situations were reported from one country to another. The need was stressed for a systematic evaluation of the role and needs of caregivers. It also recommended the creation of psychological counselling for caregivers, discussion groups, and the organization of training to develop their knowledge of the dementia [Mestheneos et al, 2005] as well as the treatment of behavioural changes if necessary.

A review every 6 months of the caregiver burden was proposed by Etters et al (2008). This review is especially important to carry out when potentially dangerous situations can occur, such as the presence of behavioural changes, incontinence, physical dependence or conflict [Etters et al, 2008]

7 Hypothesis and Objectives

The dyad (formed by the person living with mild cognitive impairment (MCI) or mild to moderate dementia (PLWD) and their primary caregiver) and the social and health circle which is structured around it (family, friends, other dyads, health personnel, researchers), generates a lot of information regarding social and health concerns to improve living conditions and assessing the progression of the dyad. The existence of a platform based on Information and Communications Technology (ICT), capable of channelling all information generated and encouraging the search for solutions to specific problems, equipped with sensitive health monitoring tools and the possibility of putting all the different people living with mild cognitive impairment or dementia (mild to moderate) into direct contact; both the dyad as well as medical professionals or other dyads in the same situation; will improve the quality of care, control and monitoring of illness, resulting at the same time in a better diagnosis and an improvement in the subjective quality of life and health of its members.

7.1 Primary hypothesis

- The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the dyad, in the subjective quality of life of persons living with mild cognitive impairment or dementia (mild to moderate dementia) and in the level of burden experienced by the primary caregiver.

7.2 Secondary hypothesis

- The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the persons living with mild cognitive impairment or dementia (mild to moderate dementia), in their treatment adherence, behavioural and psychological symptoms and use of psychotropic drugs.

- The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the persons living with mild cognitive impairment or dementia (mild to moderate dementia), in their activities of daily living.

- The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the primary caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in psychological and neuropsychiatric disorders.

- The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the primary caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in perceived social support, success in relationships, self-esteem, purpose and optimism.

- The use during 18 months of CAREGIVERSPRO-MMD platform improves treatment adherence for the dyad (persons living with mild cognitive impairment or dementia (mild to moderate dementia) and their primary caregivers.

- The use during 18 months of CAREGIVERSPRO-MMD platform has a benefit for the dyad (persons living with mild cognitive impairment or dementia (mild to moderate dementia) and their primary caregivers), in the quality of the caregiving relationship.

- The use during 18 months of CAREGIVERSPRO-MMD platform reduces total costs of care (direct and indirect costs) for the dyad (persons living with mild cognitive impairment or dementia (mild to moderate dementia) and their primary caregivers.

- The use during 18 months of CAREGIVERSPRO-MMD platform reduces total number of hospitalisations for the persons living with mild cognitive impairment or dementia (mild to moderate dementia).

7.3 Primary objectives

Two primary objectives are considered:

- For persons living with mild cognitive impairment or dementia (mild to moderate dementia): to evaluate their subjective quality of life in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

- For primary caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia): to evaluate their perceived burden in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

7.4 Secondary objectives

7.4.1 Secondary objectives related to persons with MCI and PLWD

- To evaluate the activities of daily living for persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

- To evaluate the treatment adherence for persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify an improvement from use of the CAREGIVERSPRO-MMD platform during 18 months.

- To evaluate the behavioural and psychological symptoms for persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

- To evaluate the neuropsychological functioning of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

- To evaluate the total number of hospitalisations for persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

7.4.2 Secondary objectives related to primary caregivers

- To evaluate the subjective quality of life for caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

- To evaluate the treatment adherence for caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify an improvement from use of the CAREGIVERSPRO-MMD platform during 18 months.

- To evaluate the behavioural and psychological health and wellbeing of caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

- To evaluate the perceived social support, success in relationships, self-esteem, purpose and optimism to caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months..

- To evaluate the use of psychotropic drugs for caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia), in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

7.4.3 Secondary objectives related to dyad

- To evaluate the quality of caregiving relationship between caregiver and persons living with mild cognitive impairment or dementia (mild to moderate dementia) in dyads, in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

7.4.4 Secondary objectives related to economic and financial benefits

- To evaluate the direct and indirect costs of care to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.

7.4.5 Secondary objectives related to CAREGIVERSPRO-MMD platform users

- To evaluate the degree of satisfaction of use of the CAREGIVERSPRO-MMD platform during 18 months.

8 Methods

8.1 Study design

This is a prospective, randomised, multicenter, controlled, parallel and longitudinal study. Measurements will be recorded at baseline (0) and at 3, 6, 9, 12, 15 and 18 months after and two groups will be compared: a group formed by dyads (people living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers) using the CAREGIVERSPRO-MMD platform and a control group formed by dyads without access to the platform.

8.1.1 Brief description of the CAREGIVERSPRO-MMD platform

The CAREGIVERSPRO-MMD platform focusing on people living with mild cognitive impairment or dementia (mild to moderate) and their caregivers, considering this “dyad” as the unit of care and offering both a variety of advanced, individually tailored services that will improve the quality of their lives and enable them to live well in the community for as long as possible.

Accessible through friendly and easy-to-use interfaces for mobile phones, tablets and web browsers, the services of the CAREGIVERSPRO-MMD platform includes social networking with other people living with dementia, caregivers and clinicians, clinical and psychological screening, personalised care plan and educational interventions tailored to each user’s symptoms, medication reminder system and reporting to doctors and medical staff about treatment adherence level and other important clinical info.

The CAREGIVERSPRO-MMD platform offers multiple benefits for its users, such as personalised care plans combining medication and behavioural treatments for both people living with mild cognitive impairment or dementia and their caregivers, reduction of stress and burnout phenomena of caregivers, discrete and constantly available monitoring of people living with mild cognitive impairment or dementia allowing fast adjustments to their care plan, efficient data collection of people living with mild cognitive impairment or dementia and caregivers by healthcare professionals, decision support for effective care plans and preventive interventions, as well as social networking.

[For more information: see section "Description CAREGIVERSPRO-MMD platform"]

8.1.2 Research calendar

- **Recruitment and information period** (4 months, from January 2017 to April 2017)
    - Starting information campaigns and strategies of the CAREVIGERSPRO-MMD study.
    - First project briefing session to inform caregivers and people living with mild cognitive impairment or dementia (mild to moderate) or their legal representatives who meet the criteria for inclusion and exclusion (screening).

- Second project information session intended to provide additional information and detailed caregivers and people living with mild cognitive impairment or dementia (mild to moderate) or their legal representatives and stakeholders on the protocol and study characteristics. Signature of consent.

- **Randomization and data collection** (18 months, from April 2017 to September 2018)
  - Randomization of dyads at baseline and data collection through research visits at baseline, 6, 12, 18 months, and phone calls (economic data, treatment adherence, perceived social support, success in relationships, self-esteem, purpose and optimism) at 3, 9 and 15 months. Queries resolution.
  (for users of the platform a training session CAREGIVERSPRO-MMD platform will be performed).
- **Data analysis** (14 months, from September 2017 to October 2018)
  - Data management and pending queries.
  - Statistical analysis.
  - Statistical report and presentation of results.
  - Clinical report (October 2018).
- **Dissemination of study results** (4 months, from September 2018 to December 2018)
  - Development of scientific papers, multimedia slideshows and articles for the dissemination of project results.
  - Seminars, conferences and national and international scientific meetings on the theme of the project.

Year	2017												2018											
Month	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Project month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Recruitment and information																								
Randomization and data collection																								
Data analysis																								
Dissemination																								

8.2 Inclusion / Exclusion / Study exit Criteria

8.2.1 Inclusion criteria

8.2.1.1 For persons living with mild cognitive impairment or dementia

- People, aged 50 and over, living in the community, who are able to give informed consent (or the legal tutor).

- Diagnosed with mild cognitive impairment (MCI) according to Petersen criteria [Albert et al, 2011] or mild to moderate dementia diagnosed according on DSM-IV criteria (Diagnostic and Statistical Manual, 4th edition) [American Psychiatric Association, 1994].
[For more information: see sections "Core clinical criteria for the diagnosis of MCI" and "DSM-IV diagnostic criteria for dementia"]

- Having a Clinical Dementia Rating (CDR) of 0.5 for MCI, 1-2 for mild to moderate dementia.

- Having a Mini-Mental Exam score (MMSE) [Folstein, 1975] between 30 and 25 (inclusive) for MCI, and between 24 and 10 (inclusive) for dementia.

- Having a primary caregiver, familiar (or not), informal (or not) identified and also included in the study.

- Be willing to use Information Technology and Communications (ICT) according to the investigator criteria.

8.2.1.2 For primary caregivers

- People, aged 18 years and over, with no diagnosis or no evidence of mild cognitive impairment or mild to moderate dementia (according DSM-IV criteria) [American Psychiatric Association, 1994], who are able to give informed consent and with an intention to complete the study.

- Primary caregivers, informal (or not), familiar (or not), of person with mild cognitive Impairment or mild to moderate dementia.

- People with Internet access and basic knowledge and skills in managing internet and social networks, or keen to learn, according to the investigator criteria.

- Having a Geriatric Depression Scale (GDS-Yesavage - 15 items) score less than 11 at the time of entry into the trial indicating no severe depressive symptoms.

- Having no specific conditions (evaluated by the investigator) reducing their physical abilities below the norm for their age that would limit or impair CAREGIVERSPRO-MMD platform use.

- Be willing to use Information Technology and Communications (ICT) according to the investigator criteria.

8.2.2 Exclusion criteria

8.2.2.1 For people with mild cognitive impairment and people living with dementia

- Terminal or severe illness with survival prognosis less than 18 months.

- Having delusions, hallucinations, behavioural disturbances, that may interfere with the use of Information and Communications Technology (ICT) tools.

- Relevant sensory problems (visual or hearing impairment) or motor disability (such as paralysis of upper limb or disabling arthritis or disabling tremor, etc...) evaluated by the investigator that would interfere with the use of Information and Communications Technology (ICT) tools.

- Not speaking the language of the country where the pilot is being conducted.

8.2.2.2 For primary caregivers

- Terminal or severe illness with survival prognosis less than 18 months.

- Relevant sensory problems (visual or hearing impairment) or motor disability (such as paralysis of upper limb or disabling arthritis or disabling tremor, etc...) evaluated by the investigator that would interfere with the use of Information and Communications Technology (ICT) tools.

- Not speaking the language of the country where the pilot is being conducted.

8.2.3 Study exit criteria

- If the caregiver changes or if the caregiver can't continue his role of caregiver.

- Primary caregiver who do not use the platform during 2 months due to a justifiable reason according to the investigator criteria.

- Primary caregivers showing malicious or inappropriate CAREGIVERSPRO-MMD platform use according to the investigator criteria.

- Severe illness for the persons living with mild cognitive impairment or dementia (mild to moderate) or their caregivers evaluated by the investigator that interfere with the ability or potential to use Information and Communications Technology (ICT) tools.

- One member of the dyad want to retire informed consent and wants to withdraw from the study.

- Hospitalisation or institutionalisation >2 month of the people with mild cognitive impairment, people living with dementia or caregivers.

8.3 Recruitment and information

This phase will last for four months (From January 2017 to April 2017). In order to guarantee the inclusion of the sample in the study some strategies will be performed as follows:

- Verbal advertisement of study in local community settings and voluntary settings that provide support to people living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers.
- Organization of meetings, display posters, elaboration of hand-out information sheets.
- Advertising of the study at dementia awareness events.
- Online advertisement on local social media and dementia networks.
- Radio and media adverts and in newsletters by organisations supporting people living with dementia.
- Information campaigns and strategies developed by local medical partners to identify possible candidates for study sample.

Interested people will contact with investigators of the project who will plan a screening visit for evaluating inclusion/exclusion criteria and informing about characteristics of the study.

Step 1
During the initial contact authorized personnel (research assistants) from the pilot centre will propose to caregivers and their corresponding people living with mild cognitive impairment and dementia (mild to moderate), complying inclusion and exclusion criteria, to participate in the study. During this contact both MCI/PWLD and their caregivers will be given the information sheet for the study with details of study and the platform as well as verbal information about study. For those who express an interest in the research an appointment in order to enrol the components of the dyad at a time and place of their convenience.

Step 2

During the subsequent visit the investigator will offer detailed oral and written information about the study, explaining their characteristics, advantages, limitations, calendar, following-up and required contacts providing information sheet. Provide a chance to ask any questions. If after the session both MCI/PLWD and their caregiver agree with the explained conditions and protocol, show an understanding of it and comply with the inclusion and exclusion criteria, then they will be included in the study after the signing of informed consent.

8.4 Screening

In this phase inclusion and exclusion criteria will be checked for both patient living with mild cognitive impairment or dementia (mild to moderate) and their caregiver.

8.4.1 Sociodemographic variables

8.4.1.1 Sociodemographic variables for MCI and PLWD

Sociodemographic variables	Values/Units	Visit
Date of birth	(DD/MM/YY)	Screening
Gender	male/female	Screening
Socioeconomic status (SES) (only at baseline)	Upper, Upper middle, Lower middle, Upper lower, Lower (Kuppuswamy's socioeconomic scale [Sharma et al, 2012])	Screening
Education level	International Standard Classification of Education (ISCED-2011)	Screening
Relationship between care-recipient and caregiver	Father/mother, wife/husband/partner, son/daughter, daughter in law/son in law, sister/brother, other relative, neighbour, friend. (according to the RUD questionnaire)	Screening

8.4.1.2 Sociodemographic variables for primary caregivers

Sociodemographic variables	Values/Units	Visit
Date of birth	(DD/MM/YY)	Screening
Gender	male/female	Screening
Socioeconomic status (SES)	Upper, Upper middle, Lower middle, Upper lower, Lower (Kuppuswamy's socioeconomic scale [Sharma et al, 2012])	Screening

Education level	International Standard Classification of Education (ISCED-2011)	Screening
Professional occupation	International Standard Classification of Occupations (ISCO) - ISCO-88	Screening
Work status	Casual Appointment, Full Time, Indefinite Appointment, Part Time, Regular Appointment, Temporary Appointment, Term Appointment	Screening
Relationship between care-recipient and caregiver	Father/mother, wife/husband/partner, son/daughter, daughter in law/son in law, sister/brother, other relative, neighbour, friend. (according to the RUD questionnaire)	Screening

8.4.1.3 Comorbidities, medications and concomitant treatments for MCI/PLWD and caregivers

Information related to comorbidities and medications will be collected [for more information go to Data Management section].

That information will be codified following international dictionaries as World Health Organization's Drug Dictionary (WHO-DD), International Classification of Diseases (ICD-10) and WHO Adverse Reactions Terminology (WHOART) respectively.

8.4.2 Clinical variables for MCI and PLWD

CDR - Clinical Dementia Rating Scale

Created by: Morris, 1993

Purpose: The CDR is a 5-point scale used to characterize six domains of cognitive and functional performance applicable to Alzheimer disease and related dementias: Memory, Orientation, Judgment & Problem Solving, Community Affairs, Home & Hobbies, and Personal Care. The necessary information to make each rating is obtained through a semi-structured interview of the patient and a reliable informant or collateral source (e.g., family member).

Administration time: 30-40 minutes

Submitted by: GP or medical specialist

Evaluated by: GP or medical specialist

Calculatation CDR score: https://www.alz.washington.edu/cdrnacc.html

Execution time: screening

Reference: Morris, J.C. The Clinical Dementia Rating (CDR): Current vision and scoring rules Neurology, 1993; 43:2412-2414

MMSE - Mini-Mental State Examination

Created by: Folstein & Folstein, 1975

Purpose: To screen dementia, conceived as brief test for cognitive impairment. It includes questions about orientation, attention, recall and language.

Administration time: 20 minutes

Submitted by: Neuropsychologist, GP or medical specialist
Evaluated by: Neuropsychologist
Reference: Folstein MF, Folstein SE, McHugh PR. "Mini-mental state": a practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res. 1975;12:189-198.

8.4.3 Clinical variables for primary caregivers

GDS - Geriatric Depression Scale [short version]
Created by: Yesavage et al., 1982
Purpose: A Short Form consisting of 15 questions was developed in 1986. People who are physically ill and living with mild to moderate dementia, who have short attention spans and/or feel easily fatigued, find it more easy to use.
Administration time: 10 to 20 minutes
Submitted by: Caregiver
Evaluated by: Psychologist / GP/Medical specialist
Reference: Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, Leirer VO. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res. 1982-1983;17(1):37-49.

8.5 Description of randomization / stratification

Control group and intervention group will be randomly assigned. For each country a randomization list will be performed stratified by Mini Mental State Examination (MMSE). As the study aims to recruit same number of people with Mild Cognitive Impairment (MMSE 30-25), Mild Dementia (MMSE 24-20) and Moderate Dementia (MMSE: 19-10) a 33.3% in each level will be considered.
SAS PLAN procedure will be used to design the randomized design.

8.6 Intervention strategy

The platform studied, CAREGIVERSPRO-MMD is an online resource based on web technology accessible by computer, mobile and tablet, dedicated to provide both monitoring and assistance for people with mild cognitive impairment or people living with dementia. Its structure, as a social network, and its evaluation capacity with multiple questionnaires (dedicated to MCI/PLWD and their caregivers) allows them to share detailed information on the status and progress of the illness (cognitive status, medication usage, mood...). This personalisation leads users to access a range of information tailored to each situation, illness and assistance with the aim of improving the subjective quality of life of both the MCI/PLWD, carer and their immediate circle.

- 301 Dyads (50 followed by HUL, 100 by COO, 101 by FUB and 50 by CHU) formed by people living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers involved in the intervention group will target users of the online platform using all integrated resources.

- 301 Dyads (50 followed by HUL, 100 by COO, 101 by FUB and 50 by CHU) formed by people living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers involved in the control group without access to the online platform, but will be evaluated in all parameters relevant monitoring following the study protocol.

The intervention group will use a tablet (one for each member of the dyad, persons living with mild cognitive impairment or dementia (mild to moderate) and their primary caregiver) connected to the CAREGIVERSPRO-MMD platform and provided by the project staff. The tablet will have limited access to internet and the ability to be used for other applications other than those related to the activity of the CAREGIVERSPRO-MMD platform.

[For more information: see section "Description CAREGIVERSPRO-MMD platform" and "User Manual of the CAREGIVERSPRO-MMD platform"]

8.7 Measures to be collected

8.7.1 Physical variables for MCI/PLWD and primary caregivers

Physical variables	Values/Units	Visit
Weight	Kilograms (Kg) / grams (gr)	Baseline and every 6 months
Height	Meters (m) / centimeters (cm)	Baseline and every 6 months

8.7.2 Scales for primary outcomes

8.7.2.1 Scale for primary outcomes for MCI and PLWD

Subjective quality of life

DEMQoL - Dementia Quality of Life Measure

Created by: Rabins and Kasper, 1997.

Purpose: Is a patient reported outcome measure (PROM) which is designed to enable the assessment health-related quality of life of people with dementia. It was developed according to best quality psychometric principles by a multidisciplinary team including BSMS, KCL, the London School of Hygiene and Tropical Medicine, the London School of Economics and Nottingham and Sheffield Universities. DEMQOL is designed to work across dementia subtypes and care arrangements and can be used at all stages of dementia. The measure consists of two questionnaires: 1) DEMQOL is a 28 item interviewer-administered questionnaire answered by the person with dementia, and 2) DEMQOL-Proxy is a 31 item interviewer-administered questionnaire answered by a caregiver.

Administration time: 5-30 minutes

Submitted by: Self-reported (DEMQOL) / Caregiver (DEMQOL-Proxy)

Evaluated by: Psychologists, GPs

Execution time: Baseline, 6, 12, 18 months

Data collection: The data will be collected during research visits

References:

Mulhern B, Rowen D, Brazier J, Smith S, Romeo R, Tait R, et al. Development of DEMQOL-U and DEMQOL-PROXY-U: generation of preference-based indices from DEMQOL and DEMQOL-PROXY for use in economic evaluation. Health Technol Assess2013;17(5).
Smith SC, Lamping DL, Banerjee S, Harwood R, Foley B, Smith P, Cook JC, Murray J, Prince M, Levin E, Mann A, Knapp M. Measurement of health-related quality of life for people with dementia: development of a new instrument (DEMQOL) and an evaluation of current methodology. Health Technol Assess. 2005 Mar;9(10):1-93, iii-iv.
Karim, S., Ramanna, G., Petit, T., Doward, L, & Burns, A. (2008). Development of the Dementia Quality of Life questionnaire (D-QOL): UK version. Aging & Mental Health, 12(1): 144-148

8.7.2.2 Scale for primary outcomes for primary caregivers

Perceived burden

ZBI - Zarit Burden Interview

Created by: Zarit, Reever & Bach-Peterson, 1980
Purpose: To assess the level of burden experienced by the principal caregivers of older people living with dementia, through a 29-item scale. The revised version contains 22 items and is commonly used. Each item on the interview is a statement that the caregiver is asked to endorse using a 5-point scale (0=Never; 4 =Nearly Always).
Administration time: 5 to 10 minutes
Submitted by: Self-administered
Evaluated by: Psychologists, GPs
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits
Reference: Zarit, S.H., Reever, K.E. y Bach-Peterson, J. (1980). Relatives of the Impaired Elderly: Correlates of feelings and Burden. Gerontologist, 20, 649-655.

8.7.3 Scales for secondary outcomes

8.7.3.1 Scales for secondary outcomes for MCI and PLWD

Cognitive-Clinical symptoms

MMSE - Mini-Mental State Examination

Created by: Folstein & Folstein, 1975
Purpose: To screen dementia, conceived as brief test for cognitive impairment. It includes questions about orientation, attention, recall and language.
Administration time: 20 minutes
Submitted by: Neuropsychologist, GP or medical specialist
Evaluated by: Neuropsychologist
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits

Reference: Folstein MF, Folstein SE, McHugh PR. "Mini-mental state": a practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res. 1975;12:189-198.

Activities of daily living

IADL - Lawton Instrumental Activities of Daily Living Scale [8 items version]

Created by: Lawton & Brody, 1969
Purpose: Appropriate instrument to assess the ability to perform tasks necessary to live independently in the community. It takes into account 8 instrumental tasks (ability to use the telephone, shopping, food preparation, housekeeping, laundry, using transport, responsibility for own medications, ability to handle finances).
Administration time: 10 minutes
Submitted by: Caregivers (relatives, professional)
Evaluated by: Nurses / GPs, psychologists
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits
Reference: Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. Gerontologist. 1969;9(3):179-186

BADL - Barthel ADL Index / Barthel Index of Activities of Daily Living

Created by: Mahoney & Barthel, 1965
Purpose: To measure performance in activity of daily living. It takes into account the level ability of 10 current tasks (bowel and bladder continence, grooming, toilet use, feeding, transfer, mobility, dressing, stairs, bathing). Possible total scores range from 0-20. Changes of more than 2 points reflect an improvement or impairment of functional status. Lower scores indicate increased difficulties.
Administration time: 10 minutes
Submitted by: Caregivers (relatives, professional), nurses
Evaluated by: Nurses / GPs, psychologists
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits
Reference: Mahoney FI, Barthel DW. Functional evaluation: the Barthel Index. Md Med J 1965; 14: 61-65

Behavioural-psychological symptoms

NPI - NeuroPsychiatric Inventory [12-item NPI]

Created by: Cummings, 1984
Purpose: To assess behavioural domains common in dementia. Contains 12 domains. These include: hallucinations, delusions, agitation/aggression, dysphoria/depression, anxiety, irritability, disinhibition, euphoria, apathy, aberrant motor behaviour, sleep and night-time behaviour change, appetite and eating change.
Administration time: 0 to 30 minutes
Submitted by: Caregivers (relatives, professional)
Evaluated by: Psychologist / medical specialist
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits

Reference: Cummings, J., Mega, M., Gray, K., Rosenberg-Thompson, S., Carusi, D. A., & Gornbein, J. (1994). The Neuropsychiatric Inventory: Comprehensive assessment of psychopathology in dementia. Neurology, 44, 2308-2314.

GDS - Geriatric Depression Scale [short version]
Created by: Yesavage et al., 1982
Purpose: A Short Form consisting of 15 questions was developed in 1986. People who are physically ill and living with mild to moderate dementia, who have short attention spans and/or feel easily fatigued, find it more easy to use.
Administration time: 10 to 20 minutes
Submitted by: MCI/PLWD or caregiver
Evaluated by: Psychologist / GP/Medical specialist
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits
Reference: Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, Leirer VO. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res. 1982-1983;17(1):37-49.

8.7.3.2 Scales for secondary outcomes for primary caregivers

Subjective quality of life

SF-36v2 - Medical Outcomes Study (MOS) 36-Item Short Form 2nd version
Created by: Ware jE, 1992
Purpose: The Optum™ SF-36v2® Health Survey asks 36 questions to measure functional health and well-being from the patient's point of view. It is a practical, reliable and valid measure of physical and mental health that can be completed in five to ten minutes. We refer to it as a generic health survey because it can be used across age (18 and older), disease, and treatment group, as opposed to a disease-specific health survey, which focuses on a particular condition or disease.
Administration time: 5-10 minutes
Submitted by: self-administered
Evaluated by: Psychologists, GPs
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits
Reference: Ware JE, Jr, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. Med Care. 1992;30:473-483.

Behavioural-psychological symptoms

GDS - Geriatric Depression Scale [short version]
Created by: Yesavage et al, 1982
Purpose: To evaluate depression in older people. It is a 30-item test; scores of 0-4 are considered average, depending on age, education, and complaints; 5-8 indicate mild depression; 9-11 indicate moderate depression; and 12-15 indicate severe depression.
Administration time: 10 to 20 minutes

Submitted by: Caregivers (relatives, professional)
Evaluated by: Psychologist / GP/Medical specialist
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits
Reference: Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, Leirer VO. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res. 1982-1983;17(1):37-49.

STAI - State Trait Anxiety Inventory

Created by: Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983
Purpose: To measure trait and state anxiety. It can be used in clinical settings to diagnose anxiety and to distinguish it from depressive syndromes. It also is often used in research as an indicator of caregiver distress.
Administration time: 2 to 6 minutes
Submitted by: Self-administrated
Evaluated by: Psychologists, GPs
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits
References: Elliott, T, Shewchuk, R, & Richards, J.S. (2001). Family caregiver problem solving abilities and adjustment during the initial year of the caregiving role. Journal of Counseling Psychology, 48, 223-232.
Shewchuk, R., Richards, J. S., & Elliott, T. (1998). Dynamic processes in health outcomes among caregivers of patients with spinal cord injuries. Health Psychology, 17, 125-129.
Spielberger, C. D. (1989). State-Trait Anxiety Inventory: Bibliography (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.
Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press.

Perceived Social Support

MSPSS - Multidimensional Scale of Perceived Social Support

Created by: Zimet, Dahlem, Zimet & Farley, 1988
Purposes: To assess an individual's perception of the social support he or she receives from family, friends and significant others; it is a 12-items self-report questionnaire.
Administration time: 5 minutes
Submitted by: Self-admistered
Evaluated by: Psychologist
Execution time: Baseline, 6, 12, 18 months
Data collection: The data will be collected during research visits
References: Marziali et al. (2006), Marziali et al. (2011) ; T. Anderson, L. Merkerson-Miller, D. Paniagua and M. Ivins-Lukse (2015)
Canty-Mitchell, J. & Zimet, G.D. (2000). Psychometric properties of the Multidimensional Scale of Perceived Social Support in urban adolescents. American Journal of Community Psychology, 28, 391-400.
Zimet, G.D., Powell, S.S., Farley, G.K., Werkman, S. & Berkoff, K.A. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support Journal of Personality Assessment,55,610-17

Perceived success in relationships, self-esteem, purpose and optimism

FS - Flourishing Scale

Created by: Diener, 2009.

Purpose: The Flourishing Scale is a brief 8-item summary measure of the respondent's self-perceived success in important areas such as relationships, self-esteem, purpose and optimism. The scale provides a single psychological well-being score.

Administration time: 3-5 minutes

Submitted by: Self-administered

Evaluated by: Psychologists, GPs

Execution time: Baseline, 3, 6, 12, 15, 18 months

Data collection: The data will be collected during research visits (baseline, 6, 12 and 18 months) and by telephone calls made by the research personnel (3, 9 and 15 months)

References: Diener E, Wirtz D, Tov W, Kim-Prieto C, Choi D, Oishi S, Biswas-Diener R. (2009). New measures of well-being: Flourishing and positive and negative feelings. Social Indicators Research, 39, 247-266.

8.7.3.3 Scales for secondary outcomes for dyads

Social relationship between MCI/PLWD and their primary caregiver

DAS - Dyadic Adjustment Scale

Created by: Spanier GB, 1976

Purpose: To measure marital adjustment; unmarried or same-sex partners can also use it. Subjects rate the extent to which they and their partner agree or disagree on a range of issues and the frequency they engage in specific interactions, such as quarrelling.

Administration time: 5 to 10 minutes

Submitted by: Self-administered

Evaluated by: Psychologist / GP

Execution time: Baseline, 3, 6, 9, 12, 15, 18 months

Data collection: The data will be collected during research visits (baseline, 6, 12 and 18 months) and by telephone calls made by the research personnel (3, 9 and 15 months)

Reference: Spanier GB. Measuring Dyadic Adjustment: New Scales for Assessing the Quality of Marriage and Similar Dyads. Journal of Marriage and Family. 1976;38(1):15-28.

8.7.4 Medications, concomitant treatments, treatment adherence, comorbidities and adverse events

For people living with cognitive impairment or dementia (mild to moderate) and their primary caregivers, this information will be collected by doctors and codified following international dictionaries as World Health Organization's Drug Dictionary (WHO-DD), International Classification of Diseases (ICD-10) and WHO Adverse Reactions Terminology (WHOART) respectively.

Treatment adherence

Proportion of days covered (PDC)

Created by: Choudhry NK, et al.

Purpose: The PDC calculation is based on the fill dates and days supply for each fill of a prescription. The denominator for the PDC (at the patient-level) is the number of days between the first fill of the medication

during the measurement period and the end of the measurement period. Then, the PDC is the proportion of days with available medication in the measurement period (follow up period). People living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers with a PDC ≥ 80% are considered as adherent and the proportions of adherents in both groups will be compared.
Submission schedule: Continuous
References: Choudhry NK, et al. Measuring Concurrent Adherence to Multiple Related Medications. Am J Managed Care. 2009;15:457-464.
Nau DP. Proportion of days covered (PDC) as a preferred method of measuring medication adherence. Springfield, VA: Pharmacy Quality Alliance [Internet]. 2012
American Pharmacists Association (2013). Improving medication adherence in patients with severe mental illness. Pharmacy Today 19(6):69-80.

MMAS-8 - 8-item Morisky Medication Adherence Scale
Created by: Morisky et al. 2008
Purpose: The MMAS-8 was developed from a previously validated four-item scale and supplemented with additional items addressing the circumstances surrounding adherence behaviour. MMAS-8 scores can range from 0 to 8 and have been trichotomized previously into three levels of adherence, to facilitate use in clinical practice: high adherence: MMAS score, 8; medium adherence: MMAS score ≥6 to <8; low adherence: MMAS score <6.
Administration time: 3 minutes
Submitted by: self-administered, caregivers (relatives, professional)
Evaluated by: research personnel
Execution time: Baseline, 3, 6, 9, 12, 15, 18 months
Data collection: The data will be collected during research visits (baseline, 6, 12 and 18 months) and by telephone calls made by the research personnel (3, 9 and 15 months)
Reference: Morisky DE, Ang A, Krousel-Wood M, Ward H. Predictive validity of a medication adherence measure for hypertension control. J Clin Hypertens 2008;10: 348–354.

8.7.5 Platforms Users

The user's satisfaction will also be assessed. Platform user's activity will be evaluated by means internal indicators.

C-MMD-USE - C-MMD User Satisfaction Scale
Created by: MobilesDynamics
Purpose: The questionnaire assessing satisfaction and expectations of the CAREGIVERSPRO-MMD platform users through short questions.
Administration time: 3-5 minutes
Submitted by: self-administered
Evaluated by: research personnel
Execution time: Baseline, 3, 6, 9, 12, 15, 18 months
Data collection: The data will be collected during research visits (baseline, 6, 12 and 18 months) and by telephone calls made by the research personnel (3, 9 and 15 months)

Internal indicators:

- Number of visits per time unit

- Average time of visits
- Visited sections and services used
- Activity on social networking platform
- Activity content platform

8.7.6 Economic variables

Resource Utilization

RUD - Resource Utilization in Dementia [version 4]
Created by: Wimo A, et al. 2012
Purpose: Is the most widely used instrument for resource use data collection in dementia, enabling comparison of costs of care across countries with differing health care provisions.
Administration time: 10 minutes
Submitted by: MCI/PLWD or caregivers (relatives, professional)
Evaluated by: research personnel
Execution time: Baseline, 3, 6, 9, 12, 15, 18.
Data collection: The data will be collected during research visits (baseline, 6, 12 and 18 months) and by telephone calls made by the research personnel (3, 9 and 15 months)
Reference: Wimo A, Gustavsson A, Jönsson L, Winblad B, Hsu MA, Gannon B. Application of Resource Utilization in Dementia (RUD) instrument in a global setting. Alzheimers Dement. 2013 Jul;9(4):429-435.e17. doi: 10.1016/j.jalz.2012.06.008. Epub 2012 Nov 9.

Perspective of Analysis
The economic study derivative of the CAREGIVERSPRO-MMD use should consider all costs and outcomes that are a consequence of the illness (cost of illness) or the health or social care interventions evaluated (economic evaluation). It will be evaluated the costs and outcomes to key health and social care providers or funders and to the people living with mild cognitive impairment or dementia (mild to moderate) and their families. These will include: the costs of hospital care, community-based health care services, social welfare services, and care provided by voluntary agencies or family and friends.

Measurement and Valuation of Costs
The economic study derivative of the CAREGIVERSPRO-MMD platform use, will describe and quantifies the resources used to produce health and social care and support for the people living with mild cognitive impairment or dementia (mild to moderate) and their caregivers.
The study will include costs of the CAREGIVERSPRO-MMD platform intervention, follow-up care and support for people living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers.

Total costs include: direct and indirect costs.

Resource Utilization

RUD - Resource Utilization in Dementia [version 4]

Created by: Wimo A, et al. 2012
Purpose: Is the most widely used instrument for resource use data collection in dementia, enabling comparison of costs of care across countries with differing health care provisions.
Administration time: 10 minutes
Submitted by: MCI/PLWD or caregivers (relatives, professional)
Evaluated by: research personnel
Execution time: Baseline, 3, 6, 9, 12, 15, 18.
Data collection: The data will be collected during research visits (baseline, 6, 12 and 18 months) and by telephone calls made by the research personnel (3, 9 and 15 months)
Reference: Wimo A, Gustavsson A, Jönsson L, Winblad B, Hsu MA, Gannon B. Application of Resource Utilization in Dementia (RUD) instrument in a global setting. Alzheimers Dement. 2013 Jul;9(4):429-435.e17. doi: 10.1016/j.jalz.2012.06.008. Epub 2012 Nov 9.

Perspective of Analysis

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The study will include costs of the CAREGIVERSPRO-MMD platform intervention, follow-up care and support for people living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers.

Total costs include: direct and indirect costs.

Direct costs. Medical and social care cost	
Concept	**Data collected**
Diagnostic procedures	Required
Nursing home care	RUD
Medications	Required
Added health costs	RUD
Laboratory costs	Required
Physician visits	RUD

Hospitalisations	RUD
Disease therapies	RUD
Adapting housing	Required
Residential or respite care costs	RUD
Social welfare services such as day centres	RUD

Direct costs. Non-medical care costs	
Concept	**Data collected**
Home health aides /telecare or telemedicine	Required
Respite care	RUD
Adult day services	RUD

Direct costs. Non-medical care costs	
Concept	**Data collected**
Home health aides /telecare or telemedicine	Required
Respite care	RUD
Adult day services	RUD

8.8 Flowchart of data collection for the study

8.8.1 People with Mild Cognitive Impairment and People Living with Dementia

Pilot Study month		Screening	0	3	6	9	12	15	18
Measures to be collected	**Tool**								
Sociodemographic variables		*							
Physical variables			*		*		*		*
Comorbidity		*							
Adverse events									
Medication and concomitant treatments		*							
Treatment adherence	PDC								
	MMAS-8		*	+	*	+	*	+	*
Primary outcomes	**Tool**								
Subjective quality of life	DEMQoL		*		*		*		*
Secondary outcomes	**Tool**								
Cognitive-Clinical symptoms	CDR	*							
	MMSE	*	*		*		*		*
Activities of daily living	IADL		*		*		*		*
	BADL		*		*		*		*
Behavioural-psychological symptoms	GDS		*		*		*		*
	NPI		*		*		*		*

8.8.2 Primary Caregivers

Pilot Study month		Screening	0	3	6	9	12	15	18
Measures to be collected	**Tool**								
Sociodemographic variables		*							
Physical variables			*		*		*		*
Comorbidity		*							
Adverse events									
Medication and concomitant treatments		*							
Treatment adherence	PDC								
	MMAS-8		*	+	*	+	*	+	*
Primary outcomes	**Tool**								
Cognitive-Clinical symptoms	ZBI		*		*		*		*
Secondary outcomes	**Tool**								
Subjective quality of life	SF-36v2		*		*		*		*
Behavioural-psychological symptoms	GDS	*	*		*		*		*
	STAI		*		*		*		*
Perceived social support	MSPSS		*	+	*	+	*	+	*
Perceived success in relationships...	FS		*	+	*	+	*	+	*

8.8.3 Dyads

Pilot Study month		Screening	0	3	6	9	12	15	18
Measures to be collected	**Tool**								
Caregiving relationship	DAS		*		*		*		*

8.8.4 Platform Users

Pilot Study month		Screening	0	3	6	9	12	15	18
Measures to be collected	**Tool**								
Satisfaction C-MDD					*		*		*

8.8.5 Economic variables

Pilot Study month		Screening	0	3	6	9	12	15	18
Measures to be collected	**Tool**								
Resource utilization	RUD		*	+	*	+	*	+	*
Direct and indirect costs			*	+	*	+	*	+	*

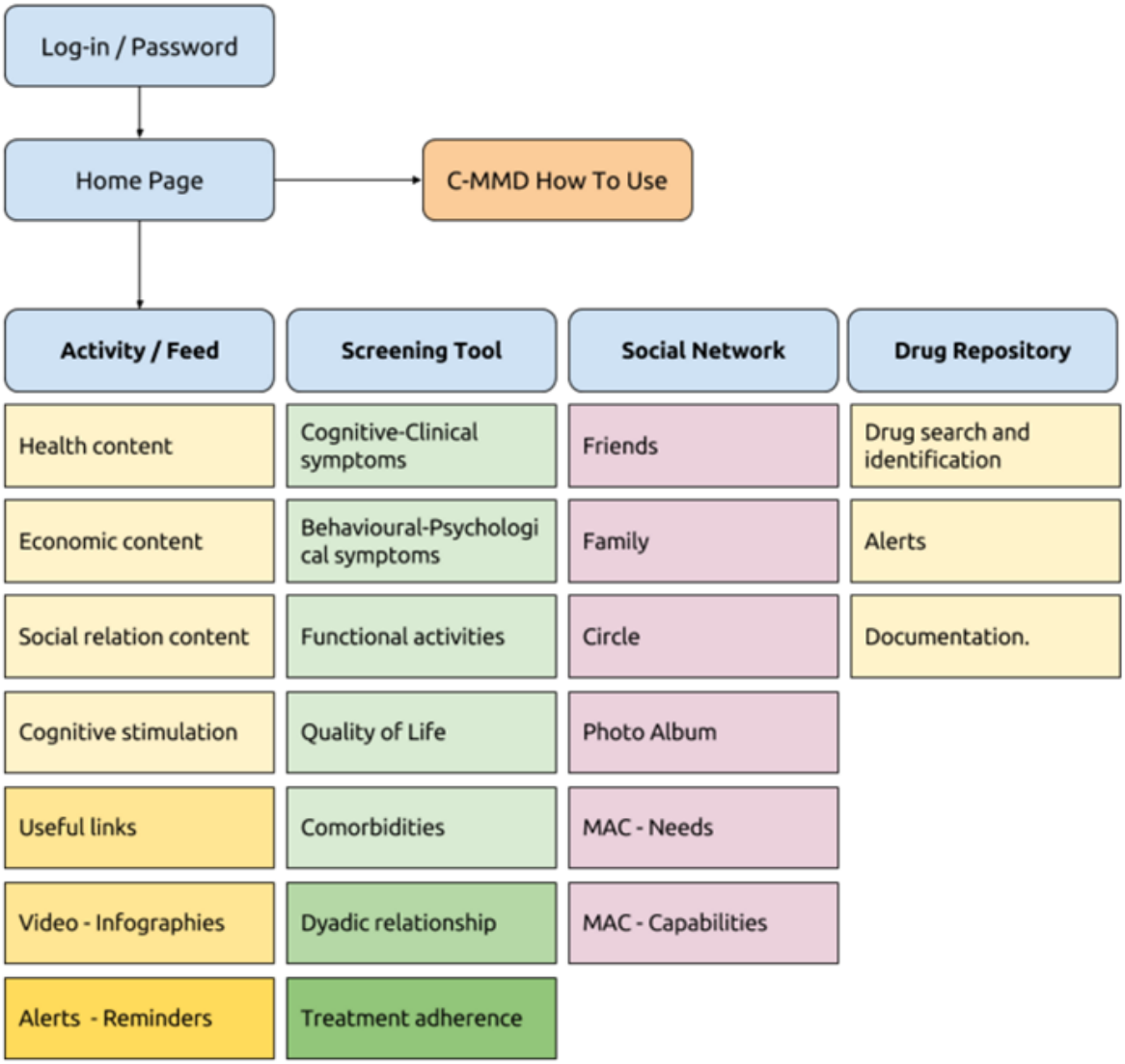
*	Clinical examination and data collection

+	Data collection by a telephone call
·····	Collected in a continuous way

9 CAREGIVERSPRO-MMD platform description

The CAREGIVERSPRO-MMD platform (C-MMD) is delivered in a free, password-protected, fully automated website, tablet and mobile application to be used by the caregivers, people living with dementia or with mild cognitive impairment, and health and social professionals. The C-MMD platform focuses on the dyad as unit of care. The main objective is to improve this unit of care experience and achieve greater efficiency and value from health and social delivery systems. C-MMD interventions are multicomponent and tailored.

9.1 C-MMD services for MCI/PLWD and their caregivers



9.2 Drug repository

The drug repository service does offer a range of functionalities. It is based on an innovative API (Application Programming Interface) architecture that covers 3 main domains: Drug search and identification, Alerts and Documentation

1) Drug Search and identification: Product name used to lookup branded or generic drugs.
2) Alerts functions: drug Allergy, interactions and warning modules
3) Documentation functions and structured data: Brand name, active ingredient(s), indications, route(s) of administration, contraindications, allergies, precautions, adverse effects, drug interactions, packaging information, „warnings (drug-food interactions, specific risks...), cautions for usage.

9.3 Social Network

The features will allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view and traverse their list of connections and those made by others within the system [Boyd, 2007]. Users can send friend requests via e-mail to other users. When a person receives a friend request, he may accept or decline it, or block the user altogether. If the user accepts another user as a friend, the two will be connected directly or in the “friend” degree. The user will then appear on the person's friend list and vice versa. Other degrees of relationship in the C-MMD platform is the “circle” (trusted connection) and “family” degree.

Another C-MMD Social Network service is the mutual assistance community where users’ needs are automatically matched with users resources. This service matches adequately users’ demands with user offers. Interface to identify users’ needs, interests (demands) and users’ abilities, knowledge, know-how, availability (offers). The system should be able to match and demands and services and permit users to meet each other's.

9.4 Screening Tool

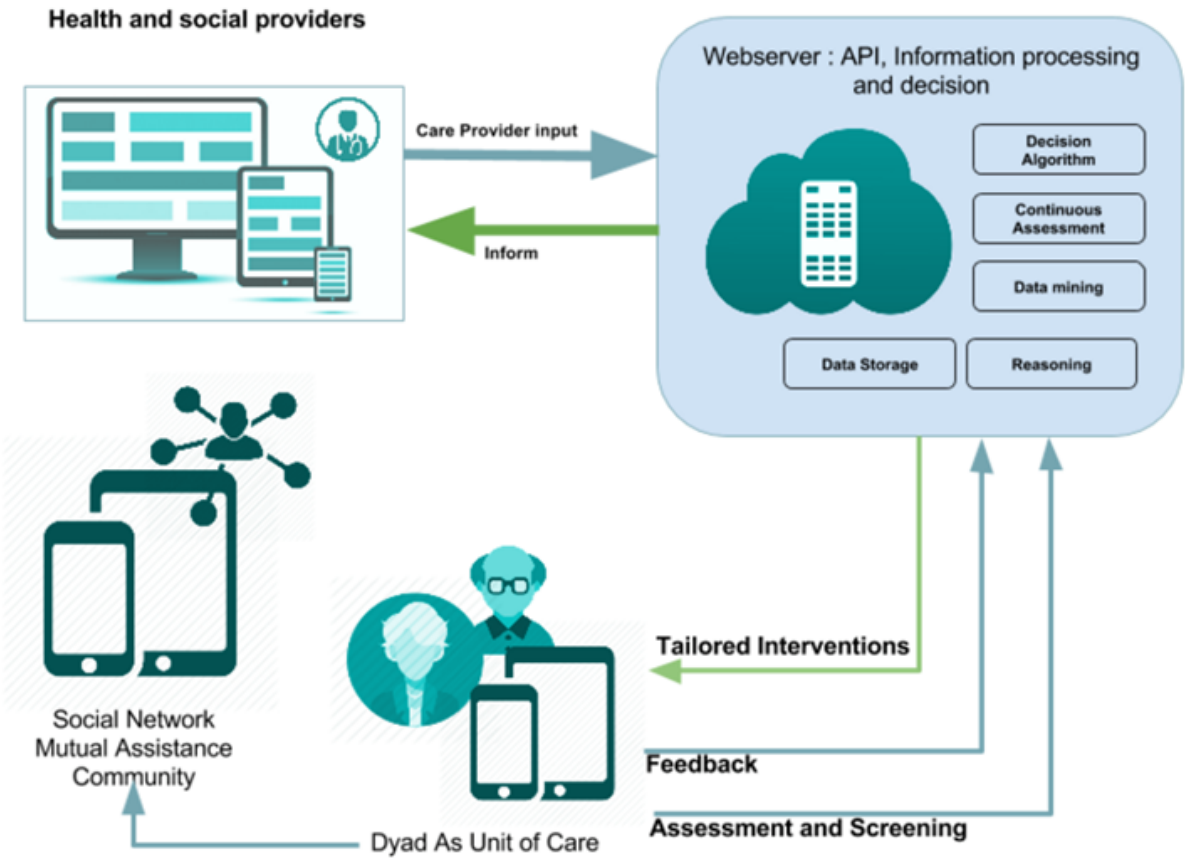
The C-MMD screening focus on the following clinical domains for MCI/PLWD and their caregivers:

- Clinical and cognitive scales
- Psychological and behavioural scales
- Functional scales
- Quality of life
- Comorbidity
- Treatment adherence
- Dyad’s relationship

9.5 Activity/feed

Based on the assessment result (screening tool), news, activities are proposed in form of tailored intervention to the user.
C-MMD provides tailored interventions to users (MCI/PLWD or caregiver). Tailored interventions are assessment-based programs: they deliver brief educational messages, address individual needs and are adapted to individual characteristics such as health conditions, culture, socioeconomic level, and educational level. For caregivers, the tailored interventions are based on cognitive theories of stress, a literature review, and the results of a study

conducted by the C-MMD team. Interventions target the caregivers' beliefs, the caregivers' skills, and caregivers' social support and help-seeking behavior, and to meet and discuss with peers through social networks.



10 Data collection

10.1 Characteristics of data collection

Data will be introduced in a data management web page by research staff. That introduction will be made as follows:

1. At research visits baseline, 6, 12 and 18 months the whole information will be collected.
2. At telephone calls: 3, 9 and 15 months economic costs associated with care (scale RUD + other economic parameters), adherence to treatment (scale MMAS-8), perceived social support (MSPSS scale) and perceived success in relationships, self-esteem, purpose and optimism (FS scale) will be collected.

10.2 Description of the data management web page

The data management web page is intended to be a software platform in a secure web server for storing the clinical data generated during the screening and research sessions with pilot participants. The website will be accessed only by authorized users, under a secure environment on UPC servers (Universitat Politècnica de Catalunya - BarcelonaTech).

All the health related data generated during the pilot will be stored on the data management website, and the investigators will be able to analyze that data in real time in order to make regular checks on the whole process.

10.2.1 Data management

All data will be associated to a subject identified by its ID, and no relationship with real personal data will be stored on the server.

All the data included in point 8.7 of the pilot study protocol will be introduced on the server using different forms related with each particular subject, and can be reviewed by authorized users.

At the end of the pilot all information will be exported to standard formats in order to allow statistical researchers to perform the final analysis. More details can be found in Deliverable 7.3 “Data Management Plan”.

10.2.2 Roles

Three roles will be implemented on the pilot website, each of them representing a type of user with particular level of access to pilot data.

All user activity will be logged and monitored, and even a deletion action will be saved for the future. Each action of a user will be logged with a timestamp and a description of each action taken.

All users of the website must provide a valid email address and a double optin process will be performed in order to confirm each identity (user must confirm an email sent to the email address provided on a first step by clicking on a link with a personal, unique code).

A personal ID document will be required for each user in order to be sure all accesses are personal and audited.

10.2.2.1 Research assistants

All research assistants will be allowed to introduce data associated with subjects of the pilot. Filling in data from all pilot activity is the main function of this role.

All data from all research assistants will be accessible on the website, but researchers can be grouped in order to limit access to other pilot partners’ data if required.

10.2.2.2 Clinical research organization (CRO) user

CRO users will be able to review and access the information on a read-only mode in order to review all the researchers’ activities.

10.2.2.3 Technical administrator

Admin users will review all information is well maintained and will help other users on their tasks regarding the use of the website.

10.2.3 Security

Data management website will be hosted on UPC servers and will follow all security measures to ensure privacy and integrity of the data, with all activity audited on every moment. The databases are only accessible locally (i.e. only

available to the C-MMD server itself) in order to prevent any unwanted connection from outside. The system and server configuration have been arranged in order to support local data encryption to avoid physical access to the hard disk drive. The server has a local firewall that only allows secure web connections to the Internet and verified IP addresses for development/updates of the C-MMD application. A local log file records every access to the server. The server is located in the UPC campus Data Center. This data center is a dedicated 250 m2 facility with controlled access, personal ID cards for authorized staff and video surveillance 24x7. The server has dedicated bandwidth and backup power system in order to guarantee availability. More details on security measures, reference to Deliverable 7.3 "Data Management Plan".

11 Statistical Analysis

Two primary objectives are considered:

11.1 Primary objectives

These objectives are explained in the following:

- To evaluate the subjective quality of life of people living with mild cognitive impairment or dementia (mild to moderate), comparing the mean values at 18 months of the "Dementia Quality of Life measure" (DEMQoL) scores between the control group and the intervention group (users of CAREGIVERSPRO-MMD platform).

- To evaluate the perceived burden by primary caregivers, comparing the mean values at 18 months of the "Zarit Burden Interview" (ZBI) scores between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

11.2 Secondary objectives

11.2.1 Secondary objectives related to persons with MCI or dementia

- To evaluate the activities of daily living comparing at 18 months, in people living with mild cognitive impairment or dementia (mild to moderate), scores of the "Lawton Instrumental Activities of Daily Living Scale" (AIDL) and "Barthel ADL Index" (BADL) between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

- To evaluate the treatment adherence in people living with mild cognitive impairment or dementia (mild to moderate) comparing at 18 months "Proportion of Days Covered" (PDC) between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform) and proportions of different levels of adherence according to "8-item Morisky Medication Adherence Scale" (MMAS-8).

- To evaluate the behavioural and psychological symptoms for persons living with mild cognitive impairment or dementia (mild to moderate dementia), comparing at 18 months the "Geriatric Depression Scale" (GDS) and "NeuroPsychiatric Inventory" (NPI) scores between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

- To evaluate the neuropsychological functioning in people living with mild cognitive impairment or dementia (mild to moderate), comparing at 18 months the "Mini Mental State Examination" test (MMSE) score between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

- To evaluate hospitalisations in people living with mild cognitive impairment or dementia (mild to moderate), comparing along the study the number of hospitalisations between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

11.2.2 Secondary objectives related to primary caregivers

- To evaluate the subjective quality of life related to health comparing at 18 month, in primary caregivers, both physical (PCS) and mental (MCS) component summary measures of SF-36v2 between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

- To evaluate the treatment adherence in primary caregivers, comparing at 18 months "Proportion of Days Covered" (PDC) between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform) and proportions of different levels of adherence according to "8-item Morisky Medication Adherence Scale" (MMAS-8).

- To evaluate the behavioural and psychological health and wellbeing comparing at 18 months, in primary caregivers, the "Geriatric Depression Scale" (GDS), The "State Trait Anxiety Inventory" (STAI) scores between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

- To evaluate the perceived perceived social support comparing at 18 months, in primary caregivers, the "Multidimensional Scale of Perceived Social Support" (MSPSS) score between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

- To evaluate the perceived perceived success in relationships, self-esteem, purpose and optimism comparing at 18 months, in primary caregivers, the "Flourishing Scale" (FS) score between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

- To evaluate the use of psychotropic drugs comparing at 18 months, in primary caregivers, proportions using them between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

11.2.3 Secondary objectives related to dyad

- To evaluate the quality of caregiving relationship between caregiver and people with MCI or PLWD comparing in dyads the values at 18 months of the "Dyadic Assessment Scale" (DAS) score between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

11.2.4 Secondary objectives related to economic and financial benefits

- Compare in caregivers the "Resource Utilization in Dementia" scale (RUD) score, direct and indirect costs, between the control group and the intervention group (users of the CAREGIVERSPRO-MMD platform).

- Economical parameters referred to costs not evaluated in RUD (diagnostic procedures, medications, laboratory, adapting housing, home health aides) will be also collected and compared between groups.

11.2.5 Secondary objectives related to CAREGIVERSPRO-MMD platform users

- A descriptive analysis from C-MMD User Satisfaction Scale.

11.3 Descriptive analysis

All variables will be described by using summary statistics as counts, mean, standard deviation, median, minimum, maximum and percentiles 25th and 75th for continuous variables and counts and percentages for categorical ones. 95% confidence intervals for the mean and free distribution confidence intervals for the median will be computed. Graphical analysis will be done as bar diagrams, scatter plots, box-plots, profiles and others.

11.4 Sample size

As there are two primary endpoints we will calculate two sample sizes and the bigger will be used. The resulting sample sizes are powering the two primary endpoints at european level considering the four countries pooled data.

For people living with mild cognitive impairment or dementia (mild to moderate) the objective is to demonstrate in users of the CAREGIVERSPRO-MMD platform an increase of ≥5% in mean value of Dementia Quality of Life measure (DEMQoL) at 18 months. Assuming a centred distribution the two-sided hypotheses are:

H01: mPDEMQoL = mCDEMQoL
H11: mPDEMQoL ≠ mCDEMQoL

Where mPDEMQoL is the mean value of DEMQoL at 18 months in the platform group and mCDEMQoL is the mean value of DEMQoL at 18 months in the control group. A mean DEMQoL value at 18 months in control group of 91 and a mean DEMQoL value of around 95.55 [SC Smith, Health Technology Assessment 2005; Vol. 9: No. 10] in the platform group are expected meaning an increase of around 5% in CAREGIVERSPRO-MMD platform users. Similar standard deviation of 11 is considered. Then, the question is to know how many people living with mild cognitive impairment or dementia (mild to moderate) will be needed to test a difference in mean values, if it exists, with a power of 0.9 at a two-sided significance level alpha equal to 0.05. Computation with SAS Proc glmpower is done to determine the sample size needed for testing in an analysis of covariance, with DEMQoL at 18 months as dependent variable, DEMQoL at baseline as covariate and group as independent variable. The calculated total sample size reaches 228 people living with mild cognitive impairment or dementia (mild to moderate), 114 per group. The standard deviation used to calculate the sample size is adjusted to 9.68 due to the inclusion of the covariate and the actual power remains in 0.901. Considering a dropout rate of 60% the sample size becomes 182 per group.

Assuming a centred distribution for DEMQOL-proxy and also an analysis of covariance approach,
an expected mean (SD) value at 18 months in control group of 92 (14), an expected mean (SD) value at 18 months in platform group of 96.6 (14), which represents an increase of 5%, and a two-sided test with alpha 0.05 and power of 0.9 yields in a sample size including a 40% of dropouts of 252/group.

Assuming an assymetric distribution for DEMQOL or DEMQOL-proxy, let define p = P(platform values > control values). Then the odds = p/(1-p) will indicate the ratio between the number of favorable outcomes to the number of unfavorable outcomes. Assuming a two-sided test with alpha=0.05 and power = 0.9 and an odds of 1.5 the sample size per group including 60% of dropouts = 292/group

For primary caregivers the objective is to demonstrate in caregivers using the CAREGIVERSPRO-MMD platform a reduction of ≥20% in mean value of Zarit Burden Inventory (ZBI) at 18 months.

The two-sided hypotheses are:

H02: mPZBI = mCZBI
H12: mPZBI ≠ mCZBI

Where mPZBI is the mean value of ZBI at 18 months in the platform group and mCZBI is the mean value of ZBI at 18 months in the control group. A mean ZBI value at 18 months in control group of 30 and a mean ZBI value of around 25.5 [Reed et al, 2014] in the platform group are expected meaning a decrease of around 15% in CAREGIVERSPRO-MMD platform users. Similar standard deviation of 15 is considered. Then, the question is to know how many primary caregivers will be needed to test a difference in mean values, if it exists, with a power of 0.9 at a two-sided significance level alpha equal to 0.05. Computation with SAS Proc glmpower is done to determine the sample size needed for testing in an analysis of covariance, with ZBI at 18 months as dependent variable, ZBI at baseline as covariate and group as independent variable. The calculated sample size reaches 430 primary caregivers, 215 per group. The standard deviation used to calculate the sample size is adjusted to 13 due to the inclusion of the covariate and the actual power remains in 0.900. Considering a dropout rate of 40% the sample size becomes 301 per group.

11.5 Primary analysis

Change in DEMQoL/ZBI score defined as difference between 18 months value and baseline value will be compared between groups fitting an analysis of covariance with DEMQoLL/ZBI at 18 months as dependent variable, group as classification variable and baseline value as covariate. Confidence intervals for least square means will be computed.

11.6 Secondary analysis related to people living with MCI or dementia and their caregiver

Comparisons at 18 months of IADL score will be done fitting a polytomous logistic regression with group as independent variable.

Comparisons of treatment adherence will be done using proportions of MCI or PLWD/CG with PDC Covering ≥ 1 medication and covering the full regimen. Confidence intervals for the estimate of differences will be computed and a Chi-square test also applied for comparing proportions. MMAS-8 will be fitted with a two populations polytomous response for repeated measures.

Comparison of NPI (mild, moderate, severe) and GDS (normal, mild, moderate, severe) questionnaires at 18 months will be performed fitting a polytomous logistic regression with group as independent variable.

MMSE will be compared using proportion of people living with mild cognitive impairment or dementia (mild to moderate) who decrease their score and computing the confidence interval for the estimate of difference. A Chi-square test will also be done for comparing proportions.

Differences in SF-36v2 PCS and MCS component summary measures will be performed according to Quality Metric's Health Outcomes™ Scoring Software 5.0 available.

Comparisons between groups of the number of hospitalisations will be done computing the confidence interval for the estimate of difference of median values using the Hodges-Lehmann approach for independent data. Same approach will be applied for STAI.

Comparisons of proportions of caregivers using psychotropic drugs between groups will be done computing the confidence interval for the estimate of difference. A Chi-square test will also be done for comparing proportions.

Comparisons at 18 months of MSPSS score and FS scale will be done computing the confidence interval for the estimate of difference of median values using the Hodges-Lehmann approach for independent data. A rank analysis of covariance combined with Cochran-Mantel-Haenszel statistics will also be fitted to evaluate differences between groups.

When considering the scales over time, rate of change comparisons between groups of ZBI and DEMQoL will be assessed fitting a random coefficient model incorporating random effects due to individual in both intercept and slope. IADL score and NPI questionnaire will be fitted with a two populations polytomous response for repeated measures. A rank analysis of covariance combined with Cochran-Mantel-Haenszel statistics will also be fitted to evaluate differences between groups for other non-centered scores.

Secondary analysis related to dyad

Comparisons at 18 months of DAS score will be done computing the confidence interval for the estimate of difference of median values using the Hodges-Lehmann approach for independent data. A rank analysis of covariance combined with Cochran-Mantel-Haenszel statistics will also be fitted to evaluate differences between groups.

11.6.1 Secondary analysis related to economic and financial benefits

Overall efficiency savings to family and costs associated in both people living with mild cognitive impairment or dementia (mild to moderate) and their caregivers will be achieved by computing the confidence interval for the estimate of difference of median values using the Hodges-Lehmann approach for independent data. Overall efficiency savings will be performed in the same way.

Comparison of median time to institutionalisation will be computing by the confidence interval for the estimate of difference of median values using the Hodges-Lehmann approach for independent data.

Exploratory cost-effectiveness analysis of the platform related to caregivers will be performed computing incremental cost-effectiveness ratio (ICER) and incremental net benefit (INB). Variable of efficacy will be the reduction of ZBI at 18 months with respect to baseline. Policy decisions are made in each country and so country-specific results are important. However, country-specific analyses perhaps are based on fewer patients and will often fail to provide adequate precision for statistical analyses. To address these issues hypothesis test to evaluate homogeneity of results across countries, consider country effects or using shrinkage estimators can be applied. This will be taken in account depending of data. Results of costs will be converted to a common currency in order to be compared appropriately. As the time horizon is bigger than one year adjusting by discount rate will be applied.

12 Ethical Proceedings

12.1 Valid legal dispositions

All development of the study will be conducted according to the principles of the Declaration of Helsinki, Seoul, Korea revision (October 2008) for research involving human beings. Copies of the Declaration of Helsinki and subsequent amendments are provided under specific request or can be obtained through the website of the World Medical Association in http://www.wma.net/en/30publications/10policies/b3/.
The study will be executed according to the protocol that ensures compliance with rules of Good Clinical Practice (GCP), as described in the Harmonized Tripartite Guidelines for Good Clinical Practice ICH 1996.
According to international rules concerning realization of epidemiological studies and recorded in International Guidelines for Ethical Review of Epidemiological Studies (Council for the International Organizations of Medical Sciences-CIOMS-Geneve,1991), in the guidelines of the Order SAS/3470 / 2009 on post-authorization observational studies and the recommendations of the Spanish Society of Epidemiology (SEE) upon revision of the ethical aspects of epidemiological research, projects of such studies must, except in certain specific cases, undergo review by an

independent committee. For this reason, the present study has been submitted for evaluation to an ethics committee and has to be notified and classified by the respective country Agency of Medicines and Health.

12.2 Benefit-risk evaluation for the subjects under investigation

During the study only data on regular clinical practice will be collected. The participant dyads in the intervention group will undergo no tests other than those under regular clinical practice for clinical management of dementia.
There are several risks that need to be managed:

1. For example, There is a possible psychological harm or distress because of inappropriate use of the platform (inappropriate language in post and comments/inappropriate posts)
2. Another risk concerns safe internet use. Participants from the control and the experimental groups will be able to use the tablets to connect to internet in general, not only to connect to the platform.
3. Participants distress: although we do not any expect participants to feel distress, it is possible that completing platform questions and reflecting on their own health and wellbeing might increase feelings of distress. Possible that for MCI/PLWD conducting memory assessments might be upsetting. Reading posts of others we hope will be supportive and helpful but may be distressing. Will they be able to contact researchers? Be adviced to contact their GP? List of local support organisations and meetings will be included on the platform? they will be inform prior to the focus group and the usability study that they are free to ask for a break at any point. In the event that a participant becomes distressed they will be referred to their health professional, like their general practitioner.
4. Time considerations: The tasks related to the platform might be time consuming for participants. However, they will be able to use the platform on their own pace and place, when they feel they have time.
5. Loss of ability to consent of the duration of the pilot.

12.3 Considerations on information to participants and informed consent

Participants will be given a Participant Information Sheet (PIS), and will be informed about the aims of the study, methodology and how are they will be required to use the platform, and confidentiality of data. Because the platform works as a social network, and because caregivers, health professionals, helpers etc will have access to MCI/PLWD data, participants will need to be informed about this it. Then, participants will be asked to give their full consent to participate in the study by signing a consent form. Consent will be taken following the principles of the mental capacity act and in accordance with the procedures outlined by Warner, McCarney, Griffin, Hill & Fisher, 2008.
Participants should be informed of their right to withdraw at any time without giving a reason. Participants will also have the right to withdraw their data by a given time, prior to data analysis and writing up. In the case of written information about the study and informed consent of participation must be given by his/her legal representative. An example of PIS informed consent sheet for this study is provided in Supplements of this protocol.

12.4 Confidentiality of data and MCI/PLWD

Information regarding the identity of MCI/PLWD is considered confidential for all purposes. Identity of PLWD must not be revealed nor spread. Their data collected in the database during the study will be documented in a dissociated way linking it with a study code (MCI/PLWD code) so that only investigator may associate such data to identified or identifiable persons.
If by law or audit, it was mandatory the knowledge of the MCI/PLWD identity, the sponsor of the study for each pilot site should always maintain confidentiality rules. The database generated in the study will not contain any identification of the MCI/PLWD, only a numerical code from which is not possible to reveal his/her identity. This identity will be maintained between the participants and researchers relationships and will not be achieved without the consent of both.

Personal data (name, address, workplace of investigators) involved in the study will be stored electronically for the sole purpose of facilitating those logistical and organizational aspects required for the development of the study. The file is subject to confidential treatment under the provisions of the applicable law of the country.
Quotes from interviews: Participants will be informed in the information sheets that researchers might use direct quotes from their interviews for publication. However, these quotes will be anonymised, or will be presented under a different name.

12.5 Study recommendations and withholding of records

Investigators will be identified with a specific code. MCI/PLWD and their caregivers included will be coded with a correlative number assigned by the researcher behind the identification number of the investigator. Principal investigator of each centre will be in charge of keeping copies of the documentation of the study, the original signed informed consent and the records of participants' identities.

Responsibilities of study participants

12.6.1 Participant investigators

By signing the investigator commitment, participant investigators compromise agreed to efficiently and diligently carry out the study following this protocol according to generally accepted standards of good clinical practice and all standards and legal requirements related to realization of the study.

Obligations of members of the research team

- Ensuring all time for the welfare and safety of participants.
- Comply with the commitment to carry out the study according to the protocol as well as inform MCI/PLWD or their legal representatives about the aims of the study and obtain their informed consent.
- Keep the documentation at least 10 years after the final report of results.
- Aim to contribute to the dissemination of results in scientific articles and conferences.
- Be responsible for assuring that information collected and annotated in the database is accurate according to the information provided in this in the protocol.
- Know the origin of the collected data and associate them with participants' identification data, being responsible for not appearing in the database any information that could identify the participant (name, identification code, zip code, telephone...).
- All participating investigators will have to prepare and maintain a complete and accurate documentation of the study in compliance with standards of good clinical practice and national and local legal requirements and regulations. They will also have to register all data in the database for each participant within a reasonable period as required by this protocol.

12.6.3 Coordinator investigator

Coordinator investigator will have to comply with all obligations as participant and will also have to sign the final version of the protocol and any modification together with sponsor. He/she will be co-responsible of follow-up and final reports together with sponsor and diffusion of study results prior sponsor authorization.

12.6.4 Study monitor

Study monitor will have too to verify that information recorded in the database is reliable and consistent for which he/she will have to obtain collaboration of investigators participating in the study. Study monitor will follow the

course of study and will inform doctors professionals about it. He/she will also notify any significant incidence damaging the course of the study of any issues arising during the pilot (slow patient enrolment, no complying of any inclusion/exclusion criteria…).

12.6.5 Study sponsor

Study sponsor will be responsible for complying with current legislation. Also, if will have the following duties:
* Signing with coordinator investigator the protocol and any amendments of it providing investigators for eCRF and protocol submitting the protocol to the ethics committee or delegate this task to whom designate the sponsor presenting the study protocol and follow up and final reports if required, provide a copy of the protocol and documents vouching for follow up procedures to entities supplying services to healthcare where the study will take place or delegate this task to whom designate the sponsor.

13 Dissemination of Results and Publication Policy

The CAREGIVERSPRO-MMD consortium have the following characteristics with respect to disseminating and applying their research findings:

Involve all partners in the dissemination of information about the partnership and project findings in forms that all partners can understand and use. This dissemination includes multiple audiences (e.g., community members, policy makers, local health professionals) and multiple formats (e.g., radio, newspapers, presentations at professional meetings, handbooks, policy position papers, scientific journal articles), with all partners involved as co-authors and co-presenters as their interests and circumstances allow.

- Development of scientific papers and posters for dissemination of results.
- Presentation in seminars, conferences and scientific meetings related to the topic.

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15 Supplements

15.1 User Manual of the CAREGIVERSPRO-MMD platform

15.1.1 Instructions for using the CAREGIVERPSRO system

The CAREGIVERPSRO system allows you to be part of a mutual assistance community. You can use the system through internet (www.caregivers.pro), with your mobile or with the tablets we will setup for you. There are a lot of functionalities within the system, so don't worry if you have the feeling it is too complex for you. You can have a positive experience using only some basic features and the system will help you to learn smoothly all the functionalities. In case of issue, you may send an email to support@caregivers.pro.

The tablet
We will set up the tablet for you. There is no need to switch it off. The system is ready for you to use. If the tablet isn't used for a while it will go to sleep. The screen may go blank, don't worry this is completely normal. Just touch the screen to re activate the machine. It may take 5-10 seconds to come back to life! If you can't get the tablet to come back to life check the machine is plugged in or charged. If it is plugged in, or charged, press the power button. The tablet will then set up automatically and CAREGIVERSPRO will appear again.

15.1.2 CAREGIVERSPRO overview

CAREGIVERSPRO is a digital platform based on social network where people with memory problem, formal and informal caregivers, health and social professionals can connect with other improving experiences of care. The mission is to support and develop a mutual assistance community to fight against dementia. People use CAREGIVERSPRO to create personal profiles, add other users as "friends" and share information related to dementia with them.

After signing up and adding friends, people communicate with some or all of their CAREGIVERSPRO friends by sending private, semi-private or public messages. Messages can take the form of a "status update" (a "post"), a private message, a comment about a friend's post or status, or a click of the "like" button to show support for a friend's update.

Once they learn CAREGIVERSPRO, most users will share all kinds of content - photos, videos, music, and more. They also join CAREGIVERSPRO interest groups related to dementia to communicate with people whom they might not otherwise know. After growing familiar with how CAREGIVERSPRO works, most people will also use special CAREGIVERSPRO applications that are available to plan events, play games like brain training and engage in other activities and cover:

- The need for general and personalized information;
- The need for support with regard to symptoms of dementia;
- The need for social contact and company and
- The need for health monitoring and perceived safety.

15.1.3 Learn CAREGIVERSPRO, Step-by-Step

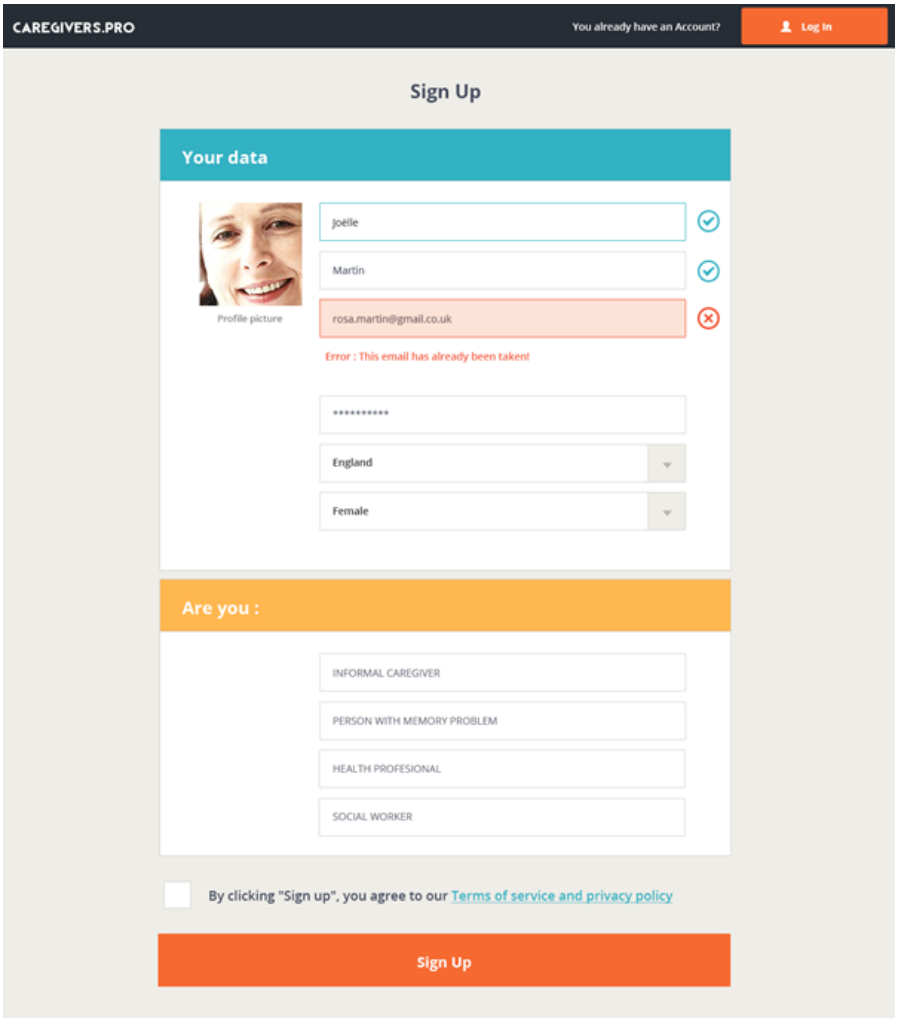
This part explains what every new CAREGIVERSPRO user should know to understand how CAREGIVERSPRO works in six areas listed below:

1. CAREGIVERSPRO Account Set-up
2. Using CAREGIVERSPRO Profile/Timeline
3. Connecting with Friends
4. Understanding CAREGIVERSPRO 's Interface

5. Communicating with Friends
6. Privacy Settings and Controls

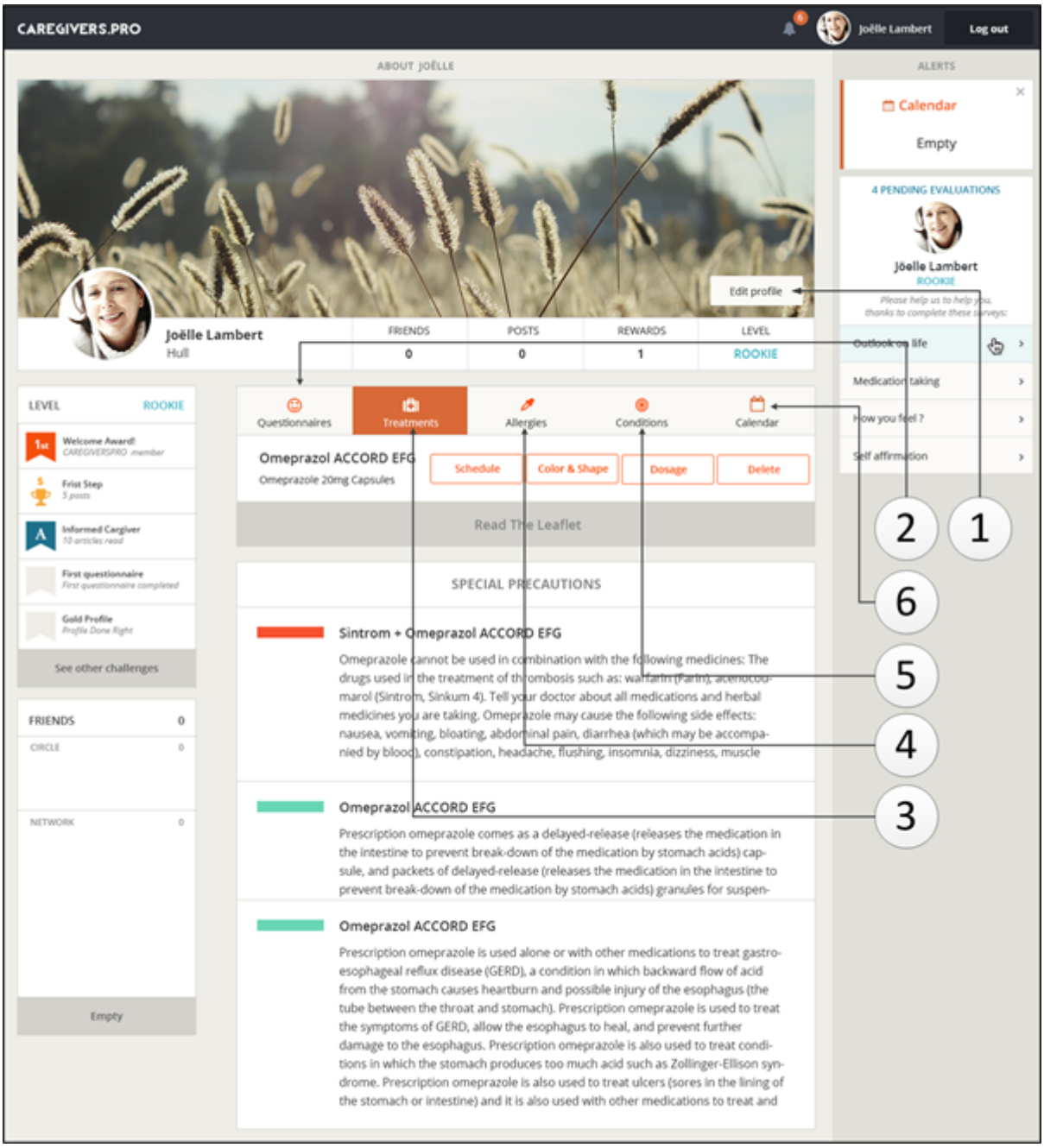
15.1.3.1 CAREGIVERSPRO Account Set-up

The first step in using CAREGIVERSPRO is to sign up and get a new CAREGIVERSPRO account. Go to www.caregivers.pro and fill out the "Sign Up" form on. You should give your first and last name along with your email address and the rest of the form.
Click the orange "sign up" button at the bottom when you're done. CAREGIVERSPRO will send a message to the email address you provided with a link asking you to confirm your email address.



After signing up for CAREGIVERSPRO, you should fill out your CAREGIVERSPRO profile before you start connecting with many friends, so they'll have something to see when you send them a "friend request". Filing out your CAREGIVERSPRO profile consists on 6 steps:

- Step 1 - General information
- Step 2 - Questionnaires
- Step 3 - Treatments
- Step 4 - Allergies
- Step 5 - Conditions
- Step 6 - Events ("calendar")



Step 1 - General information ("edit profile")

To edit your basic personal info: go to your profile, Click "edit profile" at the bottom right of your cover photo. It concerns demographic background, interests and health information.

Demographic background: you can edit information like your first and last names, your spoken language, the city and country where you live, a short sentence that represents you (motto), your nationality, date of birth, and their gender.

Interests: you will be able to select interests from a wide range, such as 'Making decisions about care' or 'Nutrition, appetite and weight'. This information will help us to provide tailored interventions.

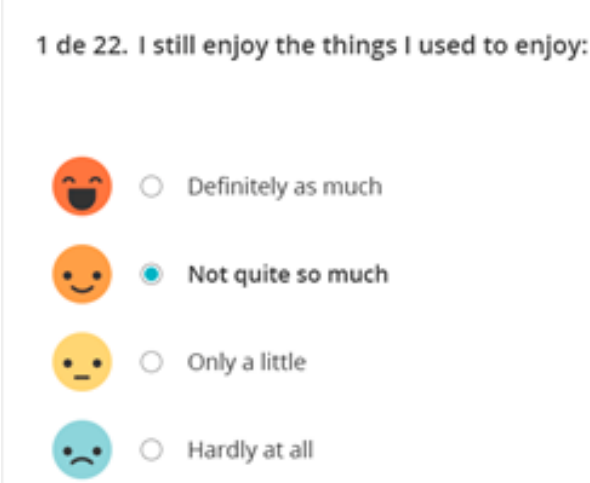
Health information: They will also provide information about your conditions, such as your height and weight, conditions and other information that may have an impact on your treatment (e.g.: if you are driving).

Privacy settings: You will be able to select who can see your information.

For example, you will be able to select who can send you a friend request, who can see your health outcome, or whom to share their treatments, posts, photos, avatar, followers, which people they follow, they friends/helpers, their date of birth, motto, email address, and telephone number with like showed in the figure on the right.	

Please don't forget to save all your changes by clicking the button  "save changes" as shown on the right.

Step 2- Questionnaires

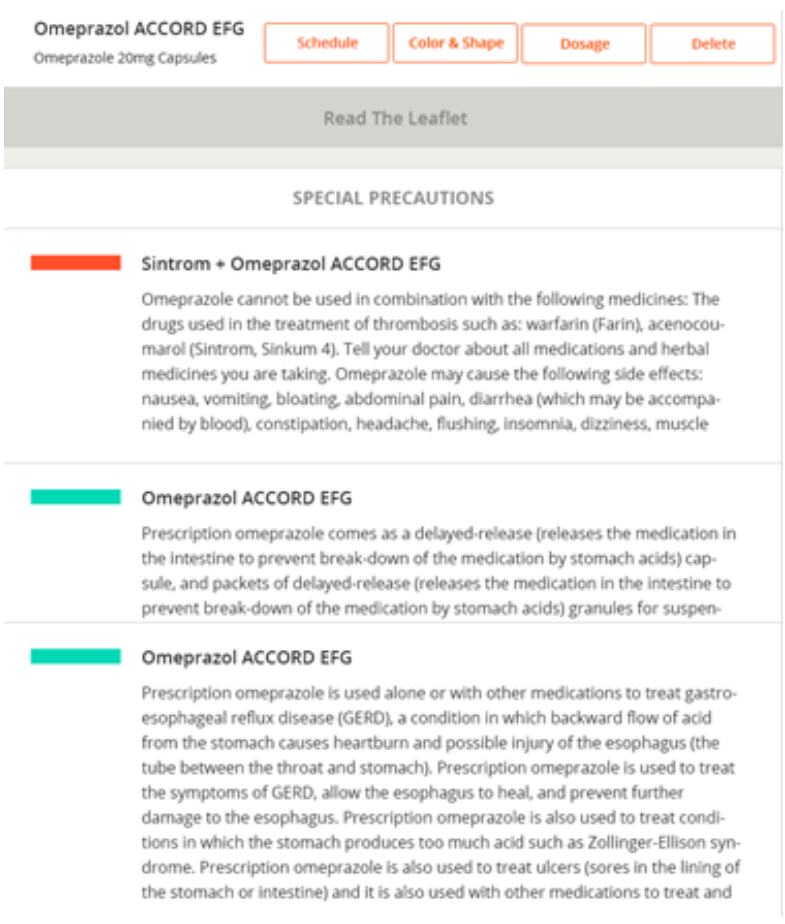
In order to provide the best content that fit your need, we will ask you to complete surveys from time to time. On the right, you have an example of a question from a questionnaire that will be proposed to you. Please help us to help you, thanks to complete these surveys.	

Step 3 - Treatments

In order to be able to send reminder, you can automatically populate CAREGIVERSPRO with your medication list no matter where you currently fill your prescriptions. No more tedious data entry or taking pictures of pill bottles, just **click search** and we'll do the rest. The app automatically keeps a log of the medications you've taken (and not taken), helping you track your progress over time. Never forget again!

The platform is linked to a drug repository that will permit you to have access to information about your treatment:

- You can read the leaflet by clicking on "Rad the leaflet"
- You will be informed about adverse effects with other drugs you are taking.
- You will be informed about adverse effects with your conditions.
- You will be informed about the treatment adverse effect.



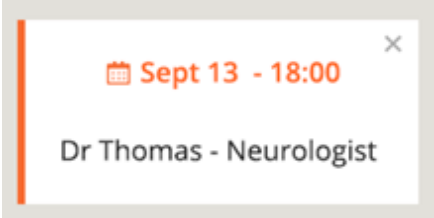
Step 4 - Allergies
You will select some allergies you have. This will help us to detect and inform you about potential drug adverse effects.

Step 5 - Conditions
This section is reserved to doctor and medical professional. For caregivers or person with memory problem, this section is an output section.

Step 6 - Events ("calendar")

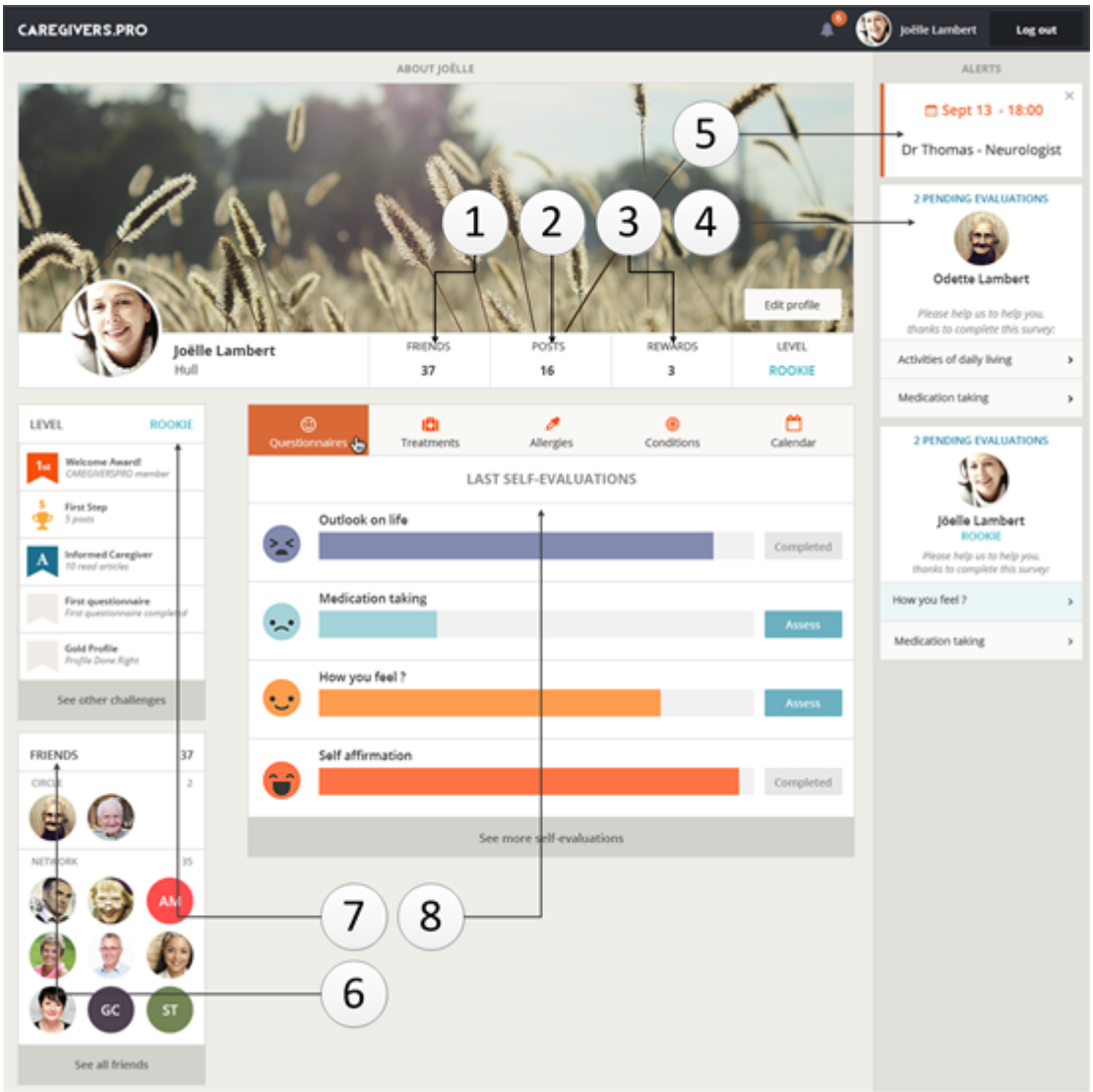
In this section, you can set up an event record that can be shared with your friends.

If you click on the “calendar” (Figure 1 – [6]), you can fill the following information: **Start date**, **end date**, **subject** and **privacy setting** (who can see this event)



After some times using CAREGIVERPSRO, you could have the same profile than Joelle:

1. Joelle is now in touch with in touch with friends and family
2. Joelle has made 16 posts (private messages, comments about a friend's post or status, or clicks of the "like" button to show support for a friend's update.)
3. Joelle won 3 badges, Joelle level is “ROOKIE”
4. Joelle added her grandmother (Odette) in her circle. As a dyad, they will share information and take care of each other. Joelle can complete Odette assessment, check Odette treatment adverse effect and share the result with health professional or within her circle.



5. Joelle has introduced one event. This event will be reminded and share with circle member.
6. Joelle has 37 friends. A "friends" may be part of the circle or the network. Circle members are the most trusted people. In a circle we can find caregivers, people with memory problems, supporting professionals and volunteers. Within a circle, we can share private, health information and create a basic community of care.
7. CAREGIVERSPRO is rewarding users and group of users (dyads and circle) for getting engaged with the community, participating in discussions with other users, watching videos, reviewing content, and other activities. In exchange for their participation, users, dyads and circles are awarded with badges and progress through levels of achievement. Joelle level is rookie.
8. Self-evaluation: from time to times, CAREGIRVERSPRO will ask Joelle to complete questionnaires. The result is displayed here. The survey also provides information for the tailored intervention in the timeline. As Joelle is the primary caregiver of Odette, Joelle will also have to complete the Odette questionnaires.

15.1.3.2 CAREGIVERSPRO Timeline (news feed)

The CAREGIVERSPRO timeline (or feed) displays the stream of personalized status updates to each user of the social network on their home page, the tailored interventions based on questionnaires, the medication reminders, and the private and public messages.

User can personalize the content streams they see in order to have a better control over the CAREGIVERSPRO news feed, which is widely seen as a crucial component in the social network experience. CAREGIVERSPRO wants to provide the best-personalized newspaper related to dementia, for users.

15.2 Project Information Document for participants

Research institution: COOSS Marche ONLUS S.c.p.a. – Dipartimento Ricerca e Formazione
Address: Via Saffi, 4 – 60121 Ancona (IT)
Research coordinator name: Dr. Francesca Scocchera
Telephone: +39 071 50103 215
Email: f.scocchera@cooss.marche.it

Study Title: "*Multicentre pilot study to determine the benefits of CAREGIVERSPRO-MMD platform use based on the information and communications technology (ICT), dedicated to the support and assistance of dyads living with neurocognitive diseases including persons living with mild cognitive impairment or mild to moderate dementia and their primary caregivers*"

Mrs., Miss, Sir,

In the following we are presenting information about the study of CAREGIVERSPRO-MMD platform for which we would appreciate your voluntary participation.
Nineteen million people in Europe are affected by dementia with economic and social serious health consequences. The inner circle of some people living with dementia is formed by the primary caregiver, friends and social and health services from the area with the aim to minimize the consequences of the illness.
Supporting a dependent person in the daily life is not trivial. Besides personal, professional and financial sacrifice that spouses and parents are offering to people living with dementia, there is an impact on the physical and moral health of caregivers and family.
Main goal of this work is to reduce the burden of caregivers and improve the quality of life of people living with dementia.
This study will last 18 months, it is run by a research staff of 5/8 professionals that will provide you all necessary explanations about the study.

Study abstract:
According to the World Health Organisation [WHO, 2015] there are 46.8 million people living with some form of dementia worldwide for which there is currently no treatment or effective strategy that can halt or reverse their progressive cognitive impairment. As Europe's population is aging, and longevity is the main risk factor for developing dementia, long-term care for older citizens will represent an increasing financial cost for society. There are currently 19 million people living with dementia in Europe, and this figure is expected to reach 31.5 million by 2050. To manage this transition, health policies of the EU and its member states are focused on enhancing elderly people's longevity and preventing their dependency. This has the double aim of increasing their subjective quality of life while reducing costs and increasing the effectiveness of healthcare. That is why the European project "CAREGIVERSPRO-MMD" (RIA, PHC-25-2015, PIC: 690211), with participating partners: the Universitat Politècnica de Catalunya (Spain), MobilesDynamics (Spain), University of Hull (United Kingdom), Q-Plan International LTD (Greece), COOSS Marche (Italy), Fundació Universitària del Bages (Spain), Rouen University Hospital (France) and the Centre for Research and Technology Hellas (Greece), aims at evaluating the web platform "CAREGIVERSPRO-MMD", accessible for computers, phones and tablets, and defined as an mHealth application specifically for caregivers and people living with mild cognitive impairment or mild to moderate dementia, which will provide value-added services based on social networks, tailored interventions, clinical strategies and gamification to improve the subjective quality of life of those living with cognitive impairment or dementia as well as that of their caregivers (dyads), thus supporting them to live in the community for as long as possible.
In order to evaluate the effectiveness and impact of the platform in people living with mild cognitive impairment or dementia (mild to moderate) together with their caregivers, a prospective, randomised, multicenter, controlled, parallel and longitudinal study was devised with 602 dyads (carried out in a multicentre study: 100 followed by HUL, 200 by COO, 202 by FUB and 100 by CHU), divided into two groups of equal numbers. The groups will be comprised of one "intervention" group with access to the platform and another "control" group without any access to it. During the following eighteen months, aspects related to the individuals' health (general health, neuropsychological functioning, activities of daily living, subjective quality of life, adherence to pharmacological treatment and comorbidities), social aspects (cohesion of the dyad, social support, success in relationships, self-esteem, purpose and optimism) and economic aspects (cost-effectiveness of the use of the platform) and the degree of satisfaction and usability of the platform by all users will be evaluated.

You are invited to participate in a research study being conducted by COOSS Marche – Dipartimento Ricerca e Formazione – in cooperation with Università Politecnica delle Marche – Presidio Ospedaliero Umberto I – AO Riuniti di Ancona - Dipartimento di Scienze Neurologiche.

How is the study being paid for?
The study is being sponsored by European Union's Horizon 2020 research and innovation programme under grant agreement No 690211. Project title: "Self-management interventions and mutual assistance community services, helping people with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience".

What will I have to do?
Total study duration is 18 months. The study includes two groups: a "control" group and an "intervention" group. Each dyad (people living with dementia and their caregiver) will be randomly assigned to one of them.
People living with dementia and caregivers of "control" group will attend a full medical examination every 6 months (month 0, 6, 12, 18 of the study), and receive a phone call monitoring about care costs, adherence to treatment and well-being (month 3, 6 and 15 of the study).
People living with dementia and caregivers of "intervention" group actively will use the CAREGIVERSPRO-MMD platform after previous training. They will also attend a full medical examination every 6 months (month 0, 6, 12, 18 of the study) and answer a questionnaire of satisfaction in using the platform and receive a phone call monitoring on care costs, adherence to treatment and well-being (month 3, 6 and 15 of the study).
The intervention group will use a tablet (one for each member of the dyad, persons living with mild cognitive impairment or dementia (mild to moderate) and their primary caregiver) connected to the CAREGIVERSPRO-MMD

platform and provided by the project staff. The tablet will have limited access to internet and applications other than those related to the activity of the CAREGIVERSPRO-MMD platform.
The CAREGEIVERSPRO-MMD platform provides users with updated information and personalized advice. Users can participate in discussion groups for sharing the same living situation and enjoy other experiences. They also may to know in any moment their treatments, have access to health specific evaluations and to dispose of a medical diary.

What benefits will I receive in participating?
Your participation will represent no cost for you. Immediate benefit in participating in the study is your contribution to knowledge and scientific development of direct application of technologies to the quality of life of caregivers and people living with dementia as demonstrated in other studies.

Will the study represent any discomfort or risk for me?
There is no risk nor discomfort from the use of CAREGIVERSPRO-MMD platform.

May I withdraw from the study?
Participation is entirely voluntary and you may abandon whenever you want with no explanation. This will not affect your relationship with the medical team.

May I spread my participation in the study
Yes, you can inform other people about the study providing you also inform people about medical team contact for further possible participation.

What if I require or need further information?
Please contact
COOSS Marche:
Francesca Scocchera - 071 50103215
Francesca Cesaroni - 071 50103212
Marco Antomarini - 071 50103261

What if I have a complaint?
This study has been approved by the Comitato Etico Regionale delle Marche. The Approval number is [enter approval number once the project has been approved]
If you have any complaints or doubts about the ethical conduct of this research, you may contact the Comitato Etico Regionale delle Marche - Tel +39 071 596 3135; +39 071 596 3667 or email: comitato.etico@ospedaliriuniti.marche.it. All issues will be treated confidentially.

After a period of reflection, if you agree to participate in this study, you must complete and sign the “Informed Consent Form” for participation. You are given a copy of the full document. We remind you that participation is entirely voluntary and you may abandon whenever you want with no explanation.

Thanks for your cooperation.

You will receive more information about this study from the research team.

15.3 Informed consent form

15.3.1 Primary caregivers - People with mild cognitive impairment / People living with dementia

Informed Consent Form for:
Primary caregivers / People with mild cognitive impairment / People living with dementia / Legal representatives
Research "CAREGIVERSPRO-MMD"

"Pilot study multicenter the influence of CAREGIVERSPRO-MMD platform based on the information and communications technology (ICT), dedicated to the support and assistance of those affected by neurodegenerative diseases (people living with dementia and their primary caregivers) the quality of life, health and socioeconomic impact"

Promoting research: Universitat Politècnica de Catalunya – Barcelona Tech - European Union
Executing Research Center: COOSS Marche
Principal Investigator: XXX

The undersigned:_____
(Full name), being a person (or primary caregiver affected person from mild cognitive impairment or dementia living), have read and understand the information report on the study entitled "CAREGIVERSPRO-MMD" that has given me.
I have also had the opportunity to ask any questions that have seemed useful for understanding the study information getting clear answers and precise by Researcher / Doctor
_____ who also explained to me the nature, objectives, expected benefits, the duration of the study and monitoring potential risks and limitations related to my participation in this research.
I'm absolutely clear that I am free to accept or reject my participation in this research.
I know it reserves the possibility that, by unilateral own decision, discontinue my participation in this research, at any time, without having to justify my decision. Naturally, this does not compromise the quality of future services at my disposal.
I received the assurance that they will make the best decisions necessary regarding the state of my health at all times, according to the current state of medical knowledge.
My consent doesn't release the investigator and the sponsor of the research of their responsibilities for preserving me all my personal rights protected by law.
I have read and I have been informed that this research project has been approved by the Research Ethics Committee Clinical XXX <date of acceptance> and the Agency XXX XXX (XXX). On the other hand: the local XXX responsible for research, management, insurance against liability for damage to the company XXX (contract number) that is at my disposal in the department / XXX XXX Research Center.
I expressed my agreement that my medical records can be consulted linked to research under strict professional secrecy by staff. I agree that people who work in this investigation or have the mandate of the promoter and possibly a representative of the health authorities, have access to my information in the strictest confidence. I agree that data recorded during this investigation can be processed for analysis under the responsibility of the promoter. I have been aware that, in accordance with the law relating to data, files and freedoms X XXX XXXX, have the right to access and correct any information concerning my person. Also I have the right to make opposition to the transmission and dissemination of information covered by professional secrecy. Such rights I have committed to my doctor responsible in the context of this investigation and perfectly knows my identity.
The overall results of the research I communicate directly, if requested, in accordance with the Act of X XXX XXXX on the rights of patients and the quality of the health system.
I can at any time request additional information on the research project Researcher / Doctor
_____ (Telephone number: _____), who proposed me personally to participate in this research.
After sufficient time to reflect before making my decision time, I freely and voluntarily agree to be involved in research CAREGIVERSPRO-MMD.

In XIX, XX XXX XXX Name of the participant in the research: Signature:	In XXX, XX XXX XXX Name of the person responsible for the research: Signature:

NB: This informed consent form will be substituted with the official form COOSS uses, which complies with the Italian laws about data protection and privacy safeguard.

15.3.2 Legally responsible

Informed Consent Form for:
Legally responsible
Research "CAREGIVERSPRO-MMD"

"Pilot study multicenter the influence of CAREGIVERSPRO-MMD platform based on the information and communications technology (ICT), dedicated to the support and assistance of those affected by neurodegenerative diseases (people living with dementia and their primary caregivers) the quality of life, health and socioeconomic impact"

Promoting research: Universitat Politècnica de Catalunya – Barcelona Tech - European Union
Executing Research Center: COOSS
Principal Investigator: XXX

The undersigned _____
(Full Name), as legal representative of the person_____
_____(full Name) I have read and understood the information leaflet on the study entitled CAREGIVERSPRO-MMD that has given me.
I have also had the opportunity to ask any questions that have seemed useful for understanding the study and have received clear answers and precise by Researcher / Doctor
_____
who also explained to me the nature, objectives, expected benefits, the duration of the study and monitoring, potential risks and limitations related to participation in this research in reference to the person who I represent.
I 'm absolutely clear that I am free to accept or reject on behalf of the person represented their participation.
I know it reserves the possibility that, by choice, the person I represent interrupt the participation in this research, at any time without having to justify my decision. Naturally, this will not compromise the quality of future services available to the person I represent.
I received the assurance that they will make the best decisions necessary at any time to benefit the health of the person who I represent, according to the current state of medical knowledge.
My consent doesn't relieve the investigator and the sponsor of the research of their responsibilities with regard to the person I represent to be retained all their rights under the law.

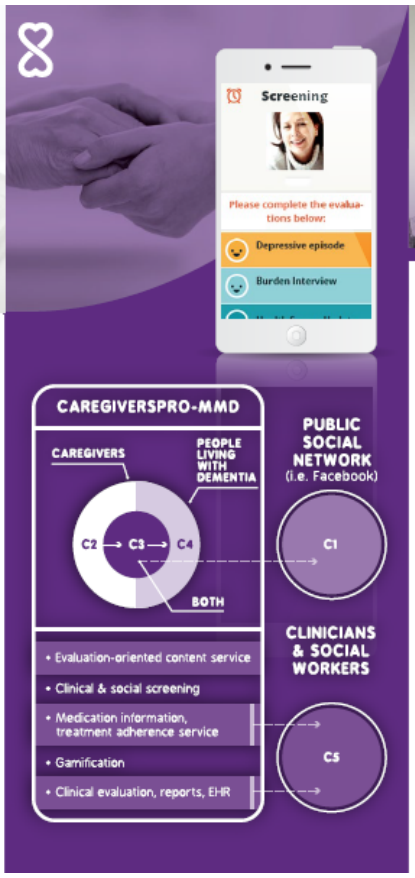
I have read and I have been informed that this research project has been approved by the Research Ethics Committee Clinical XXX <date of acceptance> and the entity / agency XXX XXX (XXX). On the other hand: the local XXX responsible for research, management, insurance against liability for damage to the company XXX (contract number) that is at my disposal in the department / XXX XXX Research Center .
I expressed my agreement that my medical records can be consulted linked to research under strict professional secrecy by staff. I agree that people who work in this investigation or have the mandate of the promoter and possibly a representative of the health authorities, have access to my information in the strictest confidence. I agree that data recorded during this investigation can be processed for analysis under the responsibility of the promoter. I have been aware that, in accordance with the law relating to data, files and freedoms X XXX XXXX, have the right to access and correct any information concerning my person. Also I have the right to make opposition to the transmission and dissemination of information covered by professional secrecy. Such rights I have committed to my doctor responsible in the context of this investigation and perfectly knows my identity.
The overall results of the research I communicate directly, if requested, in accordance with the Law of X XXX XXXX on the rights of patients and the quality of the health system.
I can at any time request additional information on the research project Researcher / Doctor
_____
(Telephone number: _____), who proposed me personally to participate in this research.

Having had sufficient time to reflect before making my decision, I accept freely and voluntarily the person I represent is involved in the research CAREGIVERSPRO-MMD.

In XIX, XX XXX XXX Name of the participant in the research: Signature:	In XXX, XX XXX XXX Name of the person responsible for the research: Signature:
In XIX, XX XXX XXX Name of legal guardian of the participant in the research: Signature:	CAREGIVERSPRO MMD

NB: This informed consent form will be substituted with the official form COOSS uses, which complies with the Italian laws about data protection and privacy safeguard.

15.4 CAREGIVERSPRO-MMD Promotional material



16 Appendixes

1. Core clinical criteria for the diagnosis of MCI
2. DSM-IV diagnostic criteria for dementia
3. BADL - Barthel ADL Index / Barthel Index of Activities of Daily Living
4. C-MMD-USE - CAREGIVERSPRO-MMD User Satisfaction Scale
5. CDR - Clinical Dementia Rating
6. DAS - Dyadic Adjustment Scale
7. DEMQoL - Dementia Quality of Life Measure
8. FS - Flourishing Scale
9. GDS - Geriatric Depression Scale
10. IADL - Lawton Instrumental Activities of Daily Living Scale
11. KSS - Kuppuswamy's Socioeconomic Scale
12. MMSE - Mini-Mental State Examination
13. MMAS-8 - 8-item Morisky Medication Adherence Scale
14. MSPSS - Multidimensional Scale of Perceived Social Support
15. NPI - NeuroPsychiatric Inventory
16. RUD - Resource Utilization in Dementia
17. SF-36v2 - Medical Outcomes Study (MOS) 36-Item Short Form 2nd version
18. STAI - State Trait Anxiety Inventory
19. ZBI - Zarit Burden Interview

16.1 Core clinical criteria for the diagnosis of MCI

Reference:
Albert MS, DeKosky ST, Dickson D, Dubois B, Feldman HH, Fox NC, Gamst A, Holtzman DM, Jagust WJ, Petersen RC, Snyder PJ, Carrillo MC, Thies B, Phelps CH. The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. Alzheimers Dement. 2011 May;7(3):270-9. doi: 10.1016/j.jalz.2011.03.008. Epub 2011 Apr 21.
[link: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3312027/]

In this appendix, we outline the core clinical criteria for individuals with mild cognitive impairment (MCI). In considering the specifics of this clinical and cognitive syndrome, it is important to emphasize, as noted earlier in the text, that sharp demarcations between normal cognition and MCI and between MCI and dementia are difficult, and clinical judgment must be used to make these distinctions.

16.1.1 MCI - Criteria for the clinical and cognitive syndrome

16.1.1.1 Concern regarding a change in cognition

There should be evidence of concern about a change in cognition, in comparison with the person's previous level. This concern can be obtained from the patient, from an informant who knows the patient well, or from a skilled clinician observing the patient.

16.1.1.2 Impairment in one or more cognitive domains

There should be evidence of lower performance in one or more cognitive domains that is greater than would be expected for the patient's age and educational background. If repeated assessments are available, then a decline in

performance should be evident over time. This change can occur in a variety of cognitive domains, including memory, executive function, attention, language, and visuospatial skills. An impairment in episodic memory (i.e., the ability to learn and retain new information) is seen most commonly in MCI patients who subsequently progress to a diagnosis of Alzheimer's disease (AD) dementia. (See the section on the cognitive characteristics later in the text for further details).

16.1.1.3 Preservation of independence in functional abilities

Persons with MCI commonly have mild problems performing complex functional tasks which they used to perform previously, such as paying bills, preparing a meal, or shopping. They may take more time, be less efficient, and make more errors at performing such activities than in the past. Nevertheless, they generally maintain their independence of function in daily life, with minimal aids or assistance. It is recognized that the application of this criterion is challenging, as it requires knowledge about an individual's level of function at the current phase of their life. However, it is noteworthy that this type of information is also necessary for the determination of whether a person is demented.

16.1.1.4 Not demented

These cognitive changes should be sufficiently mild that there is no evidence of a significant impairment in social or occupational functioning. It should be emphasized that the diagnosis of MCI requires evidence of intraindividual change. If an individual has only been evaluated once, change will need to be inferred from the history and/or evidence that cognitive performance is impaired beyond what would have been expected for that individual. Serial evaluations are of course optimal, but may not be feasible in a particular circumstance.

16.1.2 Cognitive characteristics of MCI

It is important to determine whether there is objective evidence of cognitive decline, and if so, the degree of this decline in the reports by the individual and/or an informant. Cognitive testing is optimal for objectively assessing the degree of cognitive impairment for an individual. Scores on cognitive tests for individuals with MCI are typically 1 to 1.5 standard deviations below the mean for their age and education matched peers on culturally appropriate normative data (i.e., for the impaired domain(s), when available). It is emphasized that these ranges are guidelines and not cutoff scores.

16.1.2.1 Cognitive assessment

As noted earlier in the text, impairment in episodic memory (i.e., the ability to learn and retain new information) is most commonly seen in MCI patients who subsequently progress to a diagnosis of AD dementia. Research studies have shown that there are a variety of episodic memory tests that are useful for identifying those MCI patients who have a high likelihood of progressing to AD dementia within a few years. These tests share the characteristic that they assess both immediate and delayed recall, so that it is possible to determine retention over a delay. Many, although not all, of the tests that have proven useful in this regard are word-list learning tests with multiple trials. Such tests reveal the rate of learning over time, as well as the maximum amount acquired over the course of the learning trials. They are also useful for demonstrating that the individual is, in fact, paying attention to the task on immediate recall, which then can be used as a baseline to assess the relative amount of material retained on delayed recall. Examples of such tests include (but are not limited to): the Free and Cued Selective Reminding Test, the Rey Auditory Verbal Learning Test, and the California Verbal Learning Test. Other episodic memory measures include: immediate and delayed recall of a paragraph such as the Logical Memory I and II of the Wechsler Memory Scale Revised (or other versions) and immediate and delayed recall of nonverbal materials, such as the Visual Reproduction subtests of the Wechsler Memory Scale-Revised I and II.

Because other cognitive domains can be impaired among individuals with MCI, it is important to examine domains in addition to memory. These include: executive functions (e.g., set-shifting, reasoning, problem-solving, planning), language (e.g., naming, fluency, expressive speech, and comprehension), visuospatial skills, and attentional control (e.g., simple and divided attention). Many validated clinical neuropsychological measures are available to assess these cognitive domains, including (but not limited to): the Trail Making Test (executive function), the Boston Naming Test, letter and category fluency (language), figure copying (spatial skills), and digit span forward (attention).

If formal cognitive testing is not feasible, then cognitive function can be assessed using a variety of simple, informal techniques. For example, the clinician can ask a patient to learn a street address and to recall it after a delay interval of a few minutes (e.g., John Brown, 42 Market Street, Chicago). Alternatively, the clinician can ask the patient to name three objects (e.g., a pen, a paper clip, and a dollar bill), place them in different locations around the room and subsequently ask the patient to recall the names of the objects and their locations, again after a brief delay. These types of approaches are relatively easy to perform during an office visit, and will yield informative results. It is important, however, for clinicians to recognize that these informal tests will likely be insensitive to subtle cognitive dysfunction during the early stages of MCI, and will often yield normal performance. In addition, these approaches typically do not assess cognitive domains beyond memory.

Finally, it must be recognized that atypical clinical presentations of AD may arise, such as the visual variant of AD (involving posterior cortical atrophy) or the language variant (sometimes called logopenic aphasia), and these clinical profiles are also consistent with MCI due to AD.

16.1.2.2 Summary of clinical and cognitive evaluation

The initiation of a clinical and cognitive evaluation typically includes a cognitive concern expressed by the patient, an informant, or a clinician observing the patient's performance. Cognitive decline can be documented by means of the history from the patient, preferably corroborated by an informant, or on the basis of observation by the clinician. Ideally, if serial assessments are available, they would be preferable, but in the setting of a single evaluation, this information is inferred from the history. The patient's cognition is assessed and found to be outside the normal range of function for the patient's age and educational background, but not sufficiently impaired to constitute dementia. The impairment can involve one or more cognitive domains. The clinician determines whether memory is prominently impaired, or whether the impairments in other cognitive domains predominate, such as spatial or language impairment. Typically, memory is the most common domain involved among patients who subsequently progress to AD dementia, as noted earlier in the text. There is generally mild functional impairment for complex tasks, but basic activities of daily living should be preserved, and the person should not meet criteria for dementia. It should be noted that the clinical syndrome, as summarized in this section and Table 1, is almost identical to the one previously described by Petersen et al [Petersen et al, 1999; Petersen et al, 2004; Winblad et al, 2004].

Table 1. Summary of clinical and cognitive evaluation for MCI due to AD

Establish clinical and cognitive criteria

- Cognitive concern reflecting a change in cognition reported by patient or informant or clinician (i.e., historical or observed evidence of decline over time)
- Objective evidence of Impairment in one or more cognitive domains, typically including memory (i.e., formal or bedside testing to establish level of cognitive function in multiple domains)
- Preservation of independence in functional abilities
- Not demented

Examine etiology of MCI consistent with AD pathophysiological process

- Rule out vascular, traumatic, medical causes of cognitive decline, where possible
- Provide evidence of longitudinal decline in cognition, when feasible

- Report history consistent with AD genetic factors, where relevant

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Abbreviations: AD, Alzheimer's disease; MCI, mild cognitive impairment.

16.1.2.3 Longitudinal cognitive evaluation

Evidence of progressive decline in cognition provides additional evidence that the individual has "MCI due to AD," as noted earlier in the text. Thus, it is important to obtain longitudinal assessments of cognition, whenever possible. It is recognized that a diagnosis will likely need to be given without the benefit of this information; however, obtaining objective evidence of progressive declines in cognition over time is important for establishing the accuracy of the diagnosis, as well as for assessing any potential treatment response.

16.1.2.4 Cautionary issues pertaining to cognitive assessment

It is important to emphasize that virtually all cognitive tests are sensitive to differences in age, education (i.e., literacy), and/or cultural variation among individuals. Age and educational norms are available for some tests, but few have norms that pertain to the oldest old (individuals aged ≥90 years). Moreover, considerable work remains to establish the reliability of cognitive tests across populations with wide cultural variation.

16.1.3 Etiology of the MCI clinical and cognitive syndrome consistent with AD

Once it has been determined that the clinical and cognitive syndrome of the individual is consistent with that associated with AD, but that the individual is not demented, the clinician must determine the likely primary cause, for example, degenerative, vascular, depressive, traumatic, medical comorbidities, or mixed disease. Typically, this information is derived from further historical information and ancillary testing (e.g., neuroimaging, laboratory studies, and neuropsychological assessment) that may prove informative.

To meet the core clinical criteria for MCI, it is necessary to rule out other systemic or brain diseases that could account for the decline in cognition (e.g., vascular, traumatic, medical). The goal of such an evaluation is to increase the likelihood that the underlying disease is a neurodegenerative disorder with characteristics consistent with AD. This diagnostic strategy is similar to the one that is used to diagnose "dementia due to AD." This may include seeking evidence for:

(1) Parkinsonism, including prominent visual hallucinations, and rapid eye movement sleep abnormalities, often seen in dementia with Lewy bodies,
(2) multiple vascular risk factors and/or the presence of extensive cerebrovascular disease on structural brain images, which is suggestive of vascular cognitive impairment,
(3) prominent behavioral or language disorders early in the course of disease that may reflect frontotemporal lobar degeneration, or
(4) very rapid cognitive decline that occurs over weeks or months, typically indicative of prion disease, neoplasm, or metabolic disorders. It should be noted that the pathological features of some of these disorders can exist in combination with AD (e.g., Lewy bodies and vascular disease), particularly among individuals at an advanced age.

The presence of vascular pathology, in the setting of MCI, is particularly challenging from a diagnostic perspective. Because AD pathology frequently coexists with vascular pathology, particularly at older ages, both may contribute to cognitive dysfunction. Thus, during life, it may be difficult to determine which pathological feature is the primary cause of the cognitive impairment.

Among the oldest old (i.e., those aged ≥90 years), there are additional difficulties in determining the etiology of the cognitive decline. For example, the pathological criteria for AD remain unclear for the oldest old.

16.1.3.1 Role of autosomal genetic mutations for AD

An additional issue is the role of genetics in the diagnosis. If an autosomal dominant form of AD is known to be present (i.e., mutation in APP, PS1, PS2), then the development of MCI is most likely the prodrome to AD dementia. The large majority of these cases develop early onset AD (i.e., onset below 65 years of age). There remains, however, variable certainty about the time course over which the progression from MCI to AD dementia will evolve in these individuals [Schellenberg et al, 2006].

16.1.3.2 Role of genes that increase risk for AD

In addition, there are genetic influences on the development of late onset AD dementia. To date, the presence of one or two ε 4 alleles in the apolipoprotein E (APOE) gene is the only genetic variant broadly accepted as increasing risk for late-onset AD dementia, whereas the ε2 allele decreases risk. Evidence suggests that an individual who meets the clinical, cognitive, and etiologic criteria for MCI, and is also APOE ε4 positive, is more likely to progress to AD dementia within a few years than an individual without this genetic characteristic. It has been hypothesized that many additional genes play an important, but smaller role than APOE; these additional genes will also confer changes in risk for progression to AD dementia [Bertram et al, 2010].

16.1.4 References

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- Petersen RC, Smith G, Waring S, Ivnik R, Tangalos E, Kokmen E, et al. Mild cognitive impairment: clinical characterization and outcome. Arch Neurol. 1999;56:303–8
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- Winblad B, Palmer K, Kivipelto M, Jelic V, Fratiglioni L, Nordberg A, et al. Mild cognitive impairment—beyond controversies, towards a consensus: report of the International Working Group on Mild Cognitive Impairment. J Intern Med. 2004;256:240–6

16.2 DSM-IV diagnostic criteria for dementia

Reference:
American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 4th edition. Washington, D.C.: American Psychiatric Press, 1994.

The disorders in the "Dementia" section are characterized by the development of multiple cognitive deficits (including memory impairment) that are due to the direct physiological effects of a general medical condition, to the persisting effects of a substance, or to multiple etiologies (e.g., the combined effects of cerebrovascular disease and Alzheimer's disease). The disorders in this section share a common symptom presentation but are differentiated based on etiology. The diagnostic features listed in the next section pertain to Dementia of the Alzheimer's Type, Vascular Dementia, Dementia Due to HIV Disease, Dementia Due to Head Trauma, Dementia Due to Parkinson's Disease, Dementia Due to Huntingdon's Disease, Dementia Due to Pick's Disease, Dementia Due to Creutzfeldt-Jakob Disease, Dementia Due to Other General Medical Conditions, Substance-Induced Persisting Dementia, and Dementia Due to Multiple Etiologies. In addition, Dementia Not Otherwise Specified is included in this section for presentations in which the clinician is unable to determine a specific etiology for the multiple cognitive deficits.

16.2.1 Diagnostic Features

The essential feature of a dementia is the development of multiple cognitive deficits that include memory impairment and at least one of the following cognitive disturbances: aphasia, apraxia, agnosia, or a disturbance in executive functioning. The cognitive deficits must be sufficiently severe to cause impairment in occupational or social functioning and must represent a decline from a previously higher level of functioning. A diagnosis of a dementia should not be made if the cognitive deficits occur exclusively during the course of a delirium. However, a dementia and a delirium may both be diagnosed if the dementia is present at times when the delirium is not present. Dementia may be etiologically related to a general medical condition, to the persisting effects of substance use (including toxin exposure), or to a combination of these factors.

Memory impairment is required to make the diagnosis of a dementia and is a prominent early symptom (Criterion Al). Individuals with dementia become impaired in their ability to learn new material, or they forget previously learned material. Most individuals with dementia have both forms of memory impairment, although it is sometimes difficult to demonstrate the loss of previously learned material early in the course of the disorder. They may lose valuables like wallets and keys, forget food cooking on the stove, and become lost in unfamiliar neighborhoods. In advanced stages of dementia, memory impairment is so severe that the person forgets his or her occupation, schooling, birthday, family members, and sometimes even name.

Memory may be formally tested by asking the person to register, retain, recall, and recognize information. The ability to learn new information may be assessed by asking the individual to learn a list of words. The individual is requested to repeat the words (registration), to recall the information after a delay of several minutes (retention, recall), and to recognize the words from a multiple list (recognition). Individuals with difficulty learning new information are not helped by clues or prompts (e.g., multiple-choice questions) because they did not learn the material initially. In contrast, individuals with primarily retrieval deficits can be helped by clues and prompts because their impairment is in the ability to access their memories. Remote memory may be tested by asking the individual to recall personal information or past material that the individual found of interest (e.g., politics, sports, entertainment). It is also useful to determine (from the individual and informants) the impact of the memory disturbances on the individual's functioning (e.g., ability to work, shop, cook, pay bills, return home without getting lost).

Deterioration of language function (aphasia) may be manifested by difficulty producing the names of individuals and objects (Criterion A2a). The speech of individuals with aphasia may become vague or empty, with long circumlocutory phrases and excessive use of terms of indefinite reference such as "thing" and "it." Comprehension of spoken and written language and repetition of language may also be compromised. In the advanced stages of dementia, individuals may be mute or have a deteriorated speech pattern characterized by echolalia (i.e., echoing what is heard) or palilalia (i.e., repeating sounds or words over and over). Language is tested by asking the individual to name objects in the room (e.g., tie, dress, desk, lamp) or body parts (e.g., nose, chin, shoulder), follow commands ("Point at the door and then at the table"), or repeat phrases ("no ifs, ands, or buts").

Individuals with dementia may exhibit apraxia (i.e., impaired ability to execute motor activities despite intact motor abilities, sensory function, and comprehension of the required task) (Criterion A2b). They will be impaired in their ability to pantomime the use of objects (e.g., combing hair) or to execute known motor acts (e.g., waving goodbye). Apraxia may contribute to deficits in cooking, dressing, and drawing. Motor skill disturbances may be tested by asking the individual to execute motor functions (e.g., to show how to brush teeth, to copy intersecting pentagons, to assemble blocks, or to arrange sticks in specific designs).

Individuals with dementia may exhibit agnosia (i.e., failure to recognize or identify objects despite intact sensory function) (Criterion A2c). For example, the individual may have normal visual acuity but lose the ability to recognize objects such as chairs or pencils. Eventually they may be unable to recognize family members or even their own reflection in the mirror. Similarly, they may have normal tactile sensation, but be unable to identify objects placed in their hands by touch alone (e.g., a coin or keys).

Disturbances in executive functioning are a common manifestation of dementia (Criterion A2d) and may be related especially to disorders of the frontal lobe or associated subcortical pathways. Executive functioning involves the ability to think abstractly and to plan, initiate, sequence, monitor, and stop complex behavior. Impairment in abstract thinking may be manifested by the individual having difficulty coping with novel tasks and avoiding situations that require the processing of new and complex information.

The ability to abstract can be formally assessed by asking the person to find similarities or differences between related words. Executive dysfunction is also evident in a reduced ability to shift mental sets, to generate novel verbal or nonverbal information, and to execute serial motor activities. Tests for executive function include asking the individual to count to 10, recite the alphabet, subtract serial 7s, state as many animals as possible in 1 minute, or draw a continuous line consisting of alternating m's and n's. It is also useful to determine (from the individual and informants) the impact of the disturbances in executive functioning on the individual's daily life (e.g., ability to work, plan activities, budget).

The items in both Criterion Al (memory impairment) and Criterion A2 (aphasia, apraxia, agnosia, or disturbance in executive functioning) must be severe enough to cause significant impairment in social or occupational functioning (e.g., going to school, working, shopping, dressing, bathing, handling finances, and other activities of daily living) and must represent a decline from a previous level of functioning (Criterion B).

The nature and degree of impairment are variable and often depend on the particular social setting of the individual. The same level of cognitive impairment may significantly impair an individual's ability to perform a complex job, but not a job that is less demanding. Standardized published rating scales that measure physical maintenance (e.g., personal hygiene), intellectual functioning, and the ability to use implements or tools (e.g., telephone, washing machine) can be used to measure the severity of impairment.

Dementia is not diagnosed if these symptoms occur exclusively during the course of a delirium. However, a delirium may be superimposed on a preexisting dementia, in which case both diagnoses should be given.

16.2.2 Associated Features and Disorders

16.2.2.1 Associated descriptive features and mental disorders

Individuals with dementia may become spatially disoriented and have difficulty with spatial tasks. Visuospatial functioning can be assessed by asking the individual to copy drawings, such as a circle, overlapping pentagons, and a cube. Poor judgment and poor insight are common in dementia. Individuals may exhibit little or no awareness of memory loss or other cognitive abnormalities. They may make unrealistic assessments of their abilities and make plans that are not congruent with their deficits and prognosis (e.g., planning to start a new business). They may underestimate the risks involved in activities (e.g., driving). Occasionally, they may harm others by becoming violent. Suicidal behavior may occur, particularly in early stages when the individual is more capable of carrying out a plan of action. Dementia is sometimes accompanied by motor disturbances of gait leading to falls. Some individuals with dementia show disinhibited behavior, including making inappropriate jokes, neglecting personal hygiene, exhibiting undue familiarity with strangers, or disregarding conventional rules of social conduct. Slurred speech may occur in dementia that is associated with subcortical pathology such as Parkinson's disease, Huntington's disease, and some cases of Vascular Dementia. The multiple cognitive impairments of dementia are often associated with anxiety, mood, and sleep disturbances. Delusions are common, especially those involving themes of persecution (e.g., that misplaced possessions have been stolen). Hallucinations can occur in all sensory modalities, but visual hallucinations are most common. Delirium is frequently superimposed on dementia because the underlying brain disease may increase susceptibility to confusional states that may be produced by medications or other concurrent general medical conditions. Individuals with dementia may be especially vulnerable to physical

stressors (e.g., illness or minor surgery) and psychosocial stressors (e.g., going to the hospital, bereavement), which may exacerbate their intellectual deficits and other associated problems.

16.2.2.2 Associated laboratory findings

A discussion of associated laboratory findings that are specific to types of dementia is included in the text for each dementia. Invariably there are abnormalities in cognitive and memory functioning, which can be assessed using mental status examinations and neuropsychological testing. Neuroimaging may aid in the differential diagnosis of dementia. Computed tomography (CT) or magnetic resonance imaging (MRI) may reveal cerebral atrophy, focal brain lesions (cortical strokes, tumors, subdural hematomas), hydrocephalus, or periventricular ischemic brain injury. Functional imaging such as positron-emission tomography (PET) or single photon emission computed tomography (SPECT) are not routinely used in the evaluation of dementia, but may provide useful differential diagnostic information (e.g., parietal lobe changes in Alzheimer's disease or frontal lobe alterations in frontal lobe degenerations) in individuals without evidence of structural changes on CT or MRI scans.

16.2.2.3 Associated physical examination findings and general medical conditions

The associated physical examination findings of dementia depend on the nature, location, and stage of progression of the underlying pathology. The most common cause of dementia is Alzheimer's disease, followed by vascular disease, and then by multiple etiologies. Other causes of dementia include Pick's disease, normal-pressure hydrocephalus, Parkinson's disease, Huntington's disease, traumatic brain injury, brain tumors, anoxia, infectious disorders (e.g., human immunodeficiency virus [HIV], syphilis), prion diseases (e.g., Creutzfeldt-Jakob disease), endocrine conditions (e.g., hypothyroidism, hypercalcemia, hypoglycemia), vitamin deficiencies (e.g., deficiencies of thiamine, niacin, vitamin 612), immune disorders (e.g., polymyalgia rheumatica, systemic lupus erythematosus), hepatic conditions, metabolic conditions (e.g., Kufs' disease, adrenoleukodystrophy, metachromatic leukodystrophy, and other storage diseases of adulthood and childhood), and other neurological conditions (e.g., multiple sclerosis).

16.2.3 Specific Culture and Age Features

Cultural and educational background should be taken into consideration in the evaluation of an individual's mental capacity. Individuals from certain backgrounds may not be familiar with the information used in certain tests of general knowledge (e.g., names of presidents, geographical knowledge), memory (e.g., date of birth in cultures that do not routinely celebrate birthdays), and orientation (e.g., sense of place and location may be conceptualized differently in some cultures). The prevalence of different causes of dementia (e.g., infections, nutritional deficiencies, traumatic brain injury, endocrine conditions, cerebrovascular diseases, seizure disorders, brain tumors, substance abuse) varies substantially across cultural groups.

The age at onset of dementia depends on the etiology, but is usually late in life, with highest prevalence above age 85 years. A significant deterioration in memory and in multiple cognitive skills, which is necessary for the diagnosis of dementia, may be difficult to document in very young children. Thus, the diagnosis of dementia may not be practical until the child is older (usually between ages 4 and 6 years). In individuals under age 18 years with Mental Retardation, an additional diagnosis of a dementia should be made only if the condition is not characterized satisfactorily by the diagnosis of Mental Retardation alone. Dementia is uncommon in children and adolescents, but can occur as a result of general medical conditions (e.g., head injury, brain tumors, HIV infection, strokes, adrenoleukodystrophies). Dementia in children may present as a deterioration in functioning (as in adults) or as a significant delay or deviation in normal development. Deteriorating school performance may be an early sign.

16.2.4 Prevalence

Reported prevalence of dementia varies among epidemiological studies, depending on the ages of the subjects sampled; methods of determining the presence, severity, and type of cognitive impairment; and the regions or countries studied. Community studies estimated a 1-year prospective prevalence of almost 3.0% with severe cognitive impairment in the adult population. The study assessed individuals with a brief instrument that assessed current cognitive status (the Mini-Mental State Exam), which does not identify specific diagnoses. It is estimated that 2%-4% of the population over age 65 years have Dementia of the Alzheimer's Type, with other types being much less common. The prevalence of dementia, especially Dementia of the Alzheimer's Type and Vascular Dementia, increases with age, particularly after age 75 years, with a prevalence of 20% or more over age 85 years.

16.2.5 Course

Historically, the term dementia implied a progressive or irreversible course. The DSM-IV definition of dementia, however, is based on the pattern of cognitive deficits and carries no connotation concerning prognosis. Dementia may be progressive, static, or remitting. The reversibility of a dementia is a function of the underlying pathology and of the availability and timely application of effective treatment. The mode of onset and subsequent course of dementia also depend on the underlying etiology. The level of disability depends not only on the severity of the individual's cognitive impairments but also on the available social supports. In advanced dementia, the individual may become totally oblivious to his or her surroundings and require constant care. Individuals with severe dementia are susceptible to accidents and infectious diseases, which often prove fatal.

16.2.6 Differential Diagnosis

Memory impairment occurs in both delirium and dementia. Delirium is also characterized by a reduced ability to maintain and shift attention appropriately. The clinical course can help to differentiate between delirium and dementia. Typically, symptoms in delirium fluctuate and symptoms in dementia are relatively stable. Multiple cognitive impairments that persist in an unchanged form for more than a few months suggest dementia rather than delirium. Delirium may be superimposed on a dementia, in which case both disorders are diagnosed. In situations in which it is unclear whether the cognitive deficits are due to a delirium or a dementia, it may be useful to make a provisional diagnosis of delirium and observe the person carefully while continuing efforts to identify the nature of the disturbance.

An amnestic disorder is characterized by severe memory impairment without other significant impairments of cognitive functioning (i.e., aphasia, apraxia, agnosia, or disturbances in executive functioning).

The presumed etiology determines the specific dementia diagnosis. If the clinician has determined that the dementia is due to multiple etiologies, multiple codes based on the specific dementias and their etiologies should be used (see Dementia Due to Multiple Etiologies, p. 154). In Vascular Dementia, focal neurological signs (e.g., exaggeration of deep tendon reflexes, extensor plantar response) and laboratory evidence of vascular disease judged to be related to the dementia are present. The clinical course of Vascular Dementia is variable and typically progresses in stepwise fashion. The presence of Dementia Due to Other General Medical Conditions (e.g., Pick's disease, HIV) requires evidence from the history, physical examination, and appropriate laboratory tests that a general medical condition is etiologically related to the dementia. The onset of the deterioration (gradual or sudden) and its course (acute, subacute, or chronic) may be useful in suggesting the etiology. For example, the severity of the impairment in cognitive functioning often remains static after head injury, encephalitis, or stroke.

Multiple cognitive deficits that occur only in the context of substance use are diagnosed as Substance Intoxication or Substance Withdrawal. If the dementia results from the persisting effects of a substance (i.e., a drug of abuse, a medication, or toxin exposure), then Substance-Induced Persisting Dementia is diagnosed. Other causes of dementia (e.g., Dementia Due to a General Medical Condition) should always be considered, even in a person with Substance Dependence. For example, head injury is not infrequent during substance use and may underlie the

dementia. Dementia of the Alzheimer's Type is currently a diagnosis of exclusion, and other causes for the cognitive deficits (see above) must first be ruled out. In addition, the course is characterized by gradual onset and continuing cognitive decline. In those cases in which there is insufficient evidence to determine whether the dementia is due to a general medical condition or is substance induced, Dementia Not Otherwise Specified should be coded. Individuals may present with some but not all of the symptoms of dementia. Such presentations should be coded as Cognitive Disorder Not Otherwise Specified.

Mental Retardation is characterized by significantly subaverage current general intellectual functioning, with concurrent impairments in adaptive functioning and with an onset before age 18 years. Mental Retardation is not necessarily associated with memory impairment. In contrast, the age at onset of dementia is usually late in life. If the onset of the dementia is before age 18 years, both dementia and Mental Retardation may be diagnosed if the criteria for both disorders are met. Documenting a significant deterioration in memory and in other cognitive skills, which is necessary for the diagnosis of dementia, may be difficult in persons under age 4 years. In individuals under age 18 years, the diagnosis of dementia should be made only if the condition is not characterized satisfactorily by the diagnosis of Mental Retardation alone.

Schizophrenia can also be associated with multiple cognitive impairments and a decline in functioning, but Schizophrenia is unlike dementia in its generally earlier age at onset, its characteristic symptom pattern, and the absence of a specific etiological general medical condition or substance. Typically, the cognitive impairment associated with Schizophrenia is less severe than that seen in Dementia.

Major Depressive Disorder may be associated with complaints of memory impairment, difficulty thinking and concentrating, and an overall reduction in intellectual abilities. Individuals sometimes perform poorly on mental status examinations and neuropsychological testing. Particularly in elderly persons, it is often difficult to determine whether cognitive symptoms are better accounted for by a dementia or by a Major Depressive Episode. This differential diagnosis may be informed by a thorough medical evaluation and an evaluation of the onset of the disturbance, the temporal sequencing of depressive and cognitive symptoms, the course of illness, family history, and treatment response. The premorbid state of the individual may help to differentiate "pseudodementia" (i.e., cognitive impairments due to the Major Depressive Episode) from dementia. In dementia, there is usually a premorbid history of declining cognitive function, whereas the individual with a Major Depressive Episode is much more likely to have a relatively normal premorbid state and abrupt cognitive decline associated with the depression. If the clinician determines that both a dementia and Major Depressive Disorder are present with independent etiologies, both should be diagnosed.

Dementia must be distinguished from Malingering and Factitious Disorder. The patterns of cognitive deficits presented in Malingering and Factitious Disorder are usually not consistent over time and are not characteristic of those typically seen in dementia. For example, individuals with Factitious Disorder or Malingering manifesting as dementia may perform calculations while keeping score during a card game, but then claim to be unable to perform similar calculations during a mental status examination.

Dementia must be distinguished from the normal decline in cognitive functioning that occurs with aging (as in Age-Related Cognitive Decline). The diagnosis of dementia is warranted only if there is demonstrable evidence of greater memory and other cognitive impairment than would be expected due to normal aging processes and the symptoms cause impairment in social or occupational functioning.

9.2 Documentation for France

9.2.1 Letter

CHU
Hôpitaux de Rouen

Dossier suivi par D. Pipoche
Tél. : 02 32 88 82 85
Delegation.Recherche@chu-rouen.fr
JM/DP/11.15

Direction de la Recherche et de l'Innovation

Rouen, le 14 décembre 2016

Monsieur le Président
CPP Ile de France 1
Hôpital Hôtel-Dieu
1 place du Parvis de Notre Dame
75004 PARIS

Objet : Protocole n° 2016/369/HP – "PILOT STUDY TO IDENTIFY THE BENEFITS CAREGIVERSPRO-MMD PLATFORM USE BASED ON THE INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT), DEDICATED TO THE SUPPORT AND ASSISTANCE OF DYADS LIVING WITH NEUROCOGNITIVE DISEASES INCLUDING PERSONS LIVING WITH MILD COGNITIVE IMPAIRMENT OR MILD TO MODERATE DEMENTIA AND THEIR PRIMARY CAREGIVERS"

Monsieur le Président,

Vous trouverez ci-joint pour avis le dossier du protocole de recherche interventionnelle sur la personne humaine repris en objet.
Il s'agit d'une recherche ne comportant que des risques et des contraintes minimes mentionnée au 2° de l'article L. 1121-1 du code de la santé publique et ne portant pas sur un produit mentionné à l'article L. 5311-1 du même code.

Il s'agit d'un essai bicentrique dont le C.H.U. de Rouen assure la qualité de promoteur. L'investigateur principal en est le Dr Isabelle LANDRIN (CHU de Rouen).

Restant à votre disposition pour tout renseignement complémentaire,

Je vous prie de recevoir, Monsieur le Président, l'assurance de ma considération distinguée.

Julie MAILLARD,
Directrice de la Recherche
et de l'Innovation.

Par délégation
Le Directeur
Délégué à la Recherche Clinique
et à l'Innovation

Nathalie TURGET-DELOF

FI/DR/3.3 Annexe 1 version1

CHU Hôpitaux de Rouen
1 rue de Germont - 76031 Rouen cedex - tél. : 02 32 88 89 90 - www.chu-rouen.fr

9.2.2 Designation of French promotor

UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Barcelona, 5th of December 2016

To whom it may concern,

The Universitat Politècnica de Catalunya is the coordinator of the "***Self-management interventions and mutual assistance community services, helping patients with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience***" project (**CAREGIVERSPRO-MDD** project H2020 690211), in which the responsible researcher is Professor Ulises Cortés.

In my capacity as the university's legal representative, I agree and hereby declare that the CENTRE HOSPITALIER UNIVERSITAIRE DE ROUEN (CHU), official partner of the aforementioned project, is the only promotor/sponsor of the French branch of the multi-centric pilot study to be implemented during the project life.

Moreover, the CHU assumes total liability towards third parties, from which the Universitat Politècnica de Catalunya (UPC) shall remain completely harmless, for everything concerning the pilot study to be implemented during this project, unless otherwise agreed.

Therefore the CHU shall be liable for any claims that may be brought by third parties against the UPC in this context.

Yours sincerely,

UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Prof. Enric Fossas Colet
The Rector of the Universitat Politècnica de Catalunya

9.2.3 Documentation for Committee of Protection of Persons

DEMANDE D'AVIS AU COMITÉ DE PROTECTION DES PERSONNES POUR UNE RECHERCHE MENTIONNEE AU 1° OU AU 2° DE L'ARTICLE L.1121-1 DU CODE DE LA SANTE PUBLIQUE ET NE PORTANT PAS SUR UN PRODUIT MENTIONNE A L'ARTICLE L. 5311-1 DU CODE DE LA SANTE PUBLIQUE

Partie réservée au Comité de protection des personnes (CPP)

Date d'enregistrement de la demande considérée complète : Date du début de la procédure :	Date de réception des informations complémentaires / amendées :	Avis du CPP :

Partie à compléter par le demandeur :

RECHERCHE MENTIONNEE AU 1° de l'article L.1121-1 ☐

RECHERCHE MENTIONNEE AU 2° de l'article L.1121-1 ☑

DEMANDE D'AUTORISATION A L'ANSM : ~~oui~~ non

DEMANDE D'AVIS AU CPP : oui ~~non~~

A. IDENTIFICATION DE LA RECHERCHE

Titre complet de la recherche :
"Pilot study to identify the benefits CAREGIVERSPRO-MMD platform use based on the information and communications technology (ICT), dedicated to the support and assistance of dyads living with neurocognitive diseases including persons living with mild cognitive impairment or mild to moderate dementia and their primary caregivers"

Numéro d'enregistrement de la recherche (délivré par l'ANSM) : n°IDRCB : **2016-A01976-45**

Numéro de code du protocole de la recherche donné par le promoteur	Version	Date :
2016/369 /HP	1.0	14/12/2016

Nom ou titre abrégé de la recherche, le cas échéant : **CAREGIVERSPRO-MMD**

Justifier la catégorie de votre recherche : Il s'agit d'une recherche interventionnelle avec des risques et contraintes minimes. En effet, Le risque de participer à l'étude est très limité. Le seul risque prévisible est pour les utilisateurs de la plateforme, d'avoir une recrudescence d'anxiété liée aux difficultés d'utilisation. Une formation à l'utilisation de l'outil informatique aura lieu et la connexion sur le site est sécurisée et l'accès internet sera limité aux seules utilisations en rapport avec l'étude.

Inscription au fichier VRB oui non

B. IDENTIFICATION DU PROMOTEUR RESPONSABLE DE LA DEMANDE

B1. Promoteur

Nom de l'organisme : CHU de Rouen

Nom de la personne à contacter : Julie MAILLARD

Adresse :
CHU Hôpitaux de Rouen
Direction de la Recherche et de l'Innovation
1 rue de Germont
76031 Rouen cedex

Numéro de téléphone :
02 32 88 82 65
Numéro de télécopie :
02 32 88 82 87
Courriel :
delegation.recherche@chu-rouen.fr

B2. Représentant légal du promoteur dans la Communauté européenne pour la recherche biomédicale (si différent du promoteur)

Nom de l'organisme :

Nom de la personne à contacter :

Adresse :

Numéro de téléphone :

Numéro de télécopie :

Courriel :

Statut du promoteur : ~~**commercial**~~ **non commercial**

C. IDENTIFICATION DU DEMANDEUR

Nom de l'organisme : CHU de ROUEN

Adresse :
CHU Hôpitaux de Rouen
Direction de la Recherche et de l'Innovation
1 rue de Germont
76031 Rouen cedex

Numéro de téléphone : 02 32 88 82 65
Numéro de télécopie : 02 32 88 82 87
Courriel : delegation.recherche@chu-rouen.fr

Nom de la personne à contacter : Julie MAILLARD

Adresse :
CHU Hôpitaux de Rouen
Direction de la Recherche et de l'Innovation
1 rue de Germont
76031 Rouen cedex

Numéro de téléphone : 02 32 88 82 65
Numéro de télécopie : 02 32 88 82 87
Courriel : delegation.recherche@chu-rouen.fr

D. DONNÉES SUR LE(S) PRODUITS(S) EXPÉRIMENTAL (AUX) UTILISÉ(S) DANS LA RECHERCHE BIOMEDICALE : PRODUITS(S) ÉTUDIÉ(S) OU UTILISÉ(S) COMME COMPARATEUR(S)

Indiquer ici quel PE est concerné par cette section D ; si nécessaire, utiliser d'autres fiches pour chaque PE utilisé dans l'essai (à numéroter de 1 à n) :

Cette section concerne le PE numéro :

PE étudié **oui** **non**

PE utilisé comme comparateur **oui** **non**

DESCRIPTION DU PRODUIT EXPÉRIMENTAL

Nom du produit, le cas échéant :

Nom de code, le cas échéant :

Voie d'administration (utiliser les termes standards) :

Dosage (préciser tous les dosages utilisés) :
- Concentration (nombre) :
- Unité de concentration :

Le produit expérimental contient-il une substance active :

- d'origine chimique ? **oui** **non**
- d'origine biologique ? **oui** **non**

Est-ce :
- un produit à base de plantes ? **oui** **non**

- un médicament contenant des organismes génétiquement modifiés ? **oui** **non**

  • Si oui,
  l'autorisation relative au confinement et à la dissémination volontaire de l'OGM a-t-elle été accordée ?
  ou est-elle en attente ? **oui** **non**

- un autre type de produit ? **oui** **non**

  • Si oui, préciser :

E. INFORMATIONS SUR LE PLACEBO (le cas échéant) (répéter la section si nécessaire)

Cette section se rapporte au placebo n° :

Un placebo est-il utilisé ? ~~oui~~ non

De quel médicament, produit expérimental est-ce un placebo ?

Préciser le(s) numéro(s) de PE selon la section D.

Voie d'administration :

Composition, hormis la (les) substance(s) active(s) :
- est-elle identique à celle du produit expérimental étudié ? oui non

• Si non, préciser les principaux composants :

FABRICANT DU PLACEBO

Fabricant
- Nom de l'établissement :
- Adresse :

G. INFORMATIONS GÉNÉRALES SUR L'ESSAI

Condition médicale ou pathologie étudiée
Préciser la condition médicale : Mild cognitive impairment, mild to moderate dementia
Classification MedDRA :

Est-ce une maladie rare ? ~~oui~~ non

Objectif(s) de l'essai
Objectif principal :
To evaluate the perceived burden of primary caregivers of persons living with mild cognitive impairment (MCI) or mild to moderate dementia (PLWD) in order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months.
Objectifs secondaires :
In order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months, we will define:
For Patients (MCI and PLWD):
- Subjective quality of life
- Activities of daily living
- Treatment adherence
- Behavioural and psychological symptoms
- Neuropsychological functioning
- Total number of hospitalisations

For primary caregivers:
- Subjective quality of life
- Treatment adherence
- Behavioural and psychological health and wellbeing
- Perceived social support, success in relationships, self-esteem, purpose and optimism
- Use of psychotropic drugs

For the dyad
- Quality of caregiving relationship between caregiver and patient (MCI or PLWD)

Economic and financial benefits
- Direct and indirect costs of care

CAREGIVERSPRO-MMD platform use
- Degree of satisfaction of use of the CAREGIVERSPRO-MMD platform

Principaux critères d'inclusion (énumérer les plus importants)
For Patients (MCI and PLWD):

People, aged 50 and over, living in the community, who are able to give informed consent.
Diagnosed with MCI according to Petersen criteria or PLWD diagnosed according on DSM-IV criteria.
Having a Clinical Dementia Rating (CDR) of 0.5 for MCI, 1-2 for PLWD.
Having a Mini-Mental Exam score (MMSE) between 25 and 30 (inclusive) for MCI, and between 10 and 24 (inclusive) for dementia.
Having a primary caregiver, familiar (or not), informal (or not) identified and also included in the study.
Be willing to use Information Technology and Communications (ICT) according to the investigator criteria.
Affiliated to the social security system

For primary caregivers:

People, aged 18 years and over, with no diagnosis or no evidence of MCI or PLWD (according DSM-IV criteria), who are able to give informed consent and with an intention to complete the study.
Primary caregivers, informal (or not), familiar (or not), of person with MCI or PLWD.
People with Internet access and basic knowledge and skills in managing internet and social networks, or keen to learn, according to the investigator criteria.
Having a Geriatric Depression Scale (GDS-Yesavage - 15 items) score less than 11 at the time of entry into the trial indicating no severe depressive symptoms or a MADRS >15
Having no specific conditions (evaluated by the investigator) reducing their physical abilities below the norm for their age that would limit or impair CAREGIVERSPRO-MMD platform use.
Be willing to use Information Technology and Communications (ICT) according to the investigator criteria.
Affiliated to the social security system

Principaux critères de non inclusion (énumérer les plus importants)
For the members of the dyad

Terminal or severe illness with survival prognosis less than 18 months.
Not speaking nor reading French.
Enrolled in another clinical trial

For the patients

Having delusions, hallucinations, behavioural disturbances, that may interfere with the use of Information and Communications Technology (ICT) tools.
Under guardianship and/or under curatorship

Critère(s) d'évaluation principal (aux)
For primary caregivers of persons living with mild cognitive impairment or dementia (mild to moderate dementia): their perceived burden will be evaluated by using a 29-item scale, Zarit Burden Interview (ZBI).

Domaine(s) d'étude :

- ~~Physiologie~~
- ~~Physiopathologie~~
- Epidémiologie
- ~~Génétique~~
- ~~Science du comportement~~
- ~~Produits à visée nutritionnelle~~
- Stratégies diagnostiques
- Stratégies thérapeutiques et préventives

• Si autres préciser :

Méthodologie de l'essai

Tirage au sort : **oui** ~~**non**~~

La recherche comporte-t-elle une comparaison de groupes ? **oui** ~~**non**~~

Autre méthodologie

Préciser le(s) comparateur(s) utilisé(s) :

- (d') autre(s) produits(s)
- placebo
- autre
  - Si oui, préciser : The groups will be comprised of one "intervention" group with access to the web platform "CAREGIVERSPRO-MMD" and another "control" group without any access to it.

La recherche est-elle multicentrique ?	**oui**	~~**non**~~
La recherche est-elle prévue pour être menée dans plusieurs Etat membres ?	~~**oui**~~	**non**
Cette recherche implique-t-elle des pays tiers ?	~~**oui**~~	**non**

Durée maximale de participation pour un sujet selon le protocole : 18 mois

Définition de la fin de la recherche et justification, si celle-ci ne correspond pas à la date de la dernière visite de la dernière personne participant à la recherche : **last visit of the latest personne participating in the research**

Estimation initiale de la durée de la recherche :
- en France : 2 ans 0 mois
- dans tous les pays concernés par la recherche :

H. PERSONNES PARTICIPANT A LA RECHERCHE BIOMEDICALE

Tranche d'âge étudiée	~~**< 18 ans**~~	**18-65 ans**	**> 65 ans**
	Nouveaux-nés prématurés (jusqu'à l'âge gestationnel ≤ 37 semaines) Nouveau-nés (0-27 jours) Nourrissons (28 jours - 23 mois) Enfants (2-11 ans) Adolescents (12-17 ans)		

Sexe **Femmes** **Hommes**

Personnes participant à la recherche biomédicale

Volontaires sains	**oui**	~~**non**~~
Malades	**oui**	~~**non**~~
Femmes enceintes	~~**oui**~~	**non**
Femmes allaitantes	~~**oui**~~	**non**
Personnes en situation d'urgence	~~**oui**~~	**non**
Personnes incapables de donner personnellement leur consentement	~~**oui**~~	**non**
dont majeurs sous tutelle	~~**oui**~~	**non**
Cette recherche implique-t-elle des pays tiers ?	~~**oui**~~	**non**

Nombre prévu de personnes à inclure :

- en France : 100 dyades

En cas d'essai mené dans plusieurs pays :
- dans la Communauté européenne :
- pour l'ensemble des pays participant à la recherche biomédicale :

I. INVESTIGATEURS ET LIEUX DE RECHERCHE

I.1. Investigateur coordonnateur

Nom : LANDRIN
Prénoms : Isabelle
Qualification, spécialité : Gériatrie
Courriel : isabelle.landrin@chu-rouen.fr

N° RPPS : 10001920551

Adresse :
CHU de Rouen Hôpital Saint Julien
Service de Médecine Interne Gériatrie Thérapeutique
1 rue de Germont
76031 Rouen
France

I.2. Autres investigateurs

Nom : KADRI
Prénoms : Nadir
Qualification, spécialité : Neuro-Gériatrie
Courriel : nadir.kadri@chu-rouen.fr

N° RPPS : 10001917748

Adresse :
CHU de Rouen Hôpital Saint Julien
Service de Médecine Interne Gériatrie Aigue
1 rue de Germont
76031 Rouen
France

Nom : BERARD
Prénoms : Marie
Qualification, spécialité : Gériatrie
Courriel : marie.berard@chu-rouen.fr

N° RPPS : 10001727006

Adresse :
CHU de Rouen Hôpital Oissel
Unité de Soins Longue Durée
1 rue de Germont
76031 Rouen
France

Nom : TOUFLET
Prénoms : Myriam
Qualification, spécialité : Gériatrie
Courriel : myriam.touflet@chu-rouen.fr

N° RPPS : 10001930857

Adresse :
CHU de Rouen Hôpital Oissel
Unité de Soins Longue Durée
1 rue de Germont
76031 Rouen
France

Nom : MALERBE
Prénoms : Laetitia
Qualification, spécialité : Neuropsychologie
Courriel : laetitia.malherbe@chu-rouen.fr

N° RPPS :

Adresse :
CHU de Rouen Hôpital Saint Julien
Service de Médecine Interne Gériatrie Aigue
1 rue de Germont
76031 Rouen
France

Nom : SIMON
Prénoms : Thibault
Qualification, spécialité : Gériatrie
Courriel : thibault.simon@chi-elbeuf-louviers.fr

N° RPPS : 10001882652

Adresse :
CHI Elbeuf - Louviers
Service de Médecine Gériatrique
rue du Docteur Villers Saint-Aubin-lès-Elbeuf BP 310
76503 Elbeuf Cedex
France

I.3 Lieu de recherche (le cas échéant, si la recherche doit se dérouler dans un lieu nécessitant une autorisation de l'ARS) :

Intitulé du lieu :
N° d'autorisation :
Délivré le :
Date de limite de validité :

Nom et adresse :

K. SIGNATURE DU DEMANDEUR EN FRANCE

Par la présente, j'atteste / ~~j'atteste au nom du promoteur~~ (rayer la mention inutile) ce qui suit :
- les informations fournies ci-dessus à l'appui de la demande sont exactes ;
- la recherche sera réalisée conformément au protocole, à la réglementation nationale et aux principes de bonnes pratiques cliniques ;
- il est raisonnable d'entreprendre la recherche biomédicale proposée ;
- je soumettrai un résumé du rapport final de la recherche à l'Ansm et au Comité de protection des personnes concerné au plus tard 1 an après la fin de la recherche dans tous les pays ;
- je déclarerai la date effective du commencement de l'essai à l'Ansm et au Comité de protection des personnes concerné dès qu'elle sera connue.

DEMANDEUR auprès du CPP
(comme indiqué à la section C) :

Date : 14/12/2016

Signature :

Nom : Julie MAILLARD

Par délégation
l'Adjointe au Directeur
Délégation à la Recherche Clinique
et à l'Innovation

Nathalie TURBET-DELOF

9.2.4 Summary in french

« Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux »

Etude "CAREGIVERSPRO-MMD"

L'entourage proche des personnes ayant des troubles cognitifs est formé de l'aidant principal, des amis et des services sociaux et de santé et il a pour but de réduire les conséquences de la maladie.

Aider une personne ayant des troubles cognitifs dans la vie quotidienne n'est pas anodin. Outre l'investissement personnel, professionnel et financier que les proches consentent, il y a un impact sur la santé physique et morale des aidants et de la famille.

Actuellement, l'apport des nouvelles technologies dans le soutien et l'assistance des personnes atteintes de troubles neurocognitifs et de leurs aidants a été peu étudié. Il n'existe aucune plateforme interactive capable de suivre et de délivrer des contenus ciblés en fonction des symptômes de la maladie en proposant un accès ciblé à des réseaux sociaux. Le développement de ces nouvelles approches doit permettre de soutenir les aidants tout au long de la maladie afin de les aider à faire face aux troubles et les soutenir afin de réduire les symptômes liés épuisement

Le but de cette étude, d'une durée de 18 mois, est d'identifier les bénéfices potentiels de la plateforme CAREGIVERSPRO-MMD sur les symptômes d'épuisement des aidants et la qualité de vie des personnes ayant des troubles cognitifs. Il s'agit d'une étude pilote, longitudinale, prospective, randomisée, contrôlée, en parallèle destinée aux dyades composées de personnes vivant avec un trouble neurocognitif léger à modéré (MMS entre 10 et 30) et de leur aidant principal. Après randomisation par tirage au sort, 50 dyades bénéficieront d'un accès à la plateforme et 50 dyades seront dans le groupe contrôle.

Cette plateforme dédiée aux patients et aux aidants contiendra des échelles pour évaluer l'état de santé, de bien-être des patients et des aidants, des informations et un suivi de la prise des traitements et une évaluation de la compliance aux traitements. Un système de gamification permettra de « stimuler » les dyades à l'utilisation de la plateforme. Des contenus informatifs et éducatifs à destination des aidants et des patients seront délivrés. En fonction des résultats aux échelles, des contenus ciblés seront adressés. Des rapports à destination des professionnels seront édités. Enfin, les aidants et les patients pourront bénéficier de l'accès sécurisé et limité à des réseaux sociaux afin de leur permettre d'échanger avec des personnes vivant des situations identiques.

9.2.5 Amended protocol for France

CHU
Hôpitaux de Rouen

"Pilot study to identify the benefits CAREGIVERSPRO-MMD platform use based on the information and communications technology (ICT), dedicated to the support and assistance of dyads living with neurocognitive diseases including persons living with mild cognitive impairment or mild to moderate dementia and their primary caregivers"

CAREGIVERSPRO-MMD

2016/369/HP

Version n°1 – 14/12/2016

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LIST OF ABBREVIATIONS

AD	Alzheimer's disease
AE	Adverse Event
BADL	Barthel ADL Index / Barthel Index of Activities of Daily Living
C-MMD	CAREGIVERSPRO-MMD
C-MMD-USE	CAREGIVERSPRO-MMD User Satisfaction Scale
CDR	Clinical Dementia Rating
CG	Caregiver
DAS	Dyadic Adjustment Scale
DEMQOL	Dementia Quality of Life
DEMQOL Proxy	Dementia Quality of Life Proxy
DSM	Diagnostic and Statistical Manual
FS	Flourishing Scale
GCP	Good Clinical Practice
GDS	Geriatric Depression Scale
IADL	Lawton Instrumental Activities of Daily Living Scale
ICD	International Classification of Diseases
ICF	Informed Consent Form
ICER	Incremental cost-effectiveness ratio
ICH	International Conference on Harmonisation
ICT	Information and communications technology
IEC	Independent Ethics Committee

INB	Incremental net benefit
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
KSS	Kuppuswamy's Socioeconomic Scale
MCI	Mild Cognitive Impairment
MMAS-8	8-item Morisky Medication Adherence Scale
MMSE	Mini-Mental State Examination
MSPSS	Multidimensional Scale of Perceived Social Support
NPI	Neuro Psychiatric Inventory
OECD	Economic Co-operation and Development
PDC	Proportion of days covered
PLWD	People Living with Dementia
QoL	Quality of life
RUD	Resource Utilization in Dementia
SAE	Serious Adverse Event
SES	Socioeconomic status
SF-36v2	Medical Outcomes Study (MOS) 36-Item Short Form 2nd version
STAI	State Trait Anxiety Inventory
WHO	World Health Organization
WHO-DD	World Health Organization's Drug Dictionary
WHOART	WHO Adverse Reactions Terminology
ZBI	Zarit Burden Interview

PROTOCOL SUMMARY

Title	"Pilot study to identify the benefits of CAREGIVERSPRO-MMD platform use based on the information and communications technology (ICT), dedicated to the support and assistance of dyads living with neurocognitive diseases including persons living with mild cognitive impairment or mild to moderate dementia and their primary caregivers"
Primary Investigator	Dr Isabelle LANDRIN Service de Médecine Interne Gériatrie Thérapeutique CHU de Rouen- 1 rue de Germont- 76031 Rouen Cedex Isabelle.Landrin@chu-rouen.fr – Phone 02 32 88 65 52
Classification	Interventional research that involves only minimal risks and constraints
Study type	Prospective, randomised, controlled, parallel and longitudinal study
Sponsor	Innovation and Research Department Rouen University Hospital 1 rue de Germont 76031 Rouen cedex Phone : 02 32 88 82 65 Fax : 02 32 88 82 87
Population concerned	Dyads: People living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers
Objectives of the study	In order to identify a benefit from use of the CAREGIVERSPRO-MMD platform during 18 months, we will define: **Primary objective** ● Perceived burden of caregivers **Secondary objectives** **For patients** ● Subjective quality of life ● Activities of daily living ● Treatment adherence ● Behavioural and psychological symptoms ● Neuropsychological functioning ● Total number of hospitalisations

	For caregivers ● Subjective quality of life ● Treatment adherence ● Behavioural and psychological health and wellbeing ● Perceived social support, success in relationships, self-esteem, purpose and optimism ● Use of psychotropic drugs **For the dyad** ● Quality of caregiving relationship between caregiver and patient (MCI or PLWD) **Economic and financial benefits** ● Direct and indirect costs of care **CAREGIVERSPRO-MMD platform use** ● Degree of satisfaction of use of the CAREGIVERSPRO-MMD platform
Inclusion criteria	**For patients** ● People, aged 50 and over, living in the community, who are able to give informed consent ● Diagnosed with mild cognitive impairment (MCI) according to Petersen criteria or mild to moderate dementia diagnosed according on DSM-IV criteria ● Having a Clinical Dementia Rating (CDR) of 0.5 for MCI, 1-2 for mild to moderate dementia ● Having a Mini-Mental Exam score (MMSE) between 30 and 25 (inclusive) for MCI, and between 24 and 10 (inclusive) for dementia ● Having a primary caregiver, familiar (or not), informal (or not) identified and also included in the study ● Be willing to use Information Technology and Communications (ICT) according to the investigator criteria ● Affiliated to the social security system **For caregivers** ● People, aged 18 years and over, with no diagnosis or no evidence of mild cognitive impairment or mild to moderate dementia (according DSM-IV criteria), who are able to give informed consent and with an intention to complete the study. ● Primary caregivers, informal (or not), familiar (or not), of person with mild cognitive impairment or mild to moderate dementia ● People with Internet access and basic knowledge and skills in managing internet and social networks, or keen to learn,

	according to the investigator criteria ● Having a Geriatric Depression Scale (GDS-Yesavage - 15 items) score less than 11 at the time of entry into the trial indicating no severe depressive symptoms or for people < 65 years a MADRS >15 ● Having no specific conditions (evaluated by the investigator) reducing their physical abilities below the norm for their age that would limit or impair CAREGIVERSPRO-MMD platform use. ● Be willing to use Information Technology and Communications (ICT) according to the investigator criteria ● Affiliated to the social security system
Exclusion criteria	**For the members of the dyad** ● Terminal or severe illness with survival prognosis less than 18 months ● Not speaking nor reading French ● Enrolled in another clinical trial **For the patients** ● Having delusions, hallucinations, behavioural disturbances, that may interfere with the use of Information and Communications Technology (ICT) tools ● Under guardianship and/or under curatorship
Study exit criteria	● If the primary caregiver changes or if the caregiver cannot continue his role of caregiver ● Primary caregiver who do not use the platform during 2 months due to a justifiable reason according to the investigator criteria ● Primary caregivers showing malicious or inappropriate CAREGIVERSPRO-MMD platform use according to the investigator criteria. ● Severe illness for the persons living with mild cognitive impairment or dementia (mild to moderate) or their caregivers evaluated by the investigator that interfere with the ability or potential to use Information and Communications Technology (ICT) tools. ● One member of the dyad wants to retire informed consent and wants to withdraw from the study. ● Hospitalisation or institutionalisation >2 months not related to the role of care
Primary and secondary endpoints	**Primary outcomes** **For caregivers** ● Perceived burden (ZBI: Zarit Burden Interview) **Secondary outcomes**

	For patient and their caregivers: ● Physical health ● Medication and concomitant treatments ● Comorbidity ● Adverse events ● Treatment adherence (PDC, MMAS-8) ● Satisfaction and Platform use (C-MMD-USE) ● Economic variables (Resource utilization (RUD) and Direct and indirect costs of care) **For patients:** ● Cognitive-Clinical symptoms (CDR, MMSE) ● Subjective quality of life (DEMQOL) ● Activities of daily living (BADL-IADL) ● Behavioural and cognitive symptoms (NPI) ● Depression (GDS) **For caregivers:** ● Subjective quality of life (SF-36v2) ● Depression (GDS) ● Anxiety (STAI) ● Perceived social support, success in relationships, self-esteem, purpose and optimism (MSPSS, FS) **For dyads** ● Social relationship of the dyad (DAS)
Study design	Intervention group using the "CAREGIVERSPRO-MMD" platform versus control group
Study treatments/Procedures	After randomization, dyads will be assigned to intervention group (dyads using the platform CAREGIVERSPRO-MMD) or control group (usual care)
Number of subjects planned to be enrolled	100 dyads: - Platform users group: 50 dyads - Control Group: 50 dyads
Number of sites (anticipated)	- Rouen University Hospital (CHU de Rouen) - CHI Elbeuf-Louviers
Statistical Methods	**Primary analysis:** This being a pilot study, the sample size was set arbitrarily at 100 patients. This sample size will allow a reasonable level of precision in estimating the main outcome. Indeed, as an approximately 50% dropout rate is anticipated, about 50 patients (and their caregivers) will be assessed at 18 months, 25 per randomisation arm. The main objective is of a descriptive nature. The main outcome, i.e., the perceived burden by primary caregivers at 18 months will be assessed

	using the "Zarit Burden Interview" (ZBI). It will be described overall and by randomisation arm (i.e., with or without access to the CAREGIVERSPRO-MMD platform during 18 months of CAREGIVERSPRO-MMD platform). All initial characteristics will be described by using summary statistics as counts, mean, standard deviation, median, minimum, maximum and quartiles for continuous variables and counts and percentages for categorical variables. Moreover, 95% confidence intervals for the mean and distribution free confidence intervals for the median will be computed. Graphical analysis will use bar diagrams, scatter plots, box-plots, profiles and others. Descriptive statistics will be used for other secondary outcomes.
Schedule of the study	Duration of recruitment and information period: 4 months. Duration of randomization and data collection: 18 months Number of scheduled medical visits: ● One Session of training on CAREGIVERSPRO-MMD platform for the intervention group after randomization ● 3 clinical visits; once every 6 months for both groups of dyads Total duration: from the first dyad inclusion until the last visit of the last dyad: 22 months Duration of data analysis, statistical report and clinical report: 12 months

2-Background Information

2.1-The population profile associated with dementia in Europe

The European population has aged considerably over the last 10 years. Europe's ageing population has led to an increase in age-related diseases (cardiovascular diseases, cancer, diabetes, Parkinson disease, osteoporosis...), especially, dementia. According to the analysis of several epidemiological studies in Europe on the prevalence of dementia, carried out by the European Collaboration on Dementia [EuroCoDe, 2013] prevalence working group of the organisation "Alzheimer Europe", there are currently 6.36 million people over the age of 65 living with various neurodegenerative diseases, a figure that could exceed 10 million people in 2040. In this context of neurodegenerative diseases, Alzheimer's disease is the most common type of dementia, representing between 50% and 60% of all dementias diagnosed, causing memory loss, decline in brain function and personality changes, directly affecting the executive functions of the person and impacting their work and social life [Gironès et al, 2002]. Because of the growth of people living with Alzheimer's disease, the number of family caregivers which provide care and support is around 20 million (about 3 people per person with dementia).

2.2-The "Alzheimer Europe" Paris Declaration

As a result of the growing concern about the significant consequences of dementia, institutions such as "Alzheimer Europe" (alzheimer-europe.org) are trying to gain a better understanding of population needs, issuing warnings to organisations and institutions of the European Union, the World Health Organization, and the Council of Europe and European national governments on the need to act urgently.

In the "Paris Declaration" [Alzheimer Europe, 2009], experts linked to Alzheimer Europe called on European and national policy makers to give Alzheimer's disease and other forms of dementia both the political and public health priority they deserve, putting forward various proposals in the fields of research and medicine, healthcare and social support and ethics and law.

The most important points to consider are the following ones:

- People with dementia and their caregivers need actions and tools that cover all aspects of their care and support needs and that are tailored to the specific needs of each stage of the illness.
- Caring for people with dementia can have a significant impact on the subjective quality of life of caregivers. Consequently, it is necessary to promote active policies for the recognition of potential significant burden of caregivers of people with dementia and promote the support and development of adequate support services and help.

Therefore, Alzheimer Europe recommends fostering initiatives which truly support the caregiver, since in practice; this will directly result in a better quality of life for people with dementia [Alzheimer Europe, 2009]. By definition, primary caregivers are those people who, being a relative or not of the person with dementia, are in closest human contact with them. Their main task is to meet the physical and emotional daily needs of the person. They also keep the person connected with society and are affectionate with the person as they empathise with their experiences. Caregivers' work takes on a great significance for other people in the person's circle as the illness progresses, because as well as providing direct care, they also take on an important role in the reorganisation, maintenance and cohesion of the group around the person living with dementia [Astudillo et al, 2010].

2.3- The aim of French and European Health Policies: To give support and respite to non-professional caregivers

In Europe, one important objective of health policy is to foster and maintain networks of non-professional care of people living with dementia. This objective can be achieved through economic support to people living with dementia with difficulties in performing activities of daily living, in order to encourage the use of a professional service and therefore ease the burden of the non-professional caregiver. A French study showed that non-professional care accounts for over 80% of the total use of non-medical care; it is essential to identify strategies associated with giving respites and support for caregivers so that they will be less likely to seek for residential care, with consequent savings in public and private healthcare spending [Rapp et al, 2011].

The French and European health plans have put forward measures to improve care for people living with dementia with a more personalised and tailored approach aimed at both people living with dementia and their caregivers' needs. The main goal is to implement an integration process through an active and participatory network in the care of people with dementia, giving both assistance and support. This model should include tools and mechanisms to improve the process of comprehensive care. In this way, this aim could move on from just focusing on medical treatment for dementia to work towards the comprehensive and holistic care of both those living with dementia as well as their families and caregivers. This approach could concentrate its efforts on improving understanding and care and in this context; the caregiver is a key part of the process as reported by French team [Pimouguet et al, 2013].

Numerous studies on caregivers providing support to people living with neurodegenerative diseases postulate that the role of caregiver is vital in the monitoring and reporting of symptoms and the effects of the individual therapeutic interventions. It is therefore very important to establish an effective therapeutic alliance between the health system and caregivers in the medical management of the person living with dementia [Jicha, 2011]. In this context, support for creating tools that foster this relationship would be in line with improved information flow between those living with dementia, healthcare and medical teams, caregivers and family members.

2.4- Attention and follow-up of the caregiver: A crucial part in providing support

People living with dementia are likely to need different degrees of assistance and help in their daily lives during the various stages of the disease's progression, especially when it begins to progress to a more advanced stage. It has been found that if the primary caregiver is the spouse or a child of the person, they have to cope with a significant level of responsibility. Consequently, the effects on the caregiver's health and daily life may result in sleep disturbance, anxiety, depression and stress that could end up affecting the caregiver's quality of life and endangering their own health and wellbeing [Callan et al, 2009; Varela et al, 2011].

In this context, family caregivers should assess their well-being and quality of life when dementia is diagnosed, in order to keep track of these and meet the challenges of the illness progression with the proper and adequate tools [Välimäki et al, 2012]. Caring for someone living with dementia is linked to an increase in depressive symptoms, with 50% of caregivers reporting symptoms of depression within 2-3 years of caregiving [Joling et al, 2010], and an increased risk of cardiovascular disease, and it has been shown that the right intervention in the caregiver's lifestyle can decrease depression and improve their overall health [Moore et al, 2013]. Studies which have focused on the analysis of health monitoring of caregivers have always reported a deterioration of physical and mental health of this group, with a common occurrence of family conflicts and even suicide after the death of the person being looked after [Shaji et al. 2003].

Recent systematic reviews on the subject suggest that there is evidence to show that support interventions for the caregiver can help reduce their psychological distress as well as improving other aspects of their health and wellbeing. These findings recommend that doctors involved in the monitoring of people living with dementia should investigate and ask caregivers about their concerns and questions as a strategy for improving the people living with dementia health. [Candy et al, 2011].

2.5- The unmet needs of caregivers

In this context, many non-pharmacological complementary interventions have been developed whose effects continue to be evaluated to decide their importance in a multidisciplinary treatment of dementia. Therefore, in order to obtain this type of information, the primary caregiver is a key figure as they are the closest person to the living with dementia and will be heavily involved in all aspects of their care. Recent studies analysing the needs of caregivers and demonstrate the positive effects of an active programme of needs analysis and active support to the caregiver, in order to ease their physical and social burden [Carbone, 2013].

The latest systematic reviews of studies on the identification of the factors responsible for the objective burden of non-professional caregivers reveals that there are about 39 predictors, mostly related to cognition, behaviour and daily functioning, directly or indirectly related to the caregiver's excessive burden [Thompson et al, 1998; Wolfs et al, 2012].

In this regard, it is essential to assess the needs of both people with dementia and their non-professional caregivers. Studies concerning this reveal that most of the unfulfilled needs can be found in the domains of memory, information, psychological distress and daily activities. Moreover, that people living with dementia report fewer (unfulfilled) needs than their caregivers [Van Der Roest et al, 2009].

The caregiver's burden is likely to be influenced by the behavioural and cognitive status of the person living with dementia, their attention span, stress, social isolation, the existing and premorbid relationship with the people living with dementia, availability of support resources, and the personal characteristics of the caregiver. Therefore, in order to reduce the burden and support the caregiver's health and well-being, it is necessary to evaluate and recognise the associated risk factors. The identification of these factors will lead to greater knowledge about them and the ability to manage them more successfully [Sansoni et al, 2013].

In this regard, interventions like those described by De Rotrou et al (2011), which demonstrate that active programmes devoted to the care of caregivers can have positive direct consequences, such as a better understanding of dementia as well as improving the capacity to cope with various problems resulting from dementia.

2.6- The application of information and communication technology (ICT) to support the care of the those living with chronic illness proves to be effective

Information and communication technology (ICT) can be defined as those technologies that group elements and techniques used for the processing and transmission of information, mainly in the field of computers, internet and telecommunications.

The European Union has been promoting the use of ICT in the context of neurodegenerative diseases with the aim to support the caregivers for many years now. Within this framework, they initially fostered and used ICT-based intelligent navigation and geolocation systems to improve the quality of life of vulnerable older people and their family caregivers. The main objective of all these initiatives has been to seek to improve the quality of life of older people and their family caregivers, due to the ease of use of ICT tools and their low cost implications [Magnusson et al, 2002].

In this context, the effectiveness of medical and social support through ICT to non-professional caregivers, regarding people living with chronic diseases, is essential in many ways. ICT based interventions have been proven effective and turn out to be positive for social support for most non-professional caregivers. Therefore, the identification and design of appropriate ICTs for non-professional caregivers should continue and be supported in all their different contexts and tools such as the internet and social networks online support [Barrera-Ortiz et al, 2011; Lauriks et al, 2007].

ICT have been applied successfully under many viewpoints in assisting neurodegenerative diseases, being used as information measures and monitoring of associated changes in the development of dementia [Pilotto et al, 2011; Sacco et al, 2012; Romdhane et al, 2012; Van der Roest et al, 2010]. Their correct application has helped solve many everyday problems, creating a secure environment and facilitating joint decision-making (between family members, caregivers and people living with dementia) on the necessary assistance for people living with dementia [Olsson et al, 2012].

When non-professional caregivers of people living with dementia were provided with ICT healthcare tools based on social networks, it was suggested that their use has a positive impact both in improving the care and rehabilitation of the people living with dementia as well as helping with daily support and offering a diversity of solutions to address various daily problems associated with the illness. This shows that ICT systems can help, but they must be current (updated and well thought-out) and maintain the interest of the users involved [Lundberg, 2013]. In this regard, the analysis of different experiences based on the application of social networks specialising caregivers of people living with dementia, has revealed that their correct use is associated with better performance of the caregiver's responsibilities and helps to ease the associated burden, therefore affecting positively all aspects of the caregiver's health [Cheng et al, 2013]. At the same time, the quality of the information provided by the ICT helps to protect either against the risk of dementia or the dementia's progression [Amieva et al, 2010; Zunzunegui et al, 2003].

However, there are many factors that influence the use of ICT by caregivers and these must be taken into consideration when designing a tool of this kind. These characteristics can be summarised as: the caregiver's own knowledge about the illness and their familiarity with the health system regarding available support, their personal capacity and their own needs as a person and the social support received. Moreover, the confidence they have concerning the results of the assistance received, the perceived effort undertaken when using various technological

support services and their ability to assume and manage the different roles of the people involved in caring are all factors which also play an important role [Chiu et al, 2011; Chiu et al, 2010; Dröes et al, 2005; Engström et al, 2009].

A recent systematic review on internet-based support interventions for caregivers of people living with dementia reveals that they can both improve the caregiver's welfare, as well as having positive consequences for the person being looked after. However, as the available supporting evidence lacks the necessary methodological quality, the future design of better clinical studies to emphasise their impact is essential [Boots et al, 2013].

Following this last suggestion, different solutions based on ICT platforms are currently being developed to support non-professional caregivers of people living with dementia, acting on clinical studies, such as the French "Diapason" programme, based on the application of a compendium of psychoeducational interventions designed to prevent the caregiver's stress and ease their burden [Cristancho-Lacroix et al, 2013]. Its results indicate little acceptance of the program and high expectations from caregivers [Cristancho-Lacroix et al, 2015]. Another example is the internet intervention "Mastery over Dementia" based on a repository of videos intended to reduce psychological disorders, especially depressive symptoms in caregivers [Blom et al, 2013]. These projects follow in the footsteps of others which have already been evaluated, such as the DEM-DISC (DEMENTIA-specific Digital Interactive Social Chart), a web platform dedicated to address the service needs of caregivers, which demonstrated positive effects for both caregivers and people living with dementia [Van der Roest et al, 2010].

2.7- Hypothesis

The dyad (formed by the person living with mild cognitive impairment (MCI) or mild to moderate dementia (PLWD) and their primary caregiver) and the social and health circle which is structured around it (family, friends, other dyads, health personnel), generates a lot of information regarding social and health concerns to improve living conditions and assessing the progression of the dyad. The existence of a platform based on Information and Communications Technology (ICT), capable of channelling all information generated and encouraging the search for solutions to specific problems, equipped with sensitive health monitoring tools and the possibility of putting all the different people living with mild cognitive impairment or dementia (mild to moderate) into direct contact; both the dyad as well as medical professionals or other dyads in the same situation; will improve the quality of care, control and monitoring of illness, resulting at the same time in a better diagnosis and an improvement in the subjective quality of life and health of its members.

3-Trial Objectives and Purpose

As the main goal of the platform is the support of caregivers, we defined for this study one primary objective for the caregivers.

3.1- Primary objective

In order to evaluate the benefits of the use during 18 months of CAREGIVERSPRO-MMD platform, primary objective is:

- Perceived burden of primary caregivers.

3.2-Secondary objectives

In order to evaluate the benefit of the use during 18 months of CAREGIVERSPRO-MMD platform, secondary objectives are:

Patients with MCI and PLWD

- Subjective quality of life
- Activities of daily living.
- Treatment adherence.
- Behavioural and psychological symptoms.
- Neuropsychological functioning.
- Total number of hospitalisations.

Caregivers

- Subjective quality of life.
- Treatment adherence.
- Behavioural and psychological health and wellbeing.
- Perceived social support, success in relationships, self-esteem, purpose and optimism.
- Use of psychotropic drugs.

Dyads

- Quality of caregiving relationship between caregiver and MCI or PLWD in dyads.

Economic and financial benefits

- Direct and indirect costs of care.

CAREGIVERSPRO-MMD platform use

- Degree of satisfaction of use of the CAREGIVERSPRO-MMD platform.

4- Trial Design

4.1- Primary endpoints and the secondary endpoints, to be measured during the trial

4.1.1- Screening

In this phase, inclusion and exclusion criteria will be checked for both patient living with mild cognitive impairment or dementia (mild to moderate) and their caregiver. During screening, these variables will be checked.

4.1.1.1- For patients and caregivers

Variables	Values/Units/Scales
Date of birth	(DD/MM/YY)
Gender	male/female
Socioeconomic status (SES)	Kuppuswamy's socioeconomic scale [Sharma et al, 2012]

Education level	International Standard Classification of Education (ISCED-2011)
Relationship between care-recipient and caregiver	Father/mother, wife/husband/partner, son/daughter, daughter in law/son in law, sister/brother, other relative, neighbour, friend. (according to the RUD questionnaire)
Comorbidities	International Classification of Diseases (ICD-10)
Treatments	World Health Organization's Drug Dictionary (WHO-DD), WHO Adverse Reactions Terminology (WHOART)

4.1.1.2- For patients

Variables	Values/Units/Scales
Cognitive	**CDR - Clinical Dementia Rating Scale** (Morris, 1993) Purpose: The CDR is a 5-point scale used to characterize six domains of cognitive and functional performance: Memory, Orientation, Judgment & Problem Solving, Community Affairs, Home & Hobbies, and Personal Care. **MMSE - Mini-Mental State Examination** (Folstein & Folstein, 1975) Purpose: To screen dementia, conceived as brief test for cognitive impairment. It includes questions about orientation, attention, recall and language.

4.1.1.3- For caregivers

Sociodemographic variables	Values/Units/Scles
Professional occupation	International Standard Classification of Occupations (ISCO) - ISCO-88

Work status	Casual Appointment, Full Time, Indefinite Appointment, Part Time, Regular Appointment, Temporary Appointment, Term Appointment
Depression	Geriatric Depression Scale (GDS- 15 items) (Yesavage et al., 1982) for people >65 years MADRS for people < 65 ans

4.2 -Follow-up

4.2.1- Scale for primary outcome: Perceived burden of caregiver

ZBI - Zarit Burden Interview (Zarit, Reever & Bach-Peterson, 1980)

Purpose: To assess the level of burden experienced by the principal caregivers of older people living with dementia, through a 29-item scale. Each item on the interview is a statement that the caregiver is asked to endorse using a 5-point scale (0 = Never; 4 = Nearly Always).

Execution time: Baseline, 6, 12, 18 months

Data collection: The data will be collected during research visits.

4.2.2-Scales for secondary outcomes

4.2.2.1- Physical variables for MCI/PLWD and primary caregivers

Physical variables	Values/Units	Visit
Weight	Kilograms (Kg) / grams (gr)	Baseline and every 6 months
Height	Meters (m) / centimeters (cm)	Baseline

4.2.2.2- For Patients

Variables	Scales	Submission schedule
Quality of Life	**DEMQoL - Dementia Quality of Life** (Smith 2005) Purpose: The 28-item DEMQoL assesses quality of life of people with mild to moderate dementia. It evaluates five domains: daily activities and locking after health and well-being, cognitive functioning, social relationships and self-	Baseline and every 6 months

	concept. **DEMQoL-proxy** The 31-item DEMQoL-proxy provides an evaluation of carers' view of PLWD quality of life. People with mild to severe dementia can be evaluated. The use with DEMQoL-proxy is recommended if patient cannot answer to questions. It is well correlated with DEMQoL	Baseline and every 6 months If needed
Cognitive symptoms	**MMSE - Mini-Mental State Examination**	Baseline and every 6 months
Activities of Daily Living	**IADL - Lawton Instrumental Activities of Daily Living Scale [8 items version]** (Lawton & Brody, 1969) Purpose: Assess the ability to perform tasks necessary to live independently in the community. It takes into account 8 instrumental tasks (ability to use the telephone, shopping, food preparation, housekeeping, laundry, using transport, responsibility for own medications, ability to handle finances). **BADL - Barthel Index of Activities of Daily Living** (Mahoney & Barthel, 1965) Purpose: Measure performance in activity of daily living. It takes into account the level ability of 10 current tasks (continence, grooming, toilet use, feeding, transfer, mobility, dressing, stairs, bathing).	Baseline and every 6 months Baseline and every 6 months
Behavioural-psychological symptoms	**NPI - NeuroPsychiatric Inventory [12-item NPI]** (Cummings, 1984) Purpose: Assesses 12 behavioural domains: hallucinations, delusions, agitation/aggression, dysphoria/depression, anxiety, irritability, disinhibition, euphoria, apathy, aberrant motor behaviour, sleep and night-time behaviour change, appetite and eating change. **GDS - Geriatric Depression Scale [short version]** (Yesavage et al., 1982) Purpose: A Short Form consisting of 15 questions to detect depression	Baseline and every 6 months Baseline and every 6 months
Comorbidities	**International Classification of Diseases (ICD-10)**	Baseline and every 6 months

Treatments	**World Health Organization's Drug Dictionary (WHO-DD), WHO Adverse Reactions Terminology (WHOART)**	Baseline and every 6 months
Treatment Adherence	**Proportion of days covered (PDC)** (Choudhry NK, et al. 2009) Purpose: The PDC calculation is based on the fill dates and days supply for each fill of a prescription. The denominator for the PDC (at the patient-level) is the number of days between the first fill of the medication during the measurement period and the end of the measurement period. Then, the PDC is the proportion of days with available medication in the measurement period (follow up period). People living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers with a PDC ≥ 80% are considered as adherent and the proportions of adherents in both groups will be compared. **MMAS-8 - 8-item Morisky Medication Adherence Scale** (Morisky et al. 2008) Purpose: The MMAS-8 was developed from a previously validated four-item scale and supplemented with additional items addressing the circumstances surrounding adherence behaviour.	Every 6 months Baseline, 6, 12 and 18 months: clinical visits 3, 9 and 15 months by telephone calls made by the research team

4.2.2.3- For caregivers

Variables	Scales	Submission schedule
Subjective quality of life	**SF-36v2 - Medical Outcomes Study (MOS) 36-Item Short Form 2nd version** (Ware JE, 1992) Purpose: The Optum™ SF-36v2® Health Survey asks 36 questions to measure functional health and well-being from the patient's point of view. It can be used across age (18 and older).	Baseline and every 6 months
Behavioural-	**GDS - Geriatric Depression Scale [short version]** (Yesavage	Baseline and every 6

psychological symptoms	et al, 1982) Purpose: To evaluate depression in older people. It is a 15-item test. **STAI - State Trait Anxiety Inventory** (Spielberger et al, 1983) Purpose: To measure trait and state anxiety. It can be used in clinical settings to diagnose anxiety and to distinguish it from depressive syndromes. It also is often used in research as an indicator of caregiver distress.	months Baseline and every 6 months
Perceived Social Support	**MSPSS - Multidimensional Scale of Perceived Social Support** (Zimet et al, 1988) Purposes: Assesses an individual's perception of the social support received from family, friends and significant others; it is a 12-items self-report questionnaire.	Baseline and every 6 months
Relationships	**FS - Flourishing Scale** (Diener, 2009). Purpose: The Flourishing Scale is a brief 8-item summary measure of the respondent's self-perceived success in important areas such as relationships, self-esteem, purpose and optimism. The scale provides a single psychological well-being score.	Baseline, 6, 12 and 18 months: clinical visits. 3, 9 and 15 months by telephone calls made by the research team
Treatment Adherence	**Proportion of days covered (PDC)** (Choudhry NK, et al. 2009) Purpose: The PDC calculation is based on the fill dates and days supply for each fill of a prescription. The denominator for the PDC (at the patient-level) is the number of days between the first fill of the medication during the measurement period and the end of the measurement period. Then, the PDC is the proportion of days with available medication in the measurement period (follow up period). People living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers with a PDC ≥ 80% are considered as adherent and the proportions of adherents in both groups will be compared. **MMAS-8 - 8-item Morisky Medication Adherence Scale** (Morisky et al. 2008) Purpose: The MMAS-8 was developed from a previously validated four-item scale and supplemented with additional items addressing the circumstances surrounding adherence	Every 6 months

	behaviour.	Baseline, 6, 12 and 18 months: clinical visits 3, 9 and 15 months by telephone calls made by the research team

4.2.2.4- For dyads

Variables	Scales	Submission schedule
Social relationship between MCI/PLWD and their caregiver	**DAS - Dyadic Adjustment Scale** (Spanier GB, 1976) Purpose: Measures marital adjustment; unmarried or same-sex partners can also use it. Subjects rate the extent to which they and their partner agree or disagree on a range of issues and the frequency they engage in specific interactions, such as quarrelling.	Baseline, 6, 12 and 18 months: clinical visits. 3, 9 and 15 months by telephone calls made by the research team

4.2.2.5-Platforms Users

The user's satisfaction will also be assessed and user's activity will be evaluated by means internal indicators.

C-MMD-USE - C-MMD User Satisfaction Scale (created by MobilesDynamics)

Purpose: The questionnaire assessing satisfaction and expectations of the CAREGIVERSPRO-MMD platform users through short questions and internal indicators (number of visits per time unit, average time of visits, visited sections and services used, activity on social networking platform, activity content platform).

Data collection: The data will be collected during research visits (baseline, 6, 12 and 18 months) and by telephone calls made by the research personnel (3, 9 and 15 months).

4.2.2.6- Economic variables

The economic study derivative of the CAREGIVERSPRO-MMD use should consider all costs and outcomes that are a consequence of the illness (cost of illness) or the health or social care interventions evaluated (economic evaluation). These will include: the costs of hospital care, community-based health care services, social welfare services, and care provided by voluntary agencies or family and friends.

RUD - Resource Utilization in Dementia [version 4] (Wimo A, et al. 2012)

Purpose: Is the most widely used instrument for resource use data collection in dementia, enabling comparison of costs of care across countries with differing health care provisions.

Data collection: The data will be collected during clinical visits (baseline, 6, 12 and 18 months) and by telephone calls made by the research personnel (3, 9 and 15 months).

Total costs include direct and indirect costs.

Direct costs. Medical and social care cost	
Concept	**Data collected**
Diagnostic procedures	Required
Nursing home care	RUD
Medications	Required
Added health costs	RUD
Laboratory costs	Required
Physician visits	RUD
Hospitalisations	RUD
Disease therapies	RUD
Adapting housing	Required
Residential or respite care costs	RUD
Social welfare services such as day centres	RUD

Direct costs. Non-medical care costs	
Concept	**Data collected**
Home health aides /telecare or telemedicine	Required
Respite care	RUD
Adult day services	RUD

Indirect costs	
Concept	**Data collected**
MCI/PLWD and caregiver lost productivity	RUD
Unpaid caregiving time	RUD
Care provided by family and friends	RUD
Care provided by voluntary agencies	RUD

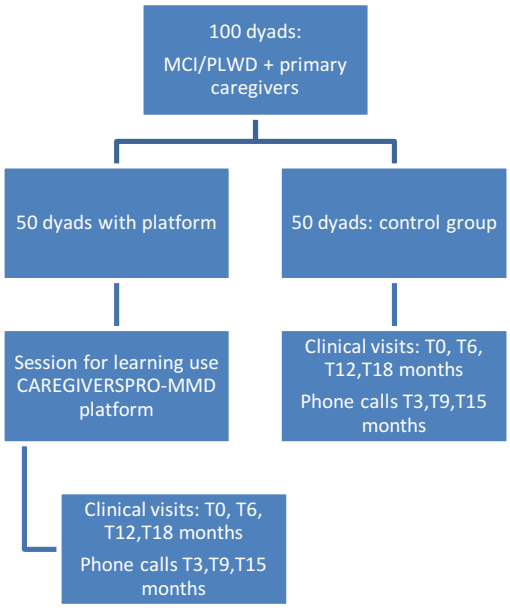
4.2.3- Research calendar

- **Recruitment and information period** (4 months)
- **Randomization and data collection** (18 months)
    - Randomization of dyads at baseline and data collection through clinical visits at baseline, 6, 12, 18 months, and phone calls (economic data, treatment adherence, perceived social support, success in relationships, self-esteem, purpose and optimism) at 3, 9 and 15 months. Queries resolution.

      For users of the platform a training session CAREGIVERSPRO-MMD platform will be performed.
- **Data analysis and dissemination of study results** (12 months)

4.3- Description of the design of trial

This is an open, prospective, randomised, controlled, parallel and longitudinal study. Measurements will be recorded at baseline (0) and at 3, 6, 9, 12, 15 and 18 months after and two groups will be compared: a group formed by dyads (people living with mild cognitive impairment or dementia (mild to moderate) and their primary caregivers) using the CAREGIVERSPRO-MMD platform and a control group formed by dyads without access to the platform.



4.4- Intervention strategy

The platform CAREGIVERSPRO-MMD is an online resource based on web technology, dedicated to provide both monitoring and assistance for people with mild cognitive impairment or people living with dementia. Its structure, as a social network, and its evaluation capacity with multiple questionnaires (dedicated to MCI/PLWD and their caregivers) allows them to share detailed information on the status and progress of the illness (cognitive status, medication usage, mood...). This personalisation leads users to access a range of information tailored to each situation, illness and assistance with the aim of improving the subjective quality of life of both the MCI/PLWD, carer and their immediate circle.

- 50 Dyads formed by MCI/PLWD and their primary caregivers involved in the intervention group will target users of the online platform using all integrated resources.
- 50 Dyads formed by MCI/PLWD and their primary caregivers involved in the control group without access to the online platform, but will be evaluated in all parameters relevant monitoring following the study protocol.

The intervention group will use a tablet connected to the CAREGIVERSPRO-MMD platform and provided by the project staff. The tablet will have limited access to internet and the ability to be used for other applications other than those related to the activity of the CAREGIVERSPRO-MMD platform.

4.5- Description of the measures taken to minimise/avoid bias:

Randomization will be performed once all of the inclusion and exclusion criteria have been validated, and the dyads have signed the consent form. Randomization is performed using a Interactive Web Response System.

4.6- Selection and Withdrawal of Subjects

4.6.1- Subject inclusion criteria

For persons living with mild cognitive impairment or dementia

- People, aged 50 and over, living in the community, who are able to give informed consent.
- Diagnosed with mild cognitive impairment (MCI) according to Petersen criteria [Albert et al, 2011] or mild to moderate dementia diagnosed according on DSM-IV criteria (Diagnostic and Statistical Manual, 4th edition) [American Psychiatric Association, 1994].
- Having a Clinical Dementia Rating (CDR) of 0.5 for MCI, 1-2 for mild to moderate dementia.
- Having a Mini-Mental Exam score (MMSE) [Folstein, 1975] between 30 and 25 (inclusive) for MCI, and between 24 and 10 (inclusive) for dementia.
- Having a primary caregiver, familiar (or not), informal (or not) identified and also included in the study.
- Be willing to use Information Technology and Communications (ICT) according to the investigator criteria.
- Affiliated to the social security system.

For caregivers

- People, aged 18 years and over, with no diagnosis or no evidence of mild cognitive impairment or mild to moderate dementia (according DSM-IV criteria) [American Psychiatric Association, 1994], who are able to give informed consent and with an intention to complete the study.
- Primary caregivers, informal (or not), familiar (or not), of person with mild cognitive Impairment or mild to moderate dementia.
- People with Internet access and basic knowledge and skills in managing internet and social networks, or keen to learn, according to the investigator criteria.
- Having a Geriatric Depression Scale (GDS-Yesavage - 15 items) score less than 11 or for people < 65 years a MADRS >15 at the time of entry into the trial indicating no severe depressive symptoms.
- Having no specific conditions (evaluated by the investigator) reducing their physical abilities below the norm for their age that would limit or impair CAREGIVERSPRO-MMD platform use.
- Be willing to use Information Technology and Communications (ICT) according to the investigator criteria.

4.6.2- Subject exclusion criteria

For patients and caregivers

- Terminal or severe illness with survival prognosis less than 18 months.
- Not speaking nor reading French.
- Enrolled in another clinical trial

For patients

- Having delusions, hallucinations, behavioural disturbances, that may interfere with the use of Information and Communications Technology (ICT) tools.

- Under guardianship and/or under curatorship

4.6.3- Subject withdrawal criteria:

Criteria for withdrawal are :

- If the caregiver changes or if the caregiver cannot continue his role of caregiver.
- Primary caregiver who do not use the platform during 2 months due to a justifiable reason according to the investigator criteria.
- Caregivers showing malicious or inappropriate CAREGIVERSPRO-MMD platform use according to the investigator criteria.
- Severe illness for the persons living with mild cognitive impairment or dementia (mild to moderate) or their caregivers evaluated by the investigator that interfere with the ability or potential to use Information and Communications Technology (ICT) tools.
- One member of the dyad wants to retire informed consent and wants to withdraw from the study.
- Hospitalisation or institutionalisation > 2 months of the patient with cognitive impairment or caregivers.

Dropouts will not be replaced. Estimates of the main and secondary outcomes at 18 months will be obtained based on patients with full follow-up at 18 months.

4.7- Recruitment Methods

Recruitment and information period (4 months)

- Starting information campaigns and strategies of the CAREVIGERSPRO-MMD study.
- Dyads meeting inclusion criteria (database of memory clinics of CHU and CHI and of day care hospital) will be contacted by neuropsychologist and proposed to participate in the study. A first project briefing session will inform caregivers and people living with mild cognitive impairment or dementia (mild to moderate) or their legal representatives who meet the criteria for inclusion and exclusion (screening).
- Second project information session intended to provide additional information and detailed caregivers and people living with mild cognitive impairment or dementia (mild to moderate) or their legal representatives and stakeholders on the protocol and study characteristics. Signature of consent.

Description of the CAREGIVERSPRO-MMD platform

The CAREGIVERSPRO-MMD platform focusing on people living with mild cognitive impairment or dementia (mild to moderate) and their caregivers, considering this “dyad” as the unit of care and offering both a variety of advanced, individually tailored services that will improve the quality of their lives and enable them to live well in the community for as long as possible.

Accessible through friendly and easy-to-use interfaces for mobile phones, tablets and web browsers, the services of the CAREGIVERSPRO-MMD platform includes social networking with other people living with dementia, caregivers and clinicians, clinical and psychological screening, personalised care plan and educational interventions tailored to each user’s symptoms, medication reminder system and reporting to doctors and medical staff about treatment adherence level and other important clinical info.

The CAREGIVERSPRO-MMD platform offers personalised care plans combining medication and behavioural treatments for both people living with mild cognitive impairment or dementia and their caregivers, reduction of

stress and burnout phenomena of caregivers, discrete and constantly available monitoring of people living with mild cognitive impairment or dementia allowing fast adjustments to their care plan, efficient data collection of people living with mild cognitive impairment or dementia and caregivers by healthcare professionals, decision support for effective care plans and preventive interventions, as well as social networking.

4.8- Study schedule

- Enrolment period: 4 months
- Follow-up period: 18 months
- Total duration of the study : 22 months

4.9- Study procedures

4.9.1- Schedule of activities

4.9.1.1- For patients

	Screening	Visite baseline	Phone call	Visite V3	Phone call	Visite V4	Phone call	Visit end of study
Schedule (months)	**T-4**	**T0**	**T3**	**T6 ± 1**	**T9**	**T12 ± 1**	**T15**	**T18 ± 1**
Written informed consent	✓							
Sociodemographic variables	✓	✓						
Medical history/comorbidity	✓	✓		✓		✓		✓
Review Inclusion/Exclusion	✓	✓						
Medication	✓	✓	✓	✓	✓	✓	✓	✓
Treatment adherence (MMAS-8)		✓	✓	✓	✓	✓	✓	✓
PDC			✓	✓	✓	✓	✓	✓
Quality of life (DEMQOL, DEMQOL		✓		✓		✓		✓
CDR	✓							
MMSE	✓			✓		✓		✓
IADL		✓		✓		✓		✓
BADL		✓		✓		✓		✓
GDS		✓		✓		✓		✓
NPI		✓		✓		✓		✓
AE and SAE Reporting		✓	✓	✓	✓	✓	✓	✓

4.9.1.2- Caregivers

	Screening	Visite baseline	Phone call	Visite V3	Phone call	Visite V4	Phone call	Visit end of study
Schedule (months)	**T-4**	**T0**	**T3**	**T6 ± 1**	**T9**	**T12 ± 1**	**T15**	**T18 ± 1**
Written informed consent	✓							
Sociodemographic variables	✓	✓						
Medical history/comorbidity	✓	✓		✓		✓		✓
Review Inclusion/Exclusion	✓	✓						
Medication	✓	✓	✓	✓	✓	✓	✓	✓
Treatment adherence (MMAS-8)		✓	✓	✓	✓	✓	✓	✓
PDC			✓	✓	✓	✓	✓	✓
Burden (ZBI)		✓		✓		✓		✓
Quality of life (SF-36 v2)		✓		✓		✓		✓
GDS/MADRS	✓	✓		✓		✓		✓
STAI		✓		✓		✓		✓
MSPSS		✓		✓		✓		✓
FS		✓	✓	✓	✓	✓	✓	✓
AE and SAE Reporting		✓	✓	✓	✓	✓	✓	✓

4.9.1.3- Dyads

	Screening	Visite baseline	Phone call	Visite V3	Phone call	Visite V4	Phone call	Visit end of study
Schedule (months)	**T-4**	**T0**	**T3**	**T6 ± 1**	**T9**	**T12 ± 1**	**T15**	**T18 ± 1**
DAS		✓	✓	✓	✓	✓	✓	✓

4.9.1.4- Platform Users

	Screening	Visite baseline	Phone call	Visite V3	Phone call	Visite V4	Phone call	Visit end of study
Schedule (months)	**T-4**	**T0**	**T3**	**T6 ± 1**	**T9**	**T12 ± 1**	**T15**	**T18 ± 1**
Satisfaction C-MMD			✓	✓	✓	✓	✓	✓

4.9.1.5- Economic variables

	Screening	Visite baseline	Phone call	Visite V3	Phone call	Visite V4	Phone call	Visit end of study
Schedule (months)	**T-4**	**T0**	**T3**	**T6 ± 1**	**T9**	**T12 ± 1**	**T15**	**T18 ± 1**
RUD			✓	✓	✓	✓	✓	✓
Direct and indirect costs			✓	✓	✓	✓	✓	✓

4.9.2- Screening visit (M-4 prior to Randomization)

Subjects will be screened within 4 months prior to randomization to confirm that they meet the Inclusion/Exclusion criteria for the study. The study investigator will discuss, with each subject, the nature of the study, its requirements, and its restrictions.

Written informed consent must be obtained prior to performance of any protocol specific procedures

The following procedures will be performed:

- Subject demography: including date of birth, gender, relationship between care-recipient and caregiver, and for caregivers work status and professional occupation.
- Medical history: Include history of chronic conditions and/or medical history of significance
- Review Inclusion/Exclusion criteria
- Vital signs: height measured without shoes (cm) and weight measured without shoes (kg)
- Disease History with cognitive status (CDR, MMSE) for patients and depression for caregivers
- Treatments

4.9.3- Visit 2 Baseline (M0)

The baseline visit must occur on the projected visit date within approximately 15 days of signing the informed consent form (ICF). All baseline procedures and tests must be completed prior to randomization.

- Review eligibility criteria: Ensure subject meets baseline entry criteria. Review all inclusion and exclusion criteria to confirm subject eligibility into the study.
- Health Outcomes Assessments: Include medical history, medications, treatment adherence, quality of life, depression for both. Include for patients activity daily living, neuropsychiatric inventory. Include for caregivers burden, anxiety, self-esteem.
- Relationship: relationship between patients and caregivers
- Satisfaction: Platform users satisfaction
- Economic variables
- Monitoring of adverse events and concomitant medications as described in the section 8

4.9.4- Visit 3 and 4: follow-up visit (M6 to M12± 1 month)

- Health Outcomes Assessments: Include medical history, medications, treatment adherence, quality of life, depression for both. Include for patients activity daily living, neuropsychiatric inventory. Include for caregivers burden, anxiety, self-esteem.
- Relationship: relationship between patients and caregivers
- Satisfaction: Platform users satisfaction

- Economic variables
- Monitoring of adverse events and concomitant medications as described in the section 8

4.9.5- Visit 5 : End Of Study Visit (EOS) - (M18± 1 month)

- Health Outcomes Assessments: Include medical history, medications, treatment adherence, quality of life, depression for both. Include for patients activity daily living, neuropsychiatric inventory. Include for caregivers burden, anxiety, self-esteem.
- Relationship: relationship between patients and caregivers
- Satisfaction: Platform users satisfaction
- Economic variables
- Monitoring of adverse events and concomitant medications as described in the section 8

4.9.6- Premature termination of the study

Premature termination of this study may occur because of a regulatory authority decision, change in opinion of the IEC, or at the discretion of the sponsor.

5.Adverse event Reporting

5.1- Definition

An adverse Event (AE) is defined as : (Article R1123-39 du Code de la Santé Publique)

- Any untoward and unintended medical occurrence in a subject included in a clinical trial, whether or not related to research or product.
- Unexpected and negative signs (including, for example, an adverse analytical finding or aggravation of a pre-existing), symptom or pathology associated with the use of a drug may be an adverse event.

5.2- An adverse effect

For this research not concerning a product mentioned in the article L5311-1 ("out health product "), we will consider as adverse events:

- Anxiety
- Depression
- Burn-out
- Stress

5.3- Serious Adverse Event SAE

Is considered serious adverse events, any event:

- resulting in the death of the subject,
- likely to jeopardize the subject's life (immediately life-threatening)
- requiring hospitalization (> 24 hours) or prolongation of hospitalization,
- resulting in significant disability or incapacity or longer
- resulting in an anomaly or birth defect,
- any adverse event considered serious by the investigator stating the event.

Are not considered serious adverse events:

- hospitalizations within 24 hours
- hospitalizations planned before inclusion in the trial

5.4- Unexpected adverse effect

Any unexpected side effect of the device of which the nature, severity or outcome is not consistent with the information in the document (Summary of Product Characteristics, the Investigator Brochure, instruction for use or for devices subject to EC mark, protocol).

5.5- New facts or new safety data

Means any new event or data occurring during the clinical trial:

- Likely to prejudice the safety of the subject,
- Could lead to a reassessment of the benefit / risk ratio
- Sufficient to consider changes in the conduct of research,

5.6-Responsibilities of the investigator

The investigator assessed each adverse event in relation to its severity.

5.6.1- AE Series

The investigator collects adverse events in the form of adverse events collection located in the appendix of CRF.

5.6.2- Notification of SAEs to the sponsor

The investigator must notify the sponsor immediately about any serious adverse events in the trial.

This initial notification is subject to a written report and must be followed if necessary by one or several detailed reports.

The investigator must document at best the event and give medical diagnosis.

The notification shall be sent by fax to the sponsor with the declaration of serious adverse events located in the appendix of case report form, dated and signed, to:

CHU-Hôpitaux de Rouen, Direction de la Recherche et de l'Innovation,

1 rue de Germont

76031 Rouen Cedex 1 France

Phone: +33 2 32 88 82 65

Fax: +33 2 32 88 82 87

To this form must be joined copies of lab results or reports of examinations or hospitalization related to SAEs, including relevant negative results, not forgetting to make these documents anonymous.

The investigator will ensure that relevant information is communicated to the sponsor as they become available.

The investigator should follow the patient with an SAE to its resolution, stabilization at a level deemed acceptable by the investigator or return to the previous state, even if the patient is out of trial and inform the sponsor of SAE evolution.

5.6.3- Evaluation of the intensity of adverse events

The investigator should assess the intensity of adverse events observed in the research participant and report it in the case report form, or with the help of a graduated scale attached to adverse events protocol (such as NCI-CTC classification tests for cancer), or by more general terms as:

Light	does not interfere with usual daily activity
Moderate	partial limitation of usual daily activity
Severe	limitation of usual daily activity

5.6.4- Assessment of causality

The investigator must assess the causality of adverse events with the experimental procedures, any associated treatments, the research.

5.6.5- Expected side effects

The occurrence of an Adverse Event related to the usual care of patients during this protocol will give rise to a declaration in the appropriate vigilance system according to current practice (pharmacovigilance, biovigilance, haemovigilance, material vigilance, ...).

The potential risks or complications, related to the procedure under consideration or the terms of the research are:

- Increased anxiety
- Depression
- Moderate Burn-out

5.6.6- Notification period

All SAEs must be reported to the sponsor if concerns a patient included in the trial:

• From the date of consent signature

• Throughout the monitoring of the participant under the trial

• After the end of patient follow-up and indefinitely if the investigator is aware of an SAE may be due to experimental treatment.

6- DATA ANALYSIS/STATISTICAL METHODS

6.1-Statistical analysis

All initial characteristics will be described by using summary statistics as counts, mean, standard deviation, median, minimum, maximum and quartiles for continuous variables and counts and percentages for categorical variables. Moreover, 95% confidence intervals for the mean and distribution free confidence intervals for the median will be computed. Graphical analysis will use bar diagrams, scatter plots, box-plots, profiles and others.

The main objective is of a descriptive nature. The main outcome, i.e., the perceived burden by primary caregivers at 18 months will be assessed using the "Zarit Burden Interview" (ZBI). It will be described overall and by randomisation arm (i.e., with or without access to the CAREGIVERSPRO-MMD platform during 18 months of CAREGIVERSPRO-MMD platform). The same summary statistics as above will be used.

Moreover, the same strategy will be used for describing the overall change over 18 months in the perceived burden (difference in ZBI score between time 0 and 18 months).

Descriptive statistics will be used for other secondary outcomes.

6.2- Sample size

This being a pilot study, the sample size was set arbitrarily at 100 patients. This sample size will allow a reasonable level of precision in estimating the main outcome. Indeed, as an approximately 50% dropout rate is anticipated,

about 50 patients (and their caregivers) will be assessed at 18 months, 25 per randomisation arm. Considering a standard deviation of 15 for Zarit Burden Inventory (ZBI) at 18 months (main outcome) from preliminary data [Reed et al, 2014], the 95% confidence interval for the mean ZBI at 18 months will have a width of ± 5.9 in each randomisation arm, thus an overall width of 11.8, which is reasonably precise for a score ranging from 0 to 88 and a pilot study.

One can note additionally that at time 0, the 95% confidence interval for the mean ZBI will have a width of ± 2.9, thus an overall width of 5.8 for the initial whole sample of size 100, which is quite precise.

6.3- Criteria for the termination of the study

The study will be stopped when the target sample size is reached, i.e., when all 100 patients have been included and either fully followed-up for 18 months or lost-to-follow-up (dropouts).

6.4- Procedure for accounting for missing, unused, and spurious data

Dropouts will not be replaced. Estimates of the main and secondary outcomes at 18 months will be obtained based on patients with full follow-up at 18 months.

6.5- Interim analysis

No interim analysis is planned.

6.6- Secondary analysis related to economic and financial benefits

Exploratory cost-effectiveness analysis of the platform related to caregivers will be performed computing incremental cost-effectiveness ratio (ICER) and incremental net benefit (INB). Variable of efficacy will be the reduction of ZBI at 18 months with respect to baseline.

7- Direct Access to Source Data/Documents

The sponsor ensure that the investigator(s)/institution(s) will permit trial-related monitoring, audits, IEC review, and regulatory inspection(s), providing direct access to source data/documents. This information is specified in the protocol or other written agreement.

8- Quality Control and Quality Assurance

During study conduct, the sponsor or its agent will conduct periodic monitoring visits to ensure that the protocol and GCPs are being followed. The monitors may review source documents to confirm that the data recorded on CRFs is accurate. The investigator and institution will allow the sponsor monitors or its agents and appropriate regulatory authorities direct access to source documents to perform this verification.

The study site may be subject to review by the independent ethics committee (IEC), and/or to quality assurance audits performed by the sponsor or companies working with or on behalf of the sponsor, and/or to inspection by appropriate regulatory authorities.

It is important that the investigator(s) and their relevant personnel are available during the monitoring visits and possible audits or inspections and that sufficient time is devoted to the process.

9- Ethics

9.1- Sponsor responsibility

The study will be conducted in accordance with legal and regulatory requirements, as well as the general principles set forth in the International Ethical Guidelines for Biomedical Research Involving Human Subjects (Council for International Organizations of Medical Sciences 2002), Guidelines for Good Clinical Practice (International Conference on Harmonization 1996), and the Declaration of Helsinki (World Medical Association 1996 & 2008).

In addition, the study will be conducted in accordance with the protocol, the International Conference on Harmonisation guideline on Good Clinical Practice, and applicable local regulatory requirements and laws.

The Rouen University Hospital will register the trial under a number specific to the trial with the EudraCT database or Competent Authority database.

This protocol will be subject to the opinion of the Independent Ethics Committee (art. L 1123-6 of French Public Health Code).

Information will be provided to the Directors of centers participating in the study before the research is begun (art. L 1123-13 of French Public Health Code).

Any substantial change in the research on the sponsor's initiative will be subject to a request for authorization by the Ethics Committee (art. L 1123-9).

In case of interruption of a trial (premature or temporary) on the sponsor's initiative, the information will be sent as quickly as possible to the competent authority and to the IEC, and notification will be made within 15 days in accordance with the regulations.

The declaration of the end of the study will be done by the sponsor to the Competent Authorities, the ethics committee and all Directorates of participating centers when enrollment has been terminated and the collection of data has been completed in compliance with the 90 days allowed by law.

9.2- Responsibilities of the investigator

Prior to the conduct of a research involving the human being, the free, informed and express consent of that person must be collected after they have been informed by the investigator of the objective of the research, of the conduct and duration of the study, the benefits, potential risks and constraints of the trial as well as the nature of the study product and the authorization of the Ethics Committee (art. L. 1122-1 of French Public Health Code).

The consent form will be dated and signed personally by the patient and/or their representative, and the investigator (original archived by the investigator, a copy will be given to the patient). Only a doctor-investigator registered in the National Order of Physicians and holding a doctorate is authorised by law to obtain the signature of the consent form.

The information and informed consent form for the patient must be combined on a single document in order to avoid any risk of dispute about the content of the information provided.

The primary investigator of each center involved agrees to conduct the clinical trial in accordance with the protocol, which has been approved by the Ethics Committee. The investigator must not make any change to the protocol without the authorisation of the sponsor and unless the Ethics Committee has given a favorable opinion on the proposed amendments.

It is the responsibility of the primary investigator of each center to:

- provide the sponsor with their dated and signed curriculum vitae as well as CVs of co-investigators,
- identify the members of their team participating in the trial and define their responsibilities,
- start recruiting patients after authorization from the sponsor,
- do as much as possible to enroll the required number of patients within the limits of the established recruiting period.

It is the responsibility of each investigator to:

- inform the patient about the conduct of the trial and collect the informed consent, personally dated and signed by the patient, before any screening procedure specific to the trial,
- regularly fill out case report forms (CRFs) for each of the patients enrolled in the trial, and provide the Clinical Research Associate (CRA) with direct access to the source documents so that the CRA can validate the CRF data,
- date, correct and sign corrections of the CRF for each of the patients enrolled in the trial, immediately declare to the Sponsor any and all serious adverse events, except for those listed in the protocol or in the investigator brochure as not requiring immediate notification. Any immediate notification is followed by detailed written reports until normalization of the event or full description. All of the necessary forms are found in the case report form, the investigator folder and the study protocol;
- notify the sponsor within 24 h of adverse events and/or abnormal analysis reports defined in the protocol as determinants for evaluation of patient safety. All of the necessary forms are found in the case report form, the investigator folder and the study protocol;
- agree to regular visits by the CRA and possibly by auditors sent by the sponsor or inspectors from the oversight authorities.

All documentation pertaining to the study (protocol, consent, case report forms, investigator folder, etc.) as well as original documents (laboratory results, x-rays, consultation reports, reports of clinical examinations performed, etc.) must be kept in a safe place and considered confidential materials. The archiving of data will be under the responsibility of the investigator, and in accordance with the laws in force. The investigator must retain the data as well as a patient identification list for a minimum period of 15 years after the end of the study.

10- Data Handling and Record Keeping

Documents of a search within the scope of the law on research on human beings must be kept by all parties for a period of 15 years after the end of the research.

This indexed archive contains:

- Copies of the required notice of the French ethical committee.

- Successive versions of the protocol (identified by the version number and date of version)

- The letters of correspondence with the sponsor,

- The signed consent of the subjects in sealed envelopes with the inclusion list or register in correspondence

- The case report forms completed and validated for each subject included

- All specific annexes to the study,

- The final report of the study from the statistical analysis and quality control of the study (double forwarded to the sponsor).

- Audit certificates, if any made during the search. The database that resulted in the statistical analysis should also be archived (paper or computer) by the responsible for the analysis.

11- Financing and Insurance

Insurance will be subscribed in accordance with French law.

12- Publication Policy

Analysis of the results will be communicated in conferences and publications.

The text of publications and communications will be discussed with all investigators participating in the trial. The order of the co-authors takes into account the participation of different investigators in the trial.

In French : Centre Hospitalier Universitaire (CHU) de Rouen, Médecine Gériatrique et Thérapeutique et Service de Gériatrie-Oissel, Rouen, F-76031, France

In English: Rouen University Hospital, Rouen, Internal Medicine Geriatric and Therapeutics Dept and Oissel-Geriatric Dept, F-76031, France

13- References to literature and data that are relevant to the trial, and that provide background for the trial.

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9.2.6 List of scales

Cf. Deliverable D4.1

9.2.7 Justification of the suitability of the human, material and technical resources for the research project and their compatibility with the safety requirements of patients

CHU Hôpitaux de Rouen	**ETUDE CAREGIVERSPRO-MMD** **N° IDRCB : 2016-A01976-45**	**Délégation de la Recherche Clinique et de l'Innovation**

Titre de l'étude : « Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux »

Référence PROMOTEUR : 2016/369/HP

N° IDRCB : 2016-A01976-45

Classification de l'étude : Projet de recherche mentionnée au 2° de l'article L. 1121-1 du code de la santé publique ne portant pas sur un produit mentionné à l'article L. 5311-1 du même code

Justification de l'adéquation des moyens humains, matériels et techniques au projet de recherche et de leur compatibilité avec les impératifs de sécurité des personnes qui s'y prêtent.

1. **Justification de l'adéquation des moyens humains**

Au niveau adéquation des moyens humains requis pour cette recherche, l'ensemble des deux centres disposent d'une longue expérience en terme de prise en charge des pathologies neurocognitives. L'ensemble du personnel soignant est formé au suivi des patients. Des neuropsychologues qualifiés et expérimentés dans l'évaluation diagnostique des pathologies des troubles cognitifs sont présents dans les 2 centres.

Au sein des deux centres participants, l'ensemble des compétences requises pour la prise en charge du patient sont disponibles.

Les deux équipes travaillent ensemble et collaborent avec le Centre Mémoire de Ressources et de Recherche (CMRR) de Haute Normandie coordonné par le CHU de Rouen (Professeur Didier HANNEQUIN) sur des projets de recherche sur la démence tels que MEMENTO, COMAJ et GMAJ.

2. Justification de l'adéquation des moyens matériels et techniques

L'ensemble des visites médicales et paramédicales (bilans neuropsychologiques) en lien avec l'étude seront réalisées dans des locaux adaptés (Services de Gériatrie et de consultation). Les patients et leurs aidants seront systématiquement pris en charge par des neuropsychologistes et des médecins spécialistes en gériatrie et neurlologie.

Les centres disposent tous d'une longue expérience dans le suivi des patients atteints de troubles cognitifs, et ont notamment un accès immédiat à un chariot d'urgence, et à un service d'urgence à immédiate proximité permettant la prise en charge d'éventuelles complications. Une file active de plus de 1000 patients pour les deux centre.

Les moyens techniques à mettre en ouevre dans le cadre de cette recherche sont conformes à la prise en charge habituelle des patients suivis pour des troubles cognitifs.

3. Références à la littérature scientifique

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9. « Expérience de la Grille AGGIR dans un Service de Court Séjour de Médecine polyvalente » Th. SIMON, J. DUVAL, J. BERNET. Journée de Gérontologie organisée par l'Hôpital et la Ville de Louviers - 8 décembre 1997.
10. « Stades cliniques et traitement actuel des escarres » Th. SIMON. 7ème Journée d'Hygiène du Centre Hospitalier Intercommunal d'Elbeuf/Louviers/Val-de-Reuil – 23 avril 2002.
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12. « Personnes âgées, long séjour : quels repères pour nos relations avec les proches? » Thibault SIMON 6e Colloque Ethique, Espace Ethique du CHU de Rouen, 24 novembre 2009

9.2.8 List of investigators

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01	ROUEN	Dr Isabelle LANDRIN (Investigateur coordinateur)	Service de Médecine Interne Gériatrie Thérapeutique CHU de Rouen Hôpital Saint Julien 1 rue de Germont 76031 Rouen France	Tél. : 02 32 88 65 52 Fax : 02 32 88 64 19 @ : isabelle.landrin@chu-rouen.fr
01	ROUEN	Dr Nadir KADRI	Service de Médecine Interne Gériatrie Thérapeutique CHU de Rouen Hôpital Saint Julien 1 rue de Germont 76031 Rouen France	Tél. : 02 32 88 65 52 Fax : 02 32 88 64 19 @: nadir.kadri@chu-rouen.fr
01	ROUEN	Dr Myriam TOUFLET	Service de Gériatrie CHU de Rouen Hôpital de Oissel 1 rue de Germont 76031 Rouen France	Tél. : 02 32 88 84 81 Fax : 02 32 88 09 83 @: myriam.touflet@chu-rouen.fr
01	ROUEN	Dr Marie BERARD	Service de Gériatrie CHU de Rouen Hôpital de Oissel 1 rue de Germont 76031 Rouen France	Tél. : 02 32 88 84 81 Fax : 02 32 88 09 83 @: marie.berard@chu-rouen.fr
01	Rouen	Laetitia MALHERBE	Service de Médecine Interne Gériatrie Thérapeutique CHU de Rouen Hôpital Saint Julien 1 rue de Germont 76031 Rouen France	Tél. : 02 32 88 65 92 Fax : 02 32 88 64 19 @: laetitia.malherbe@chu-rouen.fr

02	Elbeuf-Louviers	Dr Thibault SIMON	CHI Elbeuf - Louviers Service de Médecine Gériatrique rue du Docteur Villers Saint-Aubin-lès-Elbeuf BP 310 76503 Elbeuf Cedex France	Tél. : 02 32 82 21 69 Fax : 02 32 82 21 51 @: thibault.simon@chi-elbeuf-louviers.fr

9.2.9 Information sheet

CAREGIVERSPRO-MMD – 2016/369/HP Note d'information

NOTE D'INFORMATION DESTINEE AUX PATIENTS

PARTICIPANT A LA RECHERCHE

Titre de la recherche : « Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux »

N° RCB : 2016-A01976-45

Investigateur coordonnateur :
Dr Isabelle LANDRIN
Service de Médecine Interne Gériatrie Thérapeutique
Hôpital Saint Julien
CHU-Hôpitaux de Rouen
1, rue de Germont, 76031 ROUEN Cedex
Tél. : 02 32 88 65 52, Fax : 02 32 88 64 19

Promoteur :
CHU-Hôpitaux de Rouen
Direction de la Recherche et de l'Innovation
1, rue de Germont, 76031 ROUEN Cedex
Tél. : 02 32 88 82 65, Fax : 02 32 88 82 87

Avis favorable du Comité de Protection des Personnes xxxxxxxxx le : ……

Assurance : contrat n° …., attestation n° ……
Conformément à la loi, le promoteur de cette étude a souscrit une police d'assurance auprès de Gerling France, par l'intermédiaire du courtier Biomedicinsure, 56038 VANNES Cedex.
Ce contrat peut être consulté à la Direction de la Recherche et de l'Innovation, CHU-Hôpitaux de Rouen, Hôpital Charles Nicolle, 76031 ROUEN Cedex (Tél. : 02 32 88 82 65)

Madame, Mademoiselle, Monsieur,

Votre médecin, le Docteur _____ vous propose de participer à un protocole de recherche **« Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux »** dont le Promoteur est le CHU-Hôpitaux de Rouen.

Le but de cette note d'information est de vous expliquer aussi ouvertement et clairement que possible tous les différents aspects de cette étude, afin de vous permettre de décider de votre participation à cette étude.

Justificatif de l'essai : Pourquoi cette étude ?

L'entourage proche des personnes ayant des troubles cognitifs est formé de l'aidant principal, des amis et des services sociaux et de santé et il a pour but de réduire les conséquences de la maladie.
Aider une personne ayant des troubles cognitifs dans la vie quotidienne n'est pas anodin. Outre l'investissement personnel, professionnel et financier que les proches consentent, il y a un impact sur la santé physique et morale des aidants et de la famille.
Actuellement, l'apport des nouvelles technologies dans le soutien et l'assistance des personnes atteintes de troubles neurocognitifs et de leurs aidants a été peu étudié. Il n'existe aucune plateforme interactive capable de suivre et de délivrer des contenus ciblés en fonction des symptômes de la maladie en proposant un accès ciblé à des réseaux sociaux. Le développement de ces nouvelles approches doit permettre de soutenir les aidants tout au long de la maladie afin de les aider à faire face aux troubles et les soutenir afin de réduire les symptômes liés épuisement.

Objectifs de l'étude

Le but de cette étude est d'identifier les bénéfices potentiels de la plateforme CAREGIVERSPRO-MMD sur les symptômes d'épuisement des aidants et la qualité de vie des personnes ayant des troubles cognitifs.

Déroulement de l'étude

Dans le but d'évaluer les bénéfices et l'impact de la plateforme CAREGIVERSPRO-MMD, une étude sera réalisée au CHU de Rouen et au CHI de Elbeuf-Louviers avec 100 binômes « aidant-aidé » appelées dyades divisées en 2 groupes de nombre égal. Les groupes seront constitué d'un groupe « intervention » avec l'accès à la plateforme et d'un groupe « contrôle » sans accès à cette plateforme. Ces groupes seront constitués après tirage au sort.

Pendant les 18 mois de l'étude, les caractéristiques en lien avec la santé de l'aidant et de l'aidé (santé globale, fonctions neuropsychologiques, activités de la vie quotidienne, qualité de vie, compliance au traitement pharmacologique et comorbidités), les caractéristiques sociales (cohésion de la dyade, soutien social, relations sociales, estime de soi, but et optimisme) et les aspects économiques (coût-efficacité de l'utilisation de la plateforme) et le degré de satisfaction et la facilité d'utilisation de la plateforme par tous les utilisateurs seront évalués.

Durant cette période, les membres de la dyade des 2 groupes « intervention » et « contrôle » bénéficieront d'une visite médicale habituelle tous les 6 mois (soit 4 visites) et d'un appel téléphonique entre les visites (mois : 3-9-12-15). Seuls des questionnaires seront réalisés, aucun examen invasif ne sera fait.
Pour participer à l'étude, les 2 membres de la dyade devront donner leur consentement et accepter d'utiliser régulièrement l'outil informatique.

Pour participer à l'étude, vous deviez :

- Etre âgé de plus de 50 ans, vivre à domicile et pouvoir donner son consentement éclairé.
- Avoir des troubles neurocognitifs à un stade léger à modéré
- Avoir un MMS (Mini Mental State) compris entre 10 et 30
- Avoir un aidant familial qui accepte de participer à l'étude.
- Accepter d'utiliser un système informatique (tablette).
- Etre affilié à un régime de protection sociale

Bénéfices attendus

Il s'agit d'une étude pilote de faisabilité de l'utilisation d'une plateforme.
Pour les dyades bénéficiant de la plateforme, vous aurez des contenus éducatifs pour le suivi de la maladie (informations, éducation thérapeutique, etc…)

Risques prévisibles

Le risque de participer à l'étude est très limité. Le seul risque prévisible est pour les utilisateurs de la plateforme, d'avoir une recrudescence d'anxiété liée aux difficultés d'utilisation. Votre aidant ou l'équipe de recherche est présente pour vous aider. Une formation à l'utilisation de l'outil informatique aura lieu.
La connexion sur le site est sécurisée et l'accès internet sera limité aux seules utilisations en rapport avec l'étude.

Les alternatives médicales

Si vous décidez de ne pas participer à cette recherche ou si vous deviez volontairement ou sur décision du médecin interrompre votre participation à cette étude, il vous sera proposé la prise en charge habituelle.
Vous êtes libre d'interrompre votre participation à tout moment.

Vos droits

Votre médecin doit vous fournir toutes les explications nécessaires concernant cette recherche. Si vous souhaitez vous en retirer à quelque moment que ce soit, et quel que soit le motif, vous continuerez à bénéficier du suivi médical et cela n'affectera en rien votre surveillance future.

Dans le cadre de la recherche à laquelle le Promoteur vous propose de participer, un traitement informatique de vos données personnelles va être mis en œuvre pour permettre d'analyser les résultats de la recherche au regard de l'objectif de cette dernière qui vous a été présenté. A cette fin, les données médicales vous concernant ainsi que des données relatives à vos habitudes de vie, seront transmises au promoteur de la recherche ou aux personnes ou sociétés agissant pour son compte, en France et au sein de la communauté européenne. Ces données seront identifiées par un code et/ou vos initiales. Ces données pourront également, dans des conditions assurant leur confidentialité, être transmises aux autorités de santé françaises ou étrangères et à d'autres entités Promoteur.

Conformément aux dispositions de la loi relative à l'informatique, aux fichiers et aux libertés, vous disposez à tout moment d'un droit d'accès et de rectification des données informatisées vous concernant (loi n° 2004-801 du 6 août 2004 modifiant la loi n° 78-17 du 6 janvier 1978 relative à l'informatique, aux fichiers et aux libertés). Vous disposez également d'un droit d'opposition à la transmission des données couvertes par le secret professionnel susceptibles d'être utilisées dans le cadre de cette recherche et d'être traitées. Vous pouvez également accéder directement ou par l'intermédiaire du médecin de votre choix à l'ensemble de vos données médicales en application des dispositions de l'article L1111-7 du code de la santé publique. Ces droits s'exercent auprès du médecin qui vous suit dans le cadre de la recherche et qui connaît votre identité.

Si applicable : Nous vous informons que vous serez inscrit dans le fichier national des personnes qui se prêtent à des recherches prévu à l'article L.1121-16 du code de la santé publique. Vous avez la possibilité de vérifier auprès du ministre chargé de la santé l'exactitude des données vous concernant présentes dans ce fichier et la destruction de celles-ci au terme du délai prévu par la loi.

Conformément à la loi n° 2012-300 du 12 mars 2012 modifiée relative aux recherches impliquant la personne humaine (art L1121-1 à L1126-6 du code de la santé publique) :

- Cette recherche a obtenu un avis favorable du Comité de Protection des Personnes <*nom du CPP*> le <*date de l'avis*>,
- Le promoteur de cette recherche, le CHU de Rouen, 1 rue de Germont 76031 Rouen cedex, a souscrit une assurance de responsabilité civile auprès de la société Biomedicinsure (contrat n°(1680)1006615)).

Votre participation à cette recherche est volontaire et vous n'êtes en aucun cas obligé d'y prendre part. Cela ne changera en rien vos relations avec le médecin qui vous prend en charge ni avec l'équipe médicale. Si au cours de cette recherche, de nouvelles informations étaient disponibles, pouvant remettre en cause votre participation, le médecin chargé de cette recherche vous les communiquera et s'assurera que vous souhaitez continuer à y participer.
Vous pourrez arrêter votre participation à ce protocole à tout moment. Le médecin investigateur chargé de cette recherche peut également décider votre sortie d'essai s'il le juge nécessaire, notamment pour votre bien-être.
Votre participation n'entraînera aucun frais supplémentaire pour vous.
De plus, si vous le désirez, vous pourrez être informé des résultats obtenus au terme de ce protocole de recherche.

Après avoir lu cette note d'information, n'hésitez pas à poser à votre médecin toutes les questions que vous désirez. Après un délai de réflexion, si vous acceptez de participer à cette recherche, vous devez compléter et signer le formulaire de consentement de participation. Un exemplaire du document complet vous sera remis

Nous vous remercions de votre coopération.

Vous pouvez recevoir toute information complémentaire à propos de cette étude auprès du médecin qui vous a proposé d'y participer,

Le Dr _____
Adresse _____
_____
_____

Téléphone : _____

ou auprès du coordonnateur de l'étude, le Docteur Isabelle LANDRIN, Service de Médecine Interne Gériatrique et Thérapeutique- Hôpital St Julien- Le Petit-Quevilly.
Tél : 02 32 88 65 52

NOTE D'INFORMATION DESTINEE AUX AIDANTS

PARTICIPANT A LA RECHERCHE

Titre de la recherche : « Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux »

N° RCB : 2016-A01976-45

Investigateur coordonnateur :
Dr Isabelle LANDRIN
Service de Médecine Interne Gériatrie Thérapeutique
Hôpital Saint Julien
CHU-Hôpitaux de Rouen
1, rue de Germont, 76031 ROUEN Cedex
Tél. : 02 32 88 65 52, Fax : 02 32 88 64 19

Promoteur :
CHU-Hôpitaux de Rouen
Direction de la Recherche et de l'Innovation
1, rue de Germont, 76031 ROUEN Cedex
Tél. : 02 32 88 82 65, Fax : 02 32 88 82 87

Avis favorable du Comité de Protection des Personnes xxxxxxxx le : ……

Assurance : contrat n° …., attestation n° ……
Conformément à la loi, le promoteur de cette étude a souscrit une police d'assurance auprès de Gerling France, par l'intermédiaire du courtier Biomedicinsure, 56038 VANNES Cedex.
Ce contrat peut être consulté à la Direction de la Recherche et de l'Innovation, CHU-Hôpitaux de Rouen, Hôpital Charles Nicolle, 76031 ROUEN Cedex (Tél. : 02 32 88 82 65)

Madame, Mademoiselle, Monsieur,

Votre médecin, le Docteur _____ vous propose de participer à un protocole de recherche **« Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux »** dont le Promoteur est le CHU-Hôpitaux de Rouen.

Le but de cette note d'information est de vous expliquer aussi ouvertement et clairement que possible tous les différents aspects de cette étude, afin de vous permettre de décider de votre participation à cette étude.

Justificatif de l'essai : Pourquoi cette étude ?

L'entourage proche des personnes ayant des troubles cognitifs est formé de l'aidant principal, des amis et des services sociaux et de santé et il a pour but de réduire les conséquences de la maladie.
Aider une personne ayant des troubles cognitifs dans la vie quotidienne n'est pas anodin. Outre l'investissement personnel, professionnel et financier que les proches consentent, il y a un impact sur la santé physique et morale des aidants et de la famille.
Actuellement, l'apport des nouvelles technologies dans le soutien et l'assistance des personnes atteintes de troubles neurocognitifs et de leurs aidants a été peu étudié. Il n'existe aucune plateforme interactive capable de suivre et de délivrer des contenus ciblés en fonction des symptômes de la maladie en proposant un accès ciblé à des réseaux sociaux. Le développement de ces nouvelles approches doit permettre de soutenir les aidants tout au long de la maladie afin de les aider à faire face aux troubles et les soutenir afin de réduire les symptômes liés épuisement.

Objectif de l'étude

Le but de cette étude est d'évaluer si la plateforme CAREGIVERSPRO-MMD permet de réduire les symptômes d'épuisement des aidants et par conséquence améliorer la qualité de vie des personnes ayant des troubles cognitifs.

Déroulement de l'étude

Dans le but d'évaluer l'efficacité et l'impact de la plateforme CAREGIVERSPRO-MMD, une étude sera réalisée au CHU de Rouen et au CHI de Elbeuf-Louviers avec 100 binômes « aidant-aidé » appelées dyades divisées en 2 groupes de nombre égal. Les groupes seront constitué d'un groupe « intervention » avec l'accès à la plateforme et d'un groupe « contrôle » sans accès à cette plateforme.

Ces groupes seront constitués après tirage au sort. Pendant les 18 mois de l'étude, les caractéristiques en lien avec la santé de l'aidant et de l'aidé (santé globale, fonctions neuropsychologiques, activités de la vie quotidienne, qualité de vie, compliance au traitement pharmacologique et comorbidités), les caractéristiques sociales (cohésion de la dyade, soutien social, relations sociales, estime de soi, but et optimisme) et les aspects économiques (coût-efficacité de l'utilisation de la plateforme) et le degré de satisfaction et la facilité d'utilisation de la plateforme par tous les utilisateurs seront évalués.

Durant cette période, les membres de la dyade des 2 groupes « intervention » et « contrôle » bénéficieront d'une visite médicale tous les 6 mois (soit 4 visites) et d'un appel téléphonique entre les visités (mois : 3-9-12-15). Seuls des questionnaires seront réalisés, aucun examen invasif ne sera fait.
Pour participer à l'étude, les 2 membres de la dyade doivent accepter leur participation et accepter d'utiliser régulièrement l'outil informatique.

Pour participer à l'étude, vous deviez :

- Etre âgé de plus de 18 ans, ne pas présenter de trouble neurocognitif évident et pouvoir donner son consentement éclairé.
- Avoir l'intention de compléter l'étude
- Etre un aidant familial ou non d'une personne ayant des troubles neurocognitifs et qui accepte de participer à l'étude.
- Accepter d'utiliser l'informatique, avoir un accès internet et avoir des connaissances de base en informatique, avoir les compétences pour utiliser internet et les réseaux sociaux ou être en mesure d'apprendre
- Ne pas avoir de dépression sévère, ni de maladie pouvant réduire les capacités physiques pour l'utilisation de la plateforme
- Etre affilié à un régime de protection sociale

Bénéfices attendus

Le fait de participer à l'étude va vous permettre de bénéficier ainsi que votre aidant d'un suivi plus important et sophistiqué quel que soit le groupe dans lequel vous avez été retenu.
Pour les dyades bénéficiant de la plateforme, vous bénéficierez des contenus de cette plateforme (informations, éducation thérapeutique, etc…)

Risques prévisibles

Le risque de participer à l'étude est limité. Le seul risque prévisible est pour les utilisateurs de la plateforme, d'avoir une recrudescence d'anxiété liée aux difficultés d'utilisation. L'équipe de recherche organisera une formation et restera présente pour vous aider.
Si une information nouvelle concernant la sécurité d'emploi de l'un ou l'autre des produits techniques venait à être connue au cours de l'étude, votre médecin vous avertira immédiatement.

Les alternatives médicales

Si vous décidez de ne pas participer à cette recherche ou si vous deviez volontairement ou sur décision du médecin interrompre votre participation à cette étude, il vous sera proposé la prise en charge habituelle.
Vous êtes libre d'interrompre votre participation à tout moment.

Vos droits

Votre médecin doit vous fournir toutes les explications nécessaires concernant cette recherche. Si vous souhaitez vous en retirer à quelque moment que ce soit, et quel que soit le motif, vous continuerez à bénéficier du suivi médical et cela n'affectera en rien votre surveillance future.

Dans le cadre de la recherche à laquelle le Promoteur vous propose de participer, un traitement informatique de vos données personnelles va être mis en œuvre pour permettre d'analyser les résultats de la recherche au regard de l'objectif de cette dernière qui vous a été présenté. A cette fin, les données médicales vous concernant ainsi que des données relatives à vos habitudes de vie, seront transmises au promoteur de la recherche ou aux personnes ou sociétés agissant pour son compte, en France et au sein de la communauté européenne. Ces données seront identifiées par un code et/ou vos initiales. Ces données pourront également, dans des conditions assurant leur confidentialité, être transmises aux autorités de santé françaises ou étrangères et à d'autres entités Promoteur.

Conformément aux dispositions de la loi relative à l'informatique, aux fichiers et aux libertés, vous disposez à tout moment d'un droit d'accès et de rectification des données informatisées vous concernant (loi n° 2004-801 du 6 août 2004 modifiant la loi n° 78-17 du 6 janvier 1978 relative à l'informatique, aux fichiers et aux libertés). Vous disposez également d'un droit d'opposition à la transmission des données couvertes par le secret professionnel susceptibles d'être utilisées dans le cadre de cette recherche et d'être traitées. Vous pouvez également accéder directement ou par l'intermédiaire du médecin de votre choix à l'ensemble de vos données médicales en application des dispositions de l'article L1111-7 du code de la santé publique. Ces droits s'exercent auprès du médecin qui vous suit dans le cadre de la recherche et qui connaît votre identité.

Si applicable : Nous vous informons que vous serez inscrit dans le fichier national des personnes qui se prêtent à des recherches biomédicales prévu à l'article L.1121-16 du code de la santé publique. Vous avez la possibilité de vérifier auprès du ministre chargé de la santé l'exactitude des données vous concernant présentes dans ce fichier et la destruction de celles-ci au terme du délai prévu par la loi.

Conformément à la loi n° 2012-300 du 12 mars 2012 modifiée relative aux recherches impliquant la personne humaine (art L1121-1 à L1126-6 du code de la santé publique) :

- Cette recherche a obtenu un avis favorable du Comité de Protection des Personnes <*nom du CPP*> le <*date de l'avis*>,
- Le promoteur de cette recherche, le CHU de Rouen, 1 rue de Germont 76031 Rouen cedex, a souscrit une assurance de responsabilité civile auprès de la société Biomedicinsure (contrat n°(1680)1006615)).

Votre participation à cette recherche est volontaire et vous n'êtes en aucun cas obligé d'y prendre part. Cela ne changera en rien vos relations avec le médecin qui vous prend en charge ni avec l'équipe médicale. Si au cours de cette recherche, de nouvelles informations étaient disponibles, pouvant remettre en cause votre participation, le médecin chargé de cette recherche vous les communiquera et s'assurera que vous souhaitez continuer à y participer.
Vous pourrez arrêter votre participation à ce protocole à tout moment. Le médecin investigateur chargé de cette recherche peut également décider votre sortie d'essai s'il le juge nécessaire, notamment pour votre bien-être.
Votre participation n'entraînera aucun frais supplémentaire pour vous.
De plus, si vous le désirez, vous pourrez être informé des résultats obtenus au terme de ce protocole de recherche.

Après avoir lu cette note d'information, n'hésitez pas à poser à votre médecin toutes les questions que vous désirez. Après un délai de réflexion, si vous acceptez de participer à cette recherche, vous devez compléter et signer le formulaire de consentement de participation. Un exemplaire du document complet vous sera remis

Nous vous remercions de votre coopération.

Vous pouvez recevoir toute information complémentaire à propos de cette étude auprès du médecin qui vous a proposé d'y participer,

Le Dr _____
Adresse _____
_____
_____

Téléphone : _____

ou auprès du coordonnateur de l'étude, le Docteur Isabelle LANDRIN, Service de Médecine Interne Gériatrique et Thérapeutique- Hôpital St Julien- Le Petit-Quevilly.
Tél : 02 32 88 65 52

FORMULAIRE DE CONSENTEMENT DESTINE

AU PATIENT PARTICIPANT A LA RECHERCHE

« Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux »

CAREGIVERSPRO-MMD – 2016/369/HP

Promoteur de la recherche : CHU de Rouen
Investigateur coordonnateur/principal : Dr Isabelle Landrin

Je soussigné _____ (Nom, Prénom) certifie avoir lu et compris la note d'information concernant l'étude intitulée **« Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux »** qui m'a été remise.

J'ai eu la possibilité de poser toutes les questions qui me paraissaient utiles pour la bonne compréhension de la note d'information et de recevoir des réponses claires et précises par le Docteur _____ qui m'a bien expliqué aussi la nature, les objectifs, les bénéfices attendus, la durée de l'étude et de son suivi, les risques potentiels et les contraintes liées à ma participation à cette recherche.

Il m'a clairement été précisé que je suis libre d'accepter ou de refuser de participer à cette recherche.

Je connais la possibilité qui m'est réservée d'interrompre ma participation à cette recherche à tout moment sans avoir à justifier ma décision. Cela ne remettra naturellement pas en cause la qualité des soins ultérieurs qui me seront dispensés. J'en informerai alors l'investigateur. J'ai eu l'assurance que les décisions qui s'imposent pour ma santé seront prises à tout moment, conformément à l'état actuel des connaissances médicales.

Mon consentement ne décharge pas l'investigateur et le promoteur de la recherche de leurs responsabilités à mon égard et je conserve tous mes droits garantis par la loi.

J'ai pris connaissance que cette recherche a reçu l'avis favorable du Comité de Protection des Personnes xxxxxxxxxxxxxxx le <*date de l'avis favorable*> et a fait l'objet d'une déclaration à la Commission Nationale Informatique et Libertés (CNIL).

Le promoteur de la recherche, le CHU de Rouen, 1 rue de Germont, 76031 Rouen cedex, a souscrit une assurance de responsabilité civile en cas de préjudice auprès de la société Biomedicinsure (contrat n°(1680)1006615) que je peux consulter à la Direction de la Recherche et de l'Innovation du CHU de Rouen.

J'accepte que mon dossier médical soit consulté par le personnel de recherche du promoteur, soumis au secret professionnel. J'accepte que les personnes qui collaborent à cette recherche ou qui sont mandatées par le promoteur, ainsi qu'éventuellement le représentant des Autorités de Santé, aient accès à l'information dans le respect le plus strict de la confidentialité.

J'accepte que les données enregistrées à l'occasion de cette recherche puissent faire l'objet d'un traitement informatisé sous la responsabilité du promoteur.

J'ai bien noté que, conformément aux dispositions de la loi relative à l'informatique, aux fichiers et aux libertés du 6 août 2004, je dispose d'un droit d'accès et de rectification. Je dispose également d'un droit d'opposition à la transmission des données couvertes par le secret professionnel susceptibles d'être utilisées dans le cadre de cette recherche et d'être traitées. Ces droits s'exercent auprès du médecin qui me suit dans le cadre de cette recherche et qui connaît mon identité.

Les résultats globaux de la recherche me seront communiqués directement, si je le sollicite, conformément à la loi du 4 mars 2002 relative aux droits des malades et à la qualité du système de santé.

Je pourrai à tout moment demander toute information complémentaire au Docteur _____
(n° de tél : _____) qui m'a proposé de participer à cette recherche.

Ayant disposé d'un temps de réflexion suffisant avant de prendre ma décision, j'accepte librement et volontairement de participer à la recherche Caregiverspro-MMD

Fait à ....., le |__|__| |__|__| 2 0 |__|__|	Fait à ....., le |__|__| |__|__| 2 0 |__|__|
Nom et **signature** de la **personne participant à la recherche**	**Nom** et **signature** du **Médecin thésé**
Nom et Prénom Signature	Nom et Prénom Signature

FORMULAIRE DE CONSENTEMENT DESTINE
A L'AIDANT PARTICIPANT A LA RECHERCHE

« Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux »

CAREGIVERSPRO-MMD – 2016/369/HP

Promoteur de la recherche : CHU de Rouen

Investigateur coordonnateur/principal : Dr Isabelle Landrin

Je soussigné _____ (Nom, Prénom) certifie avoir lu et compris la note d'information concernant l'étude intitulée « Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux » qui m'a été remise.

J'ai eu la possibilité de poser toutes les questions qui me paraissaient utiles pour la bonne compréhension de la note d'information et de recevoir des réponses claires et précises par le Docteur _____ qui m'a bien expliqué aussi la nature, les objectifs, les bénéfices attendus, la durée de l'étude et de son suivi, les risques potentiels et les contraintes liées à ma participation à cette recherche.

Il m'a clairement été précisé que je suis libre d'accepter ou de refuser de participer à cette recherche.

Je connais la possibilité qui m'est réservée d'interrompre ma participation à cette recherche à tout moment sans avoir à justifier ma décision. Cela ne remettra naturellement pas en cause la qualité des soins ultérieurs qui me seront dispensés. J'en informerai alors l'investigateur. J'ai eu l'assurance que les décisions qui s'imposent pour ma santé seront prises à tout moment, conformément à l'état actuel des connaissances médicales.

Mon consentement ne décharge pas l'investigateur et le promoteur de la recherche de leurs responsabilités à mon égard et je conserve tous mes droits garantis par la loi.

J'ai pris connaissance que cette recherche a reçu l'avis favorable du Comité de Protection des Personnes xxxxxxxxxxxx le <*date de l'avis favorable*> et a fait l'objet d'une déclaration à la Commission Nationale Informatique et Libertés (CNIL).

Le promoteur de la recherche, le CHU de Rouen, 1 rue de Germont, 76031 Rouen cedex, a souscrit une assurance de responsabilité civile en cas de préjudice auprès de la société Biomedicinsure (contrat n°(1680)1006615) que je peux consulter à la Direction de la Recherche et de l'Innovation du CHU de Rouen.

J'accepte que mon dossier médical soit consulté par le personnel de recherche du promoteur, soumis au secret professionnel. J'accepte que les personnes qui collaborent à cette recherche ou qui sont mandatées par le promoteur, ainsi qu'éventuellement le représentant des Autorités de Santé, aient accès à l'information dans le respect le plus strict de la confidentialité.

J'accepte que les données enregistrées à l'occasion de cette recherche puissent faire l'objet d'un traitement informatisé sous la responsabilité du promoteur.

J'ai bien noté que, conformément aux dispositions de la loi relative à l'informatique, aux fichiers et aux libertés du 6 août 2004, je dispose d'un droit d'accès et de rectification. Je dispose également d'un droit d'opposition à la transmission des données couvertes par le secret professionnel susceptibles d'être utilisées dans le cadre de cette recherche et d'être traitées. Ces droits s'exercent auprès du médecin qui me suit dans le cadre de cette recherche et qui connaît mon identité.

Les résultats globaux de la recherche me seront communiqués directement, si je le sollicite, conformément à la loi du 4 mars 2002 relative aux droits des malades et à la qualité du système de santé.

Je pourrai à tout moment demander toute information complémentaire au Docteur _____
(n° de tél : _____) qui m'a proposé de participer à cette recherche.

Ayant disposé d'un temps de réflexion suffisant avant de prendre ma décision, j'accepte librement et volontairement de participer à la recherche Caregiverspro-MMD

Fait à ....., le |__|__| |__|__| 2 0 |__|__|	Fait à ....., le |__|__| |__|__| 2 0 |__|__|
Nom et **signature** de la **personne participant à la recherche**	**Nom** et **signature** du **Médecin thésé**
Nom et Prénom Signature	Nom et Prénom Signature

9.2.10 Insurance

Biomedicinsure

Parc d'innovation Bretagne sud
CIR 142 - 56038 VANNES CEDEX
Tel. +33(0)2 97 69 19 93
Fax. +33(0)2 97 69 11 11
biorsa@biomedic-insure.com

HDI

ATTESTATION D'ASSURANCE RESPONSABILITE CIVILE
PROMOTEUR DE RECHERCHE IMPLIQUANT LA PERSONNE HUMAINE

Nous soussignés HDI Global SE - TOUR OPUS 12 – LA DEFENSE 9 - 77, Esplanade du Général de Gaulle F-92914 PARIS LA DEFENSE CEDEX, certifions que la société :

CHU DE ROUEN
1 RUE DE GERMONT
76031 ROUEN CEDEX

a souscrit un contrat de Responsabilité Civile Promoteur de Recherche impliquant la personne humaine sous le numéro **0100661518052 160019 10998** conforme aux dispositions légales et réglementaires françaises sur les recherches impliquant la personne humaine et notamment de la loi n° 88.1138 du 20.12.1988, modifiée par les textes subséquents notamment la loi n° 2012-300 du 5 mars 2012 et son décret d'application n° 2016-1537 du 18 novembre 2016, pour la recherche impliquant la personne humaine dénommée ci-après :

Nom du promoteur :	CHU DE ROUEN
Numéro d'enregistrement : (EUDRACT ou n° fourni par l'ANSM)	2016-A03906-44
Titre de la recherche :	Pilot study to identify the benefits CAREGIVERSPRO-MMD platform use based on the information and communications technology (ICT), dedicated to the support and assistance of dyads living with neurocognitive diseases including persons living with mild cognitive impairment or mild to moderate dementia and their primary caregivers - CAREGIVERSPRO-MMD Protocole 2016/380/HP
Nombre de patients :	200
Début et fin prévisionnels de la recherche :	DU 01/02/2017 AU 31/12/2018

La garantie est conforme à l'obligation d'assurance instituée par les textes de loi précités ainsi que l'article L1121-10 du code de la santé publique et à la charge du promoteur, tant pour sa responsabilité que pour celle des intervenants au titre de la recherche impliquant la personne humaine.

La garantie prévue au contrat restera acquise à l'Assuré en cas de modification affectant la date de prise d'effet de la recherche.

La présente attestation est valable pour la durée de la recherche assurée et sa présentation vaut présomption de garantie à la charge de l'Assureur. Elle est délivrée, sous réserve du paiement de la prime, pour servir et valoir ce que de droit et ne peut en aucun cas engager l'Assureur au-delà des clauses et conditions du contrat auquel elle se réfère.

Fait à Paris, le 8 décembre 2016
Pour l'Assureur
HDI Global SE

9.2.11 Additional document

DOCUMENT ADDITIONNEL A LA DEMANDE D'AVIS AU COMITE DE PROTECTION DES PERSONNES SUR UN PROJET DE RECHERCHE MENTIONNEE AU 1° OU AU 2° DE L'ARTICLE L. 1121-1 DU CODE DE LA SANTE PUBLIQUE NE PORTANT PAS SUR UN PRODUIT MENTIONNE A L'ARTICLE L. 5311-1 DU MEME CODE

Ce document doit être complété de façon claire et compréhensible.

1.	**Numéro d'enregistrement : IDRCB : 2016-A01976-45**
2.	**Titre complet de la recherche : «** Etude pilote pour déterminer les bénéfices de l'utilisation de la plateforme CAREGIVERSPRO-MMD basée sur les technologies de l'information et de la communication (TIC), et dédiée au soutien et à l'assistance de dyades de personnes ayant des troubles neurocognitifs légers à modérés et à leurs aidants principaux » - *Etude CAREGIVERSPRO-MMD*
3.	**Justification et analyse critique de la pertinence de la recherche :** L'entourage proche des personnes ayant des troubles cognitifs est formé de l'aidant principal, des amis et des services sociaux et de santé et il a pour but de réduire les conséquences de la maladie. Aider une personne ayant des troubles cognitifs dans la vie quotidienne n'est pas anodin. Outre l'investissement personnel, professionnel et financier que les proches consentent, il y a un impact sur la santé physique et morale des aidants et de la famille. Actuellement, l'apport des nouvelles technologies dans le soutien et l'assistance des personnes atteintes de troubles neurocognitifs et de leurs aidants a été peu étudié. Il n'existe aucune plateforme interactive capable de suivre et de délivrer des contenus ciblés en fonction des symptômes de la maladie en proposant un accès ciblé à des réseaux sociaux. Le développement de ces nouvelles approches doit permettre de soutenir les aidants tout au long de la maladie afin de les aider à faire face aux troubles et les soutenir afin de réduire les symptômes liés épuisement
4.	**Hypothèse principale de la recherche et objectifs :** Le but de cette étude est d'identifier les bénéfices potentiels de la plateforme CAREGIVERSPRO-MMD sur les symptômes d'épuisement des aidants et la qualité de vie des personnes ayant des troubles cognitifs. **Objectif principal** ● Pour les aidants de personnes ayant des troubles cognitifs : évaluer le fardeau ressenti dans le but d'identifier le bénéfice de l'utilisation pendant 18 mois de la plateforme CAREGIVERSPRO-MMD. **Objectifs secondaires pour les patients** ● Evaluer leur qualité de vie ● Evaluer les activités de la vie courante ● Evaluer la compliance au traitement ● Evaluer les symptômes psycho-comportementaux ● Evaluer le fonctionnement neuropsychologiques ● Evaluer le nombre total d'hospitalisations **Objectifs secondaires pour les aidants principaux** ● Evaluer la qualité de vie ● Evaluer la compliance au traitement ● Evaluer la santé psycho-comportementale et le bien-être ● Evaluer la perception du soutien social, les relations sociales, l'estime de soi, la détermination et l'optimisme des aidants ● Evaluer l'utilisation des traitements psychotropes **Objectifs secondaires en lien avec la dyade**

	• Evaluer la qualité de la relation d'aide entre les aidants et les patients **Objectifs secondaires en lien avec les bénéfices économiques et financiers** • Evaluer les coûts directs et indirects des soins **Objectifs secondaires en lien avec les utilisateurs de la plateforme CAREGIVERSPRO-MMD** Evaluer le niveau de satisfaction de l'utilisation pendant 18 mois de la plateforme CAREGIVERSPRO-MMD.
5.	**Evaluation des bénéfices et des risques que présente la recherche, notamment les bénéfices escomptés pour les personnes qui se prêtent à la recherche et les risques prévisibles liés au traitement et aux procédures d'investigation de la recherche (incluant notamment la douleur, l'inconfort, l'atteinte à l'intégrité physique des personnes se prêtant à la recherche, les mesures visant à éviter et/ou prendre en charge les événements inattendus) :** Les participants, qu'ils soient malades ou aidants, n'auront pas de bénéfice à participer à cette étude. Il s'agit d'une étude pilote de faisabilité qui essayera d'identifier des bénéfices potentiels de la plateforme CAREGIVERSPRO-MMD sur des dyades de personnes ayant des troubles neurocognitifs et leurs aidants principaux. Pour les dyades bénéficiant de la plateforme, ils auront des contenus éducatifs pour le suivi de la maladie (informations, éducation thérapeutique, etc…)
6.	**- Le cas échéant, justifications de l'inclusion de personnes visées aux articles :** **L. 1121-5 (femmes enceintes, parturientes, femmes allaitant)** **L. 1121-6 (personnes privées de liberté, hospitalisées sans consentement et personnes admises dans un établissement sanitaire et social à d'autre fin que celle de la recherche)** **L. 1121-7 (mineurs)** **L. 1121-8 (majeurs protégés ou hors d'état d'exprimer leur consentement)** **L. 1122-1-2 (recherche mise en œuvre dans des situations d'urgence)** **- procédure mise en œuvre afin d'informer et de recueillir le consentement de ces personnes ou de leurs représentants légaux.** Sans objet
7.	**Description des modalités de recrutement des personnes :** Les dyades répondant aux critères d'inclusion (base de données des cliniques de mémoire du CHU de Rouen et du CHI d'Elbeuf-Louviers et de l'hôpital de jour) seront contactées par un neuropsychologue qui leur proposera de participer à l'étude. Il va les informer des objectifs de l'étude, de son déroulement et répondra à leurs questions. Lors de leur venu à l'hôpital pour des visites programmées dans le cadre de leur prise en charge habituelle, une deuxième séance d'information sur le projet leur sera proposée par le médecin traitant pour leur fournir des informations supplémentaires et répondre à leurs interrogations. Les personnes atteintes de déficience cognitive légère ou de démence (légère à modérée) et leurs aidants répondant aux critères d'inclusion et souhaitant participer à l'étude seront alors invités à signer leur consentement pour participer à l'étude.
8.	**Procédures d'investigation menées et différences par rapport à la prise en charge habituelle, le cas échéant :** Les dyades inclues dans les 2 groupe bénéficieront d'un suivi identique lors des visites cliniques et des entretiens téléphoniques. Aucun examen invasif ne sera réalisé, seuls des questionnaires seront réalisés par le médecin et le neuropsychologue auprès des patients et des aidants. Les échelles réalisées sont des échelles de pratique courante ; avec toutefois un suivi plus conséquent.
9.	**Justification de l'existence ou non :** **- d'une interdiction de participer simultanément à une autre recherche** : **- d'une période d'exclusion pendant laquelle la participation à une autre recherche est interdite** : Les participants (malades et aidants) n'ont pas le droit de participer simultanément à une autre recherche.

	Période d'exclusion : 24h après la dernière visite
10.	**Modalités et montant de l'indemnisation des personnes se prêtant à la recherche, le cas échéant :** Sans objet
11.	**Motifs de constitution ou non d'un comité de surveillance indépendant :** Aucun comité de surveillance indépendant n'a été constitué : peu d'effets adverses sont attendus dans cette étude bicentrique.
12.	**Nombre prévu de personnes à inclure dans la recherche :** 100 dyades

SIGNATURE DU DEMANDEUR EN FRANCE	
Par la présente, j'atteste/~~j'atteste au nom du promoteur~~ **(rayer la mention inutile)** ***que les informations fournies ci-dessus à l'appui de la demande d'avis sont exactes.***	
Nom : MAILLARD **Prénom :** Julie **Adresse :** Délégation de la Recherche Clinique et de l'Innovation, CHU de Rouen Hôpital Charles Nicolle 1 rue de Germont 76031 Rouen cedex **Fonction :** Directrice de la Recherche et de l'Innovation	
Date : 14/12/2016	**Signature :**

V1-REA.FO.2.2.13.1_V1_24.02.15

9.2.12 Curriculum vitae of investigators

CURRICULUM VITAE (*) abrégé des investigateurs

Nom : LANDRIN-DUTOT Isabelle

Fonctions : Praticien Hospitalier

Titres : DES de Médecine Interne – DESC de Gériatrie – Chef de Clinique Assistant des hôpitaux

Organisme : CHU Hôpitaux de Rouen

Année de Thèse : 1995

N° inscription à l'Ordre des Médecins : 76/5067

N° ADELI : 76 105 673

Affiliation éventuelle à un organisme de recherche :

INSERM ☐ CNRS ☐ Autres ☐

Lieu d'exercice : Service de Médecine Gériatrie et Thérapeutique, CHU de Rouen

Adresse : Service de Médecine Gériatrie et Thérapeutique, CHU de Rouen, 1 rue Germont, 76031 Rouen cedex

Téléphone : 02 32 88 66 52 *Télécopie* : 02 32 88 64 19
Courriel : Isabelle.Landrin@chu-rouen.fr

Principales publications : (cinq références)

1. P. AUZOU, D. HANNEQUIN, I. LANDRIN, J. Ph. COCHIN, N. MOORE. *"Worsening of psychotic symptoms by clozapine in Parkinson's disease"* Lancet 1994 ; 344: 955.
2. J. DOUCET, Ph. CHASSAGNE, C. TRIVALLE, I. LANDRIN, MD. PAUTI, N. KADRI, JF. MENARD, E. BERCOFF. *"Drug-drug interactions related to hospital admissions in older adults A prospective study of 1000 patients"* J Am Ger Soc 1996; 44: 944-948
3. J. DOUCET, L. DRUESNE, C. CAPET, E. GREBOVAL, I. LANDRIN, P. MOIROT et al "Risk factors and management of diabetes in elderly French patients" Diabetes Metab. 2008; 34, 574-80
4. N. KADRI, A. KAID-SLIMANE, A. KHRIS, C. CAPET, A.JEGO, I. LANDRIN "Syndrome parkinsonien et atteinte cognitive? Intérêt de la tomoscintigraphie cérébrale au DaTSCAN" Neurologie-Psychiatrie-Gériatrie 2009; 9, 167-169
5. G.BOURDENET; S. GIRAUD; M.ARTUR; S.DUTERTRE; M.DUFOUR; M. LEFEBVRE-CAUSSIN; A. PROUX; S. PHILIPPE; C. CAPET; M. FONTAINE-ADAM; K. KADRI; I. LANDRIN; E. GREBOVAL; M. TOUFLET; J. NANFACK; C. THARASSE; R.VARIN; E. REMY; J. DOUCET. *"Impact of recommendations on crushing medications in Geriatrics: from prescription to administration."*, "Fundamental & Clinical Pharmacology"2015 Mar 18. doi: 10.1111/fcp.12116.

Date : **30 Novembre 2016** **Signature :**

(*) Une fiche à remplir par chaque investigateur

CURRICULUM VITAE (*) abrégé des investigateurs

Nom :
BERARD Marie-odile
Fonctions :
Praticien Hospitalier

Titres : Interne en Médecine générale des hôpitaux de Reims: novembre 1995-1997

- Faisant fonction praticien hospitalier au centre hospitalier d'Epernay: février 1998-octobre 1998
- Assistante généraliste au centre hospitalier d'Epernay: novembre 1998-décembre 2001
- Faisant fonction praticien hospitalier au centre hospitalier d'Epernay: janvier 2002-décembre 2002
- Praticien hospitalier contractuel des hôpitaux de Rouen: janvier 2003-juillet 2005
- Praticien des hôpitaux-CHU de Rouen: depuis juillet 2005

Organisme : CHU Hôpitaux de Rouen

Année de Thèse : **1998**

N° inscription à l'Ordre des Médecins : 76/11079

N° RPPS :10001727006

Affiliation éventuelle à un organisme de recherche :

INSERM ☐ CNRS ☐ Autres ☐

Lieu d'exercice : **Service de gériatrie Hôpital d'Oissel, CHU de Rouen**

Adresse : Service gériatrie, Hôpital d'Oissel CHU de Rouen, 1 rue Germont, 76031 Rouen cedex

Téléphone : 02 32 88 84 81 *Télécopie* : 02 32 88 09 83
Courriel : marie.berard@chu-rouen.fr

Principales publications : (cinq références)

1. Les hospitalisations pour placement: enquête au service des urgences d'un centre hospitalier général. Poster à l'ASFUM en 2002
2. Comment la rencontre avec une compagnie de danse vient bouleverser les relations soignants-soignés. Poster au congrès interrégional de gériatrie Rouen 2008 .
3. MEDICAMENTS ECRASES EN GERIATRIE: UNE PRATIQUE DISCUTABLE-communication orale CISFGG 2010-C. Jouini, F. Wirotius, K. Kadri, M. Touflet, N. Reynero, M. Vimard, C. Le Hiress, C. Capet, F. Marc, M. Bérard, J. Doucet
4. EPILEPSIE MYOCLONIQUE SENILE AU COURS D'UNE MALADIE D'ALZHEIMER- Poster congrès SFGG 2010-D. Morcamp[1], M. Touflet[1], M. Bérard[1], F. Marc[1], C. Jouini[1], Y.Moynot[1]
5. PARALYSIES TRONCULAIRES PAR COMPRESSION POSTURALE CHEZ LE SUJETAGE- Poster congrès SFGG 2010-D. Morcamp[1], M. Touflet[1], M. Bérard[1], F. Marc[1], C. Jouini[1], Y.Moynot[1]

Date : **03/12/2016** **Signature :**

(*) Une fiche à remplir par chaque investigateur

...l de Oissel
... de Gériatrie
...U de Rouen
...ateur Marie BERARD
...L 02 32 88 84 81

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CURRICULUM VITAE (*) abrégé des investigateurs

Nom : MALHERBE Laëtitia

Fonctions : Psychologue spécialisée en Neuropsychologie

Titres : Psychologue

Organisme : CHU Hôpitaux de Rouen

Année de Thèse : -

N° inscription à l'Ordre des Médecins : -

N° ADELI : 769312505

Affiliation éventuelle à un organisme de recherche :

INSERM ☐ CNRS ☐ Autres ☐

Lieu d'exercice : Service de Médecine gériatrique, CHU de Rouen

Adresse : Service de Médecine Gériatrique, Pavillon Camille Claudel, CHU de Rouen, 1 rue Germont, 76031 Rouen cedex

Téléphone : 02 32 88 65 92 Télécopie : 02 32 88 64 19
Courriel : laetitia.malherbe@chu-rouen.fr

Principales publications : (cinq références)

1. Malherbe, L., Martinaud, O. & Pouliquen, D. (2013) *Mise en place d'une aide mnésique externe auprès d'un patient présentant une maladie d'Alzheimer : l'application FilHarmonie.* Journée d'hiver de la SNLF, Paris (75).
2. Malherbe, L. (2013). *L'outil FilHarmonie : Présentation et mise en pratique.* Réseau Alzheimer, Rouen (76). *Juin 2013.*
3. Malherbe, L., Pouliquen, D., Martinaud, O. (2013). *Mise en place d'une aide mnésique externe auprès d'un patient présentant une maladie d'Alzheimer : l'application FilHarmonie.* (Rapport de Mémoire)
4. Malherbe, L., Beaunieux, H. (2012). *Validation d'un outil d'évaluation des déficits cognitifs chez les patients alcoolo-dépendants.* (Rapport de Mémoire)
5. Malherbe, L., Marie, E, Juskenaite, A., Quinette, P. (2011). *Capacité de projection mentale vers le futur : pensée future sémantique et épisodique.* (Rapport de TER)

Date : 05/12/2016

Signature :

(*) Une fiche à remplir par chaque investigateur

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Curriculum Vitæ

Dr Nadir KADRI

N° ADELI 76/4893
RPPS 10001917748

TITRES UNIVERSITAIRES

- **Doctorat en Médecine - Diplôme d'Etude Spécialisé en Neurologie (Octobre 1993).**
- Chef de clinique - Novembre 1993 à Octobre 1995.
- Diplôme d'Université de "La Douleur et sa prise en charge"- (1999).
- DESC de Gériatrie (2001)
- DU de Neuropsychologie du Vieillissement (Pr VIADER, Pr EUSTACHE, Caen, Juillet 2002)

TITRES HOSPITALIERS

- Interne des Hôpitaux de Rouen- (concours1990)
- Assistant des Hôpitaux - De Novembre 1993 à Octobre 1995 dans un service de Médecine Gériatrique Hospitalo-Universitaire
- CNPH 1995 : spécialité "Médecine Polyvalente-Gériatrique".
- Praticien Hospitalier à l'hôpital Saint-Julien -CHU de Rouen (Service de Gériatrie) depuis novembre 1995.
- Chef du service de Gériatrie (63 lits court séjour, 50 lits "activité de SSR", 230 lits EHPAD-USLD, Consultation mémoire, Policlinique) depuis 2004 à 2010.
- Chef du service de Médecine Interne – Gériatrie – Thérapeutique, Hôpital Saint Julien – CHU de Rouen de 2010 à ce jour
- Membre du CMRR – Haute-Normandie.

ACTIVITES D'ENSEIGNEMENT

- Non universitaire :

Institut de Formation en Soins Infirmiers: Thématique des troubles cognitifs (Elèves de 3è année.)

- Universitaire :

1. Encadrement des externes en Médecine (Faculté de Médecine et Pharmacie de Rouen, 2007).
2- Encadrement des externes en pharmacie (Faculté de Médecine et Pharmacie de Rouen)
3. Encadrement des internes en Médecine Générale.
4. Enseignement et encadrement des stages hospitaliers dans le cadre de la Capacité de gérontologie (court séjour gériatrique, SSR gériatrique et service EHPAD-USLD).
5. Enseignement dans le cadre du Diplôme d'Université de Gériatrie.
6. Participation au Diplôme d'Université de Soignants en Gériatrie.
7. Participation au DU soignant de psycho-gériatrie : rentrée universitaire 2009-2010. (Pr Bercoff)

ACTIVITES DE RECHERCHE

- Investigateur principal PHRC-régional «intérêt d'un questionnaire standardisé dans le diagnostic des syncopes du sujet âgé » - (1997 – 2000)
- Participation à l'étude MIDA (Médicaments Inadaptés dans la Maladie d'Alzheimer) 2010-2011
- Participation à l'enquête sur les médicaments écrasés en gériatrie
- Co-investigateur du projet Européen Horizon 2020 (convention de financement 690211) intitulé "Self-management interventions and mutual assistance community services, helping patients with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience"

PUBLICATIONS

1- J. DOUCET, P. CHASSAGNE, C. TRIVALLE, I. LANDRIN, M.D. PAUTY, N. KADRI, J.F. MENARD, E. BERCOFF.
Drug-drug interactions related to hospital admissions in the elderly. A prospective study of 1000 patients.
J Am Geriatr Soc **1996**; 44: 944-948

2- J. DOUCET, L. DRUESNE, A. VERDONCK, A. PERROTTE, C. MÉLIOT, H. DE BRUCQ, N. KADRI, P. CHASSAGNE, P. ARNAUD.
Prescriptions inappropriées de médicaments psychotropes : étude préliminaire.
NPG **2003**; 3: 19-24.

3- N. KADRI.
Syndrome confusionnel du sujet âgé : particularités cliniques et thérapeutiques.
Le Concours Médical **2004**; 126 (36) : 2115- 19.

4- P. CHASSAGNE, L. DRUESNE, C. BENTOT, N. KADRI.
Mental confusion in the elderly.
Presse Med **2005**; 34(12) : 863-8

5- N. KADRI, P. CHASSAGNE, J. BENICHOU, MF. HELLOT, T. DELANGRE, V. DERAMBURE, L. DRUESNE, C. BENTOT, E. BERCOFF.
The value of clinical characteristics from a standard questionnaire to discriminate cardiac from neurological syncope in the elderly.
The Journal of Nutrition, Health and Aging **2006**;10(6): 546-553.

6- C. CAPET, O. DELAUNAY, F. IDRISSI, L LANDRIN, N. KADRI
Troubles de la déglutition de la personne âgée ; bien connaître les facteurs de risque pour une prise en charge précoce.

NPG 2007; 7(40):15-23

Autres :

- Rédacteur adjoint de la revue médicale NPG (Neurologie-Psychiatrie-Gériatrie), éditions Elsevier, Paris (2001- 2010). Depuis 2010, membre du comité éditorial de la revue NPG.
- Auteur de plusieurs articles didactiques ; Livre "Gériatrie pour le praticien" (Editions Masson, en 2003 et 2009).

Document daté du 30/11/2016

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Principales publications : (cinq références)

« Intérêt de l'endoprothèse de Dumon dans le traitement palliatif des cancers trachéo-bronchiques »
T. SIMON, R. TANOUS, G. NEWINGER, J.-M. ZIPPER, E. VONESCH et G. MIECH ;
Congrès International de Pneumologie de langue française - Strasbourg - 4 / 6 juin 1992 ;
In : *Rev. Mal. Resp.* , 1992 ; tome 9 / suppl. 3 : R159.

« Association de plus en plus fréquente : infection par le VIH et tuberculose à Mycobactérium tuberculosis »
T. SIMON, G. NEWINGER, H. LECOQ-JAMMES, M.F. PENNER, A. TREVOUX,
G. BECK-WIRTH, P. HENON, J.-M. ZIPPER
Journées médicales de Novembre - Centre Hospitalier de Mulhouse - 24 / 25 novembre 1995

« Septicémie à Pseudomonas Aeruginosa secondaire aux tatouages de repérages de radiothérapie chez un patient traité pour un carcinome bronchique à petites cellules »
A. C. NEIDHARDT, M. ZIMMER-TIRONE, P. SALZE, G. NEWINGER, Th. SIMON,
O. SIZARET, J.-M. ZIPPER ;
1er Congrès Unique de Langue Française - Paris La Villette - 5 / 8 février 1997
In : Rev. Mal. Resp. , février 1997 ; volume 14 / suppl. 1 : S66.

« Expérience de la Grille AGGIR dans un Service de Court Séjour de Médecine polyvalente »
Th. SIMON, J. DUVAL, J. BERNET.
Journée de Gérontologie organisée par l'Hôpital et la Ville de Louviers - 8 décembre 1997.

(*) Une fiche à remplir par chaque investigateur

1/2

« Stades cliniques et traitement actuel des escarres »
Th. SIMON.
7ème Journée d'Hygiène du Centre Hospitalier Intercommunal d'Elbeuf/Louviers/Val-de-Reuil – 23 avril 2002.

« Equipe Mobile Gérontologique, Prise en charge de la plainte mnésique »
Deuxième Rencontres Novartis des Gériatres Normands
Deauville 25 et 26 septembre 2009

« Personnes âgées, long séjour : quels repères pour nos relations avec les proches ? »
Thibault SIMON
6e Colloque Ethique, Espace Ethique du CHU de Rouen, 24 novembre 2009

Date : 3 décembre 2018 **Signature :**

(*) Une fiche à remplir par chaque investigateur

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Principales publications : (

- M. TOUFLET, P. DENIS, F. MARC, Y. MOYNOT
  Les troubles de la déglutition du sujet âgé.
  Soins Gérontologie. Mars/Avril 2002, 34 : 41-44
- M. TOUFLET, G. COUVREUX, N. DELABRE, S. PFAFF
  Dépistage des troubles de la déglutition chez le sujet âgé.
  Soins Gérontologie. Mai/Juin 2002, 35 : 36-37
- K. GUIGNERY- KADRI, M.TOUFLET
  Comment évaluer les aptitudes fonctionnelles d'un résident vivant en EHPAD?
  Les cahiers de l'année gérontologique, volume 1. Numéro 4. Trimestriel Décembre 2009
- P.CARVALHO, M. TOUFLET
  Incidence des supports et des techniques de positionnement dans la prévention des escarres
  La revue de l'infirmière, Juin 2010, 161:21-22
- J. NANFACK, B. LANCELEVÉE , B. MERIENNE , P. CARVALHO, M. TOUFLET
  Bilan à 5 ans d'une formation sur la prise en charge des plaies chroniques au Chu de ROUEN
  Journal des Plaies et Cicatrisation, Mai 2014, 93 : 36-39

Date : 21_12_16

Signature :

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Année de Thèse : 1998

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N° ADELI : 10001930857

Affiliation éventuelle à un organisme de recherche :

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Principales publications : (

- M. TOUFLET, P. DENIS, F. MARC, Y. MOYNOT
  Les troubles de la déglutition du sujet âgé.
  Soins Gérontologie. Mars/Avril 2002, 34 : 41-44
- M. TOUFLET, G. COUVREUX, N. DELABRE, S. PFAFF
  Dépistage des troubles de la déglutition chez le sujet âgé.
  Soins Gérontologie. Mai/Juin 2002, 35 : 36-37
- K. GUIGNERY- KADRI, M.TOUFLET
  Comment évaluer les aptitudes fonctionnelles d'un résident vivant en EHPAD?
  Les cahiers de l'année gérontologique, volume 1. Numéro 4. Trimestriel Décembre 2009
- P.CARVALHO, M. TOUFLET
  Incidence des supports et des techniques de positionnement dans la prévention des escarres
  La revue de l'infirmière, Juin 2010, 161:21-22
- J. NANFACK, B. LANCELEVÉE , B. MERIENNE , P. CARVALHO, M. TOUFLET
  Bilan à 5 ans d'une formation sur la prise en charge des plaies chroniques au Chu de ROUEN
  Journal des Plaies et Cicatrisation, Mai 2014, 93 : 36-39

Date : 21_12_16

Signature :

1/1

9.3 Documentation for Great Britain

9.3.1 IRAS Form

Full Set of Project Data IRAS Version 5.3.2

Welcome to the Integrated Research Application System

IRAS Project Filter

The integrated dataset required for your project will be created from the answers you give to the following questions. The system will generate only those questions and sections which (a) apply to your study type and (b) are required by the bodies reviewing your study. Please ensure you answer all the questions before proceeding with your applications.

Please complete the questions in order. If you change the response to a question, please select 'Save' and review all the questions as your change may have affected subsequent questions.

Please enter a short title for this project (maximum 70 characters)
CAREGIVERSPRO-MMD

1. Is your project research?

(●) Yes ( ) No

2. Select one category from the list below:

( ) Clinical trial of an investigational medicinal product
( ) Clinical investigation or other study of a medical device
( ) Combined trial of an investigational medicinal product and an investigational medical device
(●) Other clinical trial to study a novel intervention or randomised clinical trial to compare interventions in clinical practice
( ) Basic science study involving procedures with human participants
( ) Study administering questionnaires/interviews for quantitative analysis, or using mixed quantitative/qualitative methodology
( ) Study involving qualitative methods only
( ) Study limited to working with human tissue samples (or other human biological samples) and data (specific project only)
( ) Study limited to working with data (specific project only)
( ) Research tissue bank
( ) Research database

If your work does not fit any of these categories, select the option below:

( ) Other study

2a. Will the study involve the use of any medical device without a CE Mark, or a CE marked device which has been modified or will be used outside its intended purposes?

( ) Yes (●) No

2b. Please answer the following question(s):

a) Does the study involve the use of any ionising radiation?	( ) Yes	(●) No
b) Will you be taking new human tissue samples (or other human biological samples)?	( ) Yes	(●) No
c) Will you be using existing human tissue samples (or other human biological samples)?	( ) Yes	(●) No

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3. In which countries of the UK will the research sites be located? *(Tick all that apply)*

- [x] England
- [ ] Scotland
- [ ] Wales
- [ ] Northern Ireland

3a. In which country of the UK will the lead NHS R&D office be located:

- (•) England
- ( ) Scotland
- ( ) Wales
- ( ) Northern Ireland
- ( ) This study does not involve the NHS

4. Which applications do you require?

IMPORTANT: If your project is taking place in the NHS and is led from England select 'IRAS Form'. If your project is led from Northern Ireland, Scotland or Wales select 'NHS/HSC Research and Development Offices' and/or relevant Research Ethics Committee applications, as appropriate.

- [x] IRAS Form
- [ ] Confidentiality Advisory Group (CAG)
- [ ] National Offender Management Service (NOMS) (Prisons & Probation)

For NHS/HSC R&D Offices in Northern Ireland, Scotland and Wales the CI must create NHS/HSC Site Specific Information forms, for each site, in addition to the study wide forms, and transfer them to the PIs or local collaborators.

For participating NHS organisations in England different arrangements apply for the provision of site specific information. Refer to IRAS Help for more information.

5. Will any research sites in this study be NHS organisations?

(•) Yes ( ) No

5a. Are all the research costs and infrastructure costs (funding for the support and facilities needed to carry out research e.g. NHS Support costs) for this study provided by a NIHR Biomedical Research Centre, NIHR Biomedical Research Unit, NIHR Collaboration for Leadership in Health Research and Care (CLAHRC), NIHR Patient Safety Translational Research Centre or a Diagnostic Evidence Co-operative in all study sites?

Please see information button for further details.

( ) Yes (•) No

Please see information button for further details.

5b. Do you wish to make an application for the study to be considered for NIHR Clinical Research Network (CRN) Support and inclusion in the NIHR Clinical Research Network Portfolio?

Please see information button for further details.

(•) Yes ( ) No

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The NIHR Clinical Research Network provides researchers with the practical support they need to make clinical studies happen in the NHS e.g. by providing access to the people and facilities needed to carry out research "on the ground".

If you select yes to this question, you must complete a NIHR Clinical Research Network (CRN) Portfolio Application Form (PAF) immediately after completing this project filter question and before submitting other applications. Failing to complete the PAF ahead of other applications e.g. HRA Approval, may mean that you will be unable to access NIHR CRN Support for your study.

6. Do you plan to include any participants who are children?

○ Yes ◉ No

7. Do you plan at any stage of the project to undertake intrusive research involving adults lacking capacity to consent for themselves?

◉ Yes ○ No

Answer Yes if you plan to recruit living participants aged 16 or over who lack capacity, or to retain them in the study following loss of capacity. Intrusive research means any research with the living requiring consent in law. This includes use of identifiable tissue samples or personal information, except where application is being made to the Confidentiality Advisory Group to set aside the common law duty of confidentiality in England and Wales. Please consult the guidance notes for further information on the legal frameworks for research involving adults lacking capacity in the UK.

8. Do you plan to include any participants who are prisoners or young offenders in the custody of HM Prison Service or who are offenders supervised by the probation service in England or Wales?

○ Yes ◉ No

9. Is the study or any part of it being undertaken as an educational project?

○ Yes ◉ No

10. Will this research be financially supported by the United States Department of Health and Human Services or any of its divisions, agencies or programs?

○ Yes ◉ No

11. Will identifiable patient data be accessed outside the care team without prior consent at any stage of the project (including identification of potential participants)?

○ Yes ◉ No

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Integrated Research Application System
Application Form for Other clinical trial or investigation

The Chief Investigator should complete this form. Guidance on the questions is available wherever you see this symbol displayed. We recommend reading the guidance first. The complete guidance and a glossary are available by selecting Help.

Please define any terms or acronyms that might not be familar to lay reviewers of the application.

Short title and version number: (maximum 70 characters - this will be inserted as header on all forms)
CAREGIVERSPRO-MMD

PART A: Core study information

1. ADMINISTRATIVE DETAILS

A1. Full title of the research:

CAREGIVERSPRO-MMD: A research trial examining the utility of a website for people with memory problems and their caregivers.

A3-1. Chief Investigator:

	Title	Forename/Initials	Surname
	Dr	Emma	Wolverson

Post	Academic and Research Tutor
Qualifications	Doctorate in Clinical Psychology
Employer	University of Hull
Work Address	Cottingham Road Hull Hull
Post Code	HU6 7RX
Work E-mail	e.wolverson@hull.ac.uk
* Personal E-mail	emmawolverson@hotmail.co.uk
Work Telephone	01482 464170
* Personal Telephone/Mobile	07809415107
Fax	

** This information is optional. It will not be placed in the public domain or disclosed to any other third party without prior consent.*
A copy of a current CV (maximum 2 pages of A4) for the Chief Investigator must be submitted with the application.

A4. Who is the contact on behalf of the sponsor for all correspondence relating to applications for this project?
This contact will receive copies of all correspondence from REC and HRA/R&D reviewers that is sent to the CI.

	Title	Forename/Initials	Surname
	Dr	Emma	Wolverson

Address	Department of Psychological Health and Wellbeing

Full Set of Project Data IRAS Version 5.3.2

	Cottingham Road
	Hull
Post Code	HU6 7RX
E-mail	e.wolverson@hull.ac.uk
Telephone	01482 464170
Fax	

A5-1. Research reference numbers. *Please give any relevant references for your study:*

Applicant's/organisation's own reference number, e.g. R & D (if available):	
Sponsor's/protocol number:	690211
Protocol Version:	0.4
Protocol Date:	13/10/2016
Funder's reference number:	
Project website:	http://caregiversprommd-project.eu/

Registry reference number(s):
The Department of Health's Research Governance Framework for Health and Social Care and the research governance frameworks for Wales, Scotland and Northern Ireland set out the requirement for registration of trials. Furthermore: Article 19 of the World Medical Association Declaration of Helsinki adopted in 2008 states that "every clinical trial must be registered on a publicly accessible database before recruitment of the first subject"; and the International Committee of Medical Journal Editors (ICMJE) will consider a clinical trial for publication only if it has been registered in an appropriate registry. Please see guidance for more information.

International Standard Randomised Controlled Trial Number (ISRCTN):
ClinicalTrials.gov Identifier (NCT number):

Additional reference number(s):

Ref.Number Description	Reference Number

A5-2. Is this application linked to a previous study or another current application?

○ Yes ◉ No

Please give brief details and reference numbers.

2. OVERVIEW OF THE RESEARCH

To provide all the information required by review bodies and research information systems, we ask a number of specific questions. This section invites you to give an overview using language comprehensible to lay reviewers and members of the public. Please read the guidance notes for advice on this section.

A6-1. Summary of the study. *Please provide a brief summary of the research (maximum 300 words) using language easily understood by lay reviewers and members of the public. Where the research is reviewed by a REC within the UK Health Departments' Research Ethics Service, this summary will be published on the Health Research Authority (HRA) website following the ethical review. Please refer to the question specific guidance for this question.*

Because of the increasing number of people with memory problems, and the cost of caregiving, research has started to explore low cost methods to support people with dementia and their informal carers. There has been growing interest in the use of computers, tablets or phones to provide information, support and social networks for people with dementia and their caregivers.
Our research is part of a larger study taking place across Europe. The study is called CAREGIVERSPRO-MMD, and the countries participating are: UK, Italy, Spain, France and Greece. The study will explore whether a website for people with memory problems and their carers, can support people to retain their independence for longer. Another aim of our

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study is to reduce carers' burden by providing links with local services and other caregivers.
The website will include self-administered questionnaires to allow people to monitor their own health and wellbeing, ways to chat and interaction with other people, notifications and alerts for medication or medical appointments, and information about local support services and events in Hull.
We will recruit 100 dyads consisting of people with memory problems and their carers in Hull and the East Riding. The study will last 18 months. Participants will receive a tablet, and instruction and training on how to use the tablet. Half of the participants will have access to the platform, half will not. During the study, participants will be asked to complete questionnaires, interact with others through the platform, and share information they find useful with their contacts in the platform. There are no time restrictions on how much time volunteers should spend on the platform. Researchers will visit to collect information from participants every 6 months. To acknowledge participants' contribution, they will be able to keep the tablet after the study is completed.

A6-2. Summary of main issues. *Please summarise the main ethical, legal, or management issues arising from your study and say how you have addressed them.*

Not all studies raise significant issues. Some studies may have straightforward ethical or other issues that can be identified and managed routinely. Others may present significant issues requiring further consideration by a REC, R&D office or other review body (as appropriate to the issue). Studies that present a minimal risk to participants may raise complex organisational or legal issues. You should try to consider all the types of issues that the different reviewers may need to consider.

The following ethical issues have been identified and will be addressed:

Participant distress.

Participants may experience distress as a result of completing platform questions; reflecting on their health and wellbeing; undertaking memory assessments; reading posts by other users; malicious use of the platform by other users. The platform provides information on support organisations, which participants (in the intervention group) can approach if they are experiencing distress or concerns as a result of their participation in the study. In addition, all participants will be given an information leaflet at the beginning of the trial, with the contact details of agencies they can contact should they become worried, distressed or concerned as a result of any aspect of their participation in the trial. In the event that participants contact the researchers or are observed by the researchers to be experiencing distress they will be advised to contact their GP. Participants who express distress will be reminded of their right to take a break or to withdraw from the study, although they will not be placed under any pressure to do so. There are potential risks of distress (for members of the intervention group) in respect of reading information posted by other users. Participants will be given a user manual at the beginning of the trial. This will include information on how to post appropriately, to minimise the risk causing distress or offence to other participants. This will also advise participants how to report inappropriate posts. The site will be regularly moderated by the researchers to ensure that it members are posting appropriately; further there will a report function, enabling participants to highlight and report inappropriate or offensive use of the platform. Participants found to have used the platform in inappropriate or malicious ways will be withdrawn from the study.

Risks to participants from unsafe internet use.

Participants will be able to access the internet via the tablet devices. The user manual will contain information about safe internet use, providing advice about risks and strategies for minimising the risk of harm while online.

Time considerations.

The tasks related to the platform may be time consuming for participants. However, they will be able to use the platform at their own pace and preferred setting, at times convenient to them. Further, completion of the measures may also be time consuming for participants. The researchers administrating the measures will be vigilant for signs of fatigue and will offer participants the opportunity to take a break. The researchers are all experienced in working with PLWD/MCI in research.

Participants who lose capacity to consent during the trial.

There is potential for participants to lose capacity during the trial. The PIS will outline the arrangements to be made in the event that an individual loses capacity. Participants will be asked during the consent process if data already collected about them can be retained if they lose capacity. Should any participant lose capacity, the researchers will seek advice from a consultee about whether the person can continue to be included in the study. If the consultee advises that the person should no longer be included, they will be withdrawn from the study. If the individual continues to be involved the researchers will be vigilant for indications of distress or signs that the person no longer wishes to participate, and will withdraw them

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Indications or evidence of participant harm.
As in any study there is potential for individuals to inform the researchers that they are being abused, harmed or exploited, or for evidence of such harm to be perceived by the researchers. In such instances, the researchers will inform the PI to ensure that appropriate actions and responses are made in line with the local adult safeguarding procedures for Hull and the East Riding of Yorkshire.

3. PURPOSE AND DESIGN OF THE RESEARCH

A7. Select the appropriate methodology description for this research. *Please tick all that apply:*

- [ ] Case series/ case note review
- [ ] Case control
- [ ] Cohort observation
- [ ] Controlled trial without randomisation
- [ ] Cross-sectional study
- [ ] Database analysis
- [ ] Epidemiology
- [ ] Feasibility/ pilot study
- [ ] Laboratory study
- [ ] Metanalysis
- [ ] Qualitative research
- [ ] Questionnaire, interview or observation study
- [x] Randomised controlled trial
- [ ] Other (please specify)

A10. What is the principal research question/objective? *Please put this in language comprehensible to a lay person.*

The primary questions to be addressed by the research are:

* Does the use of CAREGIVERSPRO-MMD over a period of 18 months benefits dyads (formed by a PLWD/MCI and their carer)?

Specifically

* Does the use of CAREGIVERSPRO-MMD influence the subjective quality of life of PLWD/MCI? and
* Does the use of CAREGIVERSPRO-MMD influence the level of caregiver burden?

A11. What are the secondary research questions/objectives if applicable? *Please put this in language comprehensible to a lay person.*

For PLWD/MCI

To evaluate the following in order to identify a benefit to PLWD/MCI from using the CAREGIVERSPRO-MMD platform over a period of 18 months:
Activities of daily living
Treatment adherence
Behavioural and psychological symptoms
Neuropsychological functioning
The total number of hospitalisations

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For primary caregivers

To evaluate the following in order to identify a benefit to carers from using the CAREGIVERSPRO-MMD platform over 18 months:
Subjective quality of life
Treatment adherence
Behavioural and psychological health and wellbeing
Perceived social support, success in relationships, self-esteem, purpose and optimism

For the dyad
To evaluate the quality of the relationship between the caregiver and PLWD/MCI, in order to identify a benefit from using the CAREGIVERSPRO-MMD platform over 18 months.

Economic and financial benefits
To evaluate the direct and indirect costs of care to identify a benefit from using the CAREGIVERSPRO-MMD platform over 18 months.

A12. What is the scientific justification for the research? *Please put this in language comprehensible to a lay person.*

Within the UK it has been estimated that by 2015 850,000 people would be living with dementia,and this figure is expected to rise (Prince et al, 2014). An estimated 670,000 people provide care for people living with dementia in the UK (Alzheimer's Society, 2013). Therefore recent research has aimed to find cost-effective means of providing support for people living with dementia (PLWD) or mild congitive impairment (MCI) and their carers (see Meiland et al., 2012). Thus The EU has been promoting the use of Information and Communication Technology (ICT) in the context of dementia, with the aim of supporting carers and PLWD/MCI. The main objective of such initiatives has been to seek to improve the quality of life of older people and informal caregivers, due to the ease of use of ICT tools and their low cost (Magnusson et al, 2002). The use of ICT can potentially address some of the information needs identified by people living with dementia and carers, such as information about services and how to access them; advice on caring for people with dementia; medication and treatment (Alzheimer's Society, 2010).

The present study focuses on the role of an ICT application (CAREGIVERSPRO-MMD) in supporting people living with mild to moderate dementia or mild cognitive impairment and their carers, through providing a range of support and information. The study will explore both the potential impact of the ICT and the potential cost savings associated with its use, by PLWD/MCI and carers.

A13. Please summarise your design and methodology. *It should be clear exactly what will happen to the research participant, how many times and in what order. Please complete this section in language comprehensible to the lay person. Do not simply reproduce or refer to the protocol. Further guidance is available in the guidance notes.*

The CAREGIVERSPRO-MMD pilot is a trial of a tablet based web application designed for people living with mild to moderate dementia or mild cognitive impairment (PLWD/MCI) and their carers; this platform provides a range of supports and information. The platform provides the following functions:
The medication repository, which provides information about medication to users and medication reminders
The social network, which enables individuals to interact with self-selected 'friends' on the platform, and to post messages in
individuals' profiles or in forums
Health and wellbeing screening, in which users are able to complete questionnaires to self-monitor changes in their health and wellbeing
Guided information. Information will be generated in response to the outcome of the health and wellbeing screening (above), providing users
with access to information and potential interventions
Local resources. Participants can access up to date information about local groups, agencies, events and sources of

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support.

In May 2017 the CAREGIVERPRO-MMD trial will be conducted. In this trial PLWD/MCI and their carers will be allocated to one of two groups; the intervention group and the control group. Participants in both groups will be offered a tablet device to use, if they do not already own one. Members of the intervention group will have access to the CAREGIVERSPRO-MMD platform. They will receive information and training about using the platform. Members of the control group will have access to a tablet and the internet, but will not have access to the platform. Both groups will receive information about how to use the tablet (if provided) and using the internet safely.

The main aim of the trial is to explore whether the use of CAREGIVERSPRO-MMD over a period of 18 months benefits dyads (formed by a PLWD/MCI and their carer), affects the subjective quality of life of PLWD/MCI or the level of burden experienced by the caregiver. In addition, the study will explore whether the use of CAREGIVERSPRO-MMD over a period of 18 months:

Improves the quality of the care giving relationship
Reduces the incidence of psychological and neuropsychiatric disorders for carers of PLWD/MCI
Improves the perceived social support, success in relationships, self-esteem, purpose and optimism in carers
Reduces behavioural and psychological symptoms for PLWD/MCI
Aids PLWD/MCI in activities of daily living
Improves treatment adherence for both partners in the dyad
Reduces total costs of care (both direct and indirect) for the dyad
Reduces the total number of hospitalisations for PLWD/MCI.

Researchers will visit participants and carry out measures at baseline and at 6, 12 and 18 months to identify whether the use of the CAREGIVERSPRO-MMD platform benefits PLWD/MCI and carer. These measures will be carried out by researchers experienced in research with PLWD/MCI. The following measures will be undertaken:

*Dementia Quality of Life Measure (DEMQOL; Mulhern et al., 2013)
*The Zarit Burden Interview (ZBI; Zarit et al., 1980)
Scales for secondary outcomes for PLWD/MCI
* The short version of the Geriatric Depression Scale (GDS; Sheikh & Yesavage et al., 1986)
*The State Trait Anxiety Inventry (STAI; Spielberger et al., 1983)
*The Lawton Instrumental Activities of Daily Living Scale (IADL; Lawton & Brody, 1969)
*The Barthel Index of Activities of Daily Living (BADL; Mahoney & Barthel, 1965)
*The Neuropsychiatric Inventory Questionnaire (NPI-Q; Cummings, 1994)
*The SF-36v2 short scale (Ware, 1992)
*The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988)
*The Flourishing Scale (FS; Diener, 2009)
*The Dyadic Adjustment Scale (DAS; Spanier, 1976)
*The Morisky Medication Adherence Scale (MMAS-8; Morisky et al., 2008)
*The Resource Utilization in Dementia scale (RUD; Wimo et al., 2012)

The scores on the scales will be compared for the two groups, at the different time points,to determine the effectiveness of the platform.

A14-1. In which aspects of the research process have you actively involved, or will you involve, patients, service users, and/or their carers, or members of the public?

- [x] Design of the research
- [ ] Management of the research
- [ ] Undertaking the research
- [ ] Analysis of results
- [ ] Dissemination of findings

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☐ None of the above

Give details of involvement, or if none please justify the absence of involvement.
People with dementia/MCI and carers are taking part in focus groups to provide feedback on the design of the CAREGIVERSPRO-MMD platform, ensuring that their needs, wishes and preferences are reflected in the platform. Such focus groups will be undertaken until 80% satisfaction with the platform has been reached. A usability study is planned to take place in January 2017; the outcomes of this study will inform final refinements to the platform, prior to the trial, to maximise the usefulness and usability of the platform for the proposed user groups. Ethical approval for the focus group study was obtained from the University of Hull Faculty of Health and Social Care Ethics Committee; approval for the usability study will also be sought from this committee.

4. RISKS AND ETHICAL ISSUES

RESEARCH PARTICIPANTS

A15. What is the sample group or cohort to be studied in this research?

Select all that apply:

- ☐ Blood
- ☐ Cancer
- ☐ Cardiovascular
- ☐ Congenital Disorders
- ☑ Dementias and Neurodegenerative Diseases
- ☐ Diabetes
- ☐ Ear
- ☐ Eye
- ☐ Generic Health Relevance
- ☐ Infection
- ☐ Inflammatory and Immune System
- ☐ Injuries and Accidents
- ☐ Mental Health
- ☐ Metabolic and Endocrine
- ☐ Musculoskeletal
- ☐ Neurological
- ☐ Oral and Gastrointestinal
- ☐ Paediatrics
- ☐ Renal and Urogenital
- ☐ Reproductive Health and Childbirth
- ☐ Respiratory
- ☐ Skin
- ☐ Stroke

Gender:	Male and female participants
Lower age limit: 18	Years
Upper age limit: 100	Years

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A17-1. Please list the principal inclusion criteria (list the most important, max 5000 characters).

For PLDS/MCI
People, aged 50 and over, living in the community, who are able to give informed consent. This focus on older people recognises that older PLWD/MCI are likely to have different experiences, issues and concerns
Who are diagnosed with mild cognitive impairment (MCI) according to Petersen criteria [Albert et al, 2011] or mild to moderate dementia diagnosed according on DSM-IV criteria (Diagnostic and Statistical Manual, 4th edition) (American Psychiatric Association, 1994).
Have a Clinical Dementia Rating (CDR) of 0.5 for MCI, 1-2 for mild to moderate dementia
Have a Mini-Mental Exam score (MMSE) (Folstein, 1975) between 30 and 25 (inclusive) for MCI, and between 24 and 10 (inclusive) for dementia, as the study focuses on people with mild/moderate dementia. This group is considered most likely to engage with Information and Communications Technology (ICT) and to engage with the prevention and self-management elements of the platform
Have an informal primary carer, identified and also included in the study
Are able or willing to learn to use ICT

For carers

People aged 18 years and over, with no diagnosis or no evidence of mild cognitive impairment or mild to moderate dementia (according DSM-IV criteria) (American Psychiatric Association, 1994), who are able to give informed consent at the outset of the study
Who are the self-reported informal carer of the PLWD/MCI
Have a Geriatric Depression Scale (GDS-Yesavage - 15 items) score of less than 11 at the time of entry into the trial, indicating no severe depressive symptoms.
Have no specific conditions (evaluated by the investigator) reducing their physical abilities below the norm for their age that would limit or impair CAREGIVERSPRO-MMD platform use.
Are able or willing to learn to use ICT

A17-2. Please list the principal exclusion criteria (list the most important, max 5000 characters).

For PLWD/MCI
Having a terminal or severe illness with survival prognosis less than 18 months (the duration of the trial).
Experiencing delusions, hallucinations, behavioural disturbances, that may interfere with the use of ICT tools.
Relevant sensory problems (visual or hearing impairment) or motor disability (such as paralysis of upper limb or disabling arthritis or disabling tremor), evaluated by the investigator, that would interfere with the use of ICT tools
Not speaking English

For carers
A terminal or severe illness with a survival prognosis of less than 18 months.
Relevant sensory problems (visual or hearing impairment) or motor disability (such as paralysis of upper limb or disabling arthritis or disabling tremor), evaluated by the investigator, that would interfere with the use of ICT tools.
Not speaking English

RESEARCH PROCEDURES, RISKS AND BENEFITS

A18. Give details of all non-clinical intervention(s) or procedure(s) that will be received by participants as part of the research protocol. *These include seeking consent, interviews, non-clinical observations and use of questionnaires.*

Please complete the columns for each intervention/procedure as follows:

1. Total number of interventions/procedures to be received by each participant as part of the research protocol.
2. If this intervention/procedure would be routinely given to participants as part of their care outside the research, how many of the total would be routine?
3. Average time taken per intervention/procedure (minutes, hours or days)
4. Details of who will conduct the intervention/procedure, and where it will take place.

Intervention or procedure	1	2	3	4
Recruitment	N/A	N/A	N/A	Potential participants will be recruited via project adverts, leaflets,

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				press releases, health professionals, and local sources. If they are interested to participate in the study, they will contact the researchers via phone or email.
Information about the study	1	N/A	10 mins	Once potential participants contact the research team,they will be provided with verbal information about the study and will be asked whether they have/are a primary caregiver. They will also be informed that researcher(s) will visit them at their home to collect data on the screening measures.
Consent and Screening measures	1	N/A	approx 40 mins	Researchers from the R&D team will visit each dyad's house to provide them with written information about the project, obtain consent from participants and carry out the screening measures. Depending on the data collected from the screening measures, researchers will then assess participants with the measures for primary and second objectives of the project.
Screening tool 1: Demographic information	1	N/A	5 mins	Researchers will ask participants to complete a demographic questionnaire. This will include information about age, gender, health conditions, nationality, employment status.
Screening tool 2 (only for PLWD/MCI): the Mini Mental State Examination	4	N/A	10 mins	Researchers will assess PLWD/MCI for potential cognitive impairment.This screening scales will be completed at baseline, and at 6, 12, 18 months later.
Screening tool 3 (for PLWD/MCI and caregivers): Clinical Dementia Rating scale	1	N/A	10-20 mins	Researchers will assess PLWD/MCI and caregivers for PLWD/MCI severity of symptoms of dementia.
Screening tool 4 (only for caregivers): the Geriatric Depression Scale	1	N/A	10 mins	This questionnaire will be completed by the caregivers.
Measures/Questionnaires for the project's objectives	4	N/A	78 mins	Questionnaires for the primary and secondary objectives of the project will be administered by researchers at the participant's house on a 6-month basis.
Questionnaire 1 (for PLWD/MCI): the Geriatric Depression Scale	4	N/A	10 mins	This questionnaire is self-administered and will be completed by PLWD/MCI during the researchers' 6-monthly visits.
Questionnaire 2 (caregivers provide information about PLWD): Dementia Quality of Life Measure	4	N/A	10 mins	Researchers will administer this questionnaire to PLWD/MCI during the 6-monthly visits.
Questionnaire 3 (for caregivers): SF-36 Health Survey	4	N/A	10 mins	Caregivers will self-complete this questionnaire about their own quality of life during each 6-monthly visit.
Questionnaire 4 (caregivers provide information about PLWD/MCI):State Trait Anxiety Inventory	4	N/A	5 mins	Caregivers will complete this questionnaire about PLWD/MCI and anxiety during each 6-monthly visit.
Questionnaire 5 (caregivers provide information about PLWD/MCI): Multidimensional Scale of Perceived Social Support	4	N/A	5 mins	Caregivers will complete this questionnaire about social support during the 6-monthly visits.
Questionnaire 6 (caregivers provide information about PLWD/MCI): Instrumental Activities of Daily Living	4	N/A	10 mins	Researchers will administer this questionnaire about PLWD/MCI and daily activities to caregivers during the 6-monthly visits.

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Scale				
Questionnaire 7 (caregivers provide information about PLWD): Barthel Index of Activities of Daily Living	4	N/A	10 mins	Researchers will administer this questionnaire about PLWD/MCI and daily activities to caregivers during the 6-monthly visits.
Questionnaire 8 (caregivers provide information about PLWD/MCI): Neuropsychiatric Inventory scale (short version)	4	N/A	5 mins	Researchers will administer this questionnaire about the behaviour of PLWD/MCI to caregivers during the 6-monthly visits.
Questionnaire 9 (caregivers provide information about themselves and the PLWD/MCI): Morisky Medication Adherence Scale	4	N/A	5 mins	Researchers will administer the questionnaire the treatment adherence of carers and PLWD/MCI to caregivers during the 6-monthly visits.
Questionnaire 10 (caregivers provide information about PLWD): the Resource Utilisation in Dementia Questionnaire	4	N/A	10 mins	Researchers will administer this questionnaire to carers about the costs of care for the PLWD during the 6-monthly visits.
Questionnaire 11 (for caregivers): the Zarit Burden Interview	4	N/A	5 mins	Caregivers will complete this questionnaire for their perceived burden during the 6-month visits.
Questionnaire 12 (for caregivers): the Flourishing Scale	4	N/A	3 mins	Caregivers will complete this questionnaire about their self-esteem and optimism during the 6-month visits.
Questionnaire 13 (for caregivers): the Dyadic adjustment Scale	4	N/A	5 mins	Caregivers will complete this questionnaire for their relationship with PwD during the 6-month visits.
Checking consent (at 6 monthly visits)	3	N/A	5 mins	Researchers will verbally check that participants are still willing to take part in the study, at each of the 6 monthly visits. If scores on the MMSE screening tool indicates that the participant may no longer have capacity to consent to their inclusion, the researchers will liaise with a consultee

A19. Give details of any clinical intervention(s) or procedure(s) to be received by participants as part of the research protocol. *These include uses of medicinal products or devices, other medical treatments or assessments, mental health interventions, imaging investigations and taking samples of human biological material. Include procedures which might be received as routine clinical care outside of the research.*

Please complete the columns for each intervention/procedure as follows:

1. Total number of interventions/procedures to be received by each participant as part of the research protocol.
2. If this intervention/procedure would be routinely given to participants as part of their care outside the research, how many of the total would be routine?
3. Average time taken per intervention/procedure (minutes, hours or days).
4. Details of who will conduct the intervention/procedure, and where it will take place.

Intervention or procedure	1	2	3	4
CAREGIVERSPRO-MMD platform: Participants will be provided with a tablet and web access. They will receive training on how to use the	N/A	N/A	N/A	Participants will be provided with tablets, web access and training on their houses from researchers. The following rows present the interventions and functions of the platform. It is not possible to estimate the time taken per intervention

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tablet and the platform, together with a printed user manual.				because participants can complete and use them on their own pace, and they are free to decide which intervention they will use and which not.
Social network-Participants can share any information with their friends or their caregivers. They can accept or send friend requests to people with similar interests.	N/A	N/A	N/A	Participants can use this intervention/function of the platform through the tablet on their own pace and place.
Local sources and events-Participants will be informed for local sources where they can seek help from, and information about local events.	N/A	N/A	N/A	Participants can use this intervention/function of the platform through the tablet on their own pace and place.
Forums for PwD and caregivers-Users can post questions to be replied by other users or share their experiences.	N/A	N/A	N/A	Participants can use this intervention/function of the platform through the tablet on their own pace and place.
Treatment adherence- Participants will be sent alerts to remind them their medication.	N/A	N/A	N/A	Participants can use this intervention/function of the platform through the tablet on their own pace and place.
Educational intervention- Based on participants' scores on the measures, they will provided with scientific material (such as articles) from accredited organizations, such as Alzheimer's Society	N/A	N/A	N/A	Participants can use this intervention/function of the platform through the tablet on their own pace and place.
Drug repository- Participants can enter in the platform their medication and receive information about their use, purpose and possible side effects.	N/A	N/A	N/A	Participants can use this intervention/function of the platform through the tablet on their own pace and place.

A20. Will you withhold an intervention or procedure, which would normally be considered a part of routine care?

○ Yes ◉ No

A21. How long do you expect each participant to be in the study in total?

18 months

A22. What are the potential risks and burdens for research participants and how will you minimise them?

For all studies, describe any potential adverse effects, pain, discomfort, distress, intrusion, inconvenience or changes to lifestyle. Only describe risks or burdens that could occur as a result of participation in the research. Say what steps would be taken to minimise risks and burdens as far as possible.

1. There is a possible risk of psychological harm or distress because of inappropriate use of the platform (inappropriate language in post and comments/inappropriate posts). Participants will be provided with information about how to use the platform, including how to post appropriately. The site will be regularly monitored by the researchers, who will remove any inappropriate posts. Participants will also be able to use a report function to notify the researchers of inappropriate posts. Any participant using the platform in an offensive or malicious way will be withdrawn from the research.
2. Another risk concerns safe internet use. Participants from the control and intervention groups will be able to use the tablets to connect to internet in general, not only to connect to the platform. At the beginning of the trial participants will be provided with written information about using the internet safely to minimise risks.
3. Participants distress: it is possible that completing platform questions and memory assessments, as well as

reflecting on their own health and wellbeing might lead to feelings of distress for some participants. Furthermore, while it is hoped that reading posts written by other platform users will be supportive and helpful, there is the potential that this may be distressing for some. Participants will be provided at the outset of the trial with a list of local and national agencies and organisations which they can contact in the event that they feel distressed or concerned as a result of their participation in the trial. If the researchers observe any participant to be distressed they will be advised to contact their GP (who will be aware of their participation in the study).
4. Time considerations: The tasks related to the platform might be time consuming for participants. However, they will be able to use the platform at their own pace and place, when they feel they have time. In addition completion of the measures may also be time consuming for participants. The researchers administrating the measures will be vigilant for signs of fatigue and will offer participants the opportunity to take a break.

A23. Will interviews/ questionnaires or group discussions include topics that might be sensitive, embarrassing or upsetting, or is it possible that criminal or other disclosures requiring action could occur during the study?

(●) Yes ( ) No

If Yes, please give details of procedures in place to deal with these issues:

Participants will be asked to complete questionnaires and psychological scales as part of the research. There is potential for these questions to cause concern or anxiety for participants. In the event that any participant appears distressed or worried they will be offered the opportunity to take a break or withdraw from the research, although they will not be put under pressure to do so. They will also be advised to contact their GP if they exhibit signs of distress. Further, at the beginning of the study, participants will be provided with an information sheet which will provide contact details for a range of agencies which participants can contact should they have any questions, concerns or feelings of distress in response to their participation.

We also recognise the potential for participants to disclose experiences of abuse, harm or exploitation to the researchers. In the event that any such disclosures are made, the researchers will report this to the PI, who will ensure that these concerns are reported in line with the adult safeguarding policies and procedures for Hull and the East Riding of Yorkshire.

A24. What is the potential for benefit to research participants?

All participants will receive a tablet device for their use during the study (if they do not have one of their own already), which they can keep - should they wish- at the end of the study. It is anticipated that many participants will enjoy and value the opportunity to access a tablet device.

It is hoped that participants in the intervention group who have access to CAREGIVERSPRO-MMD will benefit from their use of the platform; for example through gaining opportunities for social interaction and information relevant to their situation and circumstances.

A25. What arrangements are being made for continued provision of the intervention for participants, if appropriate, once the research has finished? *May apply to any clinical intervention, including a drug, medical device, mental health intervention, complementary therapy, physiotherapy, dietary manipulation, lifestyle change, etc.*

It is anticipated that the platform application will be updated following and will become available with fees applied.

A26. What are the potential risks for the researchers themselves? *(if any)*

A potential risk for researchers is visiting participants' house on their own. Therefore, a lone worker policy will be used to ensure researchers' safety. The researcher will inform co-researchers about the place and time of each individual testing.

RECRUITMENT AND INFORMED CONSENT

In this section we ask you to describe the recruitment procedures for the study. Please give separate details for different study groups where appropriate.

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A27-1. How will potential participants, records or samples be identified? Who will carry this out and what resources will be used? *For example, identification may involve a disease register, computerised search of social care or GP records, or review of medical records. Indicate whether this will be done by the direct care team or by researchers acting under arrangements with the responsible care organisation(s).*

A wide range of recruitment strategies will be undertaken, which include:
* Verbal and written advertisement (via public talks and/or leaflets) of the study in local health, community and voluntary settings that provide support to PWLD/MCI and carers. For example the study will be advertised in NHS settings within the Humber Trust, such as memory clinics; voluntary agencies such as Age UK, The Alzheimer's Society, Butterflies Memory Loss Groups; community settings such as post offices, University of the Third Age, libraries.
* Verbal and written advertising of the study at dementia awareness events.
*Online advertisements on social media and dementia networks such as local community groups on social media and dementia advocates' blogs
*Radio and media adverts and information in newsletters of organisations supporting PLWD/MCI and/or carers
*Advertising and recruitment via the Join Dementia Research network, a network of people who have expressed an interest in taking part in dementia research
*Requesting that local GP surgeries and health centres display information leaflets/posters about the research
*Requesting dementia care clinicians offer leaflets/information sheets to PLWD/carers
*Participants from previous (completed) research studies which have taken place within the Humber NHS FoundationTrust will be approached with information about the current study. These individuals have finished research trials and expressed an interest to be informed of future studies
*Advertisements displayed in places anticipated to be used by potential pilot subjects, such as libraries, hairdressers and garden centres.

A27-2. Will the identification of potential participants involve reviewing or screening the identifiable personal information of patients, service users or any other person?

○ Yes ◉ No

Please give details below:
Only clinical staff will have access to the identifiable personal information for PLWD/MCI to screen for potential participants

A28. Will any participants be recruited by publicity through posters, leaflets, adverts or websites?

◉ Yes ○ No

If Yes, please give details of how and where publicity will be conducted, and enclose copy of all advertising material (with version numbers and dates).
The study will be publicised using posters, leaflets as well as written presentations as follows:

* Information will be displayed in community, voluntary and healthcare settings accessed by PLWD/MCI and/or carers (such as memory clinics, local organisations, GP surgeries, local shops and post offices)
* Information about the study will be placed on social media
* Information (based on the posters/leaflets) will be placed in newsletters of local agencies

A29. How and by whom will potential participants first be approached?

Many potential participants will themselves initiate contact with the researchers in response to publicity materials such as posters, information leaflets or information in newsletters, as well as following presentations at meetings for PLWD/MCI and/or their carers.

In some instances healthcare professionals or researchers from the Humber NHS Foundation Trust will provide information about the research to potential participants(such as participants in previous, completed research studies) who will be invited to make contact with the researchers.

Participants will be approached by researchers associated with the project, or healthcare professionals working in the field of dementia.

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A30-1. Will you obtain informed consent from or on behalf of research participants?

(●) Yes ( ) No

If you will be obtaining consent from adult participants, please give details of who will take consent and how it will be done, with details of any steps to provide information (a written information sheet, videos, or interactive material). Arrangements for adults unable to consent for themselves should be described separately in Part B Section 6, and for children in Part B Section 7.

If you plan to seek informed consent from vulnerable groups, say how you will ensure that consent is voluntary and fully informed.

Written consent will be obtained from participants (PLWD/MCI, caregivers) at the outset of the trial, by the researchers from the Humber NHS Foundation Trust, who are experienced in conducting research with people with dementia, and will have undertaken GCP (Good Clinical Practice) training. Prior to seeking consent participants will be given a verbal explanation of the study and a written Participant Information Sheet, written in plain English, and will have the opportunity to ask any questions.

Participants with capacity to consent will be included at the outset of the trial; arrangements for any participant who loses capacity during the trial are outlined in section B.

If you are not obtaining consent, please explain why not.

Please enclose a copy of the information sheet(s) and consent form(s).

A30-2. Will you record informed consent (or advice from consultees) in writing?

(●) Yes ( ) No

A31. How long will you allow potential participants to decide whether or not to take part?

Potential participants will be provided with verbal and written information about the study and will be given a minimum of 24 hours prior to consent being sought.

A32. Will you recruit any participants who are involved in current research or have recently been involved in any research prior to recruitment?

(●) Yes
( ) No
( ) Not Known

If Yes, please give details and justify their inclusion. If Not Known, what steps will you take to find out?

The Humber Trust researchers will approach individuals who have taken part in previous, completed studies, and who have expressed an interest in continuing to be involved in dementia research.

A33-1. What arrangements have been made for persons who might not adequately understand verbal explanations or written information given in English, or who have special communication needs?*(e.g. translation, use of interpreters)*

The exclusion criteria of the study exclude people who cannot communicate in the English language, or who have a significant cognitive decline affecting communication. The information sheets about the research have been prepared using plain English. The user manual providing information about how to use the tablets, internet and the platform will be prepared in plain English and with pictures to facilitate understanding. The researchers who will provide initial information about the study and seek consent are experienced in conducting research with people with dementia.

A34. What arrangements will you make to ensure participants receive any information that becomes available during the course of the research that may be relevant to their continued participation?

Participants will be contacted by the researchers via the telephone to provide any new information relevant to their

continued participation, and any arrangements for ongoing access to the platform at the end of the study.

A35. What steps would you take if a participant, who has given informed consent, loses capacity to consent during the study? *Tick one option only.*

- ○ The participant and all identifiable data or tissue collected would be withdrawn from the study. Data or tissue which is not identifiable to the research team may be retained.
- ○ The participant would be withdrawn from the study. Identifiable data or tissue already collected with consent would be retained and used in the study. No further data or tissue would be collected or any other research procedures carried out on or in relation to the participant.
- ◉ The participant would continue to be included in the study.
- ○ Not applicable – informed consent will not be sought from any participants in this research.
- ○ Not applicable – it is not practicable for the research team to monitor capacity and continued capacity will be assumed.

Further details:

In the event that a participant looses capacity during the trial, the researchers will liaise with and seek the agreement of a consultee about whether they consider that the person would wish to remain involved in the study. Consultees will be provided with information about the study and the role of the consultee, and asked to sign a written consultee form. In the event that the consultee considers that the person would not wish to continue to be involved, the individual will be withdrawn from the study. Further, if any individual who has lost capacity appears distressed or indicates in any way that they no longer wish to be involved, they will also be withdrawn from the study.

Please complete Part B, Section 6, giving further information about arrangements for including adults unable to consent for themselves.

CONFIDENTIALITY

In this section, personal data means any data relating to a participant who could potentially be identified. It includes pseudonymised data capable of being linked to a participant through a unique code number.

Storage and use of personal data during the study

A36. Will you be undertaking any of the following activities at any stage (including in the identification of potential participants)? *(Tick as appropriate)*

- ☐ Access to medical records by those outside the direct healthcare team
- ☐ Access to social care records by those outside the direct social care team
- ☑ Electronic transfer by magnetic or optical media, email or computer networks
- ☑ Sharing of personal data with other organisations
- ☐ Export of personal data outside the EEA
- ☑ Use of personal addresses, postcodes, faxes, emails or telephone numbers
- ☑ Publication of direct quotations from respondents
- ☐ Publication of data that might allow identification of individuals
- ☐ Use of audio/visual recording devices
- ☐ Storage of personal data on any of the following:
  - ☑ Manual files (includes paper or film)
  - ☑ NHS computers
  - ☐ Social Care Service computers
  - ☐ Home or other personal computers

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- [x] University computers
- [ ] Private company computers
- [ ] Laptop computers

Further details:
If personal data (such as names, contact details) are transferred between the Hull University and the Humber Trust researchers electronically, this data will first be encrypted. No participant data will be stored on personal or home computers. Paper based information (such as signed consent forms) will be stored in a locked filing cabinet in a locked office only accessible to researchers working on the study. Should any direct participant quotes be used in future publications, these will be anonymised, such that no participant names or identifiable information is included.

All data collected on the platform will be automatically sent to servers at the Polytechnic University of Catalonia (UPC). These servers are specifically operated for sensitive data. The servers are in a secure building with very limited access and high levels of personal and network security.

Data collected by the NHS researchers will be entered onto a data management web page by NHS or University of Hull research staff. Only a small number of NHS and University of Hull researchers will be able to access and use the website. The website is also hosted within the secure environment on UPC servers. All data will be encrypted as a part of transmission between Hull and UPC.

Anonymous data will be accessed from other consortium members in order to analyze data from the European organizations of the project.

A37. Please describe the physical security arrangements for storage of personal data during the study?

Raw data will be kept in a locked filing cabinet, in a locked office at the Department of Psychological Health and Wellbeing,The University of Hull. Only members of the research team will have access to this material. Signed consent forms will be stored separately to anonymised data. Electronic files of participants' data will be saved in an encrypted USB drive or hard disk. Data collected through research visits will be entered in the platform by researchers. This data and any data collected through the platform will be sent to a server at the Polytechnic University of Catalonia, where data from all pilot sites will be collected.

A38. How will you ensure the confidentiality of personal data?*Please provide a general statement of the policy and procedures for ensuring confidentiality, e.g. anonymisation or pseudonymisation of data.*

All data will be stored on encrypted USB drives and hard discs, in secure premises.
Pseudonymisation of data will be used to ensure confidentiality.

A40. Who will have access to participants' personal data during the study? *Where access is by individuals outside the direct care team, please justify and say whether consent will be sought.*

Only members of the research team will have access to participants' personal data.

Storage and use of data after the end of the study

A41. Where will the data generated by the study be analysed and by whom?

Data from the UK trial will be generated to all project members (all European partners).Data will be analysed from the UK project members (University of Hull), as well as from the project's administrators (UPC) in order data and results to be compared with those from other EU partners.

A42. Who will have control of and act as the custodian for the data generated by the study?

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	Title	Forename/Initials	Surname
	Dr	Emma	Wolverson
Post	Academic and Research Tutor		
Qualifications	Doctorate in Clinical Psychology		
Work Address	Department of Psychological Health and Wellbeing, Cottingham Road, University of Hull, Hull, UK		
	HULL		
Post Code	HU6 7RX		
Work Email	e.wolverson@hull.ac.k		
Work Telephone	01482464170		
Fax			

A43. How long will personal data be stored or accessed after the study has ended?

- ○ Less than 3 months
- ○ 3 – 6 months
- ◉ 6 – 12 months
- ○ 12 months – 3 years
- ○ Over 3 years

A44. For how long will you store research data generated by the study?

Years: 10
Months: 0

A45. Please give details of the long term arrangements for storage of research data after the study has ended. *Say where data will be stored, who will have access and the arrangements to ensure security.*

Data collected through the platform will be saved long term in the Polytechnic University of Catalonia.
Anonymised research data analysed by the University of Hull researchers will be retained to enable the production of reports and publications.

INCENTIVES AND PAYMENTS

A46. Will research participants receive any payments, reimbursement of expenses or any other benefits or incentives for taking part in this research?

◉ Yes ○ No

If Yes, please give details. For monetary payments, indicate how much and on what basis this has been determined.
Participants will be given a tablet in order to be able to participate in the trial, and will be able to keep the tablet after the end of the trial. Participants will receive no payments for their participation in the research.

A47. Will individual researchers receive any personal payment over and above normal salary, or any other benefits or incentives, for taking part in this research?

○ Yes ◉ No

A48. Does the Chief Investigator or any other investigator/collaborator have any direct personal involvement (e.g.

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financial, share holding, personal relationship etc.) in the organisations sponsoring or funding the research that may give rise to a possible conflict of interest?

○ Yes ◉ No

NOTIFICATION OF OTHER PROFESSIONALS

A49-1. Will you inform the participants' General Practitioners (and/or any other health or care professional responsible for their care) that they are taking part in the study?

◉ Yes ○ No

If Yes, please enclose a copy of the information sheet/letter for the GP/health professional with a version number and date.

A49-2. Will you seek permission from the research participants to inform their GP or other health/ care professional?

◉ Yes ○ No

It should be made clear in the participant's information sheet if the GP/health professional will be informed.

PUBLICATION AND DISSEMINATION

A50-1. Will the research be registered on a public database?

The Department of Health's Research Governance Framework for Health and Social Care and the research governance frameworks for Wales, Scotland and Northern Ireland set out the requirement for registration of trials. Furthermore: Article 19 of the World Medical Association Declaration of Helsinki adopted in 2008 states that "every clinical trial must be registered on a publicly accessible database before recruitment of the first subject"; and the International Committee of Medical Journal Editors (ICMJE) will consider a clinical trial for publication only if it has been registered in an appropriate registry. Please see guidance for more information.

◉ Yes ○ No

Please give details, or justify if not registering the research.
We anticipate that the research will be registered on ISRCTN

Please ensure that you have entered registry reference number(s) in question A5-1.

A51. How do you intend to report and disseminate the results of the study? *Tick as appropriate:*

- [x] Peer reviewed scientific journals
- [x] Internal report
- [x] Conference presentation
- [x] Publication on website
- [ ] Other publication
- [ ] Submission to regulatory authorities
- [ ] Access to raw data and right to publish freely by all investigators in study or by Independent Steering Committee on behalf of all investigators
- [ ] No plans to report or disseminate the results
- [ ] Other (please specify)

A52. If you will be using identifiable personal data, how will you ensure that anonymity will be maintained when publishing the results?

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No identifiable personal data will be revealed when publishing results. Should any direct quotes from participant posts be used, all identifying information will first be removed.

A53. Will you inform participants of the results?

(●) Yes ( ) No

Please give details of how you will inform participants or justify if not doing so.
A short summary report will be produced (using plain English); participants will be asked to indicate on the consent form whether they wish to receive a copy of this report.

5. Scientific and Statistical Review

A54-1. How has the scientific quality of the research been assessed? *Tick as appropriate:*

- [x] Independent external review
- [ ] Review within a company
- [x] Review within a multi-centre research group
- [x] Review within the Chief Investigator's institution or host organisation
- [x] Review within the research team
- [ ] Review by educational supervisor
- [ ] Other

Justify and describe the review process and outcome. If the review has been undertaken but not seen by the researcher, give details of the body which has undertaken the review:
The quality of the project has been assessed by all consortium members, as well as by European commission.
The sponsor of this study (Faculty of Health and Social Sciences, University of Hull) has reviewed this research.
About the applicants:
The CI, Dr Emma Wolverson, is a Clinical Psychologist and an experienced researcher in dementia field. The Co-PI Dr Kevin Paulson is a senior academic with the Faculty of Science and Engineering and has considerable experience in managing large quantitative studies and will contribute to data analysis.
The other co-investigators (Dr Paraskevi Zafeiridi, Miss Rosie J Dunn, Ms Caroline White) are experienced in conducting research and/or working with young and older adults, people with dementia, and/or other vulnerable population.

For all studies except non-doctoral student research, please enclose a copy of any available scientific critique reports, together with any related correspondence.

For non-doctoral student research, please enclose a copy of the assessment from your educational supervisor/ institution.

A56. How have the statistical aspects of the research been reviewed? *Tick as appropriate:*

- [ ] Review by independent statistician commissioned by funder or sponsor
- [ ] Other review by independent statistician
- [ ] Review by company statistician
- [ ] Review by a statistician within the Chief Investigator's institution
- [x] Review by a statistician within the research team or multi-centre group
- [ ] Review by educational supervisor
- [ ] Other review by individual with relevant statistical expertise
- [ ] No review necessary as only frequencies and associations will be assessed – details of statistical input not required

In all cases please give details below of the individual responsible for reviewing the statistical aspects. If advice has

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been provided in confidence, give details of the department and institution concerned.

	Title	Forename/Initials	Surname
	Dr	Xavier	Girones Garcia
Department	Educational Innovation and Research		
Institution	UManresa-Fundació Universitària del Bages		
Work Address	Avinguda Universitaria 4-6, Manresa		
Post Code	08242		
Telephone	0034938774179		
Fax			
Mobile			
E-mail	XGirones@umanresa.cat		

Please enclose a copy of any available comments or reports from a statistician.

A57. What is the primary outcome measure for the study?

The improvement of quality of life for PwD/MCI, and decrease of experienced burden for caregivers.

A58. What are the secondary outcome measures?*(if any)*

For PwD/MCI:
To improve activities of daily living, treatment adherence, behavioural and psychological symptoms, and neuropsychological functioning. To reduce the total number of hospitalisations.

For caregivers:
To improve quality of life, behavioural and psychological health and wellbeing, perceived social support, success in relationships, self-esteem, purpose, optimism and treatment adherence..
For dyads (PwD/MCI and caregivers):
To improve caregiving relationship and reduce costs for care.

A59. What is the sample size for the research? *How many participants/samples/data records do you plan to study in total? If there is more than one group, please give further details below.*

Total UK sample size:	200
Total international sample size (including UK):	602
Total in European Economic Area:	602

Further details:
There will be 301 dyads recruited (301 PwD or MCI and 301 caregivers) across Europe.

A60. How was the sample size decided upon? *If a formal sample size calculation was used, indicate how this was done, giving sufficient information to justify and reproduce the calculation.*

Statistical analysis (glmpower) was conducted to decide participants' sample size based on the primary objectives of the study (quality of life for PLWD/MCI and burden for caregivers). Results revealed that 230 PLWD/MCI are needed (including a 60% dropout rate), 115 for the experimental group and 115 for the control group. For caregivers, the estimated sample size is 602 (with a 40% dropout rate), 301 for the experimental group and 301 for the control group. Because this study focuses on the dyadic relationship, 301 dyads (620 participants) will be recruited in total across Europe, from which 100 dyads will be recruited in Hull.

A61-1. Will participants be allocated to groups at random?

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◉ Yes ○ No

If yes, please give details of the intended method of randomisation:
Each dyad will be randomly allocated blindly to the intervention or the control groups. An SAS PLAN procedure will be used to design the randomized design.

A62. Please describe the methods of analysis (statistical or other appropriate methods, e.g. for qualitative research) by which the data will be evaluated to meet the study objectives.

Data from the experimental and the control groups across the different time points will be analyzed with inferential statistics, including analysis of variance, logistic regression and Chi-square.

6. MANAGEMENT OF THE RESEARCH

A63. Other key investigators/collaborators. *Please include all grant co-applicants, protocol co-authors and other key members of the Chief Investigator's team, including non-doctoral student researchers.*

	Title	Forename/Initials	Surname
	Dr	Kevin	Paulson
Post	Senior Lecturer		
Qualifications	Sc in Physics from the University of Auckland MSc in Atmospheric Physics from the University of Auckland PhD in Applied Mathematics from Oxford Brookes University		
Employer	University of Hull		
Work Address	School of Engineering Cottingham Road Hull		
Post Code	HU67RX		
Telephone	01482 465118		
Fax			
Mobile			
Work Email	k.paulson@hull.ac.uk		

	Title	Forename/Initials	Surname
	Dr	Paraskevi	Zafeiridi
Post	Postdoctoral Research Assistant		
Qualifications	PhD in Psychology		
Employer	University of Hull		
Work Address	Department of Psychological Health and Wellbeing, Cottingham Road, University of Hull, Hull, UK		
Post Code	HU6 7RX		
Telephone	01482464571		
Fax			
Mobile			
Work Email	p.zafeiridi@hull.ac.uk		

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	Title	Forename/Initials	Surname
	Miss	Rosie Janet	Dunn

Post	Postdoctoral Research Assistant
Qualifications	Psychology BSc and Clinical Applications of Psychology MSc
Employer	University of Hull
Work Address	Department of Psychological Health and Wellbeing, Cottingham Road, University of Hull, Hull, UK
Post Code	HU6 7RX
Telephone	01482464571
Fax	
Mobile	
Work Email	r.j.dunn@hull.ac.uk

	Title	Forename/Initials	Surname
	Ms	Caroline	White

Post	Research Associate
Qualifications	MA/DipSW
Employer	University of Hull
Work Address	Department of Psychological Health and Wellbeing, Cottingham Road, University of Hull, Hull, UK
Post Code	HU6 7RX
Telephone	01482463830
Fax	
Mobile	
Work Email	c.white@hull.ac.uk

A64. Details of research sponsor(s)

A64-1. Sponsor

Lead Sponsor

Status:
- ○ NHS or HSC care organisation
- ◉ Academic
- ○ Pharmaceutical industry
- ○ Medical device industry
- ○ Local Authority
- ○ Other social care provider (including voluntary sector or private organisation)
- ○ Other

Commercial status:

If Other, please specify:

Contact person

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Name of organisation	University of Hull
Given name	David
Family name	Richards
Address	Cottingham Road, University of Hull
Town/city	Hull
Post code	HU6 7RX
Country	UNITED KINGDOM
Telephone	+44(0)1482 466800
Fax	
E-mail	pvc-re@hull.ac.uk

Is the sponsor based outside the UK?

○ Yes ◉ No

Under the Research Governance Framework for Health and Social Care, a sponsor outside the UK must appoint a legal representative established in the UK. Please consult the guidance notes.

A65. Has external funding for the research been secured?

☑ Funding secured from one or more funders
☐ External funding application to one or more funders in progress
☐ No application for external funding will be made

What type of research project is this?

○ Standalone project
○ Project that is part of a programme grant
○ Project that is part of a Centre grant
○ Project that is part of a fellowship/ personal award/ research training award
◉ Other

Other – please state:
A clinical trial funded from European Commission under H2020 scheme

Please give details of funding applications.

Organisation	The European Commission
Address	National Contact Point: Innovate UK North Star House, North Star Avenue, SN2 1UE, Swindon, United Kingdom
Post Code	SN2 1UE
Telephone	0300 321 4357
Fax	
Mobile	
Email	support@innovateuk.gov.uk

Funding Application Status: ◉ Secured ○ In progress

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Amount: 4087198

Duration
Years: 3
Months:

If applicable, please specify the programme/ funding stream:

What is the funding stream/ programme for this research project?
Horizon 2020: The EU Framework Programme for Research and Innovation.

A66. Has responsibility for any specific research activities or procedures been delegated to a subcontractor (other than a co-sponsor listed in A64-1) ? *Please give details of subcontractors if applicable.*

○ Yes ◉ No

A67. Has this or a similar application been previously rejected by a Research Ethics Committee in the UK or another country?

○ Yes ◉ No

Please provide a copy of the unfavourable opinion letter(s). You should explain in your answer to question A6-2 how the reasons for the unfavourable opinion have been addressed in this application.

A68-1. Give details of the lead NHS R&D contact for this research:

	Title	Forename/Initials	Surname
	Mr	Stephen	Walker

Organisation Humber NHS Foundation Trust
Address Coniston House, Trust Headquarters, Willerby Hill, Beverley Road, Willerby

Post Code HU10 6ED
Work Email Stephen.walker7@nhs.net
Telephone 01482301723
Fax
Mobile

Details can be obtained from the NHS R&D Forum website: http://www.rdforum.nhs.uk

A68-2. Select Local Clinical Research Network for NHS Organisation identified in A68-1:

Yorkshire and Humber

For more information, please refer to the question specific guidance.

A69-1. How long do you expect the study to last in the UK?

Planned start date: 01/05/2017

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Planned end date: 31/12/2018
Total duration:
Years: 1 Months: 7 Days: 31

A71-1. Is this study?

- ○ Single centre
- ◉ Multicentre

A71-2. Where will the research take place? *(Tick as appropriate)*

- [x] England
- [ ] Scotland
- [ ] Wales
- [ ] Northern Ireland
- [ ] Other countries in European Economic Area

Total UK sites in study

Does this trial involve countries outside the EU?
○ Yes ◉ No

A72. Which organisations in the UK will host the research?*Please indicate the type of organisation by ticking the box and give approximate numbers if known:*

- [x] NHS organisations in England 1
- [ ] NHS organisations in Wales
- [ ] NHS organisations in Scotland
- [ ] HSC organisations in Northern Ireland
- [ ] GP practices in England
- [ ] GP practices in Wales
- [ ] GP practices in Scotland
- [ ] GP practices in Northern Ireland
- [ ] Joint health and social care agencies (eg community mental health teams)
- [ ] Local authorities
- [ ] Phase 1 trial units
- [ ] Prison establishments
- [ ] Probation areas
- [ ] Independent (private or voluntary sector) organisations
- [x] Educational establishments 1
- [ ] Independent research units
- [ ] Other (give details)

Total UK sites in study: 2

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A73-1. Will potential participants be identified through any organisations other than the research sites listed above?

(●) Yes ( ) No

A73-2. If yes, will any of these organisations be NHS organisations?

(●) Yes ( ) No

If yes, details should be given in Part C.

A73-3. Approximately how much time will these organisations expect to spend on screening records and/or provision of information to potential participants, and how will the costs of these activities be funded?

We anticipate that we will recruit participants through the Join Dementia Research database.

A74. What arrangements are in place for monitoring and auditing the conduct of the research?

The sponsor (University of Hull) will be responsible for monitoring the conduct of this study.

A75-1. What arrangements will be made to review interim safety and efficacy data from the trial? Will a formal data monitoring committee or equivalent body be convened?

A formal Data Monitoring Committee not be set up as it is not felt to be necessary for this study, because mortality rates are not expected to be increased as a result of participation in the trial.

If a formal DMC is to be convened, please forward details of the membership and standard operating procedures to the Research Ethics Committee when available. The REC should also be notified of DMC recommendations and receive summary reports of interim analyses.

A75-2. What are the criteria for electively stopping the trial or other research prematurely?

No criteria are specified. However, if it is found that the platform appears to be causing significant distress or unexpected problems, then the CI and sponsor, in consultation with relevant research team members will make an assessment of the situation and stop if judged appropriate.

A76. Insurance/ indemnity to meet potential legal liabilities

***Note:* in this question to NHS indemnity schemes include equivalent schemes provided by Health and Social Care (HSC) in Northern Ireland**

A76-1. What arrangements will be made for insurance and/or indemnity to meet the potential legal liability of the sponsor(s) for harm to participants arising from the management of the research? *Please tick box(es) as applicable.*

Note: Where a NHS organisation has agreed to act as sponsor or co-sponsor, indemnity is provided through NHS schemes. Indicate if this applies (there is no need to provide documentary evidence). For all other sponsors, please describe the arrangements and provide evidence.

☐ NHS indemnity scheme will apply (NHS sponsors only)

☑ Other insurance or indemnity arrangements will apply (give details below)

The University of Hull will provide indemnity for the research taking place in Hull.

Please enclose a copy of relevant documents.

A76-2. What arrangements will be made for insurance and/ or indemnity to meet the potential legal liability of the sponsor(s) or employer(s) for harm to participants arising from the design of the research? *Please tick box(es) as*

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applicable.

Note: Where researchers with substantive NHS employment contracts have designed the research, indemnity is provided through NHS schemes. Indicate if this applies (there is no need to provide documentary evidence). For other protocol authors (e.g. company employees, university members), please describe the arrangements and provide evidence.

- [ ] NHS indemnity scheme will apply (protocol authors with NHS contracts only)
- [x] Other insurance or indemnity arrangements will apply (give details below)

Please enclose a copy of relevant documents.

A76-3. What arrangements will be made for insurance and/ or indemnity to meet the potential legal liability of investigators/collaborators arising from harm to participants in the conduct of the research?

Note: Where the participants are NHS patients, indemnity is provided through the NHS schemes or through professional indemnity. Indicate if this applies to the whole study (there is no need to provide documentary evidence). Where non-NHS sites are to be included in the research, including private practices, please describe the arrangements which will be made at these sites and provide evidence.

- [ ] NHS indemnity scheme or professional indemnity will apply (participants recruited at NHS sites only)
- [ ] Research includes non-NHS sites (give details of insurance/ indemnity arrangements for these sites below)

Please enclose a copy of relevant documents.

A77. Has the sponsor(s) made arrangements for payment of compensation in the event of harm to the research participants where no legal liability arises?

- ( ) Yes
- (•) No

Please enclose a copy of relevant documents.

A78. Could the research lead to the development of a new product/process or the generation of intellectual property?

- (•) Yes
- ( ) No
- ( ) Not sure

A79. Please select the level of commercial participation in this project.

- ( ) None
- (•) Industry funding, but not industry sponsored
- ( ) Industry funding and industry sponsored
- ( ) Industry sponsored, but not industry funded

A80. Please select the main subject area of research. Additional sub-topics may be selected, if required

- [ ] Age and Ageing
- [ ] Anaesthetics
- [ ] Cancer (includes malignant haematology
- [ ] Cardiovascular
- [ ] Clinical

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- [ ] Critical Care
- [x] Dementias and Neurodegenerative Diseases
- [ ] Dermatology
- [ ] Diabetes
- [ ] Ear, Nose and Throat
- [ ] Gastrointestinal
- [ ] Genetics
- [ ] Health Services Research
- [ ] Hepatology
- [ ] Immunology and Inflammation
- [ ] Infectious Disease and Microbiology
- [ ] Injuries and Accidents
- [ ] Medicines for Children (does not include Paediatrics)
- [ ] Mental Health
- [ ] Metabolic and Endocrine
- [ ] Musculoskeletal (Rheumatoid Arthritis is a separate category)
- [ ] Nervous System Disorders
- [ ] Non-malignant Haematology
- [ ] Ophthalmology
- [ ] Oral and Dental
- [ ] Paediatrics (does not include Medicines for Children)
- [ ] Primary Care
- [ ] Public Health Research
- [ ] Renal
- [ ] Reproductive Health and Childbirth
- [ ] Respiratory
- [ ] Rheumatoid Arthritis
- [ ] Stroke
- [ ] Surgery
- [ ] Urogenital

B. All research other than CTIMPs

In this sub-section, an adult means a person aged 16 or over.

B1. What impairing condition(s) will the participants have?

The study must be connected to this condition or its treatment.

Mild cognitive impairment, mild or mild to moderate dementia (or be an informal carer of individuals with these conditions)

B2. Justify the inclusion of adults unable to consent for themselves. It should be clear why the research could not be carried out as effectively if confined to adults capable of giving consent.

People with dementia will be included in the study only if they are able to give consent at the beginning of the study. This reflects the study's concern and interest in the support needs of people with early/mild memory loss. However it

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is recognised that some participants may lose capacity to consent to their ongoing participation during the 18 months of the study. In the event that any individual loses capacity to consent, a consultee will be identified and asked to give their agreement to the continued inclusion of the individual in the trial.

B3. Who in the research team will decide whether or not the participants have the capacity to give consent? What training/experience will they have to enable them to reach this decision?

Researchers from the R&D team will use scores from the Clinical Dementia Rating scale and the Mini Mental State examination to decide whether PLWD have capacity to give consent at the outset of the trial. They will also ask participants to give verbal consent to undertaking the measures during each 6 monthly follow up visit.If they identify that an individual no longer has capacity they will liaise with a consultee instead. The researchers who will be taking consent are experienced in undertaking research with PLWD

B4. Does the research have the potential to benefit participants who are unable to consent for themselves?

(●) Yes ( ) No

If Yes, please indicate the nature of this benefit. You may refer back to your answer to Question A24.

Although individuals with mild/moderate dementia or mild congnitive impairment are the primary population of interest in this study, the potential benefits of using the CAREGIVERSPRO-MMD platform for people with more advanced dementia are not known; therefore individuals will not be automatically withdrawn from the study should they lose capacity during the trial.

B5. Will the research contribute to knowledge of the causes or the treatment or care of persons with the same impairing condition (or a similar condition)?

(●) Yes ( ) No

If Yes, please explain how the research will achieve this:

The research will provide information, specifically on how the use of CAREGIVERSPRO-MMD may benefit individuals with mild/moderate dementia or mild cognitive impairment; it will also contribute to the knowledge base in respect of how ICT can provide effective, and potentially low cost support for people with dementia/cognitive impairment and their carers.

B6. Will the research involve any foreseeable risk or burden for these participants, or interfere in any way with their freedom of action or privacy?

(●) Yes ( ) No

If Yes, please give an assessment below. Highlight any risk, burden or discomfort specific to these participants and say what will be done to minimise it. You may refer back to your answers to Questions A22 and A23.

1. There is a possible risk of psychological harm or distress because of inappropriate use of the platform (inappropriate language in post and comments/inappropriate posts). Participants will be provided with information about how to use the platform, including how to post appropriately. The site will be regularly monitored by the researchers, who will remove any inappropriate posts. Participants will also be able to use a report function to notify the researchers of inappropriate posts. Any participant using the platform in an offensive or malicious way will be withdrawn from the research.
2. Another risk concerns safe internet use. Participants from the control and intervention groups will be able to use the tablets to connect to internet in general, not only to connect to the platform. At the beginning of the trial participants will be provided with written information about using the internet safely to minimise risks.
3. Participants distress: it is possible that completing platform questions and memory assessments, as well as reflecting on their own health and wellbeing might lead to feelings of distress for some participants. Furthermore, while it is hoped that reading posts written by other platform users will be supportive and helpful, there is the potential that this may be distressing for some. Participants will be provided at the outset of the trial with a list of local and national agencies and organisations which they can contact in the event that they feel distressed or concerned as a result of their participation in the trial. If the researchers observe any participant to be distressed they will be advised to contact their GP (who will be aware of their participation in the study).
4. Time considerations: The tasks related to the platform might be time consuming for participants. However, they will be able to use the platform at their own pace and place, when they feel they have time. In addition completion of the measures may also be time consuming for participants. The researchers administrating the measures will be

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vigilant for signs of fatigue and will offer participants the opportunity to take a break.

Questions B7 and B8 apply to any participants recruited in England and Wales.

B7. What arrangements will be made to identify and consult persons able to advise on the presumed wishes and feelings of participants unable to consent for themselves and on their inclusion in the research?

There is potential for participants to lose capacity during the trial. Should any participant lose capacity, the researchers will seek advice from a consultee about whether the person can continue to be included in the study. In the event that the consultee advises that the person should no longer be included, they will be withdrawn from the study.We will ask the consultee if data already collected can be retained. If the individual continues to be involved the researchers will be vigilant for indications of distress or signs that the person no longer wishes to participate, and will withdraw them from the research should this be indicated. An information sheet for consultees and a Consultee Declaration Form are attached as part of the application.

Please enclose a copy of the written information to be provided to consultees. This should describe their role under section 32 of the Mental Capacity Act and provide information about the research similar to that which might be given to participants able to consent for themselves.

B8. Is it possible that a participant requiring urgent treatment might need to be recruited into research before it is possible to identify and consult a person under B7?

○ Yes ◉ No

If Yes, say whether arrangements will be made instead to seek agreement from a registered medical practitioner and outline these arrangements. Or, if this is also not feasible, outline how decisions will be made on the inclusion of participants and what arrangements will be made to seek consent from the participant (if capacity has been recovered) or advice from a consultee as soon as practicable thereafter.

B9. What arrangements will be made to continue to consult such persons during the course of the research where necessary?

Should any individual lose capacity during the trial, the researchers will contact their consultee prior to each 6 monthly follow up visit remaining and seek their agreement (or otherwise) to the individual's continued participation.

B10. What steps will you take, if appropriate, to provide participants who are unable to consent for themselves with information about the research, and to consider their wishes and feelings?

All participants will have capacity at the outset of the trial. If any participant loses capacity a consultee will be identified as previously outlined. In addition to liaising with the consultee, the researchers will explain to the person at each 6 monthly follow up visit the purpose of the visit and what will happen. If the person indicates in any way that they do not wish to take part or they wish to stop answering the questions, then no further data will be sought during that visit. Discussion will take place with the consultee about whether they believe that the person would wish to be withdrawn from the trial, or whether they may wish to participate in future follow up visits.

B11. Is it possible that the capacity of participants could fluctuate during the research? How would this be handled?

It is possible that some participants will experience fluctuating capacity. The researchers will check the individual's capacity to consent at the beginning of each research visit, and will seek agreement from a consultee as above, if they are found to lack capacity on that occasion.

B12-1. What will be the criteria for withdrawal of participants?

Participants will be withdrawn from the study if:

The carer changes or can no longer continue in their caring role
The carer does not use the platform for a period of 2 months without a justifiable reason, as judged by the investigator
They engage in malicious or inappropriate use of the CAREGIVERSPRO-MMD platform
Severe illness for the PLWD/MCI or the carer, as evaluated by the investigator, that interferes with the ability

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or potential to use ICT tools
One member of the dyad wants to withdraw informed consent and to withdraw from the study
Hospitalisation or institutionalisation for more than 2 months of the PLWD/MCI or the carer

B13. Describe what steps will be taken to ensure that nothing is done to which participants appear to object (unless it is to protect them from harm or minimise pain or discomfort).

If any participant indicates verbally or through their demeanor or behaviour that they are not comfortable or do not wish to undertake any activity, they will not be required to participate in that activity. All participants will be informed at the outset of the trial, and reminded at the beginning of each 6 monthly visit that their participation is voluntary, and that they are welcome to take a break or withdraw from the study should they so wish.

B14. Describe what steps will be taken to ensure that nothing is done which is contrary to any advance decision or statement by the participant?

No advance decisions will be sought from participants; if any participant loses capacity to consent a consultee will be identified, with whom the researchers will liaise.

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PART C: Overview of research sites

Please enter details of the host organisations (Local Authority, NHS or other) in the UK that will be responsible for the research sites. *For NHS sites, the host organisation is the Trust or Health Board. Where the research site is a primary care site, e.g. GP practice, please insert the host organisation (PCT or Health Board) in the Institution row and insert the research site (e.g. GP practice) in the Department row.*

Investigator identifier	Research site	Investigator Name
IN1	(●) NHS site ( ) Non-NHS site Country: England Organisation name: HUMBER NHS FOUNDATION TRUST Address: TRUST HQ, WILLERBY HILL BEVERLEY ROAD WILLERBY HULL EAST YORKSHIRE Post Code: HU10 6ED	Forename: Emma Middle name: Family name: Wolverson Email: e.wolverson@hull.ac.uk Qualification (MD...): Doctorate in Clinical Psychology Country: UNITED KINGDOM

Participant Identification Centres

PIC Type	Centre	Individual(s)
(●) NHS (England) ( ) NHS (outside England) ( ) Non-NHS		E-mail:

9.3.2 Protocol

Document title: **Protocol for Work Package 5 of CAREGIVERSPRO-MMD**

Study Full Title: **CAREGIVERSPRO-MMD: A research trial examining the utility of a platform for people with memory problems and their caregivers**

Study Short title: **CAREGIVERSPRO-MMD - trial of a platform for people with dementia/carers**

Sponsor: **Dr David Richards, University of Hull**

Chief Investigator: **Dr Emma Wolverson, University of Hull**

Funder: **European Union Horizon 2020 Research and Innovation Programme (Grant agreement 690211)**

The CAREGIVERSPRO-MMD research study is funded by the European Union Horizon 2020 Research and Innovation Programme and is a partnership between the University of Hull; Hospital Centre University Rouen; Polytechnic University of Catalonia; University Foundation of Bages; Mobiles Dynamics; Social Cooperative of Marche; Centre for Research and Technology Hellas and Q-Plan International Advisors).

Contents

Executive Summary

The CAREGIVERSPRO-MMD pilot is a trial of a tablet-based platform designed for People Living With Dementia (mild to moderate) or Mild Cognitive Impairment (PLWD/MCI) and their carers; this platform provides a range of supports and information. The study will explore the potential impact of the ICT and the potential cost savings associated with its use, both for PLWD/MCI and carers.

The design of the platform recognises:

- The rising numbers of PLWD/MCI, and their need for support
- The challenges which may be experienced by informal carers
- The potential for ICT to play a cost-effective role in providing information and support to PLWD/MCI and carers.

The development and piloting of the platform is part of a Europe wide Horizon 2020 (EU funded) project, with research partners in Italy, Spain, France, Greece and the UK (Hull).

The platform provides the following functions:

- The medication repository, which provides information about medication to users
- Reminders or alerts to prompt users to take their medication or that they have an appointment coming up
- The social network, which enables individuals to interact with self-selected 'friends' on the platform, and to post messages
- Health and wellbeing questionnaires, in which users are able to complete generic questionnaires to self-monitor changes in their health and wellbeing
- Guided information. Information will be generated in response to the outcome of the health and wellbeing questionnaires (above), providing users with access to information and potential interventions
- Local resources. Participants can access up to date information about local groups, agencies, events and sources of support

The CAREGIVERSPRO-MMD platform is being developed as part of the overall EU wide CAREGIVERSPRO-MMD project. The design of the platform has been informed by an ongoing series of focus groups with older people and carers, ensuring that their views, needs and perspectives inform the design of the platform. A usability study is scheduled for January 2017(this is separate to the trial described here and recruitment to the study will be independent of the NHS). This will enable final refinements to be made to the platform prior to the trial.

In May 2017 a trial of the CAREGIVERSPRO-MMD platform will be undertaken. Participants to the trial will be recruited by the following partners:

- University of Hull
- COOSS Marche (Italy)

- Rouen University Hospital (France)
- Fundació Universitària del Bages (FUB) - UVic-UCC (Spain).

This protocol refers specifically to the element of the trial to be undertaken in Hull and the East Riding of Yorkshire (with reference to the wider European study where relevant). During the trial an intervention group (see below) will have access to and an opportunity to use the CAREGIVERSPRO-MMD platform which has been developed as described above in consultation with PLWD/MCI and their carers.

Aims of the study

The primary aim of the study is to explore whether the use of CAREGIVERSPRO-MMD over a period of 18 months benefits dyads (formed by a PLWD/MCI and their carer), affects the subjective quality of life of PLWD/MCI or the level of burden experienced by the caregiver.

Further, the study will explore whether the use of CAREGIVERSPRO-MMD over a period of 18 months:

- Improves the quality of the caregiving relationship
- Reduces the incidence of psychological and neuropsychiatric disorders for carers of PLWD/MCI
- Improves the perceived social support, success in relationships, self-esteem, purpose and optimism in carers
- Reduces behavioural and psychological symptoms for PLWD/MCI
- Aids PLWD/MCI in activities of daily living
- Improves treatment adherence for both partners in the dyad
- Reduces total costs of care (both direct and indirect) for the dyad
- Reduces the total number of hospitalisations for PLWD/MCI.

Methods

This is a randomised controlled trial.

The study will involve 2 dyad groups:

- The intervention group. Members of this group will have access to a tablet device which will be provided to each dyad member (should they not have one of their own) and to the CAREGIVERSPRO-MMD platform.
- The control group. Members of this group will receive a tablet device if they do not already have one, but will only have access to the Internet, and not to the CAREGIVERSPRO-MMD platform.

The following inclusion and exclusion criteria will apply:

Inclusion criteria

For PLWD/MCI

- People, aged 50 and over, living in the community, who are able to give informed consent at the outset of the study.
- Who are diagnosed with mild cognitive impairment (MCI) according to Petersen criteria [Albert et al, 2011] or mild to moderate dementia diagnosed according to DSM-IV criteria (Diagnostic and Statistical Manual, 4th edition) (American Psychiatric Association, 1994).
- Have a Clinical Dementia Rating (CDR; Morris, 1993) of 0.5 for MCI, 1-2 for mild to moderate dementia
- Have a Mini-Mental Exam score (MMSE; Folstein, 1975) between 30 and 25 (inclusive) for MCI, and between 24 and 10 (inclusive) for dementia, as the study focuses on people with mild/moderate dementia. This group is considered most likely to engage with ICT and to engage with the prevention and self-management elements of the platform
- Have an informal primary carer, identified and also included in the study
- Are able or willing to learn to use ICT

For carers

- People aged 18 years and over, with no diagnosis or no evidence of mild cognitive impairment or mild to moderate dementia (according DSM-IV criteria) (American Psychiatric Association, 1994), who are able to give informed consent at the outset of the study
- Who are the self-reported informal carer of the PLWD/MCI
- Have a Geriatric Depression Scale (GDS; Sheikh & Yesavage, 1986) score of less than 11 at the time of entry into the trial, indicating no severe depressive symptoms.
- Are able or willing to learn to use ICT

Exclusion criteria

For PLWD/MCI

- Having a terminal or severe illness with survival prognosis less than 18 months (the duration of the trial).
- Experiencing delusions, hallucinations, behavioural disturbances, that may interfere with the use of ICT tools.
- Relevant sensory problems or motor disability, evaluated by the investigator, that would interfere with the use of ICT tools
- Not speaking English

For carers

- A terminal or severe illness with a survival prognosis of less than 18 months.
- Relevant sensory problems or motor disability, evaluated by the investigator, that would interfere with the use of ICT tools.
- Not speaking English

Exit criteria

Participants will be withdrawn from the study if:

- The carer changes or can no longer continue in their caring role
- The PLWD/MCI or carer does not use the platform for a period of 2 months without a justifiable reason, as judged by the investigator
- They engage in malicious or inappropriate use of the CAREGIVERSPRO-MMD platform
- Severe illness for the PLWD/MCI or the carer, as evaluated by the investigator, that interferes with the ability or potential to use ICT tools
- One member of the dyad wants to withdraw informed consent and to withdraw from the study
- Hospitalisation or institutionalisation for more than 2 months of the PLWD/MCI or the carer

Dyads will be allocated to the intervention and control groups by a process of randomisation. 50 dyads will be recruited and assigned to each group. All participants will be offered training in how to use the tablet provided, and the CAREGIVERSPRO-MMD platform for members of the intervention group. They will also receive a written user guide which will provide information in plain English about how to use the tablet; how to use the internet safely; how to use the platform safely; how to post on the platform. All participants will be given a Participant Information Sheet (PIS) and will be asked to sign a written consent form (arrangements have been agreed in the event that a participant loses capacity during the trial).

Measures will be carried out with participants at baseline and at 6, 12 and 18 months to identify whether the use of the CAREGIVERSPRO-MMD platform benefits PLWD/MCI and carers. These measures will be carried out by experienced researchers who have worked with PLWD/MCI and carers.

Introduction and background information

Literature review

Data indicates that the population in Europe is ageing, with both increased longevity and low fertility reported (Eurostat, 2013; OECD, 2013). Along with this ageing population comes an increase in age related conditions, including dementia. Within the UK it was estimated that by 2015 850,000 people would be living with dementia, with an expectation that this figure will rise (Prince et al, 2014). Alzheimer's disease is the most common type of dementia, representing between 50% and 60% of all dementias diagnosed, causing memory loss and a progressive decline in cognitive function that impacts on a person's ability to care for themselves and on their social life (Gironès et al, 2002). In the UK an estimated 670,000 people provide care for people living with dementia (Alzheimer's Society, 2013).

In recognition of the significant consequences of dementia the 'Paris Declaration' (Alzheimer Europe, 2009) called on European and national policy makers to give Alzheimer's disease and other forms of dementia both the political and public health priority they deserve, including proposals in respect of research and medicine, healthcare and social support, and ethics and the law. It highlighted that:

- People with dementia and their caregivers need actions and tools that cover all aspects of their care and support needs that are tailored to the specific needs of each stage of the illness.
- Caring for people with dementia can have a significant impact on the subjective quality of life of caregivers. Consequently, it is necessary to recognise the potential significant burden for carers of people with dementia and promote the support and development of adequate support services and help.

In the UK context the National Dementia Strategy (Department of Health, 2009) highlighted the need for good quality information for people diagnosed with dementia and their carers; the development of structured peer support and learning networks; easy access to care, support and advice. More recently the UK Prime Minister's Dementia Challenge (Department of Health, 2015) has emphasised the importance of support, knowledge and a sense of belonging for people with dementia, as well as the need for research to improve the treatment and care of people with dementia.

Alzheimer Europe recommends fostering initiatives which support informal carers, since this is anticipated to result in improved quality of life for people with dementia (Alzheimer Europe, 2009). Such carers perform a range of significant roles including meeting the physical and emotional daily needs of the person; keeping the person connected to the community; empathising with individuals' experiences. Further they may take on a significant role as the individual's illness progresses in the reorganisation, maintenance and cohesion of the support network surrounding the person living with dementia (Astudillo et al, 2010).

European health policy has highlighted the importance of fostering and maintaining networks of informal care for people living with dementia. The importance of providing respite and support for carers has been noted, and is expected to reduce the use of residential care with consequent savings in public and private healthcare spending (Rapp et al, 2011).

Caring has been identified as having a significant impact on carers' health; for example sleep disturbance, anxiety, depression and stress have been reported, which may affect carers' quality of life, health and wellbeing (Callan et al, 2009; Varela et al, 2011). Informal caregivers of people living with dementia are often under considerable pressure and are at increased risk of experiencing physical and psychiatric illnesses. Providing caregivers with medical and healthcare knowledge concerning dementia and the necessary tools and/or support to cope with stress can be expected to bring benefits for both carers and people living with dementia, in respect of quality of life and health monitoring (Cheng et al, 2012). Active programmes devoted to the care of caregivers can have positive direct consequences, such as a better understanding of dementia as well as improving the capacity to cope with various challenges resulting from dementia (De Rotrou et al, 2011).

The European Union has been promoting the use of Information and Communication Technology (ICT) in the context of dementia for many years, with the aim of supporting carers. Within this framework, they initially fostered and used ICT-based intelligent navigation and geolocation systems to improve the quality of life of vulnerable older people and their family caregivers. The main objective of such initiatives has been to seek to improve the quality of life of older people and their family caregivers, due to the ease of use of ICT tools and their low cost implications (Magnusson et al, 2002).

ICTs have provided successful support for people with dementia, being used as information measures and for monitoring associated changes in the development of dementia (Pilotto et al, 2011; Sacco et al, 2012; Romdhane et al, 2012; Van der Roest et al, 2010). Their application has helped address many everyday problems, creating a secure environment and facilitating joint decision-making between family members, carers and people living with dementia (Olsson et al, 2012). When non-professional caregivers of people living with dementia were provided with ICT healthcare tools based on social networks, it was suggested that their use had a positive impact, both in improving the care and rehabilitation of people living with dementia as well as helping with daily support and offering a diversity of approaches to address daily challenges associated with the condition. This indicates that ICT systems can help, however, they must be current (updated and well thought-out) and maintain the interest of the users involved (Lundberg, 2013).

The use of ICT can potentially address some of the information needs identified by people living with dementia and carers, such as information about local services and

how to access them; advice on caring for people with dementia, especially in respect of behavioural and psychiatric symptoms; medication and treatment (Alzheimer's Society, 2010).

A recent systematic review on internet-based support interventions for caregivers of people living with dementia indicates that they can both improve the caregivers' welfare, as well as having positive consequences for the person receiving care. However, as the available supporting evidence lacks the necessary methodological quality, the future design of more robust clinical studies to explore their impact is essential (Boots et al, 2013).

The present study focuses on the role of an ICT platform (CAREGIVERSPRO-MMD) in supporting people living with mild to moderate dementia or mild cognitive impairment (PLWD/MCI) and their carers, through providing a range of support and information (outlined below). The study will explore the potential impact of the ICT and the potential cost savings associated with its use, both by PLWD/MCI and carers.

The CAREGIVERSPRO-MMD platform

CAREGIVERSPRO-MMD is a tablet (handheld touch screen computer) based platform designed for PLWD/MCI and their carers, focussing on the dyad as the unit of care. The development and piloting of the platform is part of a Europe wide Horizon 2020 (EU funded) project, with research partners in Italy, Spain, France, Greece and the UK (Hull).

CAREGIVERSPRO-MMD aims to enable PLWD/MCI and their carers to create social networks and to better manage information relevant to their health and wellbeing. The platform offers the following services to users:

The medication repository

Older people often take a variety of medications; research has therefore highlighted the importance of medication reviews (Duerden et al., 2013). This function enables PLWD/MCI or carers to seek information about their medication. The medication repository enables individuals to:

- Find out information about the medication they are taking
- Receive alerts in respect of potential allergies or interactions between different medication

The information provided through the medication repository will be provided by Datapharm Communications Ltd.

Reminders

Platform users can add details of the times they take their medication and can receive reminders to take their medication. In addition they can receive reminders about appointments.

The social network

Loneliness has been identified as a significant concern for older people (Alzheimer's Society, 2013). Further, carers may experience isolation from social networks as a consequence of their caring role (Carers UK, 2015). The social network enables users to interact with self-selected 'friends' through posting messages on the site, enabling them to develop a source of social interaction and peer support. Users can send 'friend requests' via email to other CAREGIVERPRO-MMD users. Further, PLWD/MCI and carers can join online forums (known as 'cafes') sited on the platform, where they can discuss topics relevant to their condition or their caring role. Within the user forums, users can receive suggestions about potential 'friends' who share their interests or concerns, or who have knowledge in respect of those concerns.

Individuals using the social network element of the platform are able to accept or refuse any friend requests they receive, ensuring that they are able to maintain control and security during participation in social networking activities. Users manage 'circles' of friends that limit the visibility of private information.

Health and wellbeing questionnaires

This function enables users to complete generic questionnaires within the platform to self-monitor changes in the health and wellbeing of both the PLWD/MCI and their carer. The questionnaires are broad and focus on the following clinical domains for PLWD/MCI and their caregivers:

- Cognitive ability
- Psychological wellbeing
- Physical Health
- Functional ability
- Quality of life
- Comorbidity
- Treatment adherence
- The dyads' relationship

The questionnaires are comprised of broad, generic questions. For example when completing a cognitive ability questionnaire, people may be asked a generic question such as "Have you been feeling forgetful lately?" or "How well do you remember to keep appointments?" As another example, when completing a questionnaire on psychological wellbeing, people may be asked "How are you feeling today?"

Guided information

Following from the results of the questionnaires in the platform (above) individuals will receive a 'report' on possible interventions, help, support and activities. For example, if a user completes a questionnaire about medication compliance, and receives a low score, they will receive information about how they can manage their medication more effectively, and the risks of poor medication management. Similarly, if a carer receives a score indicative of carer 'burnout' or stress, they will receive information aimed to enable them to reduce their stress levels and details of localised carer support services.

Furthermore, the scores of the measures taken at 6 monthly testing visits will be entered onto the platform by the researchers; information for participants will also be generated in response to their scores across the measures used. Participants will be directed to relevant information from reputable organisations related to these issues (such as the Alzheimer's Society, Age UK, Carers UK, the NHS, British Psychological Society).

Local resources

The platform will also contain local information about 'what's on', clubs, groups, classes and events for PLWD/MCI, carers and older people's events in the Hull and East Riding of Yorkshire region. For example, the Alzheimer's Society Memory Cafes or Butterflies Memory Loss Support group. This will be regularly updated, ensuring that the information does not become outdated.

Gamification

The platform will include a gamification element; that it features designed to encourage use of the platform and make it more enjoyable and entertaining. The platform will include, for example, challenges, leader boards, missions and earned points. This is anticipated to increase individuals' motivation to engage with the platform and maximise the time they spend on the platform, with the potential to gain increased benefits.

During the pilot is it very unlikely that the categories of services within the platform will change. However, the interface of the platform may continue to be optimised and developed for increased ease of use and utility.

The development of CAREGIVERSPRO-MMD

The CAREGIVERSPRO-MMD platform is being developed as part of the overall EU wide CAREGIVERSPRO-MMD project. During development it is being tested with PLWD/MCI and carers, who provide feedback via focus groups on evolving versions of the platform, focussing on its design, layout and content, leading to further development and refinement of the platform. This process of user testing will be

undertaken until the platform receives 80% approval by participants, ensuring that the perspectives and views of PLWD/MCI and carers inform the development of the platform. A usability study of the final version of the platform is scheduled to take place in January 2017. Participants in the usability study will complete a questionnaire about their experiences of using the platform, which will enable final improvements to be made, prior to the planned trial. Both the focus groups and usability study are separate to the trial described here; ethical approval for each is through the University of Hull Faculty of Health and Social Care Ethics Committee. Ongoing amendments and refinements to the platform are anticipated during the trial in response to user feedback. Recruitment to the focus groups and usability study are through local community (non-NHS) groups for PLWD/MCI and carers.

The CAREGIVERSPRO-MMD TRIAL

In May 2017 a pilot trial of the CAREGIVERSPRO-MMD platform will be undertaken by the following partners:

- University of Hull (UK)
- COOSS Marche (Italy)
- Rouen University Hospital (France)
- Fundació Universitària del Bages (FUB) - UVic-UCC (Spain).

This protocol refers specifically to the element of the trial to be undertaken in Hull and the East Riding of Yorkshire (with reference to the wider European study where relevant). During the trial an intervention group (see below) will have access to and an opportunity to use the CAREGIVERSPRO-MMD platform which has been developed as described above in consultation with PLWD/MCI and their carers.

Research aims and objectives

Aims of the study

The primary aim of the study is to explore whether the use of CAREGIVERSPRO-MMD over a period of 18 months benefits dyads (formed by a PLWD/MCI and their carer), in terms of improving the subjective quality of life of PLWD/MCI or reducing the level of burden experienced by the caregiver.

Further, the study will explore whether the use of CAREGIVERSPRO-MMD over a period of 18 months:

- Improves the quality of the care giving relationship
- Reduces the incidence of psychological and neuropsychiatric disorders for carers of PLWD/MCI
- Improves the perceived social support, success in relationships, self-esteem, purpose and optimism in carers
- Reduces behavioural and psychological symptoms and the use of psychotropic drugs for PLWD/MCI
- Aids PLWD/MCI in activities of daily living
- Improves treatment adherence for both partners in the dyad
- Reduces total costs of care (both direct and indirect) for the dyad
- Reduces the total number of hospitalisations for PLWD/MCI.

The primary objectives of the study are to:

- Evaluate the subjective quality of life of PLWD/MCI in order to identify whether there is a benefit from use of the CAREGIVERSPRO-MMD platform over a period of 18 months.
- Evaluate the perceived burden of carers to identify whether there is a benefit from the use of the CAREGIVERSPRO-MMD platform over 18 months.

The secondary objectives of the study are:

For PLWD/MCI

To evaluate the following in order to identify a benefit to PLWD/MCI from using the CAREGIVERSPRO-MMD platform over a period of 18 months:

- Activities of daily living
- Treatment adherence
- Behavioural and psychological symptoms
- Neuropsychological functioning
- The total number of hospitalisations

For primary caregivers

To evaluate the following in order to identify a benefit to carers from using the CAREGIVERSPRO-MMD platform over 18 months:

- Treatment adherence
- Behavioural and psychological health and wellbeing
- Quality of life
- Perceived social support, success in relationships, self-esteem, purpose and optimism
- The use of psychotropic drugs

For the dyad

To evaluate the quality of the relationship between the caregiver and PLWD/MCI, in order to identify a benefit from using the CAREGIVERSPRO-MMD platform over 18 months.

Economic and financial benefits

To evaluate the direct and indirect costs of care to identify a benefit from using the CAREGIVERSPRO-MMD platform over 18 months.

For CAREGIVERSPRO-MMD users

To evaluate the degree of satisfaction of using the CAREGIVERSPRO-MMD platform over 18 months.

Methods

Study design

This is a randomised controlled trial. Measurements will be recorded at baseline (0) and at 6, 12 and 18 months. Two groups will be compared: dyads using the CAREGIVERSPRO-MMD platform (the intervention group), and a control group consisting of dyads which do not have access to the platform. Dyad members (in both the intervention and control groups) will be given a tablet device for use during the research, should they not have one of their own, which they are able to keep at the end of the study.

Inclusion criteria

For PLWD/MCI

- People, aged 50 and over, living in the community, who are able to give informed consent at the outset of the study.
- Who are diagnosed with mild cognitive impairment (MCI) according to Petersen criteria [Albert et al, 2011] or mild to moderate dementia diagnosed according to DSM-IV criteria (Diagnostic and Statistical Manual, 4th edition) (American Psychiatric Association, 1994).
- Have a Clinical Dementia Rating (CDR; Morris, 1993) of 0.5 for MCI, 1-2 for mild to moderate dementia
- Have a Mini-Mental Exam score (MMSE; Folstein, 1975) between 30 and 25 (inclusive) for MCI, and between 24 and 10 (inclusive) for dementia, as the study focuses on people with mild/moderate dementia. This group is considered most likely to engage with ICT and to engage with the prevention and self-management elements of the platform
- Have an informal primary carer, identified and also included in the study
- Are able or willing to learn to use ICT

For carers

- People aged 18 years and over, with no diagnosis or no evidence of mild cognitive impairment or mild to moderate dementia (according DSM-IV criteria) (American Psychiatric Association, 1994), who are able to give informed consent at the outset of the study
- Who are the self-reported informal carer of the PLWD/MCI
- Have a Geriatric Depression Scale (GDS; Sheikh & Yesavage, 1986) score of less than 11 at the time of entry into the trial, indicating no severe depressive symptoms.
- Are able or willing to learn to use ICT

Exclusion criteria

For PLWD/MCI

- Having a terminal or severe illness with survival prognosis less than 18 months (the duration of the trial).
- Experiencing delusions, hallucinations, behavioural disturbances, that may interfere with the use of ICT tools.
- Relevant sensory problems or motor disability, evaluated by the investigator, that would interfere with the use of ICT tools
- Not speaking English

For carers

- A terminal or severe illness with a survival prognosis of less than 18 months.
- Relevant sensory problems or motor disability, evaluated by the investigator, that would interfere with the use of ICT tools.
- Not speaking English

Exclusion criteria

For PLWD/MCI

- Having a terminal or severe illness with survival prognosis less than 18 months (the duration of the trial).
- Experiencing delusions, hallucinations, behavioural disturbances, that may interfere with the use of ICT tools.
- Relevant sensory problems or motor disability, evaluated by the investigator, that would interfere with the use of ICT tools
- Not speaking English

For carers

- A terminal or severe illness with a survival prognosis of less than 18 months.
- Relevant sensory problems or motor disability, evaluated by the investigator, that would interfere with the use of ICT tools.
- Not speaking English

Exit criteria

Participants will be withdrawn from the study if:

- The carer changes or can no longer continue in their caring role
- The PLWD/MCI or carer does not use the platform for a period of 2 months without a justifiable reason, as judged by the investigator
- They engage in malicious or inappropriate use of the CAREGIVERSPRO-MMD platform
- Severe illness for the PLWD/MCI or the carer, as evaluated by the investigator, that interferes with the ability or potential to use ICT tools
- One member of the dyad wants to withdraw informed consent and to withdraw from the study
- Hospitalisation or institutionalisation for more than 2 months of the PLWD/MCI or the carer

Recruitment to the study

To ensure the target population size is achieved, a wide range of recruitment strategies will be undertaken. These include:

- Verbal and written advertisement (via public talks and/or leaflets) of the study in local health, community and voluntary settings that provide support to PWLD/MCI and carers. For example the study will be advertised in NHS settings within the Humber NHS Foundation Trust, such as memory clinics, community mental health teams; voluntary agencies such as Age UK, The Alzheimer's Society, Butterflies Memory Loss Group; community settings such as post offices, University of the Third Age, libraries.
- Verbal and written information advertising the study at dementia awareness events.
- Online advertisements on social media (Twitter and Facebook) and dementia networks such as local community groups on social media, and dementia advocates' blogs
- Radio and media adverts and information in newsletters of organisations supporting PLWD/MCI and/or carers
- Advertising and recruitment via the Join Dementia Research service, a register of people who have expressed an interest in taking part in dementia research
- Requesting local GP surgeries and health centres display information leaflets/posters about the research
- Requesting dementia care clinicians offer leaflets/information sheets to PLWD/carers
- Participants from previous research studies which have taken place within the Humber NHS Foundation Trust will be approached with information about the current study. These individuals have expressed an interest to be informed of future studies
- Advertisements will be displayed in places that are likely to be used by potential pilot subjects, such as libraries, hairdressers and garden centres.

Potential participants, who have given their permission for their details to be passed to the research team or who have approached the team direct in response to adverts/presentations, will be contacted. The researchers will discuss the study, arrange to visit and provide them with a written Participant Information Sheet (PIS) (in person, by post or email as appropriate). This has been written using 'plain English' and will provide information about the study; the platform; the voluntary nature of the research; participants' rights to withdraw from the research at any time; arrangements in the event of loss of capacity during the trial; safe storage of participant data.

Where potential participants appear eligible for inclusion, and wish to participate, they will receive a visit from the researchers, at a convenient time and place to further discuss the study, referring to the PIS. Participants will have an opportunity to ask questions about the study. Once any questions have been addressed to potential participants' satisfaction, they will be asked to sign a written consent form. The researchers will then undertake screening measures and conduct the baseline measures as appropriate. In addition, they will confirm whether they are able to access the internet. In the event that individuals cannot access the internet a dongle/4G network access can be provided.

Randomisation

The control and intervention groups will be randomly assigned to achieve stratification by the Mini Mental State Examination (MMSE). The study aims to recruit the same number of people with Mild Cognitive Impairment (MMSE 30-25), Mild Dementia (MMSE 24-20) and Moderate Dementia (MMSE: 19-10), 33.3% in each level will be considered.

An SAS PLAN (SAS Institute Incorporated, 2008) procedure will be used to design the randomized design. As the Humber NHS Foundation Trust researchers will be administering the measures in the 6-monthly visits, they will be 'blinded' to which group participants have been allocated to, in order to prevent interviewer bias. After each follow up visit the researchers will consider if they have been 'unblinded' in respect of any dyads; this will be documented and another researcher will subsequently work with the dyad where possible.

The intervention

The intervention group

PLWD/MCI and their carers in the intervention group will each be given access to a tablet device with CAREGIVERSPRO-MMD installed (if they do not have a tablet of their own). 50 dyads will be included in Hull (301 overall across all European partners). Members of the intervention group will receive training from the University of Hull researchers on the use of the platform, and the tablet. They will also receive a user guide, written in plain English (and using photographs to facilitate understanding); this will include information about:

- Using the tablet provided
- Using CAREGIVERSPRO-MMD
- Safely using the internet should users so wish
- Safely posting information and comments, as well as 'netiquette' for forum users
- Reporting concerns or evidence of malicious usage
- Reporting difficulties or technical problems and seeking help and assistance in using the platform

The control group

We will ensure that PLWD/MCI and their carers have access to the internet, but not to the CAREGIVERSPRO-MMD platform, as they will not have an account created with a username or password. 50 such dyads will be included in Hull (301 overall across all the European sites). They will receive information about using a tablet and the internet.

Measures for screening

Screening scales for PLWD/MCI and caregivers

The Mini-Mental State Examination (MMSE; Folstein & Folstein, 1975) measures cognitive impairment in PLWD/MCI. It will be administered by researchers and it includes questions about memory, language and orientation. PLWD/MCI need to have a MMSE score between 30 and 25 (inclusive) for MCI, and between 24 and 10 (inclusive) for dementia, as the study focuses on people with mild/moderate dementia.

The Clinical Dementia Rating scale (CDR; Morris, 1993) is used to evaluate the severity of dementia symptoms. It will be administered by researchers to both PLWD/MCI and caregivers in order to obtain a collective account. It includes questions about memory, orientation, judgement and problem solving, community affairs, home tasks and hobbies, and personal care. PLWD/MCI need to have a CDR score of 0.5 for MCI, or 1-2 for mild to moderate dementia.

The short version of the Geriatric Depression Scale (GDS; Sheikh & Yesavage et al., 1986) will assess caregivers for depressive symptoms. It is self-administered and includes 15 questions. Caregivers need to have a score of less than 11 at the time of entry into the trial, indicating no severe depressive symptoms.

The CDR scale will be used only at baseline, while the MMSE will be repeated for PLWD/MCI in every 6-month research visit and the GDS will be repeated for PLWD/MCI and caregivers in every 6-month research visit (Table 1). Screening and outcome measures will be collected for PLWD/MCI and carers in the intervention and control groups during the trial. All data will be collected by researchers from the Humber NHS Foundation Trust; the researchers are experienced in conducting research with PLWD/MCI and caregivers.

Measures to be collected during the trial

Scales for primary outcomes

Scale for primary outcomes for PLWD/MCI

- The Dementia Quality of Life (DEMQOL; Brod, Stewart, Sands & Walton, 1999) instrument measures the PLWD/MCI's perceived overall quality of life. It is administered by researchers and PLWD/MCI answer questions in five domains of quality of life: Positive Affect (6 items), Negative Affect (11 items), Feelings of Belonging (3 items), Self-esteem (4 items), and Sense of Aesthetics (5 items) (n=29).

Scale for primary outcomes for caregivers

- The Zarit Burden Interview (ZBI; Zarit et al., 1980) measures the level of caregivers' experienced burden. It is self-administered and includes questions (n=22) about participants' caregiving experience.

Scales for secondary outcomes for PLWD/MCI

- The short version of the Geriatric Depression Scale (GDS; Sheikh & Yesavage et al., 1986) will measure depressive symptoms for PLWD/MCI. It is self-administered and includes 15 questions.
- The State Trait Anxiety Inventory (STAI; Spielberger et al., 1983) measures anxiety for PLWD/MCI through caregivers' responses to 40 statements about how they feel.
- The Lawton Instrumental Activities of Daily Living Scale (IADL; Lawton & Brody, 1969) assess the ability of PLWD/MCI to perform daily activities. This scale is completed by caregivers who report the PLWD/MCI's ability to perform 31 activities. It is administered by researchers.
- The Barthel Index of Activities of Daily Living (BADL; Mahoney & Barthel, 1965) also measures the ability of PLWD/MCI to perform daily activities on 10 tasks through caregivers' responses. It is administered by researchers.
- The short version of the Neuropsychiatric Inventory Questionnaire (NPI-Q; Cummings, 1994) is used to assess the behaviour of PLWD/MCI through caregivers' responses. This scale in administered by researchers and includes 12 questions about hallucinations, delusions, agitation/aggression, depression/dysphoria, anxiety, elation/euphoria, apathy/indifference, disinhibition, irritability/lability, motor disturbance, night time behaviour, and appetite/eating.

Scales for secondary outcomes for caregivers

- The SF-36v2 Health Survey (Ware, 1992) measures caregivers' quality of life. This scale is self-administered and includes 11 questions.
- The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) measures caregivers' perceived social support and is self-administered. It includes 12 items.
- The Flourishing Scale (FS; Diener, 2009) measures caregivers' perceived success through 8 items about relationships, self-esteem, purpose and optimism. This scale is self-administered.

Scales for secondary outcomes for dyads

- The Dyadic Adjustment Scale (DAS; Spanier, 1976) measures the quality of relationship between PLWD/MCI and their caregivers. It is self-administered and will be completed by caregivers. It includes 32 questions.
- The Morisky Medication Adherence Scale (MMAS-8; Morisky et al., 2008) will be used to measure medical adherence for PLWD/MCI and caregivers. It is administered by researchers and includes 8 questions. Caregivers will answer

these questions in respect of their own adherence to their medication, as well as for PLWD/MCI.

- The Resource Utilization in Dementia scale (RUD; Wimo et al., 2012) measures care costs and resource utilisation for PLWD/MCI. This scale is administered by researchers to caregivers and includes 34 questions.

A CONSORT flowchart indicating participants' flow through the trial is included in Appendix 1.

Throughout the trial information about Serious Adverse Events affecting dyad partners will be collected.

Table 1. Schedule of screening and outcome measures

Screening & Outcome measures	Time in minutes	PLWD/ MCI	CAREGIVERS	Baseline	6 months	12 months	18 months
MMSE	10	✓	X	✓	✓	✓	✓
CDR	20	✓	✓	X	X	X	X
GDS	10	✓	✓	✓	✓	✓	✓
DEMQOL	10	✓	X	✓	✓	✓	✓
ZBI	5	X	✓	✓	✓	✓	✓
SF-36v2	10	X	✓	✓	✓	✓	✓
STAI	5	X	✓	✓	✓	✓	✓
MSPSS	5	X	✓	✓	✓	✓	✓
IADL	10	X	✓	✓	✓	✓	✓
BADL	10	X	✓	✓	✓	✓	✓
NPI-Q	5	X	✓	✓	✓	✓	✓
MMAS-8	5	X	✓	✓	✓	✓	✓
RUD	10	X	✓	✓	✓	✓	✓
FS	3	X	✓	✓	✓	✓	✓
DAS	5	X	✓	✓	✓	✓	✓

Data management and analysis

A range of data will be collected during the pilot, including measures applied during researcher visits as well as records of user engagement with the platform. The platform will be hosted on secure servers within the Polytechnic University of Catalonia (UPC), that are specifically operated for sensitive data. The servers are in a secure building with very limited access and high levels of personal and network security.

Data collected by the NHS researchers will be entered onto a data management web page by NHS or University of Hull research staff. Only a small number of NHS and University of Hull researchers will be able to access and use the website. The website is also hosted within the secure environment on UPC servers. All data will be encrypted as a part of transmission between Hull and UPC.

Raw data from the Hull trial (such as personal contact details and completed measures) will be kept in locked filing cabinets, in a locked offices at the Department of Psychological Health and Wellbeing, the University of Hull, and in the Humber NHS Foundation Trust. Only members of the research team will have access to this material. Signed consent forms will be stored separately to anonymised data. Electronic files of participants' data will be saved in an encrypted USB drive or hard disk. All NHS and Hull University researchers have completed Good Clinical Practice (GCP) training.

Data management

All researchers using the data management website must provide a valid email address and a double opt-in process will be performed in order to confirm each identity (users must confirm an email sent to the email address provided on a first step by clicking on a link with a personal, unique code).

All pilot participants will be allocated a user identification code that is completely unrelated to any personal data. All participant data will be linked to their code, but the information linking the code to the participant identity will be stored on a separate secure server within UPC.

Individuals' data will be accessible by Hull researchers for the purpose of entering, checking and correcting data. Otherwise, only anonymised summary statistics will be available to specific researchers within the consortium.

All activity on the platform and data website, by pilot subjects or researchers from any of the pilot sites (including deleting actions) will be logged with a timestamp and a description.

Statistical analysis

Descriptive analysis

All variables will be described by using summary statistics as counts, mean, standard deviation, median, minimum, maximum and percentiles 25th and 75th for continuous variables and counts and percentages for categorical ones. 95% confidence intervals for the mean and free distribution confidence intervals for the median will be computed. Graphical analysis will be done as bar diagrams, scatter plots, box-plots, profiles and others.

Sample size

As there are two primary objectives, the larger of two estimated sample sizes has been used. The sample sizes refers to the pooled data from the four pilots. The funder has agreed to a sample size of 601 dyads (100 in the UK), and so the power calculations are performed to check that this is adequate.

For PLWD/MCI

For PLWD/MCI the objective in the original grant application was to demonstrate in users of the CAREGIVERSPRO-MMD platform an increase of ≥5% relative to the control in the mean value of the DEMQOL total score at 18 months. Using published data for the distribution of DEMQOL scores, a minimum sample size of 182 people, each of the control and test groups; was found to yield a statistical power of 0.9 using a two-tailed test and a level of significance alpha = 0.05. The sample size was calculated using very conservative estimate of the drop-out rate of 60%.
For primary caregivers

For carers the objective is to demonstrate, for carers using the CAREGIVERSPRO-MMD platform a reduction of ≥ 20% in the mean value of the Zarit Burden Inventory (ZBI) at 18 months. Once again, using published distributions of ZBI measures (Reed et al, 2014) yields a sample size of 430 primary caregivers, 215 per group (alpha = 0.05, two tailed test with power = 0.9). Given a dropout rate of 40% the sample size becomes 301 per group.

Given a total sample across the four sites of 600 dyads, i.e.300 in each of the control and test groups, then there is a good chance of observing the changes if they are present. If fewer subjects drop out then the power of the pilots increases.

Primary analysis

Change in DEMQOL / ZBI score defined as difference between18 months value and baseline value will be compared between groups fitting an analysis of covariance with DEMQOL / ZBI at 18 months as dependent variable, group as classification variable and baseline value as covariate. Confidence intervals for the least square means will be computed.

Secondary analysis related to PLWD/MCI and their carers

Secondary objectives will be tested using Chi-squared tests comparing distribution means in the test and pilot groups across the four pilot sites.

Ethical considerations

The research will be conducted according to the principles of the Declaration of Helsinki, Seventh Edition, Fortaleza (2013) for research involving human participants, and will be conducted according to the protocol ensuring compliance with rules of Good Clinical Practice (GCP), as described in the Harmonized Tripartite Guidelines for Good Clinical Practice ICH 1996.

The following potential risks to participants are recognised and addressed:

Participant distress

Participants may experience distress as a result of completing platform questions or screening scales; reflecting on their health and wellbeing; undertaking memory assessments; reading posts by other users; malicious use of the platform by other users. The platform provides information on support organisations, which participants (in the intervention group) can approach if they are experiencing distress or concerns as a result of their participation in the study. In addition, all participants will be given an information leaflet at the beginning of the trial, with the contact details of agencies they can contact should they become worried, distressed or concerned as a result of any aspect of their participation in the trial. In the event that participants contact the researchers or are observed by the researchers to be experiencing distress they will be advised to contact their GP. Participants who express distress will be reminded of their right to take a break or to withdraw from the study, although they will not be placed under any pressure to do so. There are potential risks of distress (for members of the intervention group) in respect of reading information posted by other users. Participants will be given a user manual at the beginning of the trial. This will include information on how to post appropriately, to minimise the risk of causing distress or offence to other participants. This will also advise participants how to report inappropriate posts. The site will be regularly moderated by the researchers to ensure that its members are posting appropriately; further there will be a report function, enabling participants to highlight and report inappropriate or offensive use of the platform. Participants found to have used the platform in inappropriate or malicious ways will be withdrawn from the study.

Risks to participants from unsafe internet use

Participants will be able to access the internet via the tablet devices. The user manual will contain information about safe internet use, providing advice about risks and how to avoid harm while online.

Time considerations

The tasks related to the platform may be time consuming for participants. However, they will be able to use the platform at their own pace and place, at times convenient to them. Further, completion of the measures may also be time consuming for participants. The researchers administrating the measures will be vigilant for signs of fatigue and will offer participants the opportunity to take a break. The researchers are all experienced in working with PLWD/MCI and caregivers in research.

Participants who lose capacity to consent during the trial

There is potential for participants to lose capacity during the trial. The PIS and Consent Form will outline the arrangements to be made in the event that an individual loses capacity. PLWD/MCI will be asked during the consent process if they wish to appoint a consultee. They will also be asked during the consent process if data already collected about them can be retained if they lose capacity. Should any participant lose capacity, the researchers will seek advice from a consultee about whether their relative or friend would have wished to continue to be included in the study. In the event that the consultee advises that the person should no longer be included, they will be withdrawn from the study. If the individual continues to be involved the researchers will be vigilant for indications of distress or signs that the person no longer wishes to participate, and will enable the individual to take a break and liaise with the consultee about their future and ongoing involvement.

Indications or evidence of participant harm

As with any research there is potential for individuals to inform the researchers that they are being abused, harmed or exploited, or for evidence of such harm to be perceived by the researchers. In such instances, the researchers will inform the Principal Investigator to ensure that appropriate actions and responses are made in line with the adult safeguarding procedures for Hull and the East Riding of Yorkshire. Where possible, participants will be informed that this information will be shared and cannot remain confidential.

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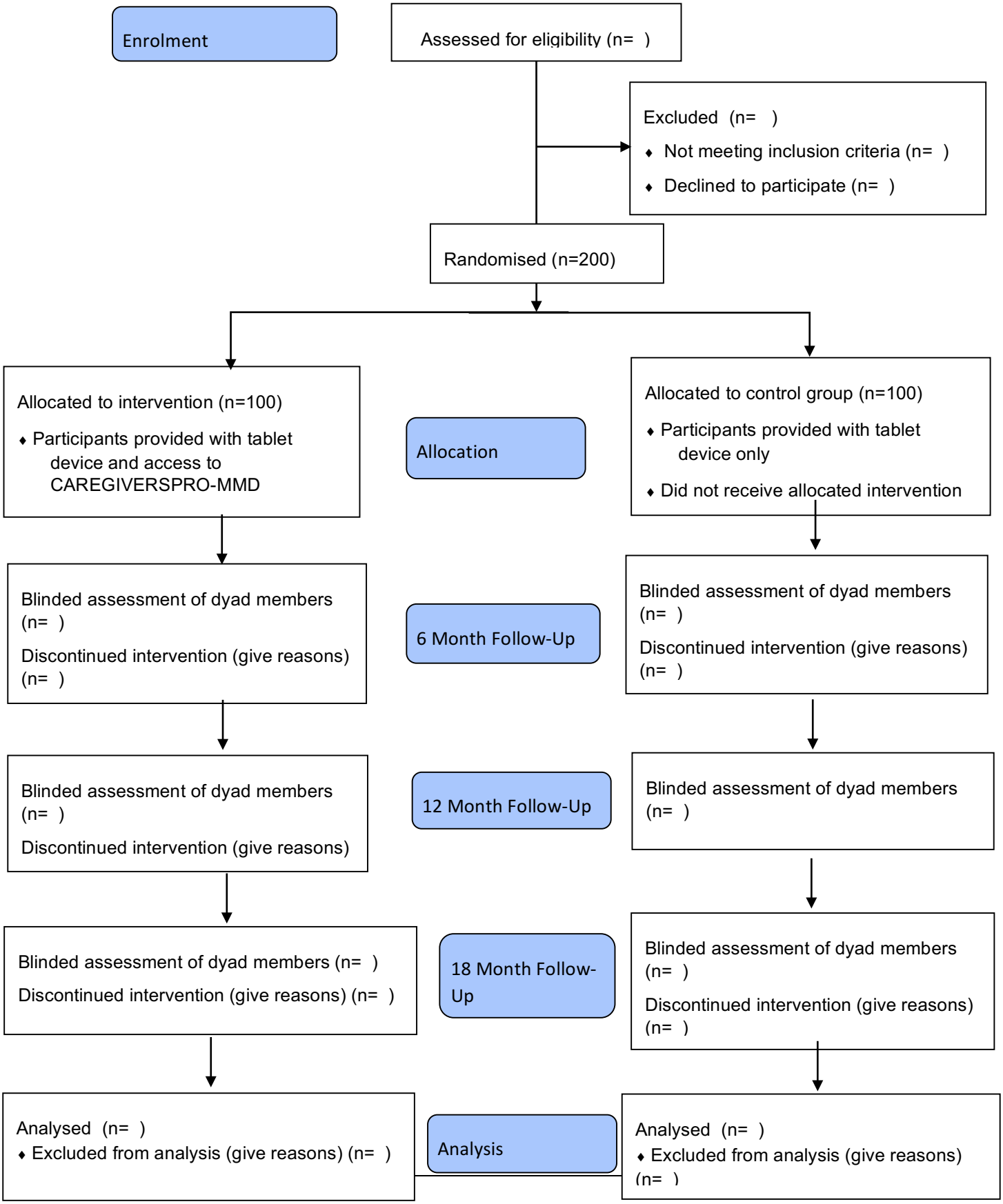
Appendix 1.

CAREGIVERSPRO-MMD CONSORT Flow Diagram 2016



9.3.3 Information sheet

Participant Information Sheet

CAREGIVERSPRO-MMD: A research trial examining the utility of a website for people with memory problems and their caregivers

We would like to invite you to take part in our research study. First, we would like you to understand why the research is being carried out, and what will happen if you choose to take part. You may want to talk to other people before you decide you want to take part. The researcher will also talk through the information with you, and answer any questions.

What is the purpose of the study?

There are more people living with memory problems and dementia because more people are living longer. Sometimes people living with memory problems and their family members and supporters can feel left out and isolated. Meeting others in the same situation can be a way to get advice and support. Getting information, ideas about what might help and finding out about local support can all be important as people adjust to living with memory problems.

With more and more people using technology now there has been growing interest in the use of computers, tablets or phones to provide information, support and social networks for people with dementia and their caregivers. This may also be a lower cost way for people to get support.

Our research is part of a larger study taking place across Europe. The countries taking part are: United Kingdom, Italy, Spain, France and Greece. The study will explore whether a website for people with memory problems and their carers can support people to retain their independence, improve quality of life, reduce caregiver stress and reduce costs to the healthcare system. The research is a pilot study, which means it is the first step in testing out the website before a full-scale research project or trial is arranged.

What is CAREGIVERSPRO-MMD?

CAREGIVERPRO-MMD is a website designed for people with memory problems and their caregivers. The website can do lots of different things such as:

- ***A social networking forum***, where people with memory problems and caregivers can share their experiences and support others. A sort of online cafe to chat to others and meet people
- ***Medication information,*** that provides you with information about the medications you are taking
- ***A medication reminder system***, that alerts you when to take your medication and reminds you of the name, colour and dosage of your medication
- ***Self-administered questionnaires***, that will allow you to monitor your own health and wellbeing
- ***Advice and support*** about where you can access more information and help on a range of things, e.g. dementia, support for carers, groups and activities in your local area, aids and adaptations in the home, financial help etc.

Who can take part in the study?

This research is for people with memory problems and carers to take part in together as a pair.

The following people are invited to take part in the research:

People with memory problems

You can take part in the research if:

- You have memory problems with a diagnosis of dementia (mild to moderate) or mild cognitive impairment (MCI)
- You live in your own home or sheltered accommodation
- You speak English
- You receive regular support from a family member, friend or neighbour, aged 18 years old and over
- Your family member, friend / neighbour agrees to take part in the research with you
- You speak English

Carers

You can take part in the research if:

- You are a carer (you provide regular help, care or support) for a family member, friend or neighbor experiencing memory problems
- You are aged 18 or over
- The person you support also agrees to take part in the research with you
- You speak English

Why have I been invited?

We have sent you this information if you gave us your contact details after being told about the study or because you contacted us after seeing the study advertised. This may have been at places like the Humber Memory Assessment Service, your GP Practice or voluntary organisations such as the Alzheimer's Society Memory Cafes or Butterflies Memory Loss Support Group. Or, we may have contacted you via the Join Dementia Research service, where you have registered your details in order to be contacted about research opportunities that come up in your area.

Do I have to take part?

You do not have to take part if you do not want to. If you agree to take part, but later change your mind, you can ask to be taken out of the study. You do not have to give a reason for this and your decision will not affect your healthcare or legal rights. We will not use your data in the study unless you say that we can. However, there may be circumstances where we cannot remove your data, for example when the research has finished and the results have been published. Also, as the website has a social networking function, it may be difficult to remove information you have posted within the website.

What will happen if I want to take part?

1. The researcher will have a brief talk with you to make sure that you meet all the criteria (conditions) to take part in the study. If you are eligible to take part, you will be asked to sign a consent form saying that you agree to take part and with your permission we will contact your GP to let them know you are taking part in our study. If you do not meet all of the criteria, you unfortunately will not be able to take part.

2. If both of you (the person experiencing memory problems and the person providing care) agree to take part in the study you will each be given a free tablet. This is a touchscreen computer. If you have your own tablet/touchscreen computer which you prefer to use, you can use this instead. You will be randomly allocated to either the 'Intervention' group, whereby you will get the opportunity to try the CAREGIVERSPRO-MMD website, or you will be allocated to the 'Control' group, where you will only have access to the Internet and not to the CAREGIVERSPRO-MMD website. There is a 50/50 chance of being allocated to either group, and you can still receive a free tablet regardless of which group you have been allocated to.

3. The Researchers will then arrange to see you both at your home to provide you with training on how to use the tablet and the CAREGIVERSPRO-MMD website (*if you are allocated to this group*).

4. You will both be asked to complete some questionnaires with the Researchers at the beginning of the project, and then again 6, 12 and 18 months later. The questionnaires are about your health and wellbeing and for those in the

intervention group to ask you how you found using the CAREGIVERSPRO-MMD website.

5. The research will last for 18 months and we will monitor how often you use the website or not during this time. This is to give us an idea about how useful the website is to people, however it is up to you how often you use it. If you do not use the website for 1 month we will give you a telephone call to see how things are going. If you do not use the website after 2 months, you will be withdrawn from the study and will be asked to return the tablet to the Hull Research Team.

6. Sometimes people with memory problems can lose their capacity to make decisions, and this can vary from day to day. In the event that this happens, you can appoint a 'Consultee' who can decide on your behalf whether they think you would wish to continue in the research should you be unable to decide for yourself. A Consultee is someone who knows you well, such as your relative, friend or carer. If you wish to, you can identify a consultee now and inform the research team.

What are the possible disadvantages or risks of taking part?

The research will last for 18 months. During the research you will be contacted by the researchers and asked to complete questionnaires. You may not wish to complete these questionnaires if they cause you distress.

Other people will use the CAREGIVERSPRO-MMD website, including the social networking forum. Although the website will be moderated for inappropriate content, we cannot guarantee that you will not be witness to this. In this case, we would ask that you report any inappropriate content on the website, either online using the 'Report' function, or by contacting us (see contact details on Page 5).

What are the possible benefits of taking part?

We cannot promise that you will directly benefit by taking part in the study. However, you may benefit from the range of services CAREGIVERSPRO-MMD can offer to people (should you be allocated to this group). These benefits may include socialising and interacting with other people, discovering groups and activities in the local area, monitoring your own health and wellbeing, reminding you to take your medication and attend appointments and support with physical and psychological health issues. In addition, you will be able to keep your tablet for free, regardless of which group you are allocated to.

What if there is a problem?

If you have a concern about the study, you can contact the Researchers using the contact details provided on page 5.

Will my taking part in the study be kept confidential?

- All of your personal information and data from the questionnaires will be kept strictly confidential, and only seen by the Research Team. Your information will

be stored under a code, not under your name or anything else that could identify you.

- The information you choose to share on the CAREGIVERSPRO-MMD website can be kept confidential, but it depends on who you choose to share the information with, for example a family member or friend, or all of your friends who are registered on the CAREGIVERSPRO-MMD website. That is up to you.
- Your data will be stored securely and destroyed after 10 years.

There is one situation in which your information may not be kept confidential: If you tell the researcher or enter on the CAREGIVERSPRO-MMD website information that suggests that you or someone else may be at risk of serious harm, the researcher or website moderators would need to contact the appropriate organisations to make sure that people are kept safe.

What will happen to the results of the study?

The results will be written in a report and submitted to our European project partners. Reports will also be written for publication in academic journals. The researchers may give a talk about the results, for example, to local groups or to other researchers at conferences. All data used in published reports and presentations will be anonymous; no information which could identify you will be included.

Who is organising and funding the research?

The research is funded by the European Commission, Horizon 2020. The University of Hull is collaborating with France (Hospital Centre University Rouen), Spain (Polytechnic University of Catalonia; University Foundation of Bages; MobilesDynamics), Italy (Social Cooperative of Marche) and Greece (Centre for Research and Technology Hellas; Q-Plan International Advisors) on this project.

Who has reviewed the research?

A Research Ethics Committee is an independent group of people who review research studies. They want to make sure that researchers protect the rights and well-being of people who take part in their study. This study has been reviewed by the Faculty of Health and Social Care Research Ethics Committee on XX/XX/XX and [name of NHS research ethics committee] on XX/XX/XX and received ethical approval (IRAS Project ID: 191941).

What happens now?

If you would like to take part in the research please contact the researchers (see contact details below). For each individual interested in participating, a brief check will be conducted by the researcher to ensure that you meet the inclusion and exclusion criteria. This will involve answering a few a quick questions. If you do meet all the criteria for the study the researcher will arrange to meet you at a time and place that suits to get you started in the research.

Contact details

For further information about the research, please contact:

Research & Development Team

Tel: 01482 301726
Email: HNF-TR.ResearchTeam@nhs.net
Address: Humber NHS Foundation Trust
Trust Headquarters
Willerby Hill
Beverley Road
Willerby
HU10 6ED

Rosie Dunn or Paraskevi Zafeiridi (*Research Assistants*)

Tel: 01482 464571
Email: caregiverspro-mmd@mail.com
Address: Room 106, Aire Building
Department of Psychological Health and Wellbeing
University of Hull
Cottingham Road
Hull
HU6 7RX

If you wish to make a complaint, please contact:

Dr Emma Wolverson (*Chief Investigator*)

Tel: 01482 464170
Email: E.Wolverson@hull.ac.uk
Address: Room 130, Aire Building
Department of Psychological Health and Wellbeing
University of Hull
Cottingham Road
Hull
HU6 7RX

9.3.4 Consent form

Consent Form

CAREGIVERSPRO-MMD: A research trial examining the utility of a website for people with memory problems and their caregivers

Research Assistants: Miss Rosie Dunn and Dr Paraskevi Zafeiridi
Chief Investigators: Dr Kevin Paulson and Dr Emma Wolverson

Please initial all boxes

1. I agree that I have read and understood the information sheet [dated **xx.xx.xx]** (version **[x]**) for the above study. I have been able to consider this information and ask questions. I am satisfied that any questions I asked have been answered. ☐

2. I understand that I will be given a tablet (a handheld touchscreen computer) for free if I do not have a tablet of my own. I understand that I can keep the tablet I am given after I have completed the research. However, I agree not to sell or give away the tablet while I am taking part in the research. I agree that I will return the tablet to the Hull Research Team if I wish to withdraw from the study. ☐

3. I understand that I will be randomly allocated to one of two groups. I understand that if I am in the 'Intervention' group, I will have the opportunity to try the CaregiversPro-MMD website. I know that if I am in the 'Control' group, I will only have access to the Internet and not to the CaregiversPro-MMD website. I understand that there is a 50/50 chance of being allocated to either group, and I understand that I can still get a free tablet regardless of my allocated group. ☐

4. I understand that CaregiversPro-MMD is a social networking website and that I can choose which information will remain hidden from other users. However, I understand that the website will be monitored and so my personal information may be accessed by the researchers. However, this will remain strictly confidential within the Research Team. ☐

5. I agree that the Polytechnic University of Catalonia (UPC) who are the overall leaders of the research can collect data about my use of Caregiverspro-MMD, and that they can share data about when and how often I use Caregiverspro-MMD with selected researchers, using a code to protect my anonymity. ☐

6. I understand that if I don't use the CaregiversPro-MMD website for 1 month I will be contacted by telephone by the Hull research team. I understand that if I have not used the website for 2 months or more, I will be withdrawn from the study and I will be asked to return the tablet computer. ☐

7. I understand that I will be withdrawn from the study if I am found to be posting abusive or malicious content on the CaregiversPro-MMD website that others might find offensive or upsetting and I will be asked to return the tablet computer.

8. I agree to a visit by a member of the Hull Research Team to be shown how to use the tablet computer and the CaregiversPro-MMD website.

9. I agree to a visit by a member of the Hull Research Team to complete questionnaires at the beginning of the study and then again at 6, 12 and 18 months later. This will include questions about my health and wellbeing and how I have found using the website (should I be allocated to the Intervention group). I understand that I do not have to complete these if they cause me distress.

10. I understand that I am volunteering to take part in this study. I understand that I have the right to withdraw from the study at any point and that I do not need to give a reason for this. I understand that withdrawing from the study will not affect my healthcare or legal rights.

11. I agree that my GP can be contacted and informed that I am taking part in the study.

12. I agree that my anonymous data may be used in presentations or published reports about the study and this will remain anonymous.

13. I agree to take part in this study.

14. I would like to be contacted after the study has finished to receive the results of the research (*Optional*).

15. I would like to appoint a 'Consultee' should I no longer be able to decide whether I wish to continue to take part in the Caregiverspro-MMD research trial (*Optional – only applicable to people with memory problems*)

9.3.5 Consultee declaration form

Consultee Declaration Form

CAREGIVERSPRO-MMD: A research trial examining the utility of a website for people with memory problems and their caregivers

Research Assistants: Miss Rosie Dunn and Dr Paraskevi Zafeiridi
Chief Investigators: Dr Kevin Paulson and Dr Emma Wolverson

Please initial all boxes

1. I (name of consultee) have been consulted about (name of participant)'s participation in the Caregiverspro-MMD research study. I have read and understood the Consultee Information Sheet dated 9/11/2016 (version 2) and I agree to act as (name of participants)'s Consultee. I have been able to consider this information and ask questions. I am satisfied that any questions I asked have been answered. ☐

2. In my opinion, he/she would have no objection in continuing to take part in this study. ☐

3. I understand that I can request that he/she is withdrawn from the study at any time, without giving any reason. I understand that this will not affect their future or current use of services or legal rights. ☐

4. I understand that (name of participant) has been given a tablet (a handheld touchscreen computer) for free and that they can keep this after they have completed the research (unless they had their own tablet which they preferred to use). However, I am aware that (name of participant) should not sell or give away the tablet whilst they are taking part in the project. I am aware that the tablet will be returned to the Hull Research Team should (name of participant) wish to withdraw from the study or I feel they should no longer take part in the study. ☐

5. I understand that Caregiverspro-MMD is a social networking website and (name of participant) can choose which information will remain confidential to other users. However, I understand that the website will be monitored and so (name of participant)'s personal information may be accessed by the researchers. However, this will remain strictly confidential within the Research Team. ☐

6. I understand that Polytechnic University of Catalonia (UPC) who are the overall leaders of the research can continue to collect data about his/her use of Caregiverspro-MMD, and that they can share data about when and how often they use Caregiverspro- MMD with selected researchers, using a code to protect their anonymity. ☐

7. I am aware that if (name of participant) does not use the Caregiverspro-MMD website for 1 month they will be contacted by telephone. I understand that if (name of participant] has not used the website for 2 months or more, he/she will be withdrawn from the study and I will be asked to return the tablet.

8. I understand that (name of participant) will be withdrawn from the study if they are found to be posting abusive or malicious content on the Caregiverspro-MMD website that others might find offensive or upsetting and I will be asked to return the tablet.

9. I agree that he/she would have no objection to continuing to complete questionnaires with the researchers in order to answer questions about their health and wellbeing and how they have found using the website or the touchscreen tablet. I understand that they do not have to complete these if they cause (name of participant) distress.

10. I understand that (name of participant)'s data may be used in presentations or published reports about the study and this will remain anonymous.

_____	_____	_____
Name of Consultee	Date	Signature
_____	_____	_____
Name of Person taking consent	Date	Signature

1 copy for the consultee, 1 for the research file

9.3.6 Consultee Information Sheet

Consultee Information Sheet

CAREGIVERSPRO-MMD: A research trial examining the utility of a website for people with memory problems and their caregivers

Introduction

This information sheet is about the CAREGIVERSPRO-MMD research project, and the arrangements which are made when someone with memory problems or dementia loses their capacity to consent to continue taking part in research for themselves.

We would like to ask you if you would act as consultee for your friend or relative. This information sheet explains about what happens when someone loses their capacity to decide whether to continue to take part in a research project, and explains the role of a consultee. It also explains about the CAREGIVERSPRO-MMD research.

Capacity to consent to taking part in research

Usually adults are asked to give their informed consent before they can take part in a research project. This means that they understand what taking part in the research would involve, and can decide whether this is right for them. In the CAREGIVERSPRO-MMD research study, anyone that wishes to take part in the study must initially have the capacity to consent to taking part in the research. However, sometimes people living with dementia lose their capacity to make decisions over time as their dementia progresses. As the CAREGIVERSPRO-MMD project lasts for 18 months, there is a possibility that we will have consented people with dementia into the research who may lose their capacity during the trial. This does not mean that they cannot take part in research, but that special processes must be followed. These processes are intended to protect or safeguard the person living with dementia (who lacks capacity to make this decision), and the person advising about their wishes (their consultee).

When a person does not appear able to make their own decision about whether to continue to take part in research, a consultee is appointed to provide advice. Having the capacity to make decisions is a complex area and we know that capacity in older adults with memory problems can fluctuate from time to time. A person may be able to make decisions about everyday things with ease; however they my struggle to understand and remember all the information needed to make a decision about participating in research.

The consultee's role

There are two kinds of consultee; personal or nominated.

A personal consultee is someone who knows the person in a personal capacity (and who is not paid to support them), and is able to give advice about the person's wishes or feelings. This might be a family member, friend or a court appointee.

A nominated consultee is someone who is not connected to the research, who is appointed by the research team to give advice about the person's wishes and feelings in relation to the research. This may be a professional, but not someone who is connected to the research.

The research team will always take reasonable steps to identify a personal consultee in the first instance. The role of the consultee is to advise the researchers about the individual's likely wishes and feelings about continuing to take part in the research. Consultees are not asked to give consent on behalf of the person, but to give advice about their wishes. The consultee's opinion and advice will be respected in making the decision about whether the person living with dementia should continue to take part in the research or not.

Acting as a consultee for your relative or friend

The researchers feel that your relative or friend does not have the capacity to decide for themselves whether or not to continue to participate in the CAREGIVERSPRO-MMD research.

To help with this decision, we would like to ask for your opinion about whether or not they would wish to be involved. We would like to ask you to consider what you know of their wishes and feelings, and to consider their interests.

If you decide that your relative/friend would be happy to continue to take part in the research we will ask you to read and sign a Consultee Declaration Form. You will be given a copy of the form to keep. We will keep you informed during the study, so that you can let us know if you have any concerns or you think that your relative/friend should be withdrawn from the research.

If you decide that your friend/relative would not wish to continue to take part in the research then we can withdraw them from the study and this will not affect the standard of care they receive in any way. It is up to you whether or not you act as consultee for your relative or friend.

Information about the CAREGIVERSPRO-MMD research

The information below is about the CAREGIVERSPRO-MMD research. It is similar to the information that is being given to people who are able to consent for themselves about taking part in the research.

What is CAREGIVERSPRO-MMD?

CAREGIVERPRO-MMD is a website designed for people with memory problems and their caregivers or supporters. The website can do lots of different things, such as:

- ***A social networking forum***, where people with memory problems and caregivers can share their experiences and support others. Like an online coffee house where people can meet and chat.
- ***A medication reminder system***, that alerts people of when to take their medication and helps remind them of the name, colour and dosage of their medication
- ***Advice and support*** about where people can find out more information on a range of things, e.g. dementia symptoms, support for carers, groups and activities in the local area, aids and adaptations in the home, financial help.
- ***Self-administered questionnaires***, that will allow people to monitor their own health and wellbeing

What is the purpose of the study?

There are more people living with memory problems and dementia because more people are living longer. Sometimes people living with memory problems and their family members and supporters can feel left out and isolated. Meeting others in the same situation can be a way to get advice and support. Getting information, ideas about what might help and finding out about local support can all be important as people adjust to living with memory problems.

With more and more people using technology now there has been growing interest in the use of computers, tablets or phones to provide information, support and social networks for people with dementia and their caregivers. This may also be a lower cost way for people to get support.

Our research is part of a larger study taking place across Europe. The countries taking part are: United Kingdom, Italy, Spain, France and Greece. The study will explore whether a website for people with memory problems and their carers can support people to retain their independence, improve quality of life, reduce caregiver stress and reduce costs to the healthcare system. The research is a pilot study, which means it is the first step in testing out the website before a full-scale research project or trial is arranged.

What does taking part involve?

CAREGIVERSPRO-MMD is a Randomised Trial, which means that when people have agreed to take part in the study, 50% of people will get to use the website (Intervention group) and 50% will not (Control group). Everyone who takes part in the research receives a free touchscreen tablet computer that they get to keep once they have finished the research (unless they have their own tablet that they prefer to use). Your relative or friend and their caregiver will still receive a free touchscreen tablet regardless of which group they

have been allocated to. However, if you wish to withdraw from the research we would kindly ask that you return the tablet to the Hull Research Team.

The research lasts for 18 months. During this time, the Research Team would like to visit your relative or friend in the beginning, and at 6, 12 and 18 months, in order to collect data about their health and wellbeing and for those who have been using the website in the intervention group to find out how they have found it.

We also monitor your relative or friend's usage of the CAREGIVERSPRO-MMD website (should they be allocated to this group). If the Research Team find that your relative or friend have not used the website for 1 month, we will contact them by telephone to see how they are getting on. If your relative or friend has not used the website for 2 months, they may be withdrawn from the study, and again we would kindly ask that you return the tablet to the Hull Research Team.

Your relative or friend may have already completed some questionnaires with the Research Team, depending on how far through the research they are. We would ask that the Research Team can continue to visit at the 6 month intervals until the research has been completed.

Is taking part in the research compulsory?

Taking part in the research is entirely optional. Your relative or friend will only continue to be included in the research if you advise, in your role as consultee, that they would wish to take part. If you advise that they would not wish to take part in the research, this will not affect their current or future use of services in any way.

What will happen if I advise that my relative or friend should continue to take part in the research?

Depending on whether your relative or friend has been allocated to the 'Intervention' group or the 'Control' group, they will continue to use either the CAREGIVERSPRO-MMD website on their touchscreen tablet (Intervention group), or just use the touchscreen tablet that has access to the Internet (Control group). We would like to continue to see your relative or friend in the 6-monthly visits to collect data on their health and wellbeing and gain feedback on how they have found using the website or the touchscreen tablet.

What are the possible disadvantages or risks of taking part?

The research will last for 18 months. Your relative or friend may not wish to complete questionnaires if they cause them distress. Although the CAREGIVERSPRO-MMD website will be moderated for inappropriate content, we cannot guarantee that they will not be witness to this. In this case, we would ask that you report any inappropriate content on the website, either online using the 'Report' function, or by contacting us (see contact details on Page 6). You may be concerned about the security of your relative or friend's data on CAREGIVERSPRO-MMD. The information that is entered onto CAREGIVERSPRO-MMD is stored on servers controlled by Polytechnic University of Catalonia in Spain (UPC) and held within the

European Union. UPC uses trusted quality server-providers to ensure that data is held securely, robustly and safely. UPC uses encryption technology to protect the data when it travels between the website and the servers, this protects data.

What are the possible benefits of taking part?

We cannot promise that your relative or friend will directly benefit by taking part in the study. However, they may benefit from the range of services CAREGIVERSPRO-MMD can offer to people (should they be allocated to this group). These benefits may include socialising and interacting with other people; discovering groups and activities in the local area; monitoring their own health and wellbeing; remembering to take medication and keeping appointments; support with physical and psychological health issues. In addition, your relative or friend and their caregiver get to keep a tablet computer for free, regardless of which group they are allocated to (unless they have their own tablet they prefer to use).

Will information about people taking part in the study be kept confidential?

Personal data will need to be kept in order to contact you, as the consultee for your relative or friend. All personal data will be handled according to the Data Protection Act. Data about you and your relative/friend will be anonymised when it is collected, wherever possible. A code, rather than your relative or friend's name, will be written on study documents, such as questionnaires. Only certain members of the Hull Research Team will be able to access the list which links this code to their name. Other members of the research team will receive certain information about your relative or friend (such as their age and gender), but this information will not include your or their name.

Information about you and your relative or friend will be stored very carefully, in locked filing cabinets, in locked offices, and on password protected computers, which are only accessible to those working on the research. After the research is finished, data will be stored securely and destroyed after 10 years.

The information your relative or friend chooses to share on the CAREGIVERSPRO-MMD website can be kept confidential, but it depends on who they choose to share the information with, for example a family member or friend, or all of their friends who are registered on the CAREGIVERSPRO-MMD website. Therefore it is up to them how confidential this information is, and how widely it is shared.

There is one situation in which people's information may not be kept confidential:

If your relative or friend tells the researcher, or enters on the CAREGIVERSPRO-MMD website information that suggests that they or someone else may be at risk of serious harm, the researcher or website moderators would need to contact the appropriate organisations to make sure that people are kept safe.

What will happen if I decide my relative or friend should be withdrawn from the research?

You are free to decide at any time that your relative or friend should no longer be included in this research, and you do not have to give any reason for this decision. If you decide that your friend/relative would not wish to continue to take part in the research, this will not affect the standard of care they receive or their legal rights.

If you decide they should be withdrawn from the research, we will still include in the study any information which has already been collected, unless you request that you do not wish us to do this. If you decide your relative should be withdrawn from this research, we would kindly ask that you return the touchscreen tablet to the Hull Research Team.

What if there is a problem?

If you have any questions about the research, please contact the researchers using the contact details on page 6. Should you have any concerns or need to make a complaint, please contact the Chief Investigator, Emma Wolverson (contact details on page 6).

What will happen to the results of the study?

The results will be written in a report and submitted to our European project partners who helped design the study and who are completing the same study in their countries. Reports will also be written for publication in academic journals. The researchers may give talks about the results, for example, to local groups or shared with other researchers at scientific conferences. All data used in published reports and presentations will be anonymous; no information which could identify your relative or friend will be included.

Who is organising and funding the research?

The research is funded by the European Commission, Horizon 2020. The University of Hull is collaborating with France (Hospital Centre University Rouen), Spain (Polytechnic University of Catalonia; University Foundation of Bages; MobilesDynamics), Italy (Social Cooperative of Marche) and Greece (Centre for Research and Technology Hellas; Q-Plan International Advisors) on this project. You can find out more about Horizon research projects here https://ec.europa.eu/programmes/horizon2020/

Who has reviewed the research?

A Research Ethics Committee is an independent group of people who review research studies. They want to make sure that researchers protect the rights and well-being of people who take part in their study. This study has been reviewed by the Faculty of Health and Social Care Research Ethics Committee on XX/XX/XX and [name of NHS research ethics committee] on XX/XX/XX and received ethical approval (IRAS Project ID: 191941).

Contact details

For further information about the research, please contact:

Research & Development Team

Tel: 01482 301726
Email: HNF-TR.ResearchTeam@nhs.net
Address: Humber NHS Foundation Trust
Trust Headquarters
Willerby Hill
Beverley Road
Willerby
HU10 6ED

Rosie Dunn or Paraskevi Zafeiridi (*Research Assistants*)

Tel: 01482 464571
Email: caregiverspro-mmd@mail.com
Address: Room 106, Aire Building
Department of Psychological Health and Wellbeing
University of Hull
Cottingham Road
Hull
HU6 7RX

If you wish to make a complaint, please contact:

Dr Emma Wolverson (*Chief Investigator*)

Tel: 01482 464170
Email: E.Wolverson@hull.ac.uk
Address: Room 130, Aire Building
Department of Psychological Health and Wellbeing
University of Hull
Cottingham Road
Hull
HU6 7RX

9.3.7 Letter to General Practitioner

Department of Psychological Health and Wellbeing
Aire Building
Room 106, First Floor
University of Hull
Cottingham Road
Hull

HU6 7RX

Tel: 01482 464571

Insert GP name & address

CAREGIVERSPRO-MMD: A research trial examining the utility of a website for people with memory problems and their caregivers

RE: PATIENT NAME (d.o.b: DD/MM/YY)
NHS No: Address

Dear Dr [GP surname]

Your patient has agreed to participate in the above named research trial.

CAREGIVERSPRO-MMD is a website that has been designed for people with memory problems and their caregivers to use as a means of social support, education, medical and healthcare advice. It also has an inbuilt medication reminder system.

The website will be made available to people on a touch screen tablet, which they can keep for free once they have completed the research. The research is a Randomised Controlled Trial, which means 50% of people will be given access to CAREGIVERSPRO-MMD for free (Intervention group), and 50% will not (Control Group). People who are assigned to the Control Group will still receive a free tablet with web access that they can keep. Researchers will collect baseline data and will contact people at 6, 12 and 18 months to collect feedback and data.

Your patient can withdraw from the research study at any time and they do not have to give a reason for this. If your patient wishes to withdraw from the study, this will not affect their healthcare or legal rights, however we would ask that they return the tablet to the Hull Research Team.

Your patient has been allocated to the XXXX group.

Should you have any queries in relation to this study, please contact Miss Rosie Dunn or Dr Paraskevi Zafeiridi, Postdoctoral Research Assistants on **01482 464571**.

Yours Sincerely,

Dr Emma Wolverson
Chief Investigator of 'CAREGIVERSPRO-MMD' study

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 690211

9.3.8 Sociodemographic questionnaire for PLWD

Sociodemographic Questionnaire – People with memory problems

Name	
Telephone Number	Home: Mobile:
Address	
Email	
Preferred contact method(s) (*Telephone, post or email?)*	
Date of birth	
Gender	
Nationality	
Diagnosis (MCI / Vascular / Alzheimer's / Mixed / not known etc)	
Work status	
Level of education	
GP Contact details	

Do you own a tablet?	

Participant ID No:

9.3.9 Sociodemographic questionnaire for caregivers

Name	
Telephone Number	Home: Mobile:
Address	
Email	
Preferred contact method(s) (*Telephone, post or email?)*	
Date of birth	
Gender	
Nationality	
Relationship to person with memory problems	
Number of hours caring per week?	
Number of people with memory problems you care for?	
Are there any other caregivers involved in providing support?	
Work status	

Level of education	
GP Contact details	
Do you own a tablet?	

Participant ID No:

Do you have Internet connection at home?	
Yes	
No	
Don't know	
If yes, how often do you use Internet?	
Never	
Once a week	
Once a month	
Everyday	
What do you use Internet for? (multiple response)	
Communication (email, video chat, etc.)	
Online Shopping/Selling	
Online Entertainment (video/movies, games, music, etc.)	
News	
Work	
Social Networks (e.g. Facebook, Twitter etc)	
Sharing information (blogging, photo sharing, etc.)	

Education/Training	
Looking for medical advice	
I don't use the Internet	
Other (please indicate):	

9.3.10 Help and support contact sheet

CAREGIVERSPRO-MMD: A research trial examining the utility of a website for people with memory problems and their caregivers

Help and support contact numbers

Thank you for taking part in this research. Please find below a list of individuals and organisations you can contact if you have any questions or concerns.

CAREGIVERSPRO-MMD research trial

- For further information, contact the Research and Development Unit on 01482 301726 or email HNF-TR.ResearchTeam@nhs.net
- You can also contact Rosie Dunn or Evi Zafeiridi for further information on 01482 464571 or email caregiverspro-mmd@mail.com
- If you have any concerns or wish to make a complaint, contact Dr Emma Wolverson on 01482 464170 or email E.Wolverson@hull.ac.uk
- You can find further online information about the research here: http://caregiversprommd-project.eu/

Dementia

- The Alzheimer's Society National Dementia Helpline 0300 222 1122 can provide information and support. See their website for more information: https://www.alzheimers.org.uk/
- The Dementia UK helpline 0800 888 6678 can also provide advice and support about dementia from an Admiral Nurse. See their website for more information: https://www.dementiauk.org/

Health and Wellbeing

- If you are worried about your health or wellbeing, we would advise that you talk to your GP, healthcare or social worker in the first instance.
- You can also call 111 which is an NHS non-emergency number and is available 24 hours a day, 365 days a year.

Carer support

- If you require support and advice, you can contact The Carers UK Adviceline, which is open Monday to Friday, 10am-4pm. Call 0808 808 7777 or email advice@carersuk.org. See their website for more information: http://www.carersuk.org/
- In Hull, there is a Carer's Information and Support Service (CISS). You can contact them on 01482 222220. They are available Monday to Friday 9am-5pm. A drop-in service is also available from Monday to Friday 9am-5pm, at 30 King Edward Street, Hull, HU1 3SS. See their website for more information: http://ciss.chcpcic.org.uk/

- In East Riding, there is a Carer Support Service. You can contact them on 0800 917 6844. They are available from Monday to Thursday 9.30am-4.30pm and Friday from 9.30am-4pm. You can also visit the Carers Centre (no appointment necessary): 18 Wednesday Market, Beverley. See their website for more information: https://eastriding.connecttosupport.org/s4s/WhereILive/Council?pageId=362&lockLA=True

Mental health

- If you are worried or in distress, you can contact the Samaritans on 116 123. They are available 24 hours a day, 365 days a year. See their website for more information: http://www.samaritans.org/
- If you require a mental health service, you can contact the Let's Talk Service (for those with Hull GP) 01482 247111 or Single Point of Access (for those with East Riding GP) 01482 301701 (Select Option 1). See website for further information: http://www.letstalkhull.co.uk/

9.3.11 List of interventions/ressources for the platform

Dementia

UK-wide

https://www.alzheimers.org.uk/

http://www.nhs.uk/conditions/dementia-guide/pages/about-dementia.aspx

https://www.dementiauk.org/

http://www.dementia.com/

http://www.ageuk.org.uk/health-wellbeing/conditions-illnesses/dementia/what-is-dementia/

https://www.dementiafriends.org.uk/

https://www.joindementiaresearch.nihr.ac.uk/

Hull and East Riding

http://www.butterflies.org.uk/

https://www.alzheimers.org.uk/local-information/dementia-connect#!/results/list?p=0&s=40&q=%7B%22place%22:%22Hull%22,%22cat%22:125,%22dist%22:0%7D

http://www.dementiaeastriding.org.uk/cafes-groups/

http://www.humber.nhs.uk/services/dementia-services-and-hull-memory-clinic.htm

http://www.dementiaacademy.co.uk/

http://www.dementiaaction.org.uk/local_alliances/10402_east_riding_dementia_action_alliance

Caregiver support

Support for carers (East Riding):

http://www2.eastriding.gov.uk/living/care-and-support-for-adults/carers/support-for-carers/

Support for carers (Hull):
http://www.hullcc.gov.uk/portal/page?_pageid=221,72841&_dad=portal&_schema=PORTAL

http://ciss.chcpcic.org.uk/

Support for carers (UK):

http://www.carersuk.org/

Depression / anxiety / other mental health problems

http://www.samaritans.org/

http://www.letstalkhull.co.uk/

http://www.humber.nhs.uk/

http://www.getselfhelp.co.uk/

Pain management

http://www.chcpcic.org.uk/pages/chronic-pain-management-service

http://www.humber.nhs.uk/services/pain

Risk of Falls

http://www.humber.nhs.uk/services/falls-prevention-team-hull.htm

http://www.humber.nhs.uk/services/falls-clinic-East-Riding.htm

Stroke support

http://www.humber.nhs.uk/services/hull-integrated-community-stroke-service.htm

https://www.stroke.org.uk/

Adaptations to the home / Telecare

Support to stay at home (Hull):
http://www.hullcc.gov.uk/portal/page?_pageid=221,146015&_dad=portal&_schema=PORTAL

Support to stay at home (East Riding):

http://www2.eastriding.gov.uk/living/care-and-support-for-adults/care-support-and-safety-at-home/staying-safe-at-home/

http://asksara.dlf.org.uk/

http://www.justchecking.co.uk/

Financial

https://www.gov.uk/carers-allowance

Carers allowance (Hull):
http://www.hullcc.gov.uk/portal/page?_pageid=221,246799&_dad=portal&_schema=PORTAL

Council tax:

https://www.alzheimers.org.uk/site/scripts/documents_info.php?documentID=137

Power of Attorney

https://www.gov.uk/power-of-attorney/overview

Blue badge

http://www.hullcc.gov.uk/portal/page?_pageid=221,1431162&_dad=portal&_schema=PORTAL

http://www2.eastriding.gov.uk/environment/roads-streets-traffic-and-parking/parking/blue-badges/

Driving advice / DVLA

https://www.alzheimers.org.uk/site/scripts/documents_info.php?documentID=144

https://www.gov.uk/dementia-and-driving

Healthy living

Hull and East Riding:

http://www.nhs-health-trainers.co.uk/

http://www.ageuk.org.uk/hull/healthy-living-centre1/

http://www.hullccg.nhs.uk/pages/healthy-eating

Reading well books on prescription to help people with dementia

https://readingagency.org.uk/news/media/reading-well-books-on-prescription-to-help-people-with-dementia.html

Fun activities for older people

Hull:

http://www.activehull.co.uk/group/11

http://www.ageuk.org.uk/hull/

East Riding:

http://www2.eastriding.gov.uk/living/care-and-support-for-adults/community-care-services-and-activities/day-care-and-activities/

9.3.12 Promotional material

What happens if I say yes to taking part, but then change my mind?

You are free to withdraw at any time without giving a reason. This will not affect your healthcare or legal rights. If you wish to withdraw we would ask that you return the tablet to the Hull Research Team.

If you would like to find out more about the CAREGIVERSPRO—MMD research study, please contact:

Research and Development Team

Telephone: 01482 301726

Email: HNF-TR.ResearchTeam@nhs.net

Address:
Research & Development Office, Humber NHS Foundation Trust, Trust Headquarters, Willerby Hill, Beverley Road, Willerby, HU10 6ED

Please note: if the Research and Development Team are not available when you call, please leave a message and they will return your call as soon as possible.

CAREGIVERSPRO-MMD Invitation Leaflet Version 1 08.12.16

CAREGIVERSPRO MMD

Humber NHS
NHS Foundation Trust

CAREGIVERSPRO MMD

Do you have memory problems or provide support to someone who does?

We invite you to take part in a research trial looking at a new website to support people with memory problems and their families and friends

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 690211"

CAREGIVERSPRO-MMD

CAREGIVERPRO-MMD is a website designed for people with memory problems and their caregivers. The website offers a variety of services that aims to improve people's quality of life, reduce caregiver burden and reduce costs to the healthcare system.

Some of the services offered by the CAREGIVERSPRO-MMD are:

- **A social networking forum**, where people with memory problems and caregivers can share their experiences and support others
- **A medication reminder system**, that alerts you when to take your medication and reminds you of the name, colour and dosage of your medication
- **Advice and support** about where you can access more information and help on a range of things, e.g. dementia, support for carers, groups and activities in your local area etc
- **Self-administered questionnaires** that will allow you to monitor your own health and wellbeing

Who can take part in the study?

You can take part in the research if:

- You have memory problems (mild to moderate dementia or mild cognitive impairment), OR
- You are a family member, friend or neighbour, aged 18 years old and over that supports someone with memory problems, **AND**

⇒ You both agree to take part in the research together

⇒ You both live in your own home or sheltered accommodation

⇒ You both speak English

⇒ You both do not have a significant physical health problem that will prevent you from seeing or using the website or from answering questions from the Research Team

What would taking part involve?

You will be given a free tablet (touch-screen computer), and you will be randomly allocated to either the 'Intervention' group, where you can try the CAREGIVERSPRO-MMD website, or to the 'Control' group, where you only have access to the Internet. In both cases you receive a tablet for free that you may keep once you have completed the research. The research will last for 18 months, where we will monitor your usage of the website. You will be shown how to use the tablet and the website and we will ask you to complete questionnaires at 6, 12 and 18 months.

What do I do if I am interested in participating or want to find out more information?

If you are interested, you can speak to the person who gave you this leaflet. With your permission, they will pass your name and telephone number to the Research team. You will then be telephoned at home to discuss the project in more detail. You can then consider if you are interested in taking part. If you are interested, you will the be asked some questions to confirm that being involved in the study is right for you.

What happens if I say yes to taking part, but then change my mind?

You are free to withdraw at any time without giving a reason. This will not affect your healthcare or legal rights. If you wish to withdraw we would ask that you return the tablet to the Hull Research Team.

If you would like to find out more about the CAREGIVERSPRO—MMD research study, please contact:

Rosie Dunn or Evi Zafeiridi
Research Assistants

Telephone: 01482 464571

Email: R.J.Dunn@hull.ac.uk
P.Zafeiridi@hull.ac.uk

Address:
Department of Psychological Health and Wellbeing, Aire Building, Room 106, 1st Floor, University of Hull, Cottingham Road, Hull, HU6 7RX

Please note: if Rosie Dunn or Evi Zafeiridi are not available when you call, please leave a message and they will return your call as soon as possible.

CAREGIVERSPRO-MMD Invitation Leaflet Version 2.0 09.11.16

CAREGIVERSPRO MMD

Humber NHS
NHS Foundation Trust

CAREGIVERSPRO MMD

Do you have memory problems or provide support to someone who does?

We invite you to take part in a research trial looking at a new website to support people with memory problems and their families and friends

"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 690211"

CAREGIVERSPRO-MMD

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- **A medication reminder system**, that alerts you when to take your medication and reminds you of the name, colour and dosage of your medication
- **Advice and support** about where you can access more information and help on a range of things, e.g. dementia, support for carers, groups and activities in your local area etc
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What do I do if I am interested in participating or want to find out more information?

If you are interested, you can speak to the person who gave you this leaflet. With your permission, they will pass your name and telephone number to Rosie Dunn or Evi Zafeiridi, Research Assistants. You will then be telephoned at home to discuss the project in more detail. You can then consider if you are interested in taking part. If you are interested, you will the be asked some questions to confirm that being involved in the study is right for you.

9.3.13 Peer review

UNIVERSITY OF Hull

Faculty of Health and Social Care

Research Peer Review Form

Please address the major questions below and use the supplementary questions as appropriate

Applicant name: Dr Emma Wolverson and Dr Kevin Paulson

Reviewer name: Dr Annette Schlösser

Date of review: 17 October 2016

Study title:

Link with FHSC Research Development Group Theme:

Health Technology, Innovation and Intervention

Well-being in long term conditions

Title and study aims	
Is it the title specific and does it reflect the content of the application?	Yes the title is specific and reflective of the content of the application. I suggest a minor alteration to the title such as 'examining the utility of a website' to heighten its specificity.
Is the main hypothesis/question or the objective or purpose of the research clearly stated?	Objectives are clearly stated with valid rationale for the work.

Scientific Background Is there evidence of critical appraisal of the literature? Is the gap in knowledge that this study intends to address clearly identified?	Yes Yes
Study design and methodology Is the study design (e.g. randomized controlled trial, cross-sectional, case-control, ethnography, grounded theory study etc.) clearly stated? Are the methods appropriate for the study question and presented in sufficient detail to allow the study to be repeated? Is the sample size, population and recruitment process appropriate and clearly stated? Have patients and carers been involved in the design of the study? Are the analytical methods clear and appropriate?	Yes, the study design is clearly stated and explained. Yes Yes Yes, carers and users were involved in the design of the platform and ongoing feedback will be sought throughout its implementation. This study is extremely user focused. Yes.
Research Governance and Ethics Have research governance and ethics been considered in the application?	Yes – ethical approval will be sought via the FHSC ethics committee, as well as HRA.
Strength and balance of research team expertise Do the research team have sufficient expertise and experience to undertake this study? Is this made explicit in the application	Very experienced and appropriate for the study. Perhaps more could be stated in the application about the different team members' skills set.

Timeframe Is the timeframe clearly described and realistic?	Yes
Suitability of facilities and resources Is the contribution of each applicant clear? Are the required resources available (physical and support staff)?	Yes Yes
Outcomes and impact Are the outcomes clearly stated? Do they link clearly with stated method? Is the impact of this study clear?	Yes; clearly stated outcomes which are linked directly to the method. Yes; the impact of this study will be highly significant, not just in UK but internationally.
Data management Has a data management plan been initiated?	Data plan is in place for the pilot stage to commence January 2017.
Funder Is the application appropriate for the chosen funder? Are all costs clearly specified and justified?	Yes
Additional comments Is the proposal written in clear, concise language? Is the lay summary comprehensible?	Yes Yes

9.4 Documentation for Spain

In Spain, the documentation for ethics committee is composed of the protocol and the documentation below:

- request for classification of the study,
- classification of the study
- ethics approval

The protocol and list of added scales which were send, are represented by the deliverable D4.1. A Spanish version of D4.1 was send to ethical committee.

9.4.1 Request for classification of the study

MINISTERIO DE SANIDAD, POLÍTICA SOCIAL E IGUALDAD

agencia española de medicamentos y productos sanitarios

SUBDIRECCIÓN GENERAL DE MEDICAMENTOS DE USO HUMANO

Anexo I

SOLICITUD DE CLASIFICACIÓN DE ESTUDIOS POSAUTORIZACIÓN DE TIPO OBSERVACIONAL

1.- FECHA DE SOLICITUD 11 (día) 10 (mes) 2016 (año)

2.- DATOS DEL SOLICITANTE

Apellido 1	ORTIZ
Apellido 2	OLARTE
Nombre	ISABEL
En representación de (solo si procede)	**Universitat Politècnica de Catalunya (UPC) – Barcelona Tech** C\ Jordi Girona, 1-3, UPC Campus Norte, Edificio Omega, Oficinas 201 a 207, 2ª Planta. 08034 - Barcelona
Correo electrónico	lortiz@lidesec.com
Teléfono	+34913604875
Dirección Postal	**LIDESEC** C/ Gran Vía 40, planta 6 puerta 3ª - 4 28013 -Madrid

3.- DATOS DEL PROMOTOR/ES:

Nombre del promotor o los promotores	**Universitat Politècnica de Catalunya (UPC) – Barcelona Tech** C\ Jordi Girona, 1-3, UPC Campus Norte, Edificio Omega, Oficinas 201 a 207, 2ª Planta. 08034 - Barcelona

4.- DATOS DEL ESTUDIO PARA EL QUE SE SOLICITA CLASIFICACIÓN:

Título del Estudio	Estudio piloto multicéntrico para determinar los beneficios del uso de la plataforma CAREGIVERSPRO-MMD basada en las tecnologías de la información y la comunicación (TIC) dedicada al apoyo y la asistencia de las diadas formadas por personas afectas de enfermedades neurocognitivas (deterioro cognitivo leve o demencia leve a moderada) y sus cuidadores principales.
Denominación abreviada (solo si procede)	CAREGIVERS PRO - MMD

CORREO ELECTRÓNICO
farmacoepi@aemps.es

Página 1 de 7

C/ CAMPEZO, 1 – EDIFICIO 8
28022 MADRID
TEL: 91 822 53 30
FAX: 91 822 53 36

Versión del protocolo ..... Final en inglés

Formato del protocolo ..... Completo (preferible) ..... [X]

Resumen amplio ..... [X]

5.- PROPUESTA DE CLASIFICACIÓN DEL ESTUDIO POR PARTE DEL SOLICITANTE:
(Indicar una única categoría)

EPA-LA ..... [ ]
Estudio posautorización de tipo observacional que es una condición establecida en el momento de autorización de un medicamento, constituye una exigencia de la autoridad sanitaria para aclarar cuestiones relativas a la seguridad del medicamento o forma parte del plan de gestión de riesgos

EPA-AS ..... [ ]
Estudio posautorización de tipo observacional de seguimiento prospectivo promovido por Administración Sanitaria o financiado con fondos públicos.

EPA-SP ..... [ ]
Estudio posautorización de tipo observacional de seguimiento prospectivo no incluido en las categorías anteriores

EPA-OD ..... [ ]
Otros Estudios Posautorización

NO-EPA ..... [X]
Estudio observacional no posautorización (el medicamento no es factor de exposición fundamental investigado)

Justificación breve (si se considera necesario) .....

Según la Organización Mundial de la Salud [OMS, 2015], hay 46,8 millones de personas que viven con algún tipo de demencia en todo el mundo para las que no existe actualmente ningún tratamiento o estrategia eficaz que pueda detener o revertir el deterioro cognitivo progresivo. A medida que la población europea envejece, y la longevidad se convierte principal factor de riesgo para desarrollar una demencia, el cuidado y la asistencia de los ciudadanos de mayor edad representa un coste sociosanitario y financiero creciente para la sociedad.

En la actualidad existen 19 millones de personas que viven con demencia en Europa, y se espera que esta cifra alcance los 31,5 millones en el año 2050. Para gestionar esta transición, las políticas de salud de la Unión Europea y sus Estados miembros se centran en la mejora de la salud de las personas de edad avanzada y en la prevención de la dependencia. Esta estrategia tiene el doble objetivo de aumentar su calidad de vida subjetiva y llegar a reducir los costes asociados aumentando la eficacia de la asistencia sociosanitaria. Es por ello que el proyecto europeo "CAREGIVERSPRO-MMD" (RIA, la APS-25-2015, PIC: 690.211), con sus socios participantes: la Universidad Politécnica de Cataluña (UPC), MobilesDynamics (MDA), la Universidad de Hull (HUL), Q-plan International LTD (CVP), COOSS Marche (COO), la Fundación Universitaria del Bages (FUB), el Hospital Universitario de Rouen (CHU) y el Centro de Investigación y Tecnología Hellas (CERTH), tiene como objetivo evaluar la plataforma web "CAREGIVERSPRO- MMD", accesible mediante ordenadores, portátiles, teléfonos inteligentes y tabletas, definida como una aplicación "mHealth" específica para los cuidadores y las personas que viven con el deterioro cognitivo leve o demencia de leve a moderada, que proporcionará servicios de valor añadido basados en redes sociales, las intervenciones adaptadas, estrategias clínicas y gamificación para mejorar la calidad de vida subjetiva de las personas que viven con el deterioro cognitivo o demencia, así como la de sus cuidadores, promoviendo así a poder vivir en la comunidad durante el mayor tiempo posible.

Con el fin de evaluar la eficacia y el impacto de la plataforma CAREGIVERSPRO-MMD en las personas que viven con el deterioro cognitivo leve o demencia (de leve a moderada), junto con sus cuidadores principales, se plantea la realización de un estudio prospectivo, aleatorizado, multicéntrico, controlado, paralelo y

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longitudinal ideado con 602 diadas (en el marco de un estudio multicéntrico: 100 monitorizados por HUL, 200 por el COO, 202 por la FUB 100 por CHU), divididos en dos grupos de igual número. Los grupos estarán compuestos por un grupo de "intervención" con acceso a la plataforma CAREGIVERSPRO-MMD y otro grupo de "control" sin ningún tipo de acceso a la misma. Durante los siguientes dieciocho meses, los aspectos relacionados con la salud de los individuos (salud general, las funciones neuropsicológicas, las actividades de la vida diaria, la calidad de vida subjetiva, la adherencia al tratamiento farmacológico y las comorbilidades), aspectos sociales (cohesión de la diada, el apoyo social, el éxito en las relaciones, la autoestima, la motivación y el optimismo) y los aspectos económicos (coste-efectividad del uso de la plataforma CAREGIVERSPRO-MMD) y el grado de satisfacción y la facilidad de uso de la plataforma por todos los usuarios serán evaluados.

6.- DOCUMENTACIÓN QUE SE ADJUNTA:
(Indicar la que corresponda)

Protocolo ..... [X]

Si se ha marcado EPA-LA, deberá añadir alguno de los siguientes documentos, según corresponda

Plan de Gestión de Riesgos ..... [ ]

Acreditación del requerimiento por parte de la autoridad sanitaria ..... [ ]

Si se ha marcado EPA-AS por ser financiado o promovido con fondos públicos, deberá añadir

Documento que acredite la adjudicación (o promoción con) de fondos públicos ..... [ ]

Cuaderno de Recogida de Datos (opcional) ..... [ ]

Dictamen de CEIC/CEI (opcional) ..... [ ]

Otra Documentación adicional (opcional) ..... [X]

Autorización para actuar en nombre del promotor

7.- RESUMEN DEL PROTOCOLO

7.1. MOTIVO DEL ESTUDIO:
(marcar una única casilla)

Iniciativa del promotor ..... [X]

Requerimiento Agencia Europea de Medicamentos (EMA) ..... [ ]

Requerimiento Agencia Española de Medicamentos y Productos Sanitarios (AEMPS) ..... [ ]

Requerimiento otras administraciones sanitarias ..... [ ]

Promovido por Administración Sanitaria ..... [ ]

Financiado con fondos públicos ..... [X]

Otro ..... [ ]

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7.2. MONITOR:

Nombre ..... NA- *Pendiente de determinar*

Dirección Postal ..... NA - *Pendiente de determinar*

7.3. MEDICAMENTOS INVESTIGADOS:

Medicamentos de interés .....

NA

Principios activos de interés .....

NA

Medicamentos de referencia .....

NA

Principios activos de referencia .....

NA

Denominación genérica de grupo (solo en el caso de que no hubiera uno o varios medicamentos de interés individualizados; por ejemplo: antiretrovirales, antipsicóticos, antidepresivos, etc).....

NA

7.4. CEIC:

Si el estudio ha sido evaluado por un CEIC/CEI, indicar el primero que lo revisó .....

Aún no se ha remitido a evaluar por requerir primero la clasificación:

Comité Ético de Investigación Clínica
Fundació Unió Catalana d' Hospitals
C\ Bruc, 72-74, 1ª
08009, Barcelona, Barcelona

7.5. INVESTIGADORES:

Nombre del Investigador Coordinador o principal:.....

Dr. Xavier Gironès Garcia *(Coordinador Científico del proyecto)*

Centro de trabajo .....

Fundació Universitària de Bages (FUB) – Universitat de Vic – Universitat Central de Catalunya (UVic-UCC)
Direcció de Recerca i Innovació
Av. Universitària, 4-6
08242, Manresa, Catalunya

Comunidad Autónoma .....

Cataluña

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Número Total de Investigadores previsto

1 Centro en España:

Dr. Joan Catena Mir
Fundació Sociosanitària de Manresa (FSSM)
08241, Manresa, Catalunya

7.6. ÁMBITO:

Nacional	
Internacional	X

7.7. FUENTE DE INFORMACIÓN

Médico	
Farmacéutico	
Enfermera	
Historia Clínica	
Base de Datos	X
Otra	

7.8. DISEÑO DEL ESTUDIO

Seguimiento prospectivo	X
Estudio transversal o transversal y retrospectivo	
Estudio retrospectivo	
Controlado	X
No Controlado	

7.9. NÚMERO DE PACIENTES

Previsto en el grupo de interés	101-DIADAS-ES
Previsto en el grupo de referencia	101-DIADAS-ES
Previsto total	202-DIADAS-ES

7.10. DURACIÓN TOTAL PREVISTA
(añadir el número delante de la unidad correspondiente)

Días

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		Semanas
	2 4	X Meses

7.11. DURACIÓN POR INDIVIDUO
(añadir el número delante de la unidad correspondiente)

		Días
		Semanas
	1 8	X Meses

7.12. OBJETIVOS
(marcar mínimo 1, máximo 3)

Investigación de resultados- Efectividad	
Investigación de resultados- Calidad de Vida	X
Seguridad- Cuantificación RAM	
Seguridad- Identificación de nuevas RAM	
Seguridad- Identificación de factores de riesgo	
Seguridad- Evaluación de intervenciones o medidas	
Estudio de utilización medicamentos- Cualitativo	
Estudio de utilización medicamentos- Cuantitativo	
Estudio de utilización medicamentos- Cumplimiento	X
Farmacoeconomía	
Farmacogenética	
Epidemiología de la enfermedad	X
Otros	

7.13. PARÁMETRO DE EVALUACIÓN PRINCIPAL

Especificado (indique cuál abajo)	X
No especificado	

Cribado:

- **Para las personas que viven con deterioro cognitivo leve (DCL) o demencia (PVCD) y sus cuidadores Principales:**
  - Variables sociodemográficas
  - Comorbilidades

MINISTERIO DE SANIDAD, POLÍTICA SOCIAL E IGUALDAD
Agencia Española de Medicamentos y Productos Sanitarios

- Medicación
- Tratamientos concomitantes
- Síntomas clínicos cognitivos

➢ **Para los cuidadores principales:**
- Depresión

Objetivos primarios

➢ **Para DCL y PVCD:**
- Calidad de vida subjetiva

➢ **Para los cuidadores principales**
- Carga percibida

7.14. ÁMBITO ASISTENCIAL

No consta	☐
Atención Primaria	☐
Atención Especializada	X
Hospitalización	☐

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9.4.2 Classification of the study

MINISTERIO DE SANIDAD, SERVICIOS SOCIALES E IGUALDAD

agencia española de medicamentos y productos sanitarios

DEPARTAMENTO DE MEDICAMENTOS DE USO HUMANO

ASUNTO: **RESOLUCIÓN DEL PROCEDIMIENTO DE CLASIFICACIÓN DE ESTUDIO CLÍNICO O EPIDEMIOLÓGICO**

DESTINATARIO: **Dª ISABEL ORTIZ OLARTE**

Vista la solicitud-propuesta formulada con fecha **13 de octubre de 2016**, por **Dª ISABEL ORTIZ OLARTE**, en representación de **LIDESEC**, para la clasificación del estudio titulado **"Estudio piloto multicéntrico para determinar los beneficios del uso de la plataforma CAREGIVERSPRO-MMD basada en las tecnologías de la información y la comunicación (TIC) dedicada al apoyo y la asistencia de las díadas formadas por personas afectas de enfermedades neurocognitivas (deterioro cognitivo leve o demencia leve a moderada) y sus cuidadores principales."**, y cuyo promotor es **"Universitat Politécnica de Catalunya (UPC) – Barcelona Tech"**, se emite resolución.

El Departamento de Medicamentos de Uso Humano de la Agencia Española de Medicamentos y Productos Sanitarios (AEMPS), de conformidad con los preceptos aplicables, [1] **RESUELVE** clasificar el estudio citado anteriormente como **"Estudio *Observacional No Posautorización*"** (abreviado como No-EPA).

Para el inicio del estudio no se requiere la autorización previa de ninguna autoridad competente (AEMPS o CCAA) [2], pero sí es necesario presentarlo a un CEIC acreditado en nuestro país y obtener su dictamen favorable.

El promotor tendrá que informar a los responsables de las entidades proveedoras de servicios sanitarios donde se lleve a cabo el estudio y les entregará copia del protocolo y de los documentos que acrediten la aprobación por parte del CEIC y, en su caso, la clasificación de la AEMPS. Asimismo estos documentos se entregarán a los órganos competentes de las CC.AA., cuando sea requerido. La gestión y formalización del contrato estará sujeta a los requisitos específicos de cada Comunidad Autónoma.

CORREO ELECTRÓNICO
farmacoep@aemps.es

C/ CAMPEZO, 1 – EDIFICIO 8
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agencia española de medicamentos y productos sanitarios

DEPARTAMENTO DE MEDICAMENTOS DE USO HUMANO

Contra la presente resolución que pone fin a la vía administrativa podrá interponerse Recurso Potestativo de Reposición, ante la Directora de la Agencia, en el plazo de un mes a contar desde el día siguiente a aquel en que tenga lugar la notificación de la presente resolución. [3]

Madrid, a 14 de octubre de 2016

EL JEFE DE DEPARTAMENTO DE MEDICAMENTOS DE USO HUMANO

agencia española de medicamentos y productos sanitarios
Departamento de Medicamentos de Uso Humano
Dirección de Farmacoepidemiología y Farmacovigilancia

César Hernández García

[1] Son de aplicación al presente procedimiento la Ley 39/2015, de 1 de octubre, del Procedimiento Administrativo Común de las Administraciones Públicas; la Ley 14/2000, de 29 de diciembre, de medidas fiscales, administrativas y de orden social; Real Decreto Legislativo 1/2015, de 24 de julio, por el que se aprueba el texto refundido de la Ley de garantías y uso racional de los medicamentos y productos sanitarios; Real Decreto 1090/2015, de 4 de diciembre, por el que se regulan los ensayos clínicos con medicamentos, los Comités de Ética de la Investigación con medicamentos y el Registro Español de Estudios Clínicos; el Real Decreto 1275/2011, de 16 de septiembre, por el que se crea la Agencia estatal "Agencia Española de Medicamentos y Productos Sanitarios" y se aprueba su estatuto; el Real Decreto 577/2013, de 26 de julio, por el que se regula la farmacovigilancia de medicamentos de uso humano y la Orden SAS/3470/2009, de 16 de diciembre, por la que se publican las directrices sobre estudios posautorización de tipo observacional para medicamentos de uso humano.

[2] De acuerdo con la Orden SAS/3470/2009, de 16 de diciembre

[3] De conformidad con lo dispuesto en los artículos 116 y 117 de la Ley 30/1992, de 26 de noviembre, o Recurso Contencioso-Administrativo ante el Juzgado Central de lo Contencioso-Administrativo de Madrid, en el plazo de dos meses contados desde el día siguiente al de la notificación de la presente resolución, de conformidad con la Ley 29/1998, de 13 de Julio, reguladora de la Jurisdicción Contencioso-Administrativa, sin perjuicio de poder ejercitar cualquier otro recurso que se estime oportuno. En caso de interponerse recurso de reposición no podrá interponerse recurso contencioso-administrativo hasta la resolución expresa o presunta del primero.

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28022 MADRID

9.4.3 Ethics committee approval

FUNDACIÓ LA UNIÓ
Fundació Unió Catalana d'Hospitals

INFORME DEL COMITÉ ÉTIC D'INVESTIGACIÓ

Dr. Miquel Nolla, com a President del Comitè Ètic d'Investigació de la FUNDACIÓ UNIO CATALANA HOSPITALS

C E R T I F I C A:
Que aquest Comitè en la seva reunió del dimarts, 27 de novembre, ha avaluat la proposta per que es realitzi l'estudi NO EPA, que porta per títol: *"Estudio piloto multicéntrico para determinar los beneficios del uso de la plataforma CAREGIVERSPRO-MMD basada en las tecnologías de la información y la comunicación (TIC) dedicada al apoyo y la asistencia de las díadas formadas por personas afectas de enfermedades neurocognitivas (deterioro cognitivo leve o demencia leve a moderada) y sus cuidadores principales"*, amb codi CEIC 16/87 i considera que:

Es compleixen els requisits necessaris d'idoneïtat del protocol en relació amb els objectius de l'estudi i que estan justificats els riscos i les molèsties previsibles per al subjecte. La capacitat de l'investigador i els mitjans disponibles són apropiats per portar a terme l'estudi. Són adequats tant el procediment per obtenir el consentiment informat com la compensació prevista per als subjectes per danys que es puguin derivar de la seva participació a l'estudi.

Que aquest comitè accepta que aquest estudi es digui a terme a **Fundació Universitària del Bages**, amb **Xavier Gironès García** com a investigador principal i a la **Fundació Sociosanitària del Bages** amb **Joan Catena Mir** com a investigador principal. I que els investigadors principals no han estat present en les deliberacions i aprovació d'aquest estudi.

En aquesta reunió s'han complert els requisits establerts en la legislació vigent – Orden SAS/347/2009, RD 1090/2015. El CEIC tant en la seva composició, com en els PNT compleix amb les normes de BPC (CPMP/ICH/135/95).

MEMBRES DEL CEIC DE LA FUNDACIÓ UNIÓ CATALANA D'HOSPITALS

Dr. Miquel Nolla	President	Metge
Dra. Anna Altés	Secretari	Metge
Dra. Encarna Martinez	Vocal	Metge
Dr. Ernesto Mònaco	Vocal	Metge
Dr. Jesús Montesinos	Vocal	Metge
Dr. Josep M Tormos	Vocal	Metge
Dra. Rosa Morros	Vocal	Farmacòloga Clínica
Dra. Concha Antolin	Vocal	Farmacèutica primària
Dra. Virginia Martinez	Vocal	Farmacèutica
Dr. Jaume Trapé	Vocal	Farmacèutic
Sra. Conxita Malo	Vocal	Infermera
Sra. Ana Barajas	Vocal	Psicòloga
Sra. Itziar Aliri	Vocal	Advocat
Sra. Anna Guijarro	Vocal	Filosofia
Sra. Vanessa Massó	Vocal	C. Empresarials

Barcelona, 7 de desembre de 2016

FUNDACIÓ LA UNIÓ
www.fundaciounio.cat
Comitè Ètic

Dr. Miquel Nolla
President del CEIC

9.4.4 Protocol

PROTOCOLO DEL ESTUDIO PILOTO

PROYECTO:

"Self-management interventions and mutual assistance community services, helping people with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience"

CAREGIVERSPRO-MMD — RIA (research and innovation actions)

PHC-25-2015 — PIC number: 690211

Participante no.	Nombre de la organización participante	Abreviatura	País
1 (Coordinator)	Universitat Politècnica de Catalunya	UPC	España
2 (participant)	MobilesDynamics	MDA	España
3 (participant)	University of Hull	HUL	Reino Unido
4 (participant)	Q-Plan International LTD	QPL	Grecia
5 (participant)	COOSS Marche	COO	Italia
6 (participant)	FUB - UVic-UCC	FUB	España
7 (participant)	Rouen University Hospital	CHU	Francia
8 (participant)	Centre for Research and Technology Hellas	CERTH	Grecia

Protocolo de investigación biomédica

"Estudio piloto multicéntrico para determinar los beneficios del uso de la plataforma CAREGIVERSPRO-MMD basada en las tecnologías de la información y la comunicación (TIC) dedicada al apoyo y la asistencia de las díadas formadas por personas afectas de enfermedades neurocognitivas (deterioro cognitivo leve o demencia leve a moderada) y sus cuidadores principales"

"Este proyecto ha recibido financiación del programa de investigación e innovación Horizonte 2020 de la Unión Europea en virtud de acuerdo de subvención nº 690211"

"Estudio piloto multicéntrico para determinar los beneficios del uso de la plataforma CAREGIVERSPRO-MMD basada en las tecnologías de la información y la comunicación (TIC) dedicada al apoyo y la asistencia de las díadas formadas por personas afectas de enfermedades neurocognitivas (deterioro cognitivo leve o demencia leve a moderada) y sus cuidadores principales"

Proyecto

"**Self-management interventions and mutual assistance community services, helping people with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience**"

Este proyecto ha recibido financiación del programa de investigación e innovación Horizonte 2020 de la Unión Europea en virtud de acuerdo de subvención nº 690211

CAREGIVERSPRO-MMD - PHC-25-2015 - RIA (research and innovation actions)

Coordinador general del proyecto

PhD Ulises Cortés

Universitat Politècnica de Catalunya - Barcelona Tech

Coordinador científico del proyecto

PhD Xavier Gironès García

Fundació Universitària del Bages (FUB), Universitat de Vic - Universitat Central de Catalunya (UVic-UCC)

Coordinador clínico en la Fundació Sociosanitària de Manresa (FSSM)

Dr. Joan Catena Mir

Fundació Sociosanitària de Manresa (FSSM)

0 Índice de contenidos

1 ACRÓNIMOS

AD	Alzheimer's disease
BADL	Barthel ADL Index / Barthel Index of Activities of Daily Living
C-MMD	CAREGIVERSPRO-MMD
C-MMD-USE	CAREGIVERSPRO-MMD User Satisfaction Scale
CDR	Clinical Dementia Rating
CG	Caregiver
CRO	Clinical research organization
DAS	Dyadic Adjustment Scale
DCL	Deterioro Cognitivo Leve
DEMQoL	Dementia Quality of Life Measure
DSM	Diagnostic and Statistical Manual
EA	Enfermedad de Alzheimer
FS	Flourishing Scale
GDS	Geriatric Depression Scale
IADL	Lawton Instrumental Activities of Daily Living Scale
ICD	International Classification of Diseases
ICER	Incremental cost-effectiveness ratio
ICT	Information and communications technology
INB	Incremental net benefit

ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
KSS	Kuppuswamy's Socioeconomic Scale
MCI	Mild Cognitive Impairment
MMAS-8	8-item Morisky Medication Adherence Scale
MMSE	Mini-Mental State Examination
MRRC	Memory Resource and Research Centres
MSPSS	Multidimensional Scale of Perceived Social Support
NICT	New Information and Communication Technologies
NPI	NeuroPsychiatric Inventory
OECD	Economic Co-operation and Development
PDC	Proportion of days covered
PVCD	Personas que viven con demencia
QoL	Quality of life
RUD	Resource Utilization in Dementia
SES	Socioeconomic status
SF-36v2	Medical Outcomes Study (MOS) 36-Item Short Form 2nd version
STAI	State Trait Anxiety Inventory
WHO	World Health Organization
WHO-DD	World Health Organization's Drug Dictionary
WHOART	WHO Adverse Reactions Terminology
ZBI	Zarit Burden Interview

2 SINOPSIS

Título del estudio y título del proyecto	"Estudio piloto multicéntrico para determinar los beneficios del uso de la plataforma CAREGIVERSPRO-MMD basada en las tecnologías de la información y la comunicación (TIC) dedicada al apoyo y la asistencia de las díadas formadas por personas afectas de enfermedades neurocognitivas (deterioro cognitivo leve o demencia leve a moderada) y sus cuidadores principales" Proyecto: "Self-management interventions and mutual assistance community services, helping people living with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience"
Coordinador general del proyecto	**Universitat Politècnica de Catalunya (UPC) - Barcelona Tech** PhD Ulises Cortés - C/ Jordi Girona, 1-3 - UPC, Campus Nord, Omega building - Cataluña, Barcelona, 08034 - Offices 201 to 207, 2º planta ia@cs.upc.edu - Tel: +34 934137842 European Union's Horizon 2020 research and innovation programme under grant agreement No 690211
Coordinador científico del proyecto	**Fundació Universitària del Bages (FUB), Universitat de Vic - Universitat Central de Catalunya (UVic-UCC) - Direcció de Recerca i Innovació** PhD Xavier Gironès García - Av. Universitària, 4-6 - Catalunya, Manresa, 08242 xgirones@umanresa.cat - Tel: +34 938774179
Coordinador clínico del estudio local (Manresa)	**Fundación Sociosanitaria de Manresa (FSSM)** Dr. Joan Catena Mir - Pl. Hospital, s/n - Catalunya, Manresa, 08241 jcatena@fssm.cat - Tel: +34 93 874 3312
Diseño del estudio	Estudio prospectivo, aleatorizado, multicéntrico, controlado, paralelo y longitudinal.
Población y muestra	Diadas: Personas que viven con deterioro cognitivo leve o demencia (leve a moderada) y sus cuidadores primarios.
Hipótesis del estudio	**Hipótesis principal** ● El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para la díada, en la percepción subjetiva de la calidad de vida de las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) y en el nivel de carga experimentado por el cuidador principal.

	Hipótesis secundarias ● El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada), en su adherencia al tratamiento, los síntomas conductuales y psicológicos y el uso de drogas psicotrópicas. ● El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada), en sus actividades de la vida diaria y los trastornos psicológicos y neuropsiquiátricos. ● El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para los cuidadores principales de personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada), en los trastornos psicológicos y neuropsiquiátricos. ● El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para los cuidadores principales de personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada), en apoyo a la percepción social, el éxito en las relaciones, la autoestima, el propósito y el optimismo. ● El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD mejora la adherencia al tratamiento de la díada (formada por personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) y sus cuidadores principales. ● El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para la díada (formada por personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) y sus cuidadores principales), en la calidad de la relación del cuidado. ● El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD reduce los costes totales de la atención (costes directos e indirectos) para la díada (formada por personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) y sus cuidadores principales. ● El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD reduce el número total de hospitalizaciones protagonizados por las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada).
Objetivos del estudio	**Objetivos principales** ● Para las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada): evaluar su percepción subjetiva de calidad de vida con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. ● Para los cuidadores principales de personas que viven con deterioro cognitivo leve o demencia (de leve a moderada): evaluar su carga percibida con el fin de identificar un beneficio del uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. **Objetivos secundarios** **Objetivos secundarios relacionados con las personas con deterioro cognitivo leve o demencia (de leve a moderada)** ● Evaluar las actividades de la vida diaria en las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un

	beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. ● Evaluar la adherencia al tratamiento de las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar una mejora en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. ● Evaluar los síntomas conductuales y psicológicos en las las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. ● Evaluar el funcionamiento neuropsicológico de las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. ● Evaluar el número total de hospitalizaciones para las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. **Objetivos secundarios relacionados con los cuidadores principales** ● Evaluar la calidad de vida subjetiva en los cuidadores de las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. ● Evaluar las adherencia al tratamiento en los cuidadores de personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada), con el fin de identificar a una mejora en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. ● Evaluar la salud mental y psicológica y el bienestar de los cuidadores de las personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. ● Evaluar el apoyo social percibido, el éxito en las relaciones, la autoestima, el propósito y optimismo en los cuidadores de las personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada), con el fin de identificar un beneficio del uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. ● Evaluar la prescripción de drogas psicotrópicas en los cuidadores de personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. **Objetivos secundarios relacionados con la diada** ● Evaluar la calidad de la relación de cuidado entre el cuidador y las personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada) en las diadas, con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. **Objetivos secundarios relacionados con los beneficios económicos y financieros** ● Evaluar los costes directos e indirectos del cuidado para identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses. **Objetivos secundarios relacionados con usuarios de la plataforma CAREGIVERSPRO-MMD**

	• Evaluar el grado de satisfacción en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.
Criterios de inclusión	**Para las personas que viven con el deterioro cognitivo leve o demencia** • Personas de 50 y más años de edad, que viven en la comunidad, que son capaces de dar su consentimiento informado (ella misma o su tutor legal). • Diagnosticados con deterioro cognitivo leve (DCL) de acuerdo con los criterios de Petersen [Albert et al, 2011] o demencia de leve a moderada diagnosticados según los criterios del DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4ª edición) [American Psychiatric Association, 1994]. • Tener una Clasificación Clínica de Demencia (CDR) del 0,5 para DCL, o de 1-2 en los casos de demencia leve a moderada. • Tener una puntuación en el examen Mini-Mental (MMSE) [Folstein et al, 1975] entre 30 y 25 (ambos inclusive) en los DCL, y entre 24 y 10 (ambos inclusive) para los casos de demencia. • Tener un cuidador principal, familiar (o no) e informal (o no) definido y también incluido en el estudio. • Estar dispuestos a utilizar Tecnologías de la Información y la Comunicación (TIC) de acuerdo con los criterios del investigador. **Para los cuidadores principales** • Personas de 18 y más años de edad, sin diagnóstico o ninguna evidencia de deterioro cognitivo leve o demencia leve a moderada (según los criterios del DSM-IV) [American Psychiatric Association, 1994], que sean capaces de dar su consentimiento informado y se comprometan a completar el estudio. • Cuidadores principales informales (o no), familiares (o no), de personas con deterioro cognitivo leve o demencia de leve a moderada. • Personas con acceso a Internet y conocimientos básicos y habilidades en el manejo de Internet y las redes sociales, o con ganas de adquirir estos conocimientos, de acuerdo con los criterios del investigador. • Tener una escala de depresión geriátrica (GDS-Yesavage - 15 ítems) con una puntuación inferior a 11 en el momento de la entrada en el estudio, indicando no tener síntomas depresivos severos. • No presentar condiciones específicas (evaluadas por el investigador) que reduzcan sus capacidades físicas a niveles inferiores de la normalidad de acuerdo con su edad que les limite u obstaculice el uso de plataforma CAREGIVERSPRO-MMD. • Estar dispuestos a utilizar las Tecnologías de la Información y la Comunicación (TIC) de acuerdo con los criterios del investigador.
Criterios de exclusión	**Para las personas con deterioro cognitivo leve y las personas que viven con demencia** • Estar diagnosticados de enfermedad terminal o grave con pronóstico de supervivencia menor a 18 meses. • Presentar delirios, alucinaciones, trastornos del comportamiento, que pueden interferir con el uso de las herramientas basadas en las Tecnología de Información y Comunicación (TIC). • Presentar problemas relevantes sensoriales (visual o auditivos) deterioro o discapacidad motora (como la parálisis de las extremidades superiores o inhabilitación debida a artritis o la presencia de temblor, etc...) evaluado por el investigador que pudiera interferir con el uso de las herramientas basadas en las Tecnologías de Información y la Comunicación (TIC).

	• No hablar el idioma del país donde se lleva a cabo el estudio. **Para los cuidadores principales** • Estar diagnosticados de enfermedad terminal o grave con pronóstico de supervivencia menor a los 18 meses. • Presentar problemas relevantes sensoriales (visual o auditivos) deterioro o discapacidad motora (como la parálisis de las extremidades superiores o inhabilitación debida a artritis o la presencia de temblor, etc...) evaluado por el investigador que pudiera interferir con el uso de las herramientas basadas en las Tecnologías de Información y la Comunicación (TIC). • No hablar el idioma del país donde se lleva a cabo el estudio.
Criterios de salida	• Si el cuidador principal cambia (o es substituido) o si el cuidador no puede continuar su papel de cuidador. • Que el cuidador principal no haga uso de la plataforma durante 2 meses debido a una razón justificable de acuerdo con los criterios del investigador. • Que el cuidador principal haga un uso malicioso o inapropiado de la plataforma CAREGIVERSPRO-MMD de acuerdo con los criterios del investigador. • La presencia de una enfermedad grave para las personas que viven con el deterioro cognitivo leve o demencia (de leve a moderada) o sus cuidadores, a evaluación por el investigador, que interfiera con el uso de las herramientas basadas en las Tecnologías de Información y la Comunicación (TIC). • Que un miembro de la díada desee retirar el consentimiento informado y quiera retirarse del estudio. • La hospitalización o institucionalización por más de 2 meses justificada por razones no relacionadas con el papel de la atención.

Parámetros a evaluar	**Cribado**
	• **Para las personas que viven con deterioro cognitivo leve (DCL) o demencia (PVCD) y sus cuidadores principales:**
	  ○ Variables sociodemográficas
	  ○ Comorbilidades
	  ○ Medicación
	  ○ Tratamientos concomitantes
	  ○ Síntomas clínicos cognitivos
	• **Para los cuidadores principales**
	  ○ Depresión
	
	Objetivos primarios
	• **Para DCL y PVCD:**
	  ○ Calidad de vida subjetiva
	• **Para los cuidadores principales**
	  ○ Carga percibida
	
	Objetivos secundarios
	• **Para DCL o PVCD y sus cuidadores:**
	  ○ Salud física
	  ○ Tratamientos concomitantes con medicamentos y

	○ Comorbilidades ○ Efectos adversos ○ La adherencia al tratamiento ● **Para DCL y PVCD:** ○ Síntomas clínicos cognitivos ○ Actividades de la vida diaria ○ Síntomas conductuales y cognitivos ○ Depresión ● **Para los cuidadores principales:** ○ Calidad de vida subjetiva ○ Depresión ○ Ansiedad ○ Apoyo social percibido, el éxito en las relaciones, la autoestima, los objetivos vitales y el optimismo ● **Para las díadas:** ○ La calidad de la relación social de la díada ● **Para usuarios de la plataforma CAREGIVERSPRO-MMD:** ○ Satisfacción con la plataforma ○ El uso de la plataforma ● **Variables económicas:** ○ Utilización de recursos ○ Los costes directos e indirectos de la atención y el cuidado
Estrategia de intervención del estudio	Grupo de intervención utilizando la plataforma "CAREGIVERSPRO-MMD" frente al grupo control sin acceso a ella.
Muestra incluida en el estudio (estudio completo multicéntrico)	602 díadas: - Grupo de intervención: 301 diadas (personas con deterioro cognitivo leve o personas que viven con demencia leve o moderada y su cuidador principal). - Grupo control: 301 diadas (personas con deterioro cognitivo leve o personas que viven con demencia leve o moderada y su cuidador principal).
Muestra incluida en el estudio local (Estudio en Manresa - Bages - España)	202 díadas: - Grupo de intervención: 101 diadas (personas con deterioro cognitivo leve o personas que viven con demencia leve o moderada y su cuidador principal). - Grupo control: 101 diadas (personas con deterioro cognitivo leve o personas que viven con demencia leve o moderada y su cuidador principal).
Grupos de investigación clínica relacionados con el estudio	1. University of Hull (Reino Unido) 2. COOSS Marche (Italia) 3. Rouen University Hospital (Francia) 4. Fundació Universitària del Bages (FUB) - UVic-UCC (España)
Grupo de investigación clínica relacionado con el desarrollo del estudio local (Manresa)	- Fundació Sociosanitaria de Manresa (FSSM)

Análisis estadístico	El cambio en las puntuaciones DEMQoL/ZBI definido como diferencia entre el valor a los 18 meses y el valor basal se comparará entre grupos ajustando un análisis de la covarianza. Las comparaciones a los 18 meses en la puntuación IADL se realizarán ajustando un modelo logístico para respuesta politómica.. Las comparaciones en la adherencia al tratamiento se realizarán utilizando las proporciones de personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) y un PDC = la Proporción de Días Cubiertos cubriendo ≥ 1 medicación y cubriendo todas las medicaciones. El MMAS-8 se evaluará ajustando un modelo de dos poblaciones con respuesta politómica para medidas repetidas. La comparación del cuestionario NPI (leve, moderado, grave) y GDS (normal, leve, moderado, grave) a los 18 meses se realizará ajustando un modelo logístico para respuesta politómica con el grupo como variable independiente. La MMSE se comparará utilizando la proporción de personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) que disminuyan su puntuación y calculando el intervalo de confianza para la estima de la diferencia. Las diferencias en las componentes resumen PCS y MCS del SF-36v2 se realizarán según el Quality Metric's Health Outcomes™ Scoring Software 5.0 disponible. Las comparaciones entre grupos del número de hospitalizaciones se realizarán calculando el intervalo de confianza para la diferencia de medianas siguiendo el método de Hodges-Lehmann para datos independientes. La misma aproximación se efectuará para la variable STAI. Las comparaciones entre grupos de las proporciones de cuidadores que toman psicotrópicos se realizarán calculando el intervalo de confianza para la estima de la diferencia. Las comparaciones a los 18 meses de la puntuación MSPSS y FS se realizarán calculando el intervalo de confianza para la diferencia de medianas siguiendo el método de Hodges-Lehmann para datos independientes. Al considerar las escalas a lo largo del tiempo se compararán las tasas de cambio entre grupos. Las comparaciones a los 18 meses en la puntuación DAS se realizarán calculando el intervalo de confianza para la diferencia de medianas siguiendo el método de Hodges-Lehmann para datos independientes. Los costes asociados tanto a las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) como a sus cuidadores como los costes totales se evaluarán calculando el intervalo de confianza para la diferencia de medianas siguiendo el método de Hodges-Lehmann para datos independientes. La misma aproximación se aplicará en la comparación del tiempo mediano hasta institucionalización. Se realizará un análisis de coste-efectividad exploratorio de la plataforma en relación a los cuidadores.
Periodo de implementación del	Duración del período de reclutamiento e información: 4 meses [De enero de 2017 hasta abril

estudio	de 2017]. Duración de la asignación al azar de los grupos y la recogida de los datos: 18 meses [Entre abril de 2017 y septiembre de 2018]. Número de visitas médicas programadas: ● 1 sesión de entrenamiento en la plataforma CAREGIVERSPRO-MMD para el grupo de intervención después de la aleatorización. ● 1 visita de investigación cada 6 meses (de cribado al mes "0", a los 6, 12 y 18 meses) para ambos grupos de díadas. ● 1 llamada telefónica cada 6 meses (a los 3, 9 y 15 meses) para evaluar costes económicos, satisfacción, cohesión de la díada y apoyo social. Duración total: desde la primera inclusión díada hasta que la última visita del último díada: 22 meses Duración del análisis de datos de informes estadísticos y de informe clínico: 14 meses [Entre octubre de 2017 y octubre de 2018]. Duración de la difusión de los resultados del estudio: 4 meses [Desde septiembre de 2018 hasta diciembre de 2018].

3 RESUMEN

Según la Organización Mundial de la Salud [OMS, 2015], hay 46,8 millones de personas que viven con algún tipo de demencia en todo el mundo para las que no existe actualmente ningún tratamiento o estrategia eficaz que pueda detener o revertir el deterioro cognitivo progresivo. A medida que la población europea envejece, y la longevidad se convierte principal factor de riesgo para desarrollar una demencia, el cuidado y la asistencia de los ciudadanos de mayor edad representa un coste sociosanitario y financiero creciente para la sociedad. En la actualidad existen 19 millones de personas que viven con demencia en Europa, y se espera que esta cifra alcance los 31,5 millones en el año 2050. Para gestionar esta transición, las políticas de salud de la Unión Europea y sus Estados miembros se centran en la mejora de la salud de las personas de edad avanzada y en la prevención de la dependencia. Esta estrategia tiene el doble objetivo de aumentar su calidad de vida subjetiva y llegar a reducir los costes asociados aumentando la eficacia de la asistencia sociosanitaria. Es por ello que el proyecto europeo "CAREGIVERSPRO-MMD" (RIA, la APS-25-2015, PIC: 690.211), con sus socios participantes: la Universidad Politécnica de Cataluña (UPC), MobilesDynamics (MDA), la Universidad de Hull (HUL), Q-plan International LTD (CVP), COOSS Marche (COO), la Fundación Universitaria del Bages (FUB), el Hospital Universitario de Rouen (CHU) y el Centro de Investigación y Tecnología Hellas (CERTH), tiene como objetivo evaluar la plataforma web "CAREGIVERSPRO- MMD", accesible mediante ordenadores, portátiles, teléfonos inteligentes y tabletas, definida como una aplicación "mHealth" específica para los cuidadores y las personas que viven con el deterioro cognitivo leve o demencia de leve a moderada, que proporcionará servicios de valor añadido basados en redes sociales, las intervenciones adaptadas, estrategias clínicas y gamificación para mejorar la calidad de vida subjetiva de las personas que viven con el deterioro cognitivo o demencia, así como la de sus cuidadores, promoviendo así a poder vivir en la comunidad durante el mayor tiempo posible.

Con el fin de evaluar la eficacia y el impacto de la plataforma CAREGIVERSPRO-MMD en las personas que viven con el deterioro cognitivo leve o demencia (de leve a moderada), junto con sus cuidadores principales, se plantea la realización de un estudio prospectivo, aleatorizado, multicéntrico, controlado, paralelo y longitudinal ideado con 602 diadas (en el marco de un estudio multicéntrico: 100 monitorizados por HUL, 200 por el COO, 202 por la FUB 100 por CHU), divididos en dos grupos de igual número. Los grupos estarán compuestos por un grupo de "intervención" con acceso a la plataforma CAREGIVERSPRO-MMD y otro grupo de "control" sin ningún tipo de acceso a la misma. Durante los siguientes dieciocho meses, los aspectos relacionados con la salud de los individuos (salud general, las funciones neuropsicológicas, las actividades de la vida diaria, la calidad de vida subjetiva, la adherencia al tratamiento farmacológico y las comorbilidades), aspectos sociales (cohesión de la díada, el apoyo social, el éxito en las relaciones, la autoestima, la motivación y el optimismo) y los aspectos económicos (coste-efectividad del uso de la plataforma CAREGIVERSPRO-MMD) y el grado de satisfacción y la facilidad de uso de la plataforma por todos los usuarios serán evaluados.

4. INTRODUCCIÓN Y ANTECEDENTES

4.1 EL PERFIL DE LA POBLACIÓN ASOCIADA A LA DEMENCIA EN EUROPA

Según la Organización para la Cooperación y el Desarrollo Económico (OCDE), en su informe sobre el Panorama de la Salud del 2013, la esperanza de vida se ha incrementado notablemente en Europa (10 años en los últimos 50) hasta llegar a los 80,1 años en el 2013. Encabeza las estadísticas: Italia (82,7), seguida de España (82,4), Francia (82,2) y el Reino Unido (81,1) [OECD, 2013]. Paralelamente, la Oficina de Estadística de la Comisión Europea (Eurostat), en su informe sobre el 2013, publica sus estadísticas poblacionales revelando que la edad media de los europeos alcanza ya los 41,2 años, los menores de 14 años son el 15,6% de la población y las personas en edad de trabajar (de los 15 a los 64) son el 66,9%. El 17,5% restante tienen 65 años o más y en torno al 4,8% son mayores de 80 años, cifra que llega el 6% en Italia (el valor más alto) [Eurostat, 2013]. Todas estas cifras revelan que la población europea ha envejecido notablemente en los últimos 10 años al combinarse en poco tiempo los factores de una longevidad en aumento con una tasa de fertilidad baja de 1,5 hijos por mujer [Eurostat, 2013].

En envejecimiento poblacional ha conllevado en Europa un aumento asociado a las enfermedades relacionadas con el envejecimiento (hiperlipidemias, síndrome metabólico, diabetes mellitus tipo 2, obesidad, demencias…), en particular: las demencias. Según el análisis de diversos estudios epidemiológicos efectuados en Europa sobre la prevalencia de las demencias, efectuado por el Grupo de Trabajo en Prevalencias del EuroCoDe (European Collaboration on Dementia) de la organización “Alzheimer Europa”, existen actualmente en unos 6,36 millones de personas con más de 65 años de edad afectadas de diversas enfermedades neurodegenerativas, una cifra que podría superar las 10 millones de personas en el 2040 [EuroCoDe, 2013]. Y es en este marco de las enfermedades demenciales, donde la enfermedad de Alzheimer destaca sobre las demás, representando entre el 50 y el 60% del total de todas las demencias diagnosticadas, provocando pérdida de memoria, declive de las funciones cerebrales y modificación de la personalidad, afectando directamente a las funciones ejecutivas del paciente e impactando gravemente en su vida laboral y social [Gironès et al, 2002]. Más allá de las cifras de enfermos afectos, la naturaleza de las enfermedades tipo demencia obliga a modificar drásticamente los hábitos normalizados de los familiares directos involucrando a unos 20 millones de asistentes familiares (unas 3 personas por enfermo), librados en muchos caso a ellos mismos a la hora de acompañar a los pacientes con trastornos en el comportamiento particularmente desconcertantes [EuroCoDe, 2013].

4.2 LA DECLARACIÓN DE PARÍS DE "ALZHEIMER EUROPE"

Fruto de una preocupación con cada vez más argumentos en torno a la gravedad de las consecuencias de las enfermedades neurodegenerativas tipo demencia, instituciones como “Alzheimer Europa” (alzheimer-europe.org) han estudiado detalladamente la problemática advirtiendo a organizaciones e instituciones de la Unión Europea, la Organización Mundial de la Salud, el Consejo de Europa y a los gobiernos nacionales europeos, sobre la necesidad de actuar drásticamente contra las consecuencias del Alzheimer detallando diversos puntos clave para actuar.

En su “Declaración de París”, de julio del 2009 [Alzheimer Europe, 2009], los expertos vinculados a Alzheimer Europa piden a los responsables políticos europeos y nacionales el otorgar a la enfermedad de Alzheimer y otras formas de demencia la prioridad política y de salud pública que tan

justamente merecen, aportando diversas propuestas en los ámbitos de la investigación y la medicina, la atención y el apoyo social y la ética y el derecho.

Entre ellas, cabe destacar:

- Las personas con demencia y sus cuidadores necesitan de acciones y herramientas que cubran tanto su asistencia médica como su atención necesaria adaptada a las necesidades específicas de cada etapa de la enfermedad.
- El cuidado de personas con demencia produce un impacto significativo sobre la calidad de vida de los cuidadores. En consecuencia, es necesario promover políticas activas para el reconocimiento de la importante carga de los cuidadores de personas con demencia y que promuevan el apoyo y desarrollo de servicios de asistencia y ayuda adecuados.

Es por ello que Alzheimer Europa recomienda potenciar aquellas iniciativas que desemboquen en un mayor apoyo del cuidador, ya que a la práctica, éste repercute directamente en una mejor calidad de vida del enfermo de Alzheimer [Alzheimer Europe, 2009].

Por definición, los cuidadores principales son aquellas personas que, pudiendo ser familiar o no del paciente incapacitado o enfermo, mantiene contacto humano más estrecho con ellos. Su principal función es satisfacer diariamente las necesidades físicas y emocionales del paciente. También le mantiene vinculado con la sociedad y lo provee de afecto ya que son solidarios con el que sufre. Su trabajo adquiere una gran relevancia para las personas que rodean al enfermo conforme progresa la enfermedad puesto que además de brindar atención directa al paciente, adquiere un papel importante en la reorganización, mantenimiento y cohesión del grupo [Astudillo et al, 2010].

4.3 EL OBJETIVO DE LA POLÍTICA SANITARIA EUROPEA: DAR APOYO Y RESPIRO A LOS CUIDADORES NO PROFESIONALES

En Europa; un importante objetivo de la política de salud es fomentar y mantener las redes de cuidado informal de personas con las enfermedades tipo demencia. Este objetivo se puede alcanzar mediante el apoyo económico a los pacientes con dificultades en la realización de las actividades de la vida diaria, con el fin de fomentar la utilización de un servicio profesional y por lo tanto, aliviando la carga del cuidador informal. Teniendo en cuenta que la realidad de la asistencia informal en Europa representa más del 80% del uso total de la asistencia no-médica; es fundamental identificar las estrategias asociadas a una menor carga del cuidador y, por lo tanto, una menor probabilidad de institucionalización del paciente con el consecuente ahorro en gasto de la sanidad pública y privada [Rapp et al, 2011].

Los planes de salud europeos han propuesto medidas para mejorar la atención a los pacientes con demencia en un enfoque más personalizado y adaptado destinado tanto a los pacientes como a las necesidades de sus cuidadores. Su objetivo principal ha sido poner en práctica un proceso de integración a través de una red activa y participativa en el cuidado de los afectados por demencia, su asistencia o apoyo. Su modelo comprende herramientas y mecanismos necesarios para mejorar el proceso de atención integral, en particular, la gestión de casos para personas mayores en situaciones complejas y los recursos otorgados a los cuidadores de las mismas. Así pues, su intención propone pasar de un enfoque centrado en el tratamiento médico para la demencia a la atención integral tanto de los afectos como sus familias y cuidadores, convirtiéndose en el desafío principal para la mejora

de la atención integral. Y en este contexto el cuidador es una pieza clave del proceso [Pimouguet et al, 2013].

Numerosos estudios sobre cuidadores de enfermedades neurodegenerativas apuntan que el papel del cuidador es trascendental en el seguimiento y la notificación de los síntomas y los efectos de las intervenciones terapéuticas individuales de los afectados. Es por ello muy importante de establecer una alianza terapéutica efectiva entre el sistema de salud y el cuidador en el manejo médico de la persona que sufre una demencia [Jicha, 2011]. En este contexto, el apoyo a la creación de herramientas que fomenten esta relación estaría en sintonía con la mejora del flujo informativo entre enfermos de Alzheimer, equipo asistencial y médico, y cuidadores y familiares del paciente, con un impacto garantizado muy positivo en la gestión asistencial y calidad de vida del paciente.

4.4 LA ATENCIÓN AL CUIDADOR Y SU SEGUIMIENTO: PIEZA CLAVE CONTRA LAS ENFERMEDADES NEURODEGENERATIVAS.

Los enfermos afectados por enfermedades neurodegenerativas tipo demencia son susceptibles a necesitar en sus diversas etapas de evolución de la enfermedad diferentes grados de asistencia y ayuda en su vida diaria, sobre todo cuando se comienza a progresar a una etapa superior. La asistencia cotidiana puede provenir de diversas fuentes, tanto del personal de un hospital como de los miembros de la familia en casa. Se ha comprobado que si el cuidador principal se trata de un cónyuge o de los hijos del paciente, éste soporta una carga de responsabilidad difícil de gestionar correctamente. En consecuencia, los efectos sobre la salud y la vida diaria del cuidador pueden ser; pocas horas de sueño, la ansiedad y la depresión, el estrés… que pueden acabar minando la calidad de vida del cuidador poniendo en peligro su propia salud [Callan et al, 2009; Varela et al, 2011].

Así pues, los cuidadores informales de pacientes con enfermedades neurodegenerativas tipo demencia se encuentran bajo mucha presión aumentando el riesgo a padecer enfermedades físicas y psiquiátricas. En este sentido proporcionar a los cuidadores conocimientos médicos y asistenciales sobre demencias, y habilidades y/o apoyo para sobrellevar el estrés reportaría recompensas tanto para el cuidador como para el paciente en calidad de vida y control de la salud [Cheng, 2012].

En este contexto, los cuidadores familiares deben evaluar su bienestar y la calidad de vida en el momento del diagnóstico de la enfermedad de Alzheimer para elaborar un seguimiento del mismo y enfrentarse a los desafíos de la evolución de la enfermedad con las herramientas adecuadas y comedidas [Välimäki, 2012]. Son muchos los factores de riesgo asociados. El cuidado de una demencia está vinculada a un aumento en los síntomas depresivos y un mayor riesgo para padecer enfermedades cardiovasculares, y se ha demostrado que una intervención en los hábitos de vida del cuidador adecuada puede hacer disminuir la depresión y mejorar su estado de salud general [Moore, 2013]. Los estudios que se han centrado en el análisis del seguimiento de la salud de cuidadores de Alzheimer siempre han reportado un deterioro de la salud física y mental de los mismos, con común aparición de conflictos familiares e incluso suicidios después de la muerte de la persona cuidada [Shaji et al, 2003].

Las últimas revisiones sistemáticas sobre el tema, apuntan a que existe evidencia de que las intervenciones de apoyo al cuidador pueden ayudar a reducir el malestar psicológico de los mismos así como otros aspectos relacionados con su salud. Estos hallazgos sugieren que los médicos involucrados en el seguimiento de los enfermos afectos de Alzheimer, como estrategia de mejora del mismo, deben indagar y preguntar a los cuidadores de sus pacientes acerca sus preocupaciones y dudas. La información recogida en sus respuestas será de gran interés y apoyo para la mejora del diseño de su asistencia [Candy B, et al. 2011].

4.5 LAS NECESIDADES INCOMPLETAS DE LOS CUIDADORES

El envejecimiento de la sociedad europea traerá un aumento en el número de personas con demencia que viven en nuestra comunidad. Esto se traducirá una mayor demanda de servicios en la atención y el bienestar para ofrecer una asistencia eficiente y personalizada, lo que requiere un conocimiento profundo de las necesidades subjetivas y objetivas de atención. El tratamiento de las demencias, que actualmente son patologías incurables, requiere un enfoque del cuidado que implica tanto a los pacientes como a sus familias. En este contexto han ido proliferando intervenciones complementarias no-farmacológicas cuyos efectos han de ser evaluados para sopesar su involucración en un tratamiento multidisciplinar del Alzheimer. Por ello, para recabar este tipo de información, resulta clave la figura del cuidador principal, ya que éste es la figura más cercana al enfermo y el que acaba involucrándose más acertadamente en su asistencia. Los últimos estudios de análisis de las necesidades de los cuidadores y sus coberturas, demuestran que los efectos positivos de un programa activo de análisis de sus necesidades y en un apoyo activo al cuidador, se mejora la carga física y social del mismo [Carbone, 2013].

Las últimas revisiones sistemáticas de estudios sobre la identificación de los factores responsables de la carga objetiva del cuidador informal, revelan que existen unos 39 factores predictivos, la mayoría relacionados con la cognición, el comportamiento y el funcionamiento diario, relacionados directa o indirectamente con la sobrecarga del cuidador [Thompson et al, 1998; Wolfs et al, 2012].

En este sentido es esencial evaluar las necesidades de las personas tanto con la demencia como de sus cuidadores informales. Los estudios al respecto revelan que la mayoría de las necesidades no satisfechas se encuentran en los dominios de la memoria, la información, la angustia psicológica y las actividades cotidianas siendo las personas con demencia las que reportan menos necesidades (insatisfechas) que sus cuidadores [van der Roest et al, 2009].

Por lo tanto: la carga del cuidador se ve influida por el estado conductual y cognitivo del paciente, la capacidad de atención, el estrés, el aislamiento social, la relación existente con el paciente, la disponibilidad de recursos de apoyo, y las características propias del cuidador. Por ello, para reducir la carga y apoyar la salud del cuidador y su bienestar es necesario evaluar y reconocer los factores de riesgo asociados. Su identificación conducirá a su conocimiento y posibilidad de control [Sansoni et al, 2013].

En este sentido, intervenciones como las descritas en [De Rotrou et al, 2011], evidencian que programas activos dedicados a la asistencia de cuidadores pueden tener muy buenas consecuencias directas, como una mejor comprensión de la enfermedad así como el fomento de la capacidad de afrontamiento de los diferentes problemas derivados de la demencia.

4.6 LA APLICACIÓN DE LAS TECNOLOGÍAS DE LA INFORMACIÓN Y LA COMUNICACIÓN (TIC) AL APOYO EN LOS CUIDADOS DE ENFERMOS CRÓNICOS RESULTA SER EFICAZ

Las tecnologías de la información y comunicación (TIC o NTIC (Nuevas Tecnologías de la Información y Comunicación)) se pueden definir como aquellas tecnologías que agrupan elementos y técnicas que se utilizan para el tratamiento y la transmisión de las informaciones, principalmente en el ámbito de informática, de internet y de las telecomunicaciones. Entonces, se puede considerar cualquier elemento comunicativo como TIC en función de si éste ayuda a manipular, difundir y compartir la información a través de accesorios o dispositivos basados en la microelectrónica, la computación o las telecomunicaciones. Todas las TIC tienen básicamente dos rasgos característicos: el primero es

que tienen un proceso evolutivo muy rápido. Hay quien considera que el telégrafo eléctrico fue de las primeras herramientas de las TIC. El segundo rasgo es que se trata de un concepto muy amplio que incluye muchos elementos. En este sentido, clasificamos las tecnologías en tres grupos: redes, terminales y servicios. Dentro de “redes” se encuentran la telefonía fija, las redes de televisión, la banda ancha, la telefonía móvil, televisión IP y las redes del hogar. Los “terminales” son los aparatos físicos y actúan como punto de acceso de los ciudadanos a la sociedad de la información, van evolucionando e innovando continuamente. Ejemplos de "terminales" son: ordenadores con sus correspondientes sistemas operativos (Linux, Windows, Machintosh), navegadores de Internet (software de ordenador como Mozilla Firefox, Google Chrome o Internet Explorer), telefonía móvil, el televisor, reproductores portátiles de audio y vídeo o consolas de videojuegos. Y, finalmente, se llama “servicios” aquellos que mantienen el modelo proveedor-cliente, aplicado a la definición de TIC, los servicios varían en función de los recursos tecnológicos y la evolución de la forma en la que dan un servicio. Ejemplos de los servicios más comunes son: el correo electrónico, la búsqueda de información, la banca on-line, servicios móviles, comercio electrónico, etc. Lo más importante es que gracias a las tecnologías de la información y comunicación la humanidad ha sufrido un cambio radical en este último siglo. La llamada "era de la información" le debe su definición al desarrollo de las TIC y, gracias a ella, el ser humano puede recibir, adquirir, guardar y enjuagar todo tipo de información.

Desde hace ya muchos años la Unión Europea está incentivando el uso de las TIC en el contexto de las enfermedades neurodegenerativas y como apoyo a sus cuidadores. Inicialmente se incentivaron y utilizaron en este marco sistemas de navegación inteligentes y de geolocalización basados en las TIC destinados a mejorar la calidad de vida de las personas mayores frágiles y con discapacidad y a sus cuidadores familiares. El principal objetivo de todas estas iniciativas ha sido el buscar el aumento de la calidad de vida de las personas mayores y sus cuidadores familiares, la facilidad de uso de las herramientas TIC y las consideraciones de su bajo costo [Magnusson, 2002].

En este contexto, la efectividad del apoyo médico y social mediante las TIC a los cuidadores informales con respecto a las personas que sufren enfermedades crónicas resulta esencial bajo muchos aspectos. La intervención basada en las TIC ha demostrado ser eficaz y resultar positivo para el apoyo social para la mayoría de los cuidadores informales. Por lo tanto: la identificación y el diseño de las TIC adecuadas para los cuidadores informales se debe continuar y apoyar en todos sus diferentes contextos y herramientas como Internet y las redes sociales de apoyo en línea [Barrera-Ortiz et al, 2011; Lauriks et al, 2007].

Las TIC se han aplicado bajo muchos puntos de vista en la asistencia a las enfermedades neurodegenerativas, utilizándose como medidas de información y de control de los cambios asociados al devenir de las demencias de manera exitosa [Pilotto et al, 2011; Sacco et al, 2012; Romdhane et al, 2012; Van der Roest et al, 2010]. Su correcta aplicación ha servido para resolver múltiples problemas cotidianos creando un ambiente seguro y facilitando la toma de decisiones conjuntas (entre familiares, cuidadores y enfermo) sobre la asistencia del enfermo de Alzheimer [Olsson et al, 2012].

Al proporcionar a los cuidadores informales herramientas TIC de asistencia a las demencias basadas en redes sociales, se ha comprobado que su uso repercute positivamente tanto en la mejora de la atención y la rehabilitación como en el apoyo diario y la diversidad de soluciones aplicadas en los diversos problemas cotidianos asociados a la enfermedad. Ello evidencia que sistemas de TIC pueden ayudar, pero deben estar al día (actualizadas y bien asesoradas) y mantener el interés de los usuarios involucrados [Lundberg, 2013]. En este sentido, el análisis de diversas experiencias basadas en la aplicación de las redes sociales especializadas en cuidadores de Alzheimer, ha revelado que su

correcta utilización está asociada a un mejor rendimiento de las responsabilidades del cuidado y a mantener baja la sobrecarga asociada, repercutiendo, todo ello, en aspectos positivos para la salud del cuidador [Cheng et al, 2013], estando la calidad de la información proporcionada por la TIC asociada a una protección contra el riesgo de padecer o hacer evolucionar una demencia [Amieva et al, 2010; Zunzunegui et al, 2003].

Pero son muchos los factores que influyen en el uso de las TIC por parte de los cuidadores y que se tienen que tener en consideración en el momento de diseñar una herramienta de este tipo. Estas características se podrían resumir en: los conocimientos propios del cuidador sobre la enfermedad y su dominio del sistema de salud para su apoyo así como su capacidad personal, su propias necesidades como persona y el apoyo social recibido. También juega un papel trascendente la confianza en los efectos de su asistencia, el esfuerzo percibido al utilizar diversos servicios tecnológicos de apoyo y su capacidad por asumir y gestionar los diferentes roles de las personas involucradas en el cuidado del enfermo asistido [Chiu et al, 2011; Chiu et al, 2010; Dröes et al, 2005; Engström et al, 2009].

La última revisión sistemática sobre las intervenciones de apoyo basadas en Internet para los cuidadores de pacientes con demencia, revela que pueden mejorar el bienestar del cuidador, repercutiendo directamente en la persona cuidada. Sin embargo, las evidencia de apoyo disponibles carecen de la calidad metodológica necesaria requiriendo el diseño futuro de mejores estudios clínicos para enfatizar su impacto [Boots et al, 2013].

Siguiendo esta última sugerencia, en la actualidad se están elaborando diversas soluciones basadas en plataformas TIC para el apoyo de los cuidadores informales de enfermos de Alzheimer, en base a estudios clínicos, como es el caso del programa “Diapason”, basado en la aplicación de un compendio de intervenciones psicoeducativas diseñadas para prevenir el estrés y la carga de los cuidadores, y del cual se tendrán resultados de su estudio clínico a principios del 2015 [Cristancho-Lacroix et al, 2013]. Sus resultados indican poca aceptación del programa y las altas expectativas de los cuidadores [Cristancho-Lacroix et al, 2015]. Otro ejemplo es la intervención en internet “Mastery over Dementia”, basada en un repositorio de vídeos con la intención reducir los trastornos psicológicos, en particular los síntomas depresivos, en los cuidadores de Alzheimer, del cual se tendrá resultados en el 2014 [Blom et al, 2013]. Estos proyectos siguen la estela de otros ya evaluados como el DEM-DISC (DEMentia-specific Digital Interactive Social Chart), una plataforma web dedicada a solventar las necesidades de servicios de los cuidadores de Alzheimer que demostró, en su aplicación, efectos positivos tanto en cuidadores como en enfermos [Van der Roest et al, 2010].

4.7 LA NECESIDAD DE LA EVALUACIÓN DEL COSTE-EFECTIVIDAD DE LAS INTERVENCIONES EN EL CUIDADOR

La enfermedad de Alzheimer está considerada, según los últimos estudios, la enfermedad neurodegenerativa más costosa al comparar los tiempos de dedicación con sus costos asociados, por encima de otras enfermedades como el Parkinson (17.492 $ anuales del Alzheimer frente a los 3,284 $ generados por el Parkinson) [Costa et al, 2013]. Este paisaje hace necesario el profundizar en estudios sobre el impacto de programas de intervención en cuidadores, siendo éstos los que arrastran más costes derivados de la enfermedad [Health Quality Ontario, 2008]. Parece lógico, pues,

que una intervención que mejore las condiciones asistenciales de los cuidadores tenga una repercusión directa en los costes asociados al Alzheimer.

En esta línea, los estudios revelan que los cuidadores que son más capaces de adaptarse a los cambios que caracterizan a la demencia, se sienten más competentes a la atención y experimentan menos problemas psicológicos. Esto subraya la necesidad urgente de más investigación sobre las intervenciones en el cuidador que mejoran la adaptación de su papel y que incluye a largo plazo un seguimiento y evaluación del coste-efectividad de dichas intervenciones [de Vugt et al, 2013].

Otros estudios encaminados a evaluar el impacto económico de otros servicios al enfermo de Alzheimer, como son las clínicas de memoria y servicios a la mejora de la cognición, no han revelado mejores resultados que los programas de apoyo a los cuidadores, evidenciando el acierto de apostar por políticas y programas de apoyo a la asistencia directa del cuidador [Meeuwsen et al, 2013].

5 JUSTIFICACIÓN

Las enfermedades neurodegenerativas son unas patologías huérfanas de solución, con tratamientos sólo enfocados a sus consecuencias neuropatológicas, sin que éstos tengan un impacto representativo en su reversión o freno de su evolución. En este contexto desolador las intervenciones enfocadas a su tratamiento se deben efectuar de manera multidisciplinar para intentar sumar el máximo de efectos positivos posibles tanto de factores protectores como de la falta de factores de riesgo. Aún así, el objetivo, al no existir una cura, es el ralentizar su avance y el poder garantizar en lo máximo posible una calidad de vida aceptable tanto del afectado como de su entorno más próximo [Novella et al, 2012].

En los últimos años, expertos de todo el mundo sobre el Alzheimer, han convenido enfatizar el avance de la investigación en un diagnóstico más precoz de la enfermedad, en rebajar la administración de neurolépticos a enfermos de Alzheimer y a una ayuda familiar mejor respaldada. Éstas, por consenso, son las propuestas para combatir la enfermedad de Alzheimer y otras enfermedades degenerativas [Brooker et al, 2014; Lauritzen 2015].

En este sentido, proyectos europeos novedosos como el “Alcove” (Alzheimer Cooperative Valuation in Europe) (alcove-project.eu) tienen como objetivo el disminuir tratamientos farmacológicos para los pacientes encaminando y apoyando un mejor acompañamiento del personal de ayuda familiar.

Es por ello que la apuesta por las TIC es necesaria en la lucha contra las demencias, como es el caso de la propuesta de CARGIVERSPRO-MMD. Las TIC consiguen muchos de los objetivos a priori marcados por las políticas de salud actuales: un acceso a soluciones efectivas y de bajo coste, con repositorio de información accesible, y con la posibilidad de integrar todo tipo de herramientas y estrategias asistenciales (geolocalización, redes sociales, ejercicios neurocognitivos, estrategias de seguimiento…). Ello las hace ideales como soporte y ayuda al cuidador de personas afectadas por enfermedades tipo demencia.

6 OBJETIVOS DE INVESTIGACIÓN

En 2006, la Fundación Médéric para el Alzheimer dio a conocer los resultados de un estudio con respecto a los Centros de Memoria y MRRC (Recursos de Memoria y Centros de Investigación) en Francia. Este estudio reveló que 42 de los 136 centros que respondieron a la encuesta habían proporcionado un servicio médico de consultoría para los cuidadores (37 centros de memoria y 5 MRRC). Los problemas de salud más comunes que formaban parte de la consulta se enumeran en orden de frecuencia en la siguiente tabla:

consultas relacionadas con la salud de los cuidadores (% de los casos que informaron de cada patrón)*	
Angustia, ansiedad, depresión, agotamiento mental	90%
Cansancio	48%
Trastornos del sueño	32%
La pérdida de peso, trastornos de la alimentación	23%
Enfermedades cardiovasculares	23%
Pérdida de memoria	23%
Aislamiento social	18%
Dolor en las articulaciones	13%
Reacciones emocionales extremas, nerviosismo, agresividad	8%
Descompensaciones de enfermedades crónicas	5%

* 40% de los casos relevantes que respondieron a la encuesta

Los principales diagnósticos evolucionaron en relación con los trastornos depresivos, problemas cardiovasculares y trastornos de la alimentación (anorexia nerviosa, bulimia nerviosa). En la mayoría de los casos, el seguimiento consistió en no sólo un cambio de médico (ya sea a otro médico y/o especialista), sino que también, y en paralelo, con visitas a una asociación familiar especializada o ayuda psicológica.

Con la publicación de Eurofamcare en el 2005, situaciones muy diferentes fueron reportadas de un país a otro. Se subrayó la necesidad de una evaluación sistemática de la función y las necesidades de

los cuidadores. También recomendó la creación de un servicio de orientación psicológica para los cuidadores, la creación de grupos de discusión, y la organización de la formación para desarrollar su conocimiento sobre la demencia [Mestheneos et al, 2005], así como el tratamiento de los cambios de comportamiento en caso de necesidad.

Una revisión cada 6 meses que evalúe la carga del cuidador fue propuesta por Etters et al (2008). Esta iniciativa es especialmente importante para llevar a cabo intervenciones efectivas cuando se produzcan situaciones potencialmente peligrosas, tales como la presencia de cambios en el comportamiento, la incontinencia, la dependencia física o el conflicto [Etters et al, 2008]

7 HIPÓTESIS Y OBJETIVOS

La díada (formada por la persona que vive con deterioro cognitivo leve (DCL) o demencia leve a moderada (PVCD) y su cuidador principal) y el círculo social y de salud que se estructura alrededor de él (familia, amigos, otras díadas, personal de salud, investigadores), genera una gran cantidad de información con respecto a las preocupaciones sociales y de salud para mejorar las condiciones de vida y la evaluación de la progresión de la díada. La existencia de una plataforma basada en Tecnología de la Información y la Comunicación (TIC), capaz de canalizar toda la información generada y fomentar la búsqueda de soluciones a problemas específicos, equipados con herramientas de monitorización de la salud sensibles y la posibilidad de poner todas las diferentes personas que viven con el deterioro cognitivo leve deterioro o demencia (leve a moderada) en contacto directo; tanto la díada, así como profesionales de la medicina u otras diadas en la misma situación; mejorará la calidad de la atención, control y seguimiento de la enfermedad, lo que resulta a la vez en un mejor diagnóstico y una mejora en la calidad subjetiva de la vida y la salud de sus miembros.

7.1 HIPÓTESIS PRINCIPAL

- El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para la díada, en la percepción subjetiva de la calidad de vida de las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) y en el nivel de carga experimentado por el cuidador principal.

7.2 HIPÓTESIS SECUNDARIAS

- El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada), en su adherencia al tratamiento, los síntomas conductuales y psicológicos y el uso de drogas psicotrópicas.
- El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada), en sus actividades de la vida diaria y los trastornos psicológicos y neuropsiquiátricos.

- El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para los cuidadores principales de personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada), en los trastornos psicológicos y neuropsiquiátricos.
- El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para los cuidadores principales de personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada), en apoyo a la percepción social, el éxito en las relaciones, la autoestima, el propósito y el optimismo.
- El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD mejora la adherencia al tratamiento de la díada (formada por personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) y sus cuidadores principales.
- El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD está asociado a un beneficio para la díada (formada por personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) y sus cuidadores principales), en la calidad de la relación del cuidado.
- El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD reduce los costes totales de la atención (costes directos e indirectos) para la díada (formada por personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) y sus cuidadores principales.
- El uso durante 18 meses de la plataforma CAREGIVERSPRO-MMD reduce el número total de hospitalizaciones protagonizados por las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada).

7.3 Objetivos principales

Dos objetivos principales han sido considerados para el estudio:

- Para las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada): Evaluar su percepción subjetiva de calidad de vida con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.
- Para los cuidadores principales de personas que viven con deterioro cognitivo leve o demencia (de leve a moderada): Evaluar su carga percibida con el fin de identificar un beneficio del uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.

7.4 Objetivos secundarios

7.4.1 Objetivos secundarios relacionados con las personas con deterioro cognitivo leve o demencia (de leve a moderada)

- Evaluar las actividades de la vida diaria en las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.
- Evaluar la adherencia al tratamiento de las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar una mejora en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.

- Evaluar los síntomas conductuales y psicológicos en las las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.
- Evaluar el funcionamiento neuropsicológico de las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.
- Evaluar el número total de hospitalizaciones para las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.

7.4.2 Objetivos secundarios relacionados con los cuidadores principales

- Evaluar la calidad de vida subjetiva en los cuidadores de las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.
- Evaluar las adherencia al tratamiento en los cuidadores de personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada), con el fin de identificar a una mejora en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.
- Evaluar la salud mental y psicológica y el bienestar de los cuidadores de las personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.
- Evaluar el apoyo social percibido, el éxito en las relaciones, la autoestima, el propósito y optimismo en los cuidadores de las personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada), con el fin de identificar un beneficio del uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.
- Evaluar la prescripción de drogas psicotrópicas en los cuidadores de personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada), con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.

7.4.3 Objetivos secundarios relacionados con la diada

- Evaluar la calidad de la relación de cuidado entre el cuidador y las personas que viven con el deterioro cognitivo leve o demencia (demencia leve a moderada) en las diadas, con el fin de identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.

7.4.4 Objetivos secundarios relacionados con los beneficios económicos y financieros

- Evaluar los costes directos e indirectos del cuidado para identificar un beneficio en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.

7.4.5 Objetivos secundarios relacionados con usuarios de la plataforma CAREGIVERSPRO-MMD

- Evaluar el grado de satisfacción en el uso de la plataforma CAREGIVERSPRO-MMD durante 18 meses.

8 MÉTODOS

8.1 DISEÑO DEL ESTUDIO

El presente estudio está definido como prospectivo, aleatorizado, multicéntrico, controlado, paralelo y longitudinal. Las mediciones se registrarán durante el inicio del estudio (0) ya los 3, 6, 9, 12, 15 y 18 meses después para comparar dos grupos: un grupo formado por diadas (personas que viven con el deterioro cognitivo leve o demencia (de leve a moderada) y sus cuidadores principales) usando la plataforma CAREGIVERSPRO-MMD y otro grupo considerado "control" formado por las diadas que no van a tener acceso a la plataforma ni a sus servicios.

8.1.1 BREVE DESCRIPCIÓN DE LA PLATAFORMA CAREGIVERSPRO-MMD

La plataforma CAREGIVERSPRO-MMD se centra en las personas que viven con el deterioro cognitivo leve o demencia (de leve a moderada) y en sus cuidadores principales teniendo en cuenta esta "díada" como unidad de cuidado y ofreciendo todo un abanico de servicios avanzados, adaptados individualmente, que ayudan a mejorar la calidad de vida de la díada y les permite convivir en su comunidad durante tanto tiempo como sea posible.

Accesible a través de interfaces amigables y fáciles de usar para los teléfonos móviles, tabletas y navegadores web, los servicios de la plataforma CAREGIVERSPRO-MMD incluyen las redes sociales con otras personas que viven con demencia, cuidadores y médicos, exámenes clínicos y psicológicos, un plan de atención personalizada e intervenciones educativas adaptadas a los síntomas de cada usuario, un sistema de recordatorio de la medicación y de información a los médicos y personal médico sobre el nivel de adherencia al tratamiento y otras informaciones clínicas importantes.

La plataforma CAREGIVERSPRO-MMD ofrece múltiples beneficios para sus usuarios, tales como la creación de planes de cuidado personalizados que combinan tratamientos farmacológicos con otro tipo de terapias, tanto para las personas que viven con el deterioro cognitivo leve o demencia como para sus cuidadores, la posibilidad de estrategias para la reducción del estrés y el agotamiento de cuidadores, un constante y pormenorizado monitoreo de las personas que viven con el deterioro cognitivo leve o demencia permitiendo para un rápido y adaptativo ajuste a su plan de atención, la eficiente recopilación de datos útiles para los profesionales de la salud, el apoyo a las decisiones para la eficiencia de los planes de atención e intervenciones preventivas, así como las redes sociales colaborativas disponibles en la plataforma.

[Para más información: ver la sección "Descripción de la plataforma CAREGIVERSPRO-MMD"]

8.1.2 CALENDARIO DEL ESTUDIO

- **Periodo de información y reclutamiento de la muestra** (4 meses, desde enero de 2017 hasta abril de 2017)
    - A partir de las campañas y estrategias informativas y de difusión del estudio CAREVIGERSPRO-MMD para captar la muestra necesaria.
    - Primera sesión de información del proyecto para informar a los cuidadores y las personas que viven con el deterioro cognitivo leve o demencia de (leve a moderada) o a sus representantes legales que cumplan con los criterios de inclusión y exclusión (cribado).

- Segunda sesión informativa del proyecto destinada a proporcionar información adicional y detallada a los cuidadores y a las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada) o a sus representantes legales y las partes interesadas en el protocolo y las características del estudio. Firma del consentimiento.

- **Randomización y periodo de recopilación de datos** (18 meses, entre abril de 2017 y septiembre de 2018)
  - Asignación al azar de las diadas al inicio del estudio y la recopilación de datos a través de visitas de investigación durante la visita inicial, a los 6, 12, y 18 meses, y llamadas telefónicas (específicas para recopilar datos económicos, la adherencia al tratamiento, apoyo social percibido, el éxito en las relaciones, la autoestima, la predisposición activa y el optimismo) a los 3, 9 y 15 meses.

    resolución de consultas.

    (Para los usuarios de la plataforma se realizará una sesión de entrenamiento de la plataforma CAREGIVERSPRO-MMD).

- **Análisis de los datos** (14 meses, entre septiembre de 2017 y octubre de 2018)
  - Gestión de datos y consultas pendientes.
  - Análisis estadístico.
  - Informe estadístico y presentación de resultados.
  - informe clínico (octubre de 2018).

- **Diseminación de los resultados del estudio** (4 meses, entre septiembre de 2018 y diciembre de 2018)
  - Desarrollo de trabajos científicos, presentaciones multimedia y artículos para la difusión de los resultados del proyecto.
  - Seminarios, conferencias y reuniones científicas nacionales e internacionales sobre el tema del proyecto.

Año	2017												2018											
Mes	E	F	M	A	M	J	J	A	S	O	N	D	E	F	M	A	M	J	J	A	S	O	N	D
Mes del proyecto	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Información y reclutamiento																								
Randomización y recopilación de datos																								
Análisis de los datos del estudio																								
Diseminación																								

8.2 Criterios de inclusión / exclusión / salida del estudio

8.2.1 Criterios de inclusión

8.2.1.1 Para las personas que viven con el deterioro cognitivo leve o demencia

- Personas de 50 y más años de edad, que viven en la comunidad, que son capaces de dar su consentimiento informado (ella misma o su tutor legal).
- Diagnosticados con deterioro cognitivo leve (DCL) de acuerdo con los criterios de Petersen [Albert et al, 2011] o demencia de leve a moderada diagnosticados según los criterios del DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4ª edición) [American Psychiatric Association, 1994].

  [Para más información: ver las secciones: "Criterios clínicos básicos para el diagnóstico de DCL" y "DSM-IV criterios diagnósticos para demencia"]

- Tener una Clasificación Clínica de Demencia (CDR) del 0,5 para DCL, o de 1-2 en los casos de demencia leve a moderada.
- Tener una puntuación en el examen Mini-Mental (MMSE) [Folstein et al, 1975] entre 30 y 25 (ambos inclusive) en los DCL, y entre 24 y 10 (ambos inclusive) para los casos de demencia.
- Tener un cuidador principal, familiar (o no) e informal (o no) definido y también incluido en el estudio.
- Estar dispuestos a utilizar Tecnologías de la Información y la Comunicación (TIC) de acuerdo con los criterios del investigador.

8.2.1.2 Para los cuidadores principales

- Personas de 18 y más años de edad, sin diagnóstico o ninguna evidencia de deterioro cognitivo leve o demencia de eve a moderada (según los criterios del DSM-IV) [American Psychiatric Association, 1994], que sean capaces de dar su consentimiento informado y se comprometan a completar el estudio.
- Cuidadores principales informales (o no), familiares (o no), de personas con deterioro cognitivo leve o demencia de leve a moderada.
- Personas con acceso a Internet y conocimientos básicos y habilidades en el manejo de Internet y las redes sociales, o con ganas de adquirir estos conocimientos, de acuerdo con los criterios del investigador.
- Tener una escala de depresión geriátrica (GDS-Yesavage - 15 ítems) con una puntuación inferior a 11 en el momento de la entrada en el estudio, indicando no tener síntomas depresivos severos.
- No presentar condiciones específicas (evaluadas por el investigador) que reduzcan sus capacidades físicas a niveles inferiores de la normalidad de acuerdo con su edad que les limite u obstaculice el uso de plataforma CAREGIVERSPRO-MMD.
- Estar dispuestos a utilizar las Tecnologías de la Información y la Comunicación (TIC) de acuerdo con los criterios del investigador.

8.2.2 Criterios de exclusión

8.2.2.1 Para las personas con deterioro cognitivo leve y las personas que viven con demencia

- Estar diagnosticados de enfermedad terminal o grave con pronóstico de supervivencia menor a 18 meses.
- Presentar delirios, alucinaciones, trastornos del comportamiento, que pueden interferir con el uso de las herramientas basadas en las Tecnología de Información y Comunicación (TIC).

- Presentar problemas relevantes sensoriales (visual o auditivos) deterioro o discapacidad motora (como la parálisis de las extremidades superiores o inhabilitación debida a artritis o la presencia de temblor, etc...) evaluado por el investigador que pudiera interferir con el uso de las herramientas basadas en las Tecnologías de Información y la Comunicación (TIC).
- No hablar el idioma del país donde se lleva a cabo el estudio.

8.2.2.2 Para los cuidadores principales

- Estar diagnosticados de enfermedad terminal o grave con pronóstico de supervivencia menor a los 18 meses.
- Presentar problemas relevantes sensoriales (visual o auditivos) deterioro o discapacidad motora (como la parálisis de las extremidades superiores o inhabilitación debida a artritis o la presencia de temblor, etc...) evaluado por el investigador que pudiera interferir con el uso de las herramientas basadas en las Tecnologías de Información y la Comunicación (TIC).
- No hablar el idioma del país donde se lleva a cabo el estudio.

8.2.3 CRITERIOS DE SALIDA DEL ESTUDIO

- Si el cuidador principal cambia (o es substituido) o si el cuidador no puede continuar su papel de cuidador.
- Que el cuidador principal no haga uso de la plataforma durante 2 meses debido a una razón justificable de acuerdo con los criterios del investigador.
- Que el cuidador principal haga un uso malicioso o inapropiado de la plataforma CAREGIVERSPRO-MMD de acuerdo con los criterios del investigador.
- La presencia de una enfermedad grave para las personas que viven con el deterioro cognitivo leve o demencia (de leve a moderada) o sus cuidadores, a evaluación por el investigador, que interfiera con el uso de las herramientas basadas en las Tecnologías de Información y la Comunicación (TIC).
- Que un miembro de la díada desee retirar el consentimiento informado y quiera retirarse del estudio.
- La hospitalización o institucionalización por más de 2 meses justificada por razones no relacionadas con el papel de la atención.

8.3 INFORMACIÓN Y RECLUTAMIENTO DE LA MUESTRA

Esta fase tendrá una duración de cuatro meses (desde enero 2017 hasta abril 2017). Con el fin de garantizar la inclusión de la muestra en el estudio se realizarán algunas de las siguientes estrategias:

- Anuncios y comunicación del estudio en el seno de la comunidad local a través de voluntarios que proporcionan apoyo a las personas que viven con el deterioro cognitivo leve o demencia (de leve a moderada) y a sus cuidadores principales.
- Organización de reuniones, exhibición de pósters, elaboración de hojas de información, dípticos y panfletos.
- Publicidad del estudio en los eventos de sensibilización entorno a la demencia.
- Publicidad en Internet, en redes sociales y de medios de comunicación on-line relacionados

con el cuidado de las demencias.

- Anuncios en la radio y en los boletines y otras fórmulas de medios de comunicación escrita.
- Organización de jornadas informativas en organizaciones destinadas al apoyo a las personas que viven con deterioro cognitivo leve o demencia.
- Campañas de información y otras estrategias desarrolladas por instituciones colaboradoras locales para identificar posibles candidatos para la muestra de estudio.

Se facilitará a las personas interesadas el poderse poner en contacto con los investigadores responsables del proyecto para planificar una visita de selección con el objetivo de poder evaluar los criterios de inclusión / exclusión y poder transmitir el detalle de la información sobre las características y objetivos del estudio.

Paso 1

Durante el contacto inicial, el personal autorizado (asistentes de investigación) del centro piloto (de la Fundació Sociosanitària de Manresa) van a testear, mediante un estudio de cribado (screening) tanto en las personas que viven con el deterioro cognitivo leve o demencia (de leve a moderada) como en sus correspondientes cuidadores principales, el cumplimento de los criterios de inclusión y exclusión, para participar en el estudio. Durante este contacto tanto las personas que viven con deterioro cognitivo leve o demencia (de leve a moderada) como sus cuidadores principales, se les facilitará la hoja de información del estudio con todos los detalles de proyecto y de la plataforma CAREGIVERSPRO-MMD, así como la información verbal ampliada sobre el estudio. Para aquellos que expresen un interés en participar en la investigación, se les volverá a citar con el fin de inscribir a los componentes de la díada en un momento y lugar de su conveniencia.

Paso 2

Durante la visita posterior el investigador ofrecerá información detallada oral y escrita sobre el estudio, explicando sus características, ventajas, limitaciones, calendario, seguimiento y contactos adscritos ampliando detalladamente la información recogida en la hoja de información del estudio. Se proporcionará una oportunidad de hacer cualquier pregunta al investigador y, si después de la sesión tanto la persona que vive con deterioro cognitivo leve o demencia (de leve a moderada) como su cuidador principal están de acuerdo con las condiciones explicadas y protocolo demostrando una comprensión del estudio y cumpliendo con los criterios de inclusión y exclusión, entonces serán incluidos en el estudio después de la firma del consentimiento informado.

8.4 Cribado (screening)

En esta fase revisará los criterios de inclusión y exclusión en las personas que viven con deterioro cognitivo leve o demencia (leve a moderada) y su cuidador principal.

8.4.1 Variables sociodemográficas, tratamientos y comorbilidades

8.4.1.1 Variables sociodemográficas

Tanto para la persona que vive con deterioro cognitivo leve o demencia (de leve a moderada) como para su cuidador principal, se recopilará la siguiente información en la sesión de cribado [para más información ver sección: Recopilación de datos]:

Variables Sociodemográficas	Valores/Unidades
Fecha de nacimiento	(DD/MM/AA)
Sexo	Hombre / Mujer
Estado Sociodemogràfico (SES)	Alto, medio alto, medio bajo, baja Muy bajo (Kuppuswamy's socioeconomic scale [Sharma et al, 2012])
Nivel educativo	International Standard Classification of Education (ISCED-2011)
Ocupación profesional	International Standard Classification of Occupations (ISCO) - ISCO-88
Estatus laboral	Ocasional, a tiempo completo, de duración indefinida, a tiempo parcial, contrato regular, por obra y servicio, funcionariado
Relación entre el cuidador y la persona cuidada	Padre / madre, esposa / marido / pareja, hijo / hija, nuera / yerno, hermano / a, otro pariente, vecino, amigo. (de acuerdo con el cuestionario RUD)

8.4.1.2 Comorbilidades, medicamentos y tratamientos concomitantes

Tanto para la persona que vive con deterioro cognitivo leve o demencia (de leve a moderada) como para su cuidador principal, se recopilará la siguiente información relacionada con comorbilidades y medicamentos [para más información ver sección: Recopilación de datos].

Esa información se codificará siguiendo los diccionarios internacionales como el Diccionario de Medicamentos y Drogas de la Organización Mundial de la Salud (OMS-DD), la Clasificación Internacional de Enfermedades (CIE-10) y la Terminología de la OMS para Reacciones Adversas (WHOART), respectivamente.

8.4.2 Variables clínicas para DCL y PVCD

CDR - Clinical Dementia Rating Scale

Creado por: Morris, 1993

Propósito: El CDR es una escala de 5 puntos utilizada para caracterizar seis dominios de rendimiento cognitivo y funcional aplicable a la enfermedad de Alzheimer y demencias

relacionadas: memoria, orientación, juicio y resolución de problemas, asuntos de la comunidad, hogar y aficiones, y el cuidado personal. La información necesaria para realizar cada calificación se obtiene a través de una entrevista semiestructurada del paciente y de un informante fiable o fuente colateral (por ejemplo, un familiar).

Tiempo de administración: 30-40 minutos

Enviado por: médico de cabecera o especialista médico

Evaluado por: médico de cabecera o especialista médico

Cálculo de la puntuación CDR: https://www.alz.washington.edu/cdrnacc.html

Tiempo de ejecución: el cribado

Referencias: Morris, J.C. The Clinical Dementia Rating (CDR): Current vision and scoring rules

Neurology, 1993; 43:2412-2414

MMSE - Mini-Mental State Examination

Creado por: Folstein & Folstein, 1975

Propósito: Detectar la demencia, concebido como prueba breve para el deterioro cognitivo. Incluye preguntas acerca de la orientación, la atención, la memoria y el idioma.

Tiempo de administración: 20 minutos

Enviado por: neuropsicólogo, médico de cabecera o especialista médico

Evaluado por:neuropsicólogo

Referencias: Folstein MF, Folstein SE, McHugh PR. "Mini-mental state": a practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res. 1975;12:189-198.

8.4.3 Variables clínicas para los cuidadores principales

GDS - Geriatric Depression Scale [short version]

Creado por: Yesavage et al., 1982

Propósito: Un formulario corto de 15 preguntas fue desarrollado en 1986. Resulta más fácil de usar a las personas que están físicamente enfermas y viviendo con demencia leve o moderada, que tienen tramos cortos de atención y/o sienten fatiga con facilidad.

Tiempo de administración: 10 a 20 minutos

Enviado por: cuidador

Evaluado por: Psicólogo / Médico de cabecera / Médico especialista

Referencias: Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, Leirer VO. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res. 1982-1983;17(1):37-49.

8.5 Descripción de aleatorización/estratificación

Se asignarán aleatoriamente el grupo de control y el grupo de intervención. Para cada país se realizará una lista de asignación al azar estratificada por el Mini Examen del Estado Mental (MMSE). Debido a que el estudio tiene como objetivo reclutar el mismo número de personas con deterioro cognitivo leve (MMSE 30-25), demencia leve (MMSE 24-20) y demencia moderada (MMSE: 19-10), se considera un 33,3% en cada nivel . Se utilizará el procedimiento SAS PLAN para diseñar el diseño aleatorio.

8.6 Estrategia de intervención

La plataforma estudiada, CAREGIVERSPRO-MMD, es un recurso en línea basado en tecnología web accesible por ordenador, móvil y tableta, y dedicada a proporcionar tanto el seguimiento como la asistencia a las personas con deterioro cognitivo leve o personas que viven con demencia. Su estructura, como una red social, y su capacidad de evaluación con múltiples cuestionarios (dedicado a DCL/PVCD y sus cuidadores) permite compartir información detallada sobre el estado y el progreso de la enfermedad (estado cognitivo, uso de medicamentos, estado de ánimo...). Esta personalización lleva a los usuarios acceder a una amplia gama de información adaptada a cada situación, la enfermedad y la asistencia con el objetivo de mejorar la calidad de vida subjetiva, tanto del DCL/PVCD, el cuidador y su círculo inmediato.

- 301 díadas (50 seguidas por HUL, 100 por COO, 101 por la FUB y 50 por CHU) formadas por las personas que viven con el deterioro cognitivo leve o demencia (leve a moderada) y sus cuidadores primarios, participan en el grupo de intervención, y se dirigirá a los usuarios de la plataforma en línea utilizando todos los recursos integrados.
- 301 díadas (50 seguidas por HUL, 100 por COO, 101 por la FUB y 50 por CHU) formadas por las personas que viven con el deterioro cognitivo leve o demencia (leve a moderada) y sus cuidadores primarios, participan en el grupo de control, y no tendrán acceso a la plataforma en línea, pero serán evaluados en todos los parámetros de seguimiento pertinentes, siguiendo el protocolo del estudio.

El grupo de intervención utilizará una tableta (una para cada miembro de la díada, personas que viven con el deterioro cognitivo leve o demencia (leve a moderada) y su cuidador principal) conectada a la plataforma CAREGIVERSPRO -MMD, y proporcionada por el personal del proyecto. La tableta tendrá un acceso limitado a Internet y la capacidad de ser utilizado para otras aplicaciones distintas de las relacionadas con la actividad de la plataforma CAREGIVERSPRO-MMD.

[Para más información, consulte las secciones "Descripción de la plataforma CAREGIVERSPRO-MMD" y "Manual de usuario de la plataforma CAREGIVERSPRO-MMD"]

8.7 Medidas a recolectar

8.7.1 Variables físicas para DCL/PVCD y cuidadores principales

Tanto para la persona que vive con deterioro cognitivo leve o demencia (de leve a moderada) como para su cuidador principal, se recopilará la siguiente información en la visitas de investigación, durante la primera visita, a los 6, 12 y 18 meses [para más información ver sección: Recopilación de datos]:

Variables físicas	Valores/Unidades
Peso	Kilogramos (Kg) / gramos (gr)
Altura	Metros (m) / centímetros (cm)

8.7.2 Escalas y cuestionarios para los objetivos principales

Tanto para la persona que vive con deterioro cognitivo leve o demencia (de leve a moderada) como para su cuidador principal, se recopilará la siguiente información relacionada con los objetivos principales mediante escalas y cuestionarios validados en la visitas de investigación, durante la primera visita, a los 6, 12 y 18 meses [para más información ver sección: Recopilación de datos]:

8.7.2.1 Escalas para los DCL y PVCD

Calidad de vida subjetiva

DEMQoL - Dementia Quality of Life Measure

Creado por: Rabins & Kasper, 1997.

Propósito: Es una medida cuyo resultado es informado por el paciente (PROM) que está diseñada para permitir la evaluación de la calidad de vida relacionada con la salud de las personas con demencia. Fue desarrollado según principios psicométricos de la mejor calidad por un equipo multidisciplinario incluyendo BSMS, KCL, la London School of Hygiene and Tropical Medicine, la London School of Economics y la Nottingham and Sheffield Universities. DEMQoL está diseñado para trabajar a través de subtipos de demencia y adaptaciones a la atención, y puede ser utilizado en todas las etapas de la demencia. La medida consiste en dos cuestionarios: 1) DEMQoL es un cuestionario administrado por un entrevistador de 28 ítems respondido por la persona con demencia, y 2) DEMQoL-Proxy es un cuestionario administrado por un entrevistador de 31 ítems respondido por un cuidador.

Tiempo de administración: 5-30 minutos

Presentado por: Autoadministrado (DEMQOL) / Cuidador (DEMQOL-Proxy)

Evaluado por: Psicólogos, médicos de cabecera

Tiempo de ejecución: Valor basal, 6, 12 , 18 meses

Recolección de datos: Los datos se recogerán durante las visitas de investigación

Referencias: Mulhern B, Rowen D, Brazier J, Smith S, Romeo R, Tait R, et al. Development of DEMQOL-U and DEMQOL-PROXY-U: generation of preference-based indices from DEMQOL and DEMQOL-PROXY for use in economic evaluation. Health Technol Assess2013;17(5).

Smith SC, Lamping DL, Banerjee S, Harwood R, Foley B, Smith P, Cook JC, Murray J, Prince M, Levin E, Mann A, Knapp M. Measurement of health-related quality of life for people with dementia: development of a new instrument (DEMQOL) and an evaluation of current methodology. Health Technol Assess. 2005 Mar;9(10):1-93, iii-iv.

Karim S, Ramanna G, Petit T, Doward L, Burns A. (2008). Development of the Dementia Quality of Life questionnaire (D-QOL): UK version. Aging & Mental Health, 12(1): 144-148

8.7.2.2 Escalas para cuidadores principales

Carga percibida

ZBI - Zarit Burden Interview

Creado por: Zarit, Reever & Bach-Peterson, 1980

Objetivo: Evaluar el nivel de carga experimentada por los cuidadores principales de personas mayores que viven con demencia, a través de una escala de 29 ítems. La versión revisada contiene 22 ítems y se utiliza comúnmente. Cada elemento de la entrevista es una declaración que se le pide al cuidador para respaldar el uso de una escala de 5 puntos (0 = Nunca; 4 = casi siempre).

TIempo de administración: de 5 a 10 minutos.

Administrado por: Autoadministrado

Evaluado por: psicólogos, médicos de cabecera.

Tiempo de ejecución: Valor basal, 6, 12 , 18 meses

Recogida de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Zarit, S.H., Reever, K.E. y Bach-Peterson, J. (1980). Relatives of the Impaired Elderly: Correlates of feelings and Burden. Gerontologist, 20, 649-655.

8.7.3 ESCALAS Y CUESTIONARIOS PARA LOS OBJETIVOS SECUNDARIOS

Tanto para la persona que vive con deterioro cognitivo leve o demencia (de leve a moderada) como para su cuidador principal, se recopilará la siguiente información relacionada con los objetivos secundarios mediante escalas y cuestionarios validados en la visitas de investigación, durante la primera visita, a los 6, 12 y 18 meses [para más información ver: Data Management section]:

8.7.3.1 Escalas para DCL y PVCD

Síntomas clínicos cognitivos

MMSE - Mini-Mental State Examination

Creado por: Folstein & Folstein, 1975

Propósito: Detectar la demencia, concebido como una prueba breve para el deterioro cognitivo. Incluye preguntas sobre orientación, atención, recordación y lenguaje.

Tiempo de administración: 20 minutos

Administrado por: Neuropsicólogo, médico de cabecera o médico especialista.

Evaluado por: Neuropsicólogo.

Tiempo de ejecución: Valor basal, 6, 12, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Folstein MF, Folstein SE, McHugh PR. "Mini-mental state": a practical method for grading the cognitive state of patients for the clinician. J Psychiatr Res. 1975;12:189-198.

Actividades de la vida diaria

IADL - Lawton Instrumental Activities of Daily Living Scale [8 items version]

Creado por: Lawton & Brody, 1969

Propósito: Instrumento apropiado para evaluar la capacidad de realizar las tareas necesarias para vivir independientemente en la comunidad. Tiene en cuenta 8 tareas instrumentales (capacidad de usar el teléfono, compras, preparación de alimentos, limpieza, lavandería, transporte, responsabilidad de los propios medicamentos, capacidad para manejar las finanzas).

Tiempo de administración: 10 minutos

Administrado por: Cuidadores (familiares, profesionales)

Evaluado por: Enfermeras, médicos de cabecera, psicólogos

Tiempo de ejecución: Valor basal, 6, 12, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Lawton MP, Brody EM. Assessment of older people: self-maintaining and instrumental activities of daily living. Gerontologist. 1969;9(3):179-186

BADL - Barthel ADL Index / Barthel Index of Activities of Daily Living

Creado por: Mahoney & Barthel, 1965

Propósito: Medir el desempeño en la actividad de la vida diaria. Tiene en cuenta el nivel de habilidad de 10 tareas recurrentes (continencia del intestino y de la vejiga, aseo, uso del inodoro, alimentación, transferencia, movilidad, vestirse, escaleras, baño). Las puntuaciones totales posibles oscilan entre 0-20. Cambios de más de 2 puntos reflejan una mejora o deterioro del estado funcional. Las puntuaciones más bajas indican incremento de las dificultades.

Tiempo de administración: 10 minutes

Administrado por: Cuidadores (familiares, profesionales), enfermeras

Evaluado por: Enfermeras/médicos de cabecera, psicólogos

Tiempo de ejecución: Valor basal, 6, 12, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Mahoney FI, Barthel DW. Functional evaluation: the Barthel Index. Md Med J 1965; 14: 61-65

Síntomas psicológicos y comportamentales

NPI - NeuroPsychiatric Inventory [12-item NPI]

Creado por: Cummings, 1984

Propósito: Evaluar los dominios conductuales comunes en la demencia. Contiene 12 dominios. Estos incluyen: alucinaciones, delirios, agitación/agresión, disforia/depresión, ansiedad, irritabilidad, desinhibición, euforia, apatía, conducta motora aberrante, alteración del sueño y del comportamiento nocturno, apetito y cambio alimenticio.

Tiempo de administración: de 0 a 30 minutos

Administrado por: Cuidadores (familiares, profesionales)

Evaluado por: Psicólogo/ médico especialista

Tiempo de ejecución: valor basal, 6, 12, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Cummings, J., Mega, M., Gray, K., Rosenberg-Thompson, S., Carusi, D. A., & Gornbein, J. (1994). The Neuropsychiatric Inventory: Comprehensive assessment of psychopathology in dementia. Neurology, 44, 2308-2314.

GDS - Geriatric Depression Scale [short version]

Creado por: Yesavage et al., 1982

Propósito: En 1986 se desarrolló un formulario corto compuesto de 15 preguntas. Las personas que están físicamente enfermas y que viven con demencia leve a moderada, que tienen períodos de atención cortos y / o se sienten fatigados fácilmente, lo encuentran más fácil de usar.

Tiempo de administración: de 10 a 20 minutos

Administrado por: DCL/PVCD o cuidador

Evaluado por: psicólogo/médico especialista/médico de cabecera.

Tiempo de ejecución: Valor basal, 6, 12, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, Leirer VO. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res. 1982-1983;17(1):37-49.

8.7.3.2 Escalas para los cuidadores principales

Calidad de vida subjetiva

SF-36v2 - Medical Outcomes Study (MOS) 36-Item Short Form 2nd version

Creado por: Ware jE, 1992

Propósito: La encuesta de salud Optum ™ SF-36v2® realiza 36 preguntas para medir la salud funcional y el bienestar desde el punto de vista del paciente. Es una medida práctica, confiable y válida de la salud física y mental que se puede completar de cinco a diez minutos. Nos referimos

a ella como una encuesta genérica de salud, ya que puede ser utilizada por distintas edades (18 años y más), enfermedades y el grupos de tratamiento, en contraposición a una encuesta de salud específica de la enfermedad, que se centra en una afección o enfermedad en particular.

Tiempo de administración: 5-10 minutos

Administrado por: autoadministrado

Evaluado por: Psicólogos, médicos de cabecera.

Tiempo de ejecución: Valor basal, 6, 12, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Ware JE, Jr, Sherbourne CD. The MOS 36-item short-form health survey (SF-36). I. Conceptual framework and item selection. Med Care. 1992;30:473-483.

Síntomas psicológicos y comportamentales

GDS - Geriatric Depression Scale [versión corta]

Creado por: Yesavage et al, 1982

Propósito: Evaluar la depresión en personas mayores. Es una prueba de 30 ítems; los puntajes de 0-4 se consideran promedio, dependiendo de la edad, la educación y las quejas; 5-8 indican depresión leve; 9-11 indican depresión moderada; y 12-15 indican depresión severa.

Tiempo de administración: de 10 a 20 minutos

Administrado por: Cuidadores (familiares, profesionales)

Evaluado por: Psicólogos, médicos de cabecera, médicos especialistas.

Tiempo de ejecución: Valor basal, 6, 12, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Yesavage JA, Brink TL, Rose TL, Lum O, Huang V, Adey M, Leirer VO. Development and validation of a geriatric depression screening scale: a preliminary report. J Psychiatr Res. 1982-1983;17(1):37-49.

STAI - State Trait Anxiety Inventory

Creado por: Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983

Propósito: Para medir el rasgo y el estado de ansiedad. Se puede utilizar en entornos clínicos para diagnosticar la ansiedad y distinguirla de los síndromes depresivos. También se utiliza a menudo en la investigación como un indicador de la angustia del cuidador.

Tiempo de administración: de 2 a 6 minutos

Administrado por: autoadministrado

Evaluado por: Psicólogos, médicos de cabecera

Tiempo de ejecución: Valor basal, 6, 12, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Elliott, T, Shewchuk, R, & Richards, J.S. (2001). Family caregiver problem solving abilities and adjustment during the initial year of the caregiving role. Journal of Counseling Psychology, 48, 223-232.

Shewchuk, R., Richards, J. S., & Elliott, T. (1998). Dynamic processes in health outcomes among caregivers of patients with spinal cord injuries. Health Psychology, 17, 125-129.

Spielberger, C. D. (1989). State-Trait Anxiety Inventory: Bibliography (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press.

Apoyo social percibido

MSPSS - Multidimensional Scale of Perceived Social Support

Creado por: Zimet, Dahlem, Zimet & Farley, 1988

Propósito: Evaluar la percepción de un individuo del apoyo social que recibe de su familia, amigos y otras personas relevantes.Es un cuestionario autoinforamdo de 12 ítems.

Tiempo de administración: 5 minutos

Administrado por: Autoadministrado

Evaluado por: Psicólogo

Tiempo de ejecución: valor basal, 6, 12, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación

Referencias: Marziali et al. (2006), Marziali et al. (2011) ; T. Anderson, L. Merkerson-Miller, D. Paniagua and M. Ivins-Lukse (2015)

Canty-Mitchell, J. & Zimet, G.D. (2000). Psychometric properties of the Multidimensional Scale of Perceived Social Support in urban adolescents. American Journal of Community Psychology, 28, 391-400.

Zimet, G.D., Powell, S.S., Farley, G.K., Werkman, S. & Berkoff, K.A. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support Journal of Personality Assessment,55,610-17

Éxito percibido en las relaciones, la autoestima, la actitud y el optimismo

FS - Flourishing Scale

Creado por: Diener, 2009.

Propósito: La Flourishing Scale es una breve medida resumen de 8 ítems sobre el éxito autopercibido del entrevistado en áreas importantes tales como relaciones, autoestima, propósito y optimismo. La escala proporciona una puntuación de bienestar psicológico única.

Tiempo de administración: 3-5 minutos

Administrado por: Autoadministrado

Evaluado por: Psicólogos, médicos de cabecera

Tiempo de ejecución: Valor basal, 3, 6, 12, 15, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación (valor basal, 6, 12 y 18 meses) y mediante llamadas telefónicas realizadas por el personal investigador (3, 9 y 15 meses).

Referencias: Diener E, Wirtz D, Tov W, Kim-Prieto C, Choi D, Oishi S, Biswas-Diener R. (2009). New measures of well-being: Flourishing and positive and negative feelings. Social Indicators Research, 39, 247-266.

8.7.3.3 Escalas para las díadas

Relación social percibida entre los DCL/PVCD y sus cuidadores principales

DAS - Dyadic Adjustment Scale

Creado por: Spanier GB, 1976

Propósito: Medir el ajuste marital. Solteros o parejas del mismo sexo también pueden usarlo. Los sujetos clasifican el grado en el que ellos y su pareja están de acuerdo o en desacuerdo en una variedad de temas y la frecuencia con la que participan en interacciones específicas, como pelear.

Tiempo de administración: de 5 a 10 minutos

Administrado por: autoadministrado

Evaluado por: Psicólogos/médicos de cabecera

Tiempo de ejecución: Valor basal, 3, 6, 9, 12, 15, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación (valor basal, 6, 12 y 18 meses) y mediante llamadas telefónicas realizadas por el personal investigador (3, 9 y 15 meses).

Referencias: Spanier GB. Measuring Dyadic Adjustment: New Scales for Assessing the Quality of Marriage and Similar Dyads. Journal of Marriage and Family. 1976;38(1):15-28.

8.7.4 MEDICAMENTOS, TRATAMIENTOS CONCOMITANTES, ADHERENCIA AL TRATAMIENTO, COMORBILIDADES Y EVENTOS ADVERSOS

Para las personas que viven con deterioro cognitivo o demencia (leve a moderada) y sus cuidadores primarios, estos datos serán recogidos por los médicos y codificados siguiendo los diccionarios internacionales, como el Diccionario de Medicamentos de la Organización Mundial de la Salud (WHO-DD), la Clasificación Internacional de Enfermedades (ICD-10) y la Terminología de Reacciones adversas de la OMS (WHOART), respectivamente.

Adherencia al tratamiento

Proportion of days covered (PDC)

Creado por: Choudhry NK, et al.

Propósito: El cálculo PDC se basa en los días a la fecha de prescripción de una receta y los días de suministro para cada receta. El denominador de la PDC (a nivel de paciente) es el número de días entre la primera receta de la medicación durante el periodo de medición y el final del período de medición. A continuación, el PDC es la proporción de días con la medicación disponible en el periodo de medición (período de seguimiento). Las personas que viven con el deterioro cognitivo leve o demencia (leve a moderada) y sus cuidadores principales con un PDC ≥ 80% se consideran como adherentes, y se podrán compararon las proporciones de los adherentes de ambos grupos.

Calendario de suministro: Continuous

Referencias: Choudhry NK, et al. Measuring Concurrent Adherence to Multiple Related Medications. Am J Managed Care. 2009;15:457-464.

Nau DP. Proportion of days covered (PDC) as a preferred method of measuring medication adherence. Springfield, VA: Pharmacy Quality Alliance [Internet]. 2012

American Pharmacists Association (2013). Improving medication adherence in patients with severe mental illness. Pharmacy Today 19(6):69-80.

MMAS-8 - 8-item Morisky Medication Adherence Scale

Creado por: Morisky et al. 2008

Propósito: El MMAS-8 fue desarrollado a partir de una escala de cuatro ítems previamente validada y se complementa con elementos adicionales relacionados con las circunstancias relacionadas con la conducta de adhesión. Las puntuaciones del MMAS-8 pueden variar de 0 a 8 y se han tricotomizado previamente en tres niveles de adhesión, para facilitar su uso en la práctica clínica: adherencia alta: puntuación MMAS, 8; adherence media: MMAS puntuación ≥6 a <8; baja adherencia: puntuación MMAS <6.

Tiempo de administración: 3 minutos

Administrado por: autoadministrado, cuidadores (familiares, profesionales)

Evaluado por: personal investigador

Tiempo de ejecución: Valor basal, 3, 6, 9, 12, 15, 18 meses.

Recolección de datos: Se recogerán los datos durante las visitas de investigación (valor basal, 6, 12 y 18 meses) y mediante llamadas telefónicas realizadas por el personal investigador (3, 9 y 15 meses).

Referencias: Morisky DE, Ang A, Krousel-Wood M, Ward H. Predictive validity of a medication adherence measure for hypertension control. J Clin Hypertens 2008;10: 348–354.

8.7.5 USUARIOS DE LA PLATAFORMA

También se evaluará la satisfacción del usuario. La actividad del usuario de la plataforma será evaluado mediante indicadores internos.

C-MMD-USE - C-MMD User Satisfaction Scale

Creado por: MobilesDynamics

Propósito: El cuestionario evalúa la satisfacción y las expectativas de los usuarios de la plataforma CAREGIVERSPRO-MMD a través de preguntas cortas.

Tiempo de administración: 3-5 minutos

Administrado por: autoadministrado

Evaluado por: personal de investigación

Tiempo de ejecución: valor basal, 3, 6, 9, 12, 15, 18 meses

Recolección de datos: Se recogerán los datos durante las visitas de investigación (valor basal, 6, 12 y 18 meses) y mediante llamadas telefónicas realizadas por el personal investigador (3, 9 y 15 meses).

Indicadores internos:

- Número de visitas por unidad de tiempo
- Tiempo promedio de visitas
- Secciones visitadas y servicios utilizados
- Actividad en las redes sociales de la plataforma
- Actividad en el contenido de la plataforma

8.7.6 VARIABLES ECONÓMICAS

Utilización y consumo de recursos

RUD - Resource Utilization in Dementia

Creado por: Wimo A, et al. 2012

Propósito: Es el instrumento más utilizado para la recolección de datos de uso recursos en demencia, lo que permite la comparación de los costos de la atención entre países con diferentes prestaciones de atención sanitaria

Tiempo de administración: 10 minutos

Administrado por: DCL/PVCD o cuidadores (familiares, profesionales)

Evaluado por: personal investigador

Tiempo de ejecución: Valor basal, 3, 6, 9, 12, 15, 18 meses.

Recolección de datos: Se recogerán los datos durante las visitas de investigación (valor basal, 6, 12 y 18 meses) y mediante llamadas telefónicas realizadas por el personal investigador (3, 9 y 15 meses).

Referencias: Wimo A, Gustavsson A, Jönsson L, Winblad B, Hsu MA, Gannon B. Application of Resource Utilization in Dementia (RUD) instrument in a global setting. Alzheimers Dement. 2013 Jul;9(4):429-435.e17. doi: 10.1016/j.jalz.2012.06.008. Epub 2012 Nov 9.

Perspectiva de análisis

El estudio económico derivado del uso CAREGIVERSPRO-MMD debe tener en cuenta todos los costos y los resultados que son consecuencia de la enfermedad (costo de la enfermedad) o las intervenciones de salud o de atención social evaluadas (evaluación económica). Se evaluará los costos y los resultados a los proveedores o financiadores de salud y de atención social principales y a las personas que viven con el deterioro cognitivo leve o demencia (leve a moderada) y sus familias. Estos incluirán: los costos de la atención hospitalaria, los servicios de salud basados en la comunidad, servicios de asistencia social, y la atención recibida por los organismos voluntarios o familiares y amigos.

Medición y valoración de los costes

El estudio económico derivado del uso de la plataforma CAREGIVERSPRO-MMD, describirá y cuantificará los recursos utilizados para proporcionar salud y asistencia social y apoyo a las personas que viven con el deterioro cognitivo leve o demencia (leve a moderada) y a sus cuidadores.

El estudio incluirá los costes de intervención en la plataforma CAREGIVERSPRO-MMD, el seguimiento de los los cuidados y apoyo para las personas que viven con el deterioro cognitivo leve o demencia (leve a moderada) y sus cuidadores principales.

Los costes totales incluyen: costes directos e indirectos.

Costes directos. Costos médicos y de atención social	
Concepto	**Recolección de datos**
Procedimientos diagnósticos	Requerido
Atención domiciliaria de enfermería	RUD
Medicaciones	Requerido
Costes adicionales de salud	RUD
Costes de laboratorio	Requerido
Visitas médicas	RUD
Hospitalizaciones	RUD

Terapias de enfermedades	RUD
Adaptación de la vivienda	Requerido
Costes residenciales o de relevo a la atención	RUD
servicios de bienestar social como centros de día	RUD

Costes directos. Costes de atención no médicos	
Concepto	**Recolección de datos**
Ayuda médica en el hogar/telecuidado o telemedicina	Requerido
Cuidado de relevo	RUD
Servicios de día para adultos	RUD

Costes indirectos	
Concepto	**Recolección de datos**
Pérdida de productividad de los DCL/PVCD y los cuidadores	RUD
Tiempo no pagado de cuidados	RUD
Cuidado proporcionado por familiares y amigos	RUD
Cuidado proporcionado por agencias de voluntariado	RUD

8.8 Diagrama de flujo de la recolección de datos para el estudio

8.8.1 Personas que viven con deterioro cognitivo leve o demencia (de leve a moderada)

Mes del estudio piloto		Cribado	0	3	6	9	12	15	18
Medidas a ser recolectadas	**Herramienta**								
Variables sociodemográficas		*							
Variables físicas			*		*		*		*
Comorbilidades		*							
Eventos adversos									
Medicación y tratamientos concomitantes		*							
Adherencia al tratameinto	PDC								
	MMAS-8		*	+	*	+	*	+	*
Objetivos principales	**Herramienta**								
Calidad de vida subjetiva	DEMQoL		*		*		*		*
Objetivos secundarios	**Herramienta**								
Síntomas cognitivos clínicos	CDR	*							
	MMSE	*	*		*		*		*
Actividades de la vida diaria	IADL		*		*		*		*
	BADL		*		*		*		*
Síntomas psicológicos y comportamiento	GDS		*		*		*		*
	NPI		*		*		*		*

8.8.2 Cuidadores principales

Mes del estudio piloto		Cribado	0	3	6	9	12	15	18
Medidas a ser recolectadas	**Herramienta**								
Variables sociodemográficas		*							
Variables físicas			*		*		*		*
Comorbilidades		*							
Eventos adversos									
Medicación y tratamientos concomitantes		*							
Adherencia al tratamiento	PDC								
	MMAS-8		*	+	*	+	*	+	*
Objetivos principales	**Herramienta**								
Síntomas clínicos cognitivos	ZBI		*		*		*		*
Objetivos secundarios	**Herramienta**								
Calidad de vida subjetiva	SF-36v2		*		*		*		*
Síntomas psicológicos y comportamiento	GDS	*	*		*		*		*
	STAI		*		*		*		*
Apoyo social percibido	MSPSS		*	+	*	+	*	+	*
Éxito percibido en las relaciones	FS		*	+	*	+	*	+	*

8.8.3 Diadas

Mes del estudio piloto		Cribado	0	3	6	9	12	15	18
Medidas a ser recolectadas	**Herramienta**								
Calidad de la relación de la díada	DAS		*		*		*		*

8.8.4 Usuarios de la plataforma

Mes del estudio piloto		Cribado	0	3	6	9	12	15	18
Medidas a ser recolectadas	**Herramienta**								
Satisfacción					*		*		*

8.8.5 VARIABLES ECONÓMICAS

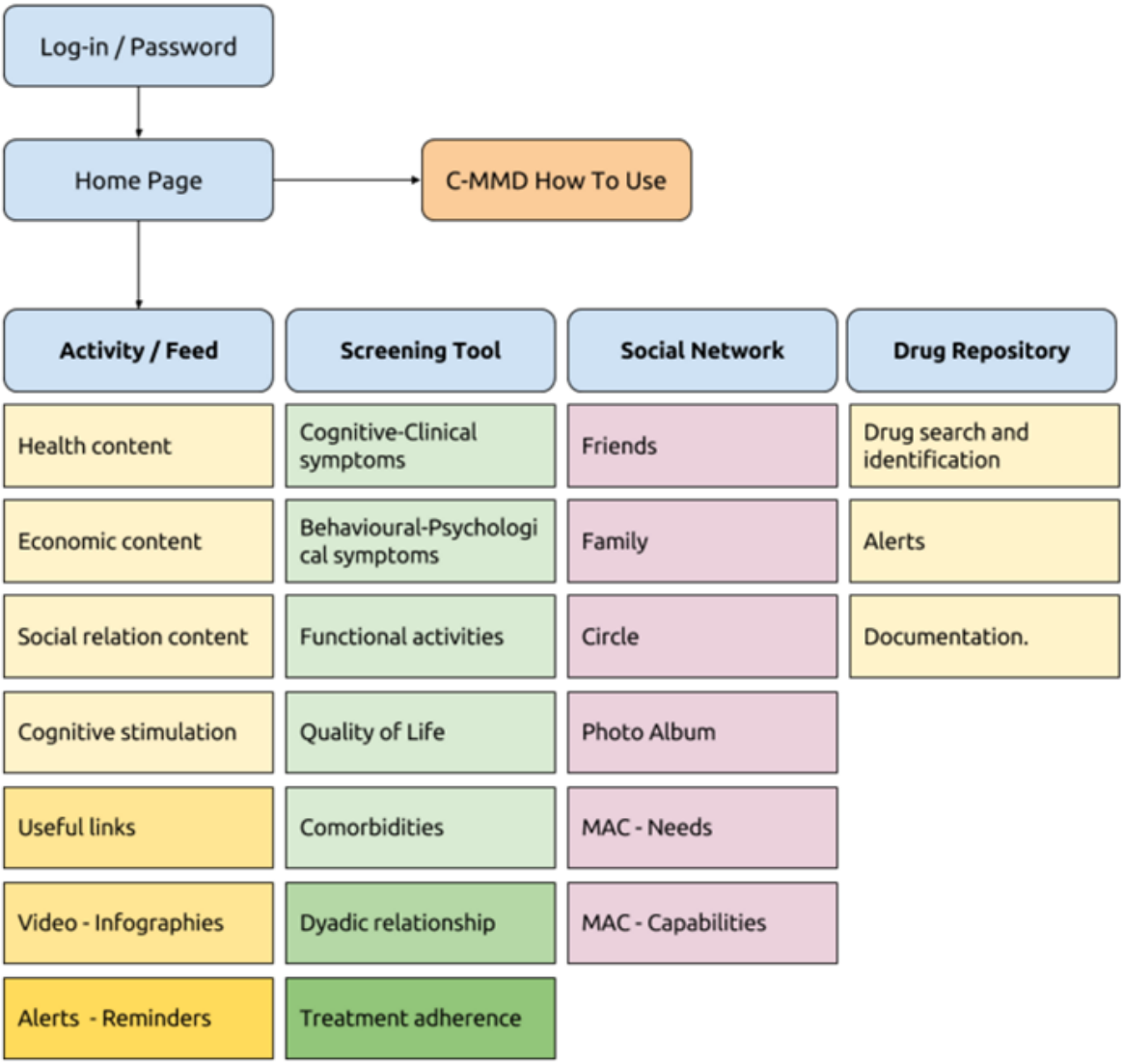
Mes del estudio piloto		Cribado	0	3	6	9	12	15	18
Medidas a ser recolectadas	**Herramienta**								
Utilización de recursos	RUD		*	+	*	+	*	+	*
Costes directos e indirectos del cuidado			*	+	*	+	*	+	*

*	Examen clínico y recopilación de datos
+	Recolección de datos mediante una llamada telefónica
·····	Recolección continua de datos

9 DESCRIPCIÓN DE LA PLATAFORMA CAREGIVERSPRO-MMD

La plataforma CAREGIVERSPRO-MMD (C-MMD) se distribuye mediante un sitio web completamente automatizado, libre y protegido por contraseña, una tableta y una aplicación móvil para ser usada por las personas que viven con alzheimer o deterioro cognitivo leve, y los profesionales sociales y de la salud. La plataforma C-MMD se centra en la díada como unidad de atención. El principal objetivo es mejorar la experiencia de esta unidad de atención y lograr una mayor eficiencia y valor para los sistemas de salud y prestación social. Las intervenciones C-MMD son multicomponente y adaptadas.

9.1 Servicios de C-MMD para MCI / PLWD y sus cuidadores



9.2 Repositorio de Medicamentos

El servicio de depósito de medicamentos ofrece una gama de funcionalidades. Se basa en una arquitectura de API (Interfaz de Programación de Aplicaciones) innovadora que cubre 3 dominios principales: Búsqueda e identificación de medicamentos, Alertas y Documentación.

1) **Búsqueda e identificación de medicamentos:** Nombre del producto que se utiliza para las operaciones de búsqueda de marca o genéricos.
2). **Funciones de alerta**: Los medicamentos de la alergia, las interacciones y los módulos de advertencia
3) **Funciones de Documentación y estructuración de datos:** Nombre de la marca, ingrediente(s) activo(s), vía(s) de administración, contraindicaciones, alergias, precauciones, efectos adversos, interacciones con otras medicamentos, información del embalaje, advertencias (interacciones fármaco-alimento, riesgos específicos. ..), advertencias de uso.

9.3 Red Social

Las características permitirán a los individuos construir un perfil público o semi-público dentro de un sistema acotado, articular una lista de otros usuarios con los que comparten una conexión, y ver y recorrer su lista de conexiones y las hechas por otros dentro de la sistema [Boyd, 2007]. Los usuarios pueden enviar solicitudes de amistad a través del correo electrónico a otros usuarios. Cuando una persona recibe una solicitud de amistad, puede aceptar o rechazar, o bloquear por completo el usuario. Si el usuario acepta a otro usuario como amigo, los dos se pueden conectar directamente o en el grado "amigo". El usuario aparecerá entonces en la lista de amigos de la persona y viceversa. Otros grados de parentesco en la plataforma C-MMD es el "círculo" (conexión de confianza) y el grado de "familia".

Otro de los servicios de las redes sociales C-MMD es la comunidad de asistencia mutua, donde las necesidades de los usuarios se asocian automáticamente con los recursos de los usuarios. El servicio ajusta adecuadamente las demandas con las ofertas de los usuarios. Interfaz para identificar las necesidades, intereses (demandas) de los usuarios y sus capacidades, conocimientos, know-how y disponibilidad (ofertas). El sistema debe ser capaz de asociar las demandas y los servicios y permitir a los usuarios que se conozcan entre ellos.

9.4 Herramienta de cribado

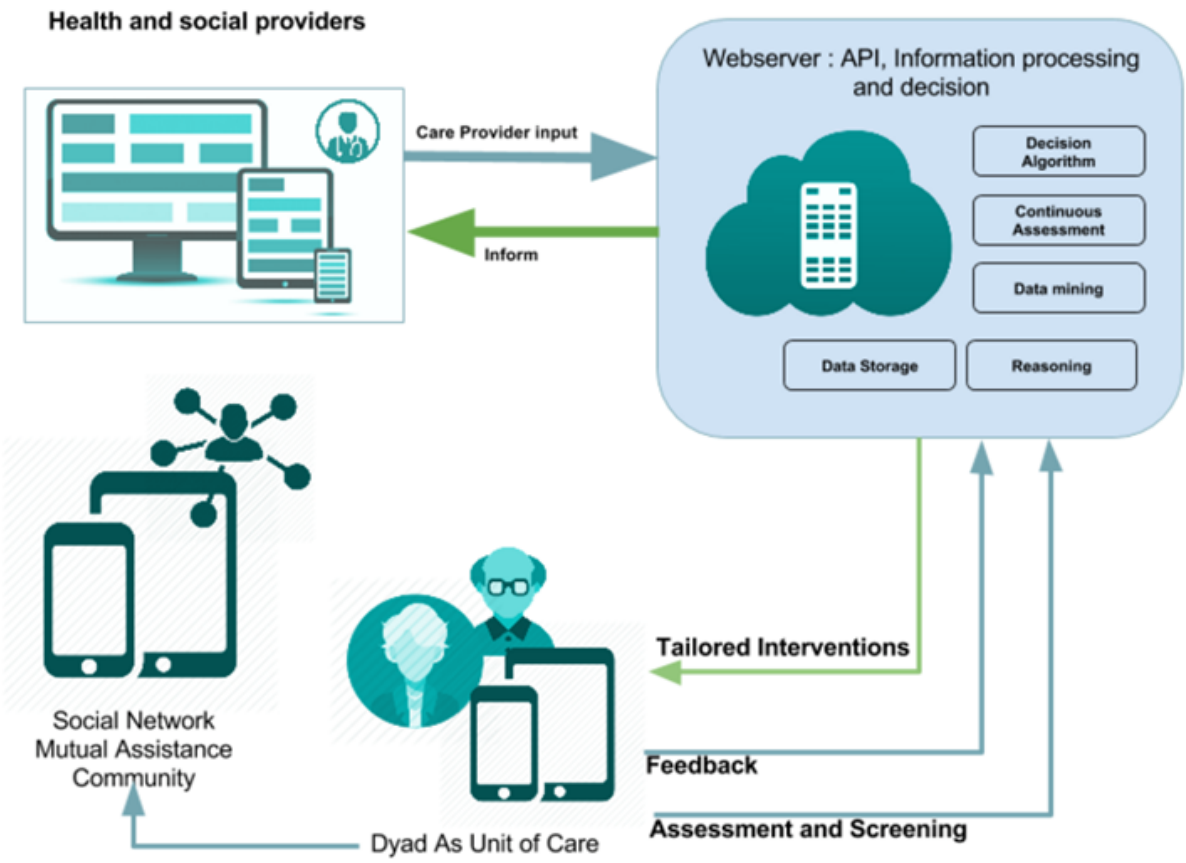
Foco de cribado de C-MMD de los siguientes dominios clínicos para DCL / PVCD y sus cuidadores:

- Escalas clínicas y cognitivas
- Escalas psicológicas y de comportamiento
- Escalas funcionales
- Calidad de vida
- Comorbilidad
- Tratamiento de adherencia
- Relación de la díada

9.5 Activity/Feed

Basado en el resultado de la evaluación (herramienta de cribado), noticias,... se proponen actividades en forma de intervención adaptada al usuario.

C-MMD proporciona intervenciones adaptadas a los usuarios (DCL/PVCD o cuidador). Las intervenciones dirigidas son programas basados en la evaluación: entregan breves mensajes educativos, abordan las necesidades individuales y se adaptan a las características individuales tales como las condiciones de salud, la cultura, el nivel socioeconómico y nivel educativo. Para los cuidadores, las intervenciones adaptadas se basan en las teorías cognitivas del estrés, una revisión de la literatura, y los resultados de un estudio llevado a cabo por el equipo de C-MMD. Las intervenciones se dirigen a las creencias, habilidades y apoyo social de los cuidadores y a su actitud en la búsqueda de ayuda, así como para reunirse y discutir con sus compañeros a través de las redes sociales.



10 RECOPILACIÓN DE DATOS

10.1 CARACTERÍSTICAS DE LA RECOGIDA DE DATOS

Los datos se introducirán en una página web de gestión de datos por parte del personal de investigación. La introducción se realizará de la siguiente manera:

1. En las visitas de investigación de referencia: Toda la información será recolectada en los meses 6, 12 y 18.
2. En las llamadas telefónicas: En los meses 3, 9 y 15 serán recogidos los costos económicos asociados con la atención (RUD escala + otros parámetros económicos), la adherencia al tratamiento (escala MMAS-8), el apoyo social percibido (escala MSPSS) y la percepción de éxito en las relaciones, autoestima, (escala FS) propósito y optimismo.

10.2 DESCRIPCIÓN DE LA PÁGINA DE ADMINISTRACIÓN DE DATOS DE LA WEB

La página web de gestión de datos pretende ser una plataforma de software en un servidor web seguro para el almacenamiento de los datos clínicos generados durante las sesiones de proyección y de investigación con participantes en el piloto. El sitio web será accesible únicamente por los usuarios autorizados, en un entorno seguro en los servidores de la UPC (Universidad Politécnica de Cataluña - BarcelonaTech).

Todos los datos relacionados con la salud generados durante la prueba piloto se almacenarán en el sitio web de gestión de datos, y los investigadores podrán analizar los datos en tiempo real con el fin de realizar un control regular de todo el proceso.

10.2.1 GESTIÓN DE LOS DATOS

Todos los datos se asocian a un sujeto identificado por su ID, y no serán almacenados en el servidor ninguna relación con los datos personales reales.

Todos los datos incluidos en el punto 8.7 del protocolo del estudio piloto se introducirán en el servidor utilizando diferentes formas relacionadas con cada tema en particular, y pueden ser revisados por los usuarios autorizados.

Al final de la prueba piloto toda la información se puede exportar a formatos estándar con el fin de permitir a los investigadores estadísticos llevar a cabo el análisis final. Se pueden encontrar más detalles en el Documento 7.3 "Plan de Gestión de Datos".

10.2.2 ROLES

Se llevarán a cabo tres funciones en el sitio web piloto, cada uno de ellos representando un tipo de usuario con especial nivel de acceso a los datos experimentales.

Toda la actividad del usuario será registrada y controlada, e incluso una acción de eliminación se guardará para el futuro. Cada acción de un usuario se registrará con una marca de tiempo y una descripción de cada acción tomada.

Todos los usuarios del sitio web deben proporcionar una dirección de correo electrónico válida, y se realizará un proceso de doble suscripción voluntaria con el fin de confirmar cada identidad (el usuario debe confirmar un correo electrónico enviado a la dirección de correo electrónico proporcionada en un primer paso haciendo clic en un enlace con un personal, código único).

Se requiere un documento de identidad personal para cada usuario con el fin de asegurarse de que todos los accesos son personales y auditados.

10.2.2.1 Los asistentes de investigación

Se permitirá a todos los asistentes de investigación introducir los datos asociados a los sujetos de la prueba piloto. La cumplimentación de los datos de toda la actividad piloto es la función principal de este rol.

Todos los datos de todos los asistentes de investigación podrán consultarse en la página web, pero los investigadores podrán agruparse con el fin de limitar el acceso a los datos de otros socios piloto si es necesario.

10.2.2.2 Usuario de Organización de Investigación Clínica (CRO)

Los usuarios CRO serán capaces de revisar y acceder a la información en un modo de sólo lectura con el fin de examinar todas las actividades de los investigadores.

10.2.2.3 Administrador Técnico

Los usuarios administradores revisarán el buen mantenimiento de toda la información, y ayudarán a otros usuarios en sus tareas relacionadas con el uso del sitio web

3 Seguridad

La gestión de datos del sitio web se encuentra en servidores de la UPC, y seguirá todas las medidas de seguridad para garantizar la privacidad y la integridad de los datos, con toda la actividad auditada en cada momento. Las bases de datos sólo son accesibles a nivel local (es decir, sólo está disponible para el servidor C-MMD en sí mismo) con el fin de evitar cualquier conexión no deseada desde el exterior. El sistema y la configuración del servidor se han organizado con el fin de apoyar el cifrado de datos local para evitar el acceso físico a la unidad de disco duro. El servidor tiene un servidor de seguridad local que sólo permite conexiones web seguras a través de Internet y verifica las direcciones IP para el desarrollo/actualizaciones de la aplicación C-MMD. Un archivo de registro local registra cada acceso al servidor. El servidor está ubicado en el Centro de Datos del campus de la UPC. Este centro de datos es una instalación de 250 m2 con acceso controlado, tarjetas de identificación personales para el personal autorizado y videovigilancia 24x7. El servidor ha dedicado ancho de banda y el sistema de energía de reserva con el fin de garantizar disponibilidad. Se pueden encontrar más detalles en el Documento 7.3 "Plan de Gestión de Datos".

11 ANÁLISIS ESTADÍSTICO

Se consideran dos objetivos principales:

11.1 OBJETIVOS PRINCIPALES

Estos objetivos se explican en los siguientes:

- Evaluar la calidad de vida subjetiva de las personas que viven con deterioro cognitivo leve o demencia (de demencia leve a moderada), comparando los valores medios a los 18 meses de la puntuación de la escala "Dementia Quality of Life Measure" (DEMQoL) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).
- Evaluar la carga percibida por el cuidador principal, comparando los valores medios a los 18 meses de la puntuación de la escala "Zarit Burden Interview" (ZBI) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).

11.2 OBJETIVOS SECUNDARIOS

11.2.1 OBJETIVOS SECUNDARIOS RELACIONADOS CON LAS PERSONAS QUE VIVEN CON DETERIORO COGNITIVO LEVE O DEMENCIA (DEMENCIA LEVE A MODERADA)

- Evaluar las actividades de la vida diaria comparando a los 18 meses en las personas que viven con deterioro cognitivo leve o demencia (de demencia leve a moderada) comparando a 18 meses de las puntuaciones de las escalas "Lawton Instrumental Activities of Daily Living Scale" (AIDL) y "Barthel ADL Index" (BADL) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).
- Evaluar la adherencia al tratamiento en las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) comparando a los 18 meses la "Proporción de Días Cubiertos" (PDC) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD) y las proporciones de los diferentes niveles de adherencia según la escala "8-item Morisky Medication Adherence Scale" (MMAS-8).
- Evaluar los síntomas conductuales y psicológicos en las personas que viven con deterioro cognitivo leve o demencia (de demencia leve a moderada) comparando a los 18 meses las puntuaciones de la "Geriatric Depression Scale" (GDS) y la "NeuroPsychiatric Inventory" (NPI) scores entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).
- Evaluar el funcionamiento neuropsicológico en las en las personas que viven con deterioro cognitivo leve o demencia (de demencia leve a moderada) comparando a los 18 meses los valores de la prueba "Mini Mental State Examination" (MMSE) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).

- Evaluar las hospitalizaciones en las personas que viven con deterioro cognitivo leve o demencia (de demencia leve a moderada) comparando a lo largo del estudio el número de hospitalizaciones entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).

11.2.2 OBJETIVOS SECUNDARIOS RELACIONADOS CON EL CUIDADOR PRINCIPAL

- Evaluar la calidad de vida subjetiva relacionada con la salud comparando a los 18 meses en el cuidador principal las componentes resumen física (PCS) y mental (MCS) de la escala SF-36v2 entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).
- Evaluar la adherencia al tratamiento en el cuidador principal comparando a los 18 meses la "Proporción de Días Cubiertos" (PDC) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD) y las proporciones de los diferentes niveles de la escala de adherencia "8-item Morisky Medication Adherence Scale" (MMAS-8).
- Evaluar la salud psicológica, de conducta y el bienestar comparando a los 18 meses en el cuidador principal las puntuaciones de las escalas "Geriatric Depression Scale" (GDS), y "State Trait Anxiety Inventory" (STAI) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).
- Evaluar el apoyo social percibido comparando a los 18 meses en el cuidador principal la puntuación de la escala "Multidimensional Scale of Perceived Social Support" (MSPSS) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).
- Evaluar el éxito percibido en las relaciones, autoestima, propósitos y optimismo comparando a los 18 meses en el cuidador principal la puntuación de la escala "Flourishing Scale" (FS) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).
- Evaluar la utilización de fármacos psicotrópicos comparando a los 18 meses en el cuidador principal la proporción que las utiliza, entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).

11.2.3 OBJETIVOS SECUNDARIOS RELACIONADOS CON LA DÍADA

- Evaluar la calidad de la relación entre el cuidador y las personas que viven con deterioro cognitivo leve o demencia (de demencia leve a moderada) comparando en las didas los valores a los 18 meses de la puntuación de la "Dyadic Assessment Scale" (DAS) entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).

11.2.4 OBJETIVOS SECUNDARIOS RELACIONADOS CON LOS BENEFICIOS ECONÓMICOS Y FINANCIEROS

- Comparar en los cuidadores los parámetros y observaciones recogidos por la escala "Resource Utilization in Dementia" (RUD) y los costes directos e indirectos, entre el grupo control y el grupo de intervención (usuarios de la plataforma CAREGIVERSPRO-MMD).

- Parámetros económicos referidos a costes no evaluados en la RUD (procedimientos diagnósticos, medicaciones, laboratorio, adaptaciones en el hogar, ayudas de salud en la casa) también se recogerán y se compararán entre los dos grupos.

11.2.5 OBJETIVOS SECUNDARIOS RELACIONADOS CON LOS USUARIOS DE LA PLATAFORMA CAREGIVERSPRO-MMD

- Análisis descriptivo de la satisfacción de los usuarios de C-MMD.

11.3 ANÁLISIS DESCRIPTIVO

Todas las variables se describirán mediante estadísticos resumen: frecuencias, media, desviación típica, mediana, mínimo, máximo y percentiles 25 y 75 para las variables continuas y frecuencias y porcentajes para las variables categóricas. Se calcularán intervalos de confianza para la media y proporciones e intervalos libres de distribución para las medianas. Se realizará además un análisis gráfico incluyendo diagramas de barras, de dispersión, box-plots, de perfiles y otros según convenga.

11.4 TAMAÑO DE LA MUESTRA

Como hay dos variables principales calcularemos dos tamaños de muestra y utilizaremos el mayor. El tamaño de muestra calculado proporciona suficiente potencia para evaluar las dos variables principales al considerar todos los datos de los cuatro países que intervienen en el estudio.

Para las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) el objetivo es demostrar en los usuarios de la plataforma CAREGIVERSPRO-MMD un aumento ≥5% en el valor medio de la puntuación Dementia Quality of Life (DEMQoL) a los 18 meses.

Suponiendo una distribución centrada para DEMQoL, la hipótesis bilateral es:

$$H_{01}: mP_{DEMQoL} = mC_{DEMQoL}$$

$$H_{11}: mP_{DEMQoL} \neq mC_{DEMQoL}$$

Donde $mP_{DEMQoLL}$ es el valor medio de DEMQoL a los 18 meses en el grupo de usuarios de plataforma y mC_{DEMQoL} es el valor medio de DEMQoL a los 18 meses en el grupo control. Se asume una media de DEMQoL a los 18 meses en el control de 91 (porcentaje sobre la puntuación total) y una media de DEMQoL en torno a 95.5 [SC Smith, *Health Technology Assessment* 2005; Vol. 9: No. 10] en el grupo de la plataforma implicando un aumento en torno al 5% en los usuarios de la plataforma CAREGIVERSPRO-MMD. Se considera una desviación típica de 11 similar en los dos grupos. Así, hemos de encontrar cuántas personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) se necesitan para encontrar una diferencia entre los grupos, si existe, con una potencia del 90% en una prueba bilateral con nivel de significación de 0.05. Mediante la utilización del procedimiento de SAS Glmpower determinamos el tamaño de muestra necesario para evaluar en un análisis de covarianza, con el DEMQoL a los 18 meses como variable dependiente, DEMQoL basal como covariable y grupo como variable independiente. El tamaño de muestra calculado es de 228 personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada), 114 por grupo. La desviación típica utilizada para calcular el tamaño de la muestra se ha ajustado a 9.68 debido a la inclusión de la covariable y la potencia se mantiene en 90.1%. Considerando una tasa de

abandonos del 60% el tamaño de muestra es de 182 por grupo.

Suponiendo una distribución simétrica para DEMQoL-proxy y también un análisis de covarianza, una media esperada (SD) a los 18 meses en el grupo control de 92 (14), una media esperada (SD) a los 18 meses en el grupo con plataforma de 96.6 (14), lo que representa un aumento del 5%, y una prueba bilateral con nivel de significación alfa 0.05 y una potencia de 0.9, se obtiene un tamaño de muestra, incluyendo un 40% de abandonos, de 252 por grupo.

Suponiendo una distribución asimétrica para DEMQOL o DEMQOL-proxy, sea p = P(valores de la plataforma > valores en el control). Entonces el *odds* = p/(1-p) indica la razón entre el número de resultados favorables y el número de resultados desfavorables. Suponiendo una prueba bilateral con nivel de significación alfa 0.05, una potencia 0.9 y un odds de 1.5, el tamaño de la muestra incluyendo un 60% de dropouts es de 292 por grupo.

Para los cuidadores principales el objetivo es demostrar en los cuidadores que utilizan la plataforma CAREGIVERSPRO-MMD una reducción de ≥20% en el valor medio de la escala Zarit Burden Inventory (ZBI) a los 18 meses.

La hipótesis bilateral es:

H_{02}: $mP_{ZBI} = mC_{ZBI}$

H_{12}: $mP_{ZBI} \neq mC_{ZBI}$

Donde mP_{ZBI} es el valor medio de ZBI a los 18 meses en el grupo de usuarios de plataforma y mC_{ZBI} es el valor medio de ZBI a los 18 meses en el grupo control. Se asume una media de ZBI a los 18 meses en el control de 30 y una media de ZBI en torno a 25.5 [Reed et al, 2014] en el grupo de la plataforma implicando una disminución en torno al 15% en los usuarios de la plataforma CAREGIVERSPRO-MMD. Se considera una desviación típica de 15 similar en los dos grupos. Así, hemos de encontrar cuántos cuidadores se necesitan para encontrar una diferencia entre los grupos, si existe, con una potencia del 90% en una prueba bilateral con nivel de significación de 0.05. Mediante la utilización del procedimiento de SAS Glmpower determinamos el tamaño de muestra necesario para evaluar en un análisis de covarianza, con el ZBI a los 18 meses como variable dependiente, ZBI basal como covariable y grupo como variable independiente. El tamaño de muestra calculado es de 430 cuidadores, 215 por grupo. La desviación típica utilizada para calcular el tamaño de la muestra se ha ajustado a 13 debido a la inclusión de la covariable y la potencia se mantiene en 90.0%. Considerando una tasa de abandonos del 40% el tamaño de muestra es de 301 por grupo.

11.5 ANÁLISIS PRINCIPAL

El cambio en las puntuaciones DEMQoL/ZBI definido como diferencia entre el valor a los 18 meses y el valor basal se comparará entre grupos ajustando un análisis de la covarianza con DEMQoL/ZBI a los 18 meses como variable dependiente, grupo como variable de clasificación y valor basal de DEMQoL/ZBI como covariable. Se calcularán los intervalos de confianza para las medias ajustadas y sus diferencias.

11.6 ANÁLISIS SECUNDARIOS RELACIONADOS CON LAS PERSONAS QUE VIVEN CON DCL O DEMENCIA Y SUS CUIDADORES PRINCIPALES

Las comparaciones a los 18 meses en la puntuación IADL se realizarán ajustando un modelo logístico para respuesta politómica con el grupo como variable independiente.

Las comparaciones en la adherencia al tratamiento se realizarán utilizando las proporciones de personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) con PDC cubriendo ≥ 1 medicación y cubriendo todas las medicaciones. Se calcularán los intervalos de confianza para estimar las diferencias y se aplicará también una prueba de Chi-cuadrado para comparar las proporciones. El MMAS-8 se evaluará ajustando un modelo de dos poblaciones con respuesta politómica para medidas repetidas.

La comparación del cuestionario NPI (leve, moderado, grave) y GDS (normal, leve, moderado, grave) a los 18 meses se realizará ajustando un modelo logístico para respuesta politómica con el grupo como variable independiente.

La MMSE se comparará utilizando la proporción de personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) que disminuyan su puntuación y calculando el intervalo de confianza para la estima de la diferencia. Se aplicará también una prueba de Chi-cuadrado para comparar las proporciones.

Las diferencias en las componentes resumen PCS y MCS del SF-36v2 se realizarán según el Quality Metric's Health Outcomes™ Scoring Software 5.0 disponible.

Las comparaciones entre grupos del número de hospitalizaciones se realizarán calculando el intervalo de confianza para la diferencia de medianas siguiendo el método de Hodges-Lehmann para datos independientes. La misma aproximación se efectuará para la variable STAI.

Las comparaciones entre grupos de las proporciones de cuidadores que toman psicotrópicos se realizarán calculando el intervalo de confianza para la estima de la diferencia. Se aplicará también una prueba de Chi-cuadrado para comparar las proporciones.

Las comparaciones a los 18 meses de la puntuación MSPSS y FS se realizarán calculando el intervalo de confianza para la diferencia de medianas siguiendo el método de Hodges-Lehmann para datos independientes. También se ajustará un modelo de análisis de la covarianza por rangos combinado con el estadístico de Mantel-Haenszel para evaluar las diferencias entre grupos.

Al considerar las escalas a lo largo del tiempo se compararán las tasas de cambio entre grupos para ZBI and DEMQoL ajustando un modelo de coeficientes aleatorios, incorporando efectos aleatorios debidos al individuo tanto en el término independiente como en la pendiente. Para la puntuación IADL y NPI se ajustará un modelo de dos poblaciones con respuesta politómica para medidas repetidas. También se ajustará un modelo de análisis de la covarianza por rangos combinado con el estadístico de Mantel-Haenszel para evaluar las diferencias entre grupos.

Análisis secundarios relacionados con la díada

Las comparaciones a los 18 meses en la puntuación DAS se realizarán calculando el intervalo de confianza para la diferencia de medianas siguiendo el método de Hodges-Lehmann para datos

independientes. También se ajustará un modelo de análisis de la covarianza por rangos combinado con el estadístico de Mantel-Haenszel para evaluar las diferencias entre grupos.

11.6.1 ANÁLISIS SECUNDARIOS RELACIONADOS CON LOS BENEFICIOS ECONÓMICOS Y FINANCIEROS

Los costes asociados tanto a las personas que viven con deterioro cognitivo leve o demencia (demencia leve a moderada) como a sus cuidadores como los costes totales se evaluarán calculando el intervalo de confianza para la diferencia de medianas siguiendo el método de Hodges-Lehmann para datos independientes. La misma aproximación se aplicará en la comparación del tiempo mediano hasta institucionalización.

Se realizará un análisis de coste-efectividad exploratorio de la plataforma en relación a los cuidadores calculando la razón de coste-efectividad incremental (ICER) y el beneficio neto incremental (INB). La variable de eficacia será la reducción a los 18 meses de la escala ZBI con respecto al basal. En cada país se toman decisiones políticas por lo que los resultados individuales son importantes. Sin embargo el bajo número de individuos puede resultar en un análisis con poca precisión. Para manejar esto se realizarán pruebas de hipótesis para evaluar la homogeneidad de los resultados a través de los países, se considerará efecto país y se usarán estimadores *shrinkage*. Los resultados de costes se convertirán a una misma moneda para poder compararlos de forma apropiada. Como el horizonte temporal es superior a un año se aplicará una tasa de descuento.

12 PROCEDIMIENTOS ÉTICOS

12.1 DISPOSICIONES LEGALES VÁLIDAS

Todo el desarrollo del estudio se llevará a cabo de acuerdo con los principios de la Declaración de Helsinki, Seúl, Corea (revisión octubre de 2008) para la investigación en seres humanos. Las copias de la Declaración de Helsinki y las modificaciones posteriores se proporcionan bajo petición específica o se pueden obtener a través de la página web de la Asociación Médica Mundial en http://www.wma.net/en/30publications/10policies/b3/.
El estudio se ejecutará de acuerdo con el protocolo que garantiza el cumplimiento de las normas de Buena Práctica Clínica (BPC), tal y como se describe en las directrices tripartitas armonizadas para la Buena Práctica clínica ICH 1996.
De acuerdo con las normas internacionales relativas a la realización de estudios epidemiológicos y registrados en las Pautas Internacionales para la Revisión Ética de los Estudios Epidemiológicos (Consejo de las Organizaciones Internacionales de Ciencias médicas-CIOMS-Ginebra, 1991), en las directrices de la Orden SAS / 3470/2009 sobre los estudios de observacionales post-autorización y las recomendaciones de la Sociedad Española de Epidemiología (SEE) sobre la revisión de los aspectos éticos de la investigación epidemiológica, los proyectos de estos estudios deberán, excepto en ciertos casos específicos, someterse a revisión por un comité independiente. Por esta razón, el presente estudio ha sido presentado para su evaluación a un comité de ética y tiene que ser notificado y clasificado por la respectiva Agencia de Medicamentos y Salud del país.

12.2 EVALUACIÓN DE BENEFICIOS Y RIESGOS PARA LOS SUJETOS OBJETO DE INVESTIGACIÓN

Durante el estudio, sólo se recogerán datos sobre práctica clínica ordinaria . Las díadas participantes en el grupo de intervención no serán sometidos a ninguna otra prueba que las mencionadas en la práctica clínica habitual para el manejo clínico de la demencia.

Hay varios riesgos que deben ser gestionados:

1. Por ejemplo, hay un posible daño psicológico o malestar debido al inadecuado uso de la plataforma (lenguaje inapropiado en publicaciones y comentarios / mensajes inapropiados)
2. Otro riesgo hace referencia a la seguridad en el uso de Internet. Los participantes de control y los grupos experimentales podrán utilizar las tabletas para conectarse a Internet en general, no sólo para conectarse a la plataforma.
3. Angustia de los participantes. Aunque no esperamos que los participantes sientan angustia en ningún momento, es posible que completando las preguntas de la plataforma y reflexionando sobre su propia salud y bienestar pueden ver incrementada esta sensación. Posible para las evaluaciones de memoria que DCL / PVCD, que podrían ser molestas. La lectura de los mensajes de los demás esperamos que sean de apoyo y ayuda, pero puede ser molesta. ¿Serán capaces de ponerse en contacto con los investigadores? ¿Se aconseja que se pongan en contacto con el médico de cabecera? ¿Se incluirá la lista de las organizaciones locales de apoyo y reuniones en la plataforma? Se informará al grupo de intervención y del estudio de usabilidad que son libres de pedir un descanso en cualquier momento. En el caso de que un participante se angustie, se hará referencia a sus profesionales de salud, al igual que a su médico de cabecera.
4. Consideraciones temporales: Las tareas relacionadas con la plataforma podría llevar mucho tiempo para los participantes. Sin embargo, van a poder utilizar la plataforma bajo su propio ritmo y lugar, cuando sientan que tienen tiempo.
5. Pérdida de la capacidad de consentimiento en la duración de la prueba piloto.

12.3 CONSIDERACIONES SOBRE LA INFORMACIÓN A LOS PARTICIPANTES Y EL CONSENTIMIENTO INFORMADO

Los participantes recibirán una Hoja de Información del Participante, y serán informados sobre los objetivos del estudio, la metodología y la forma en que se van a estar obligados a utilizar la plataforma, y la confidencialidad de los datos. Dado que la plataforma funciona como una red social, y porque los cuidadores, profesionales de la salud, ayudantes, etc tendrán acceso a los datos de DCL/PVCD, los participantes tendrán que ser informados de ello. Posteriormente, se les pedirá a los participantes que den su pleno consentimiento para participar en el estudio firmando un formulario de consentimiento. El consentimiento será tomado siguiendo los principios de la legislación sobre capacidad mental y de conformidad con los procedimientos establecidos por Warner, McCarney, Griffin, Hill & Fisher,2008.

Los participantes deben ser informados de su derecho a retirarse en cualquier momento sin dar una razón. Los participantes también tendrán derecho a retirar sus datos por un tiempo determinado, previo al análisis de datos y a la redacción. La información escrita sobre el estudio y el consentimiento informado de participación será dada por su representante legal .Se proporciona un

ejemplo del consentimiento informado de la Hoja de Información del Participante para este estudio en los anexos de este protocolo.

12.4 CONFIDENCIALIDAD DE LOS DATOS Y DCL / PVCD

La información sobre la identidad de DCL/PVCD se considera confidencial a todos los efectos. Identidad de PVCD no debe ser revelada ni propagada. Sus datos recogidos en la base de datos durante el estudio serán documentados en una forma disociada vinculados con un código de estudio (DCL / código PVCD) de modo que sólo investigador pueda asociar tales datos a personas identificadas o identificables.

Si por Ley o auditoría fuera obligatorio el conocimiento de la identidad DCL/PVCD, el patrocinador del estudio de cada piloto debe mantener siempre las normas de confidencialidad. La base de datos generada en el estudio no contendrá ninguna identificación del DCL/PVCD, solamente un código numérico de la que no será posible revelar su identidad. Esta identidad se mantendrá dentro de la relación de los participantes y los investigadores, y no se podrá obtener sin el consentimiento de ambos.

Los datos personales (nombre, dirección, lugar de trabajo de los investigadores) que participan en el estudio serán almacenados electrónicamente con el único propósito de facilitar lo logística y los aspectos organizativos necesarios para el desarrollo del estudio. El archivo está sujeto a un tratamiento confidencial de conformidad con lo dispuesto en la legislación aplicable en el país.

Referencia a las entrevistas: Los participantes serán informados en las hojas de información que los investigadores podrían usar citas directas de sus entrevistas para su publicación. Sin embargo, estas citas serán anónimas, o se presentará con un nombre diferente.

12.5 LAS RECOMENDACIONES DEL ESTUDIO Y LA RETENCIÓN DE REGISTROS

Los investigadores serán identificados con un código específico. Los DCL / PVCD y sus cuidadores incluidos se codificarán con un número correlativo asignado por el investigador detrás del número de identificación del investigador. El Investigador Principal de cada centro será el encargado de mantener copias de la documentación del estudio, el informado de consentimiento original firmado, y los registros de las identidades de los participantes.

12.6.1 LOS INVESTIGADORES PARTICIPANTES

Al firmar el compromiso investigador, los investigadores participantes se comprometen al acuerdo de llevar a cabo eficientemente y con diligencia el estudio, siguiendo este protocolo y de acuerdo con las normas generalmente aceptadas de buena práctica clínica y todas las normas y requisitos legales relacionados con la realización del estudio.

Obligaciones de los miembros del equipo de investigación

- Garantizar el bienestar y seguridad de los participantes todo el tiempo.
- Cumplir con el compromiso de llevar a cabo el estudio de acuerdo con el protocolo, así como informar a los DCL/PVCD o a sus representantes legales sobre los objetivos del estudio así como obtener su consentimiento informado .

- Mantener la documentación por lo menos 10 años después del informe final de resultados.
- Tener el objetivo de contribuir a la difusión de los resultados en artículos científicos y conferencias.
- Ser responsable de asegurar que la información recogida y anotada en la base de datos es correcta de acuerdo con la información proporcionada en este en el protocolo.
- Conocer el origen de los datos recogidos y asociarlos con los datos de identificación de los participantes, siendo responsable de que no aparezca en la base de datos cualquier información que pueda identificar al participante (nombre, código de identificación, código postal, teléfono...).
- Todos los investigadores participantes tendrán que preparar y mantener una documentación completa y precisa del estudio en el cumplimiento de las normas de buena práctica clínica y los requisitos legales y reglamentarias nacionales y locales. También tendrán que registrar todos los datos en la base de datos para cada participante dentro de un plazo razonable, tal y como lo requiere este protocolo.

12.6.3 INVESTIGADOR COORDINADOR

El investigador coordinador tendrá que cumplir con todas las obligaciones como participante y también tendrá que firmar la versión final del el protocolo y cualquier modificación en conjunto con el patrocinador. Será corresponsable del seguimiento y los informes finales junto con el patrocinador, así como de la difusión de los resultados del estudio, previa autorización del patrocinador.

12.6.4 SUPERVISOR DEL ESTUDIO

El supervisor del estudio también tendrá que verificar que la información guardada en las bases de datos es fiable y consistente, para lo que tendrá que obtener la colaboración de los investigadores participantes en el estudio. El supervisor del estudio seguirá el curso del estudio e informará a los profesionales médicos al respecto. También notificará cualquier incidencia significativa que pueda dañar el curso del estudio debido a cualquier problema surgido durante la prueba piloto (lento reclutamiento de pacientes, no cumplimiento de cualquier criterio de inclusión / exclusión...).

12.6.5 PATROCINADOR DEL ESTUDIO

El patrocinador del estudio será el responsable de cumplir con la legislación vigente. Además, tendrá las siguientes funciones:
* Firmar con el investigador coordinador el protocolo y cualquier modificación del mismo; proporcionar a los investigadores el eCRF y el protocolo; presentar el protocolo al comité de ética o delegar esta tarea a quien designe el patrocinador principal; presentar el protocolo de estudio, el seguimiento y los informes finales si es necesario; proporcionar una copia del protocolo y los documentos que dé fe de los procedimientos de seguimiento a las entidades que prestan servicios a la asistencia sanitaria donde se llevará a cabo el estudio o delegar esta tarea a quien designe el patrocinador.

13 DISEMINACIÓN DE LOS RESULTADOS Y POLÍTICA DE PUBLICACIÓN

El consorcio científico asociado al proyecto CAREGIVERSPRO-MMD ha adoptado las siguientes directrices con respecto a la difusión, diseminación y comunicación de los resultados de la investigación:

Implicar a todos los socios en la difusión de la información sobre los resultados del proyecto de asociación de forma que todos los socios puedan ser beneficiarios de dicha actividad. Esta divulgación incluye múltiples públicos (por ejemplo: miembros de la comunidad, responsables políticos, profesionales de la salud locales, comunidad científica experta) y múltiples formatos (por ejemplo: la radio, los periódicos, presentaciones en reuniones profesionales, manuales, informes, documentos de difusión informativa, artículos de revistas científicas), con todos los socios involucrados como coautores siempre que sus intereses y las circunstancias específicas de cada institución involucrada lo permitan.

- Desarrollo de informes científicos, pósters, y artículos para la difusión de los resultados.
- Presentación en seminarios, conferencias, comunicaciones en congresos y reuniones científicas relacionadas con el tema.

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15 DOCUMENTACION SUPLEMENTARIA

15.1 MANUAL DE USUARIO DE LA PLATAFORMA CAREGIVERSPRO-MMD

15.1.1 INSTRUCCIONES PARA UTILIZAR EL SISTEMA CAREGIVERPSRO

El sistema CAREGIVERPSRO le permite ser parte de una comunidad de asistencia mutua. Puede utilizar el sistema a través de Internet (www.caregivers.pro), con el móvil o con las tabletas que vamos a configurar para usted. Hay una gran cantidad de funcionalidades en el sistema, por lo que no se preocupe si tiene la sensación de que es demasiado complejo. Puede tener una experiencia positiva usando sólo algunas de las aplicaciones básicas y el sistema le ayudará a aprender sin problemas todas las funcionalidades. En caso de problema, puede enviar un correo electrónico a support@caregivers.pro.

La tableta

Vamos a instalar la tableta para usted. No hay necesidad de apagarla. El sistema está listo para su uso. Si la tableta no se utiliza durante un tiempo se irá a dormir. La pantalla puede quedar en blanco, no se preocupe, es completamente normal, sólo tiene que tocar la pantalla para volver a activar la máquina, puede tardar unos 5-10 segundos en volver a la vida! Si usted no consigue restablecer la tableta, compruebe que esté enchufada o cargada. Si está enchufada, o cargada, pulse el botón de encendido. La tableta se establecerá automáticamente y volverá a aparecer CAREGIVERSPRO.

15.1.2 VISIÓN GENERAL DE CAREGIVERSPRO

CAREGIVERSPRO es una plataforma digital basada en la red social donde las personas con problemas de memoria, cuidadores formales e informales y profesionales sociales y de la salud, pueden conectar con distintas experiencias de mejora del cuidado. La misión es apoyar y desarrollar una comunidad de ayuda mutua para luchar contra la demencia. Los usuarios de CAREGIVERSPRO lo utilizan para crear perfiles personales, agregar otros usuarios como "amigos" y compartir información relacionada con la demencia entre ellos.

Después de registrarse y agregar amigos, el usuario se puede comunicar con todos o algunos de sus amigos CAREGIVERSPRO mediante el envío de mensajes privados, semi-privadas o públicas. Los mensajes pueden ser en forma de una "actualización de estado" (un "post"), un mensaje privado, un comentario sobre el post o estado de un amigo, o un clic del botón "me gusta" para mostrar su apoyo a la actualización de un amigo.

Una vez aprendido el funcionamiento de CAREGIVERSPRO, la mayoría de los usuarios podrán compartir todo tipo de contenido - fotos, vídeos, música y más. También podrán unirse a los grupos de interés CAREGIVERSPRO relacionados con la demencia para comunicarse con personas a las que de otro modo no podrían conocer. Después de haberse familiarizado con el funcionamiento de CAREGIVERSPRO, la mayoría de la gente también podrá utilizar aplicaciones especiales CAREGIVERSPRO disponibles para planificar eventos, jugar a juegos de entrenamiento mental y participar en otras actividades, cubriendo con todo ello:

- La necesidad de información general y personalizada;
- La necesidad de apoyo en lo que respecta a los síntomas de la demencia;
- La necesidad de contacto social y compañía;
- la necesidad de vigilancia de la salud y de percepción de estar seguro.

15.1.3 Aprenda a usar CAREGIVERSPRO, Paso a Paso

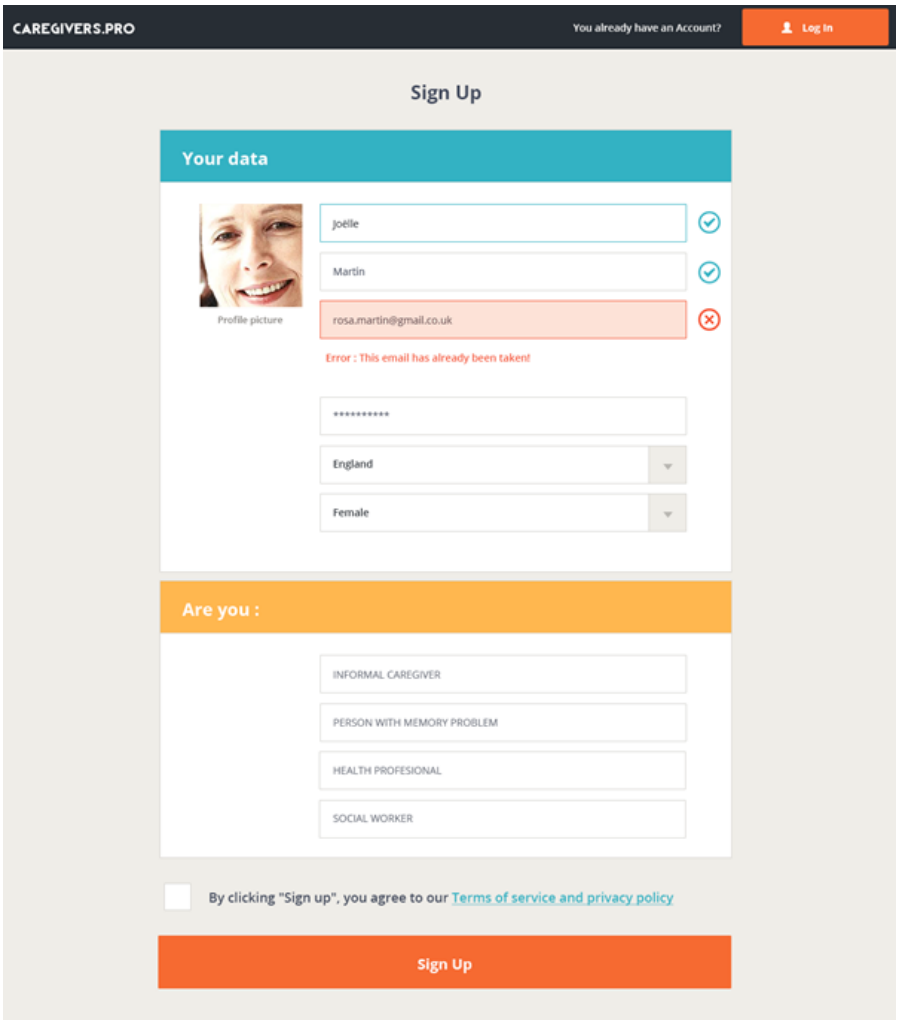
Esta parte explica lo que cada nuevo usuario CAREGIVERSPRO debe saber para entender cómo funciona CAREGIVERSPRO en las seis áreas que se enumeran a continuación:

1. Configuración de la cuenta CAREGIVERSPRO
2. Uso del perfil y la cronología CAREGIVERSPRO
3. Conexión con amigos
4. Comprender la interfaz de CAREGIVERSPRO
5. Comunicación con amigos
6. Configuración de privacidad y controles

15.1.3.1 Configuración de la cuenta CAREGIVERSPRO

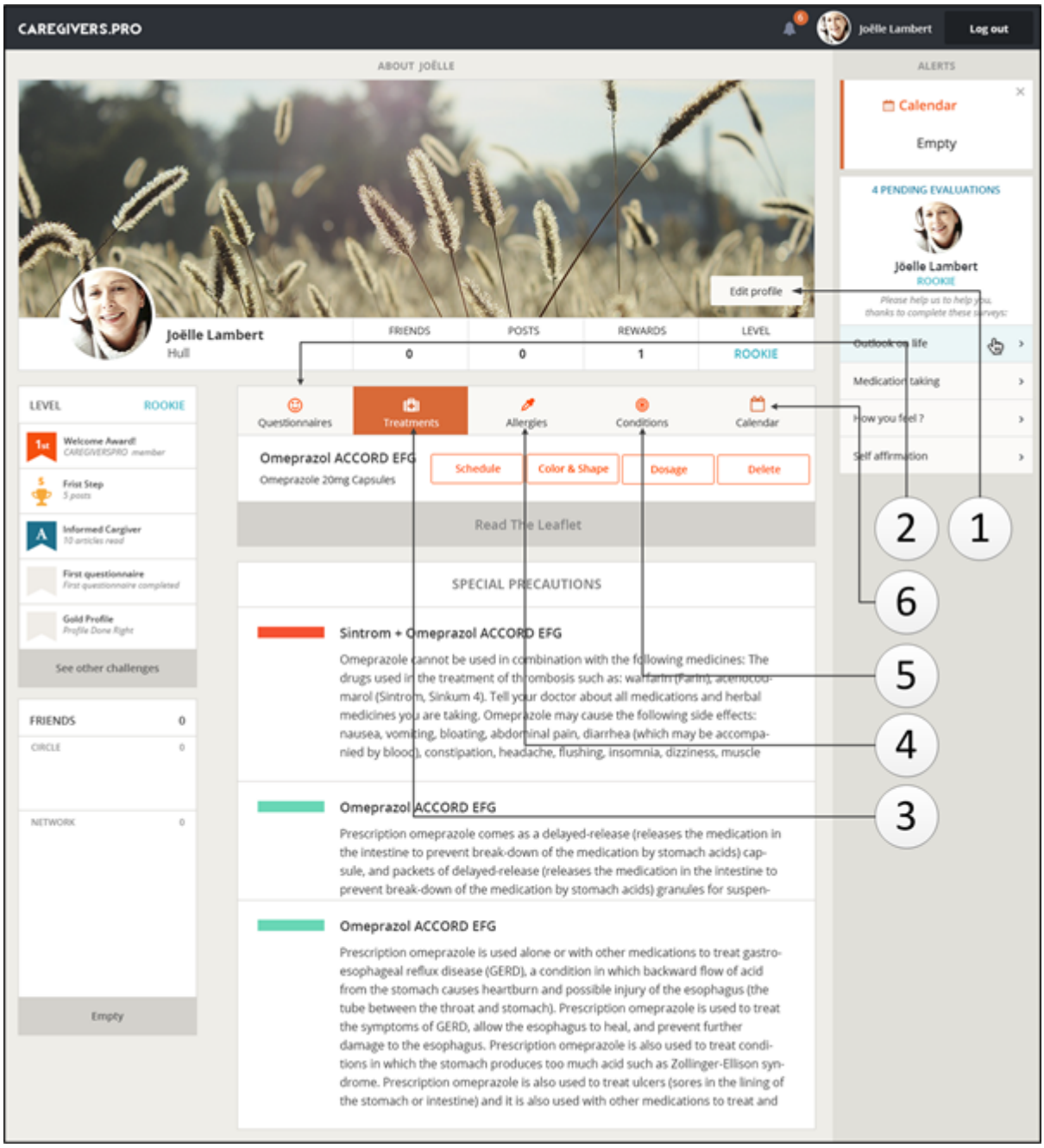
El primer paso para utilizar CAREGIVERSPRO es registrarse y obtener una nueva cuenta CAREGIVERSPRO . Hay que ir a www.caregivers.pro y rellenar el formulario en "Registrarse". Debe dar su nombre y apellidos junto con su dirección de correo electrónico y completar el resto del formulario.

Haga clic en el botón naranja "inscribirse" en la parte inferior cuando haya terminado. CAREGIVERSPRO le enviará un mensaje a la dirección de correo electrónico que haya proporcionado con un enlace que le solicitará que confirme su dirección de correo electrónico.



Una vez inscrito en CAREGIVERSPRO, debe rellenar su perfil CAREGIVERSPRO antes de empezar a conectar con amigos, para que pueda verse algún tipo de información cuando se le envía una "solicitud de amistad". Completar el perfil CAREGIVERSPRO consiste en 6 pasos:

- Paso 1 - Información general
- Paso 2 - Cuestionarios
- Paso 3 - Tratamientos
- Paso 4 - Alergias
- Paso 5 - Condiciones
- Paso 6 - Eventos ("calendario")



Paso 1 - Información general ("editar perfil")

Editar su información personal básica: vaya a su perfil, haga clic en "editar perfil" en la parte inferior derecha de la foto de la portada. Este apartado hace referencia a sus antecedentes demográficos, intereses e información acerca de la salud.

Antecedentes demográficos: Puede editar la información relativa a su nombre y apellidos, idioma, la ciudad y el país donde vive, nacionalidad, fecha de nacimiento, género y la frase corta (eslogan) que lo representa.

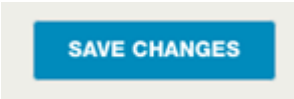
Intereses: Puede seleccionar sus intereses entre una amplia gama de posibilidades, tales como "Toma de decisiones sobre el cuidado" o "Nutrición, apetito y peso”. Esta información nos ayudará a proporcionarle intervenciones a medida.

Información sobre su salud: También proporcionará información sobre su condición, tal como altura y peso, así como otra información que pueda tener un impacto en su tratamiento (por ejemplo: si usted es conductor).

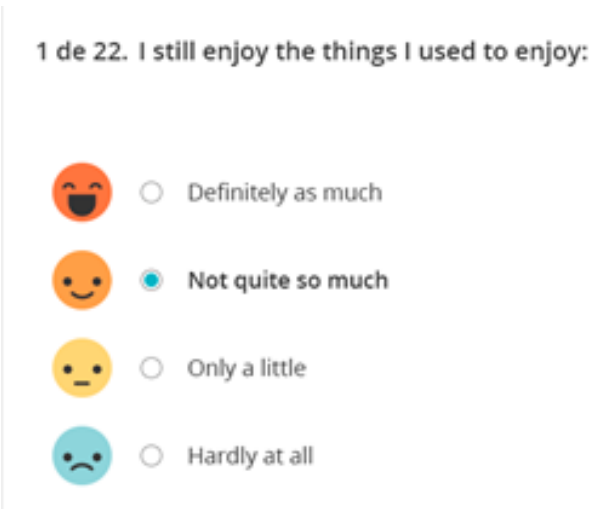
Configuración de privacidad: Podrá seleccionar quién puede ver su información.

Por ejemplo, usted podrá seleccionar quién le puede enviar una solicitud de amistad, quién puede ver sus resultados de salud, o con quien quiere compartir sus tratamientos, mensajes, fotos, avatar, seguidores, ver a quien siguen, sus amigos/ayudantes, su fecha de nacimiento, eslogan, dirección de correo electrónico y número de teléfono, tal y como vemos en la imagen de la derecha.	

Por favor, no se olvide de guardar todos los cambios haciendo clic en el botón "guardar cambios", como se muestra a la derecha.

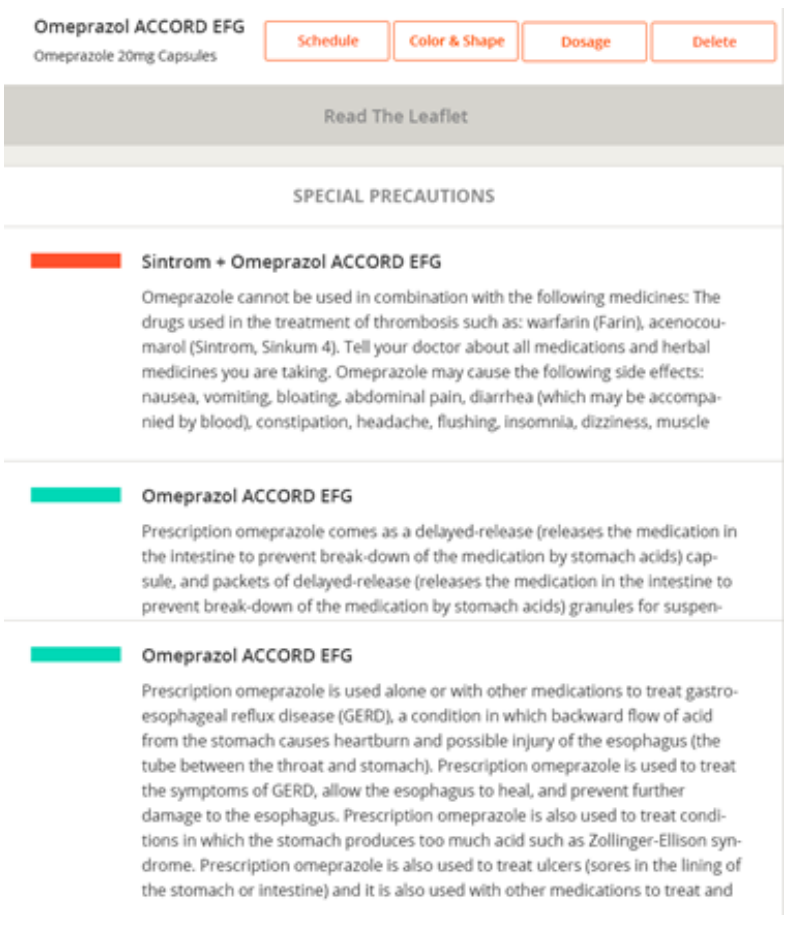


Paso 2- Cuestionarios

Con el fin de proporcionar el mejor contenido adaptado a su necesidades, se le pedirá que complete encuestas de vez en cuando. A la derecha, tienes un ejemplo de una pregunta de un cuestionario que se le puede proponer. Por favor, ayúdanos a ayudarte, gracias a completar estas encuestas.	

Paso 3 Tratamientos

Con la finalidad de poder enviarle un recordatorio, usted puede rellenar automáticamente CAREGIVERSPRO con su listado de medicamentos, sin importar donde consigue actualmente sus recetas. ¡No más introducción tediosa de datos o toma de fotografías de frascos de pastillas!, simplemente **haga clic en buscar** y nosotros haremos el resto. La aplicación mantiene automáticamente un registro de los medicamentos que ha tomado (y no se toma), lo que ayuda a realizar un seguimiento de su progreso a través del tiempo. Nunca se volverá a olvidar nunca más!

La plataforma está vinculada a un repositorio de medicamentos que le permitirá tener acceso a información sobre su tratamiento: - Puede leer el folleto haciendo clic en "Leer el folleto". - Se le informará acerca de los efectos adversos con otros medicamentos que esté tomando. - Se le informará acerca de los efectos adversos debido a su condición. - Se le informará sobre los efectos adversos del tratamiento	

Paso 4 - Alergias

Usted podrá seleccionará las alergias que tenga. Esto nos ayudará a detectar y poder informarle acerca de los posibles efectos adversos de los medicamentos.

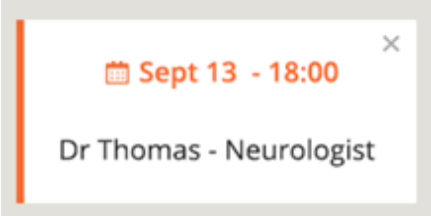
Paso 5 Condiciones

Esta sección está reservada para el médico y los profesionales de la medicina. Para los cuidadores o personas con problemas de memoria, esta sección es sólo de salida de información.

Paso 6 Eventos ("calendario")

En esta sección usted puede configurar un registro de eventos que podrá compartir con sus amigos.

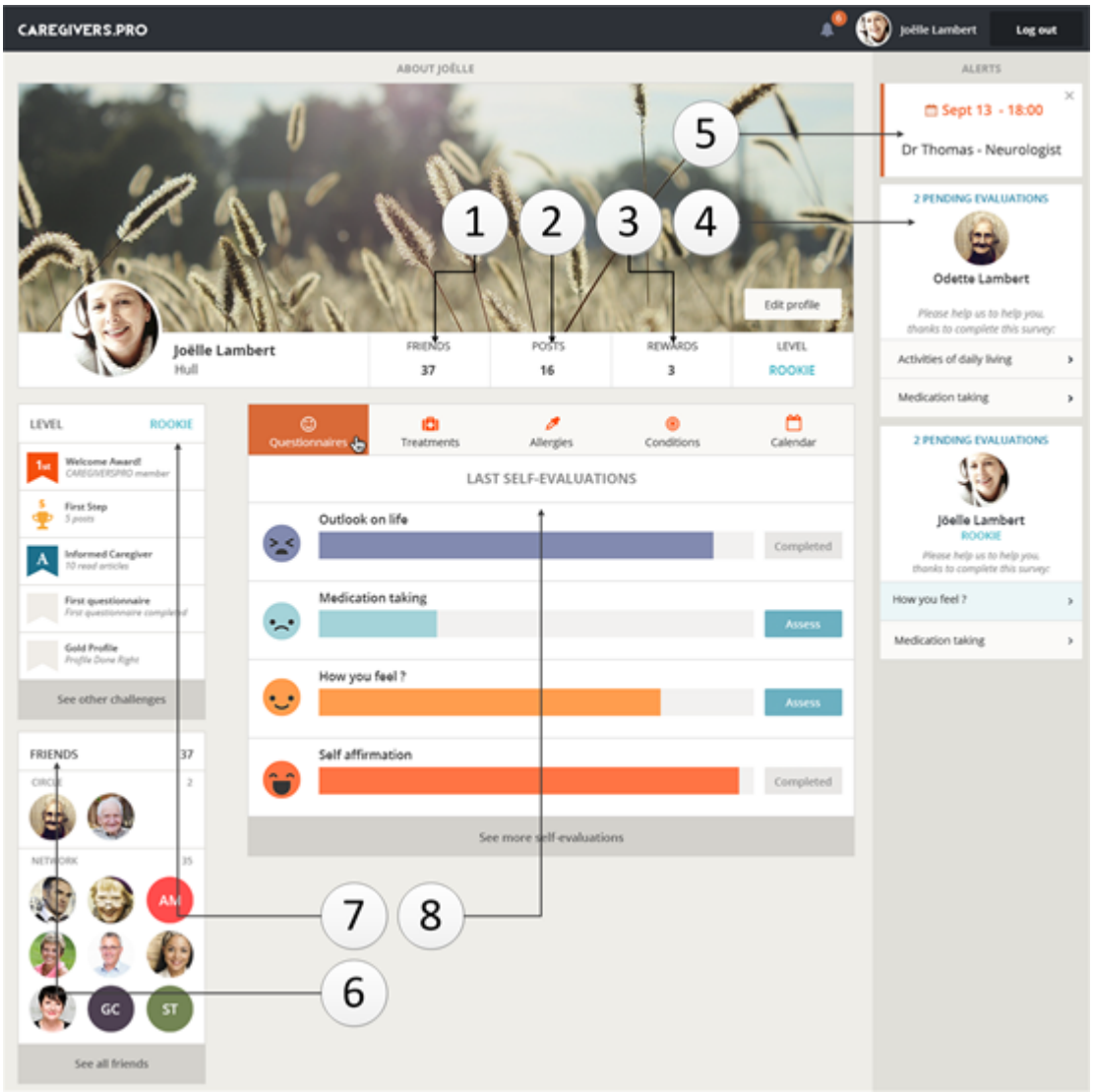
Si hace clic en el "calendario "(Imagen 1 - [6]), puede rellenar la siguiente información: **fecha de inicio, fecha de finalización, configuración de asunto** y de **privacidad** (quién puede ver este



evento).

Después de cierto tiempo usando CAREGIVERPSRO , usted podría tener el mismo perfil que Joelle:

1. Joelle está ahora en contacto con con amigos y familiares.
2. Joelle ha hecho 16 entradas (mensajes privados, comentarios de estados y entradas de amigos, o clics del botón “me gusta” para mostrar su apoyo a la actualización de un amigo).
3. Joelle ganó 3 insignias , el nivel de Joelle es "Novato"
4. Joelle ha añadió a su abuela (Odette) en su círculo. Como díada, compartirán información y cuidaran la una de la otra. Joelle puede completar la evaluación de Odette, verificar los efectos adversos de su tratamiento y compartir el resultado con profesionales de la salud y/o dentro de su círculo.



5. Joelle ha introducido un evento. Este evento será recordado y compartido con los miembros de círculo.
6. Joelle tiene 37 amigos. Los "amigos" pueden ser parte del círculo o la red. Los miembros del Círculo son las personas de más confianza. En un círculo podemos encontrar cuidadores, personas con problemas de memoria, y profesionales de apoyo y voluntarios. Dentro de un círculo, además, podemos compartir información privada sobre la salud, y crear una comunidad básica de cuidados.
7. CAREGIVERSPRO premia a los usuarios y grupos de usuarios (díadas y círculo) para conseguir involucrarlos con la comunidad participando en discusiones con otros usuarios, viendo vídeos, revisando contenido y otras actividades. A cambio de su participación, los usuarios, las diadas y los círculos serán premiados con insignias y progreso a través de los niveles de consecución. El nivel de Joelle nivel es de novato.
8. Autoevaluación: De vez en cuando, CAREGIRVERSPRO le preguntará a Joelle de completar cuestionarios. Los resultados se mostrará aquí. El cuestionario también proporcionará información para la intervención adaptada en la cronología. Como Joelle es el cuidador principal de Odette, Joelle también tendrá que completar los cuestionarios Odette.

15.1.3.2 Cronología de CAREGIVERSPRO (canal de noticias)

La cronología de CAREGIVERSPRO (o feed) muestra la corriente de cambios de estado personalizados a cada usuario de la red social en su página de inicio, las intervenciones adaptadas en base a los cuestionarios, los recordatorios de medicamentos, y los mensajes privados y públicos.

El usuario puede personalizar el contenido de lo que se muestra en la cronología con el fin de tener un mejor control sobre el servicio de noticias CAREGIVERSPRO, que es ampliamente percibido como un componente crucial en la experiencia de la red social. CAREGIVERSPRO quiere proporcionar a los usuarios el mejor periódico personalizado relacionado con la demencia.

15.2 Hoja de Información del Participante

Centro de investigación: [enter text]

Dirección: [enter text]

Nombre del coordinador de la investigación: [enter text]

Teléfono: [enter text]

Email: [enter text]

Título del estudio: *"Estudio piloto multicéntrico para determinar los beneficios del uso de la plataforma CAREGIVERSPRO-MMD basada en las tecnologías de la información y la comunicación (TIC) dedicada al apoyo y la asistencia de las díadas formadas por personas afectas de enfermedades neurocognitivas (deterioro cognitivo leve o demencia leve a moderada) y sus cuidadores principales"*

Estimado/a,

A continuación le presentamos la información relativa al estudio de la plataforma CAREGIVERSPRO-MMD, para el cual le agradecemos su participación voluntaria.

Diecinueve millones de personas en Europa se ven afectadas por la demencia, con graves consecuencias económicas, sociales y para la salud.

El círculo más íntimo de algunas personas que viven con demencia está formado por el cuidador principal, los amigos y los servicios sociales y de salud de la zona, con el objetivo de reducir al mínimo las consecuencias de la enfermedad.

El apoyo a una persona dependiente en la vida diaria no es trivial. Además del sacrificio personal, profesional y económico que los familiares están ofreciendo a las personas que viven con demencia, hay un impacto en la salud física y moral de estos cuidadores y familiares.

El objetivo principal de este trabajo es el de reducir la carga de los cuidadores y mejorar la calidad de vida de las personas que viven con demencia.

Este estudio tendrá una duración de 18 meses, y estará dirigido por un equipo de investigación de [introducir texto] que le proporcionará todas las explicaciones necesarias sobre el estudio.

Resumen del estudio:

Según la Organización Mundial de la Salud [OMS, 2015], hay 46,8 millones de personas que viven con algún tipo de demencia en todo el mundo para las que no existe actualmente ningún tratamiento o estrategia eficaz que pueda detener o revertir el deterioro cognitivo progresivo. A medida que la población europea envejece, y la longevidad se convierte principal factor de riesgo para desarrollar una demencia, el cuidado y la asistencia de los ciudadanos de mayor edad representa un coste sociosanitario y financiero creciente para la sociedad. En la actualidad existen 19 millones de personas que viven con demencia en Europa, y se espera que esta cifra alcance los 31,5 millones en el año 2050. Para gestionar esta transición, las políticas de salud de la Unión Europea y sus Estados

miembros se centran en la mejora de la salud de las personas de edad avanzada y en la prevención de la dependencia. Esta estrategia tiene el doble objetivo de aumentar su calidad de vida subjetiva y llegar a reducir los costes asociados aumentando la eficacia de la asistencia sociosanitaria. Es por ello que el proyecto europeo "CAREGIVERSPRO-MMD" (RIA, la APS-25-2015, PIC: 690.211), con sus socios participantes: la Universidad Politécnica de Cataluña (UPC), MobilesDynamics (MDA), la Universidad de Hull (HUL), Q-plan International LTD (CVP), COOSS Marche (COO), la Fundación Universitaria del Bages (FUB), el Hospital Universitario de Rouen (CHU) y el Centro de Investigación y Tecnología Hellas (CERTH), tiene como objetivo evaluar la plataforma web "CAREGIVERSPRO- MMD", accesible mediante ordenadores, portátiles, teléfonos inteligentes y tabletas, definida como una aplicación "mHealth" específica para los cuidadores y las personas que viven con el deterioro cognitivo leve o demencia de leve a moderada, que proporcionará servicios de valor añadido basados en redes sociales, las intervenciones adaptadas, estrategias clínicas y gamificación para mejorar la calidad de vida subjetiva de las personas que viven con el deterioro cognitivo o demencia, así como la de sus cuidadores, promoviendo así a poder vivir en la comunidad durante el mayor tiempo posible.

Con el fin de evaluar la eficacia y el impacto de la plataforma CAREGIVERSPRO-MMD en las personas que viven con el deterioro cognitivo leve o demencia (de leve a moderada), junto con sus cuidadores principales, se plantea la realización de un estudio prospectivo, aleatorizado, multicéntrico, controlado, paralelo y longitudinal ideado con 602 diadas (en el marco de un estudio multicéntrico: 100 monitorizados por HUL, 200 por el COO, 202 por la FUB 100 por CHU), divididos en dos grupos de igual número. Los grupos estarán compuestos por un grupo de "intervención" con acceso a la plataforma CAREGIVERSPRO-MMD y otro grupo de "control" sin ningún tipo de acceso a la misma. Durante los siguientes dieciocho meses, los aspectos relacionados con la salud de los individuos (salud general, las funciones neuropsicológicas, las actividades de la vida diaria, la calidad de vida subjetiva, la adherencia al tratamiento farmacológico y las comorbilidades), aspectos sociales (cohesión de la díada, el apoyo social, el éxito en las relaciones, la autoestima, la motivación y el optimismo) y los aspectos económicos (coste-efectividad del uso de la plataforma CAREGIVERSPRO-MMD) y el grado de satisfacción y la facilidad de uso de la plataforma por todos los usuarios serán evaluados.

Usted está invitado a participar en un estudio de investigación conducido por [enter text - insert name, position and School/Institute][enter if appropriate - under the Supervision of [Insert name, position, research center/Institute].

¿Cómo se está financiando el estudio?

El estudio está siendo financiado por el programa de investigación e innovación Horizonte 2020 de la Unión Europea, en el marco del Acuerdo de Subvención Nº690211. Título del proyecto: "*Self-management interventions and mutual assistance community services, helping people with dementia and caregivers connect with others for evaluation, support and inspiration to improve the care experience*".

¿Qué tendré que hacer?

La duración total del estudio es de 18 meses. El estudio incluye dos grupos: un grupo de "control" y un grupo de "intervención". A cada díada (personas que viven con demencia y sus cuidadores) se le asignará aleatoriamente a uno de ellos.

Las personas que viven con demencia y los cuidadores de grupo de "control", asistirán a un examen médico completo cada 6 meses (mes 0, 6, 12, 18 de el estudio), y recibirán una llamada telefónica de supervisión sobre los costos de la atención, adherencia al tratamiento y bienestar (mes 3, 6 y 15 del estudio).

Las personas que viven con demencia y los cuidadores del grupo de "intervención" utilizarán la plataforma CAREGIVERSPRO-MMD de forma activa después de la formación previa. También asistirán a un examen médico completo cada 6 meses (mes 0, 6, 12, 18 del estudio), contestarán a un cuestionario de satisfacción en el uso de la plataforma y recibirán una llamada de teléfono de vigilancia en los costos de atención, adherencia al tratamiento y bienestar (meses 3, 6 y 15 del estudio).

El grupo de intervención utilizará una tableta (una para cada miembro de la díada: las personas que viven con el deterioro cognitivo leve o demencia -de leve a moderada- y su cuidador principal), conectada a la plataforma CAREGIVERSPRO-MMD y proporcionada por el personal del proyecto. La tableta tendrá un acceso limitado a Internet y a distintas aplicaciones relacionadas con la actividad de la plataforma CAREGIVERSPRO-MMD.

La plataforma CAREGEIVERSPRO-MMD proporcionará a los usuarios información actualizada y asesoramiento personalizado. Los usuarios podrán participar en grupos de discusión para compartir sus situaciones vitales así como para disfrutar de otras experiencias. También podrán saber en todo momento sus tratamientos, tendrán acceso evaluaciones específicas de salud y dispondrán de un diario médico.

¿Qué beneficios recibirá al participar?

Su participación no representará ningún costo para usted. El beneficio inmediato de su participación en el estudio es la contribución al conocimiento y desarrollo científico de la aplicación directa de las tecnologías para la calidad de vida de los cuidadores y las personas que viven con demencia, tal y como se ha demostrado en otros estudios.

¿El estudio representa alguna molestia o peligro para mí?

No hay ningún riesgo ni molestia asociado al uso de la plataforma CAREGIVERSPRO-MMD.

¿Puedo retirarme del estudio?

La participación es totalmente voluntaria y usted puede abandonar el estudio siempre que quiera sin necesidad de proporcionar ninguna explicación. Esto no afectará en su relación con el equipo médico.

¿Puedo extender mi participación en el estudio?

Sí, puede informar a otras personas sobre el estudio, proporcionando además información sobre el equipo médico para poder tener la mayor participación posible.

What if I require or need further information?

Please contact [enter text - INSERT names, positions and phone numbers – do not use private telephone numbers.]

¿Qué pasa si necesito más información?

Por favor, póngase en contacto con [introducir texto Insertar nombres, cargos y números de teléfono - no utilice números de teléfono privados.]

¿Qué pasa si tengo una queja?

Este estudio ha sido aprobado por el Comité de Ética [introducir texto]. El número de autorización es [ingrese el número de aprobación una vez que el proyecto ha sido aprobado]

Si tienes alguna queja o duda sobre la conducta ética de esta investigación, puede comunicarse con [introducir texto] mediante el teléfono [introducir texto] o correo electrónico [introducir texto]. Todos los temas serán tratados de forma confidencial.

Si después de un período de reflexión acepta participar en este estudio, debe completar y firmar el "Formulario de consentimiento informado" para la participación. Se le proporciona una copia del documento completo. Os recordamos que la participación es totalmente voluntaria y usted puede abandonar el estudio siempre que quiera sin tener que proporcionar ninguna explicación.

Gracias por su colaboración,

Recibirá más información sobre el estudio por parte del equipo de investigación.

15.3 FORMULARIO DE CONSENTIMIENTO INFORMADO

15.3.1 PERSONAS QUE VIVEN CON DCL O DEMENCIA / CUIDADORES PRINCIPALES

Formulario de Consentimiento informado

Estudio "CaregiversPRO-MMD"

"Estudio piloto multicéntrico para determinar los beneficios del uso de la plataforma CAREGIVERSPRO-MMD basada en las tecnologías de la información y la comunicación (TIC) dedicada al apoyo y la asistencia de las díadas formadas por personas afectas de enfermedades neurocognitivas (deterioro cognitivo leve o demencia leve a moderada) y sus cuidadores principales"

- **Promotor de la investigación**: Universitat Politècnica de Catalunya - Barcelona Tech - European Union
- **Centro de Investigación**: Fundació Universitària del Bages (FUB
- **Centro Clínico Investigador**: Fundació Sociosanitària del Bages (FSSB)
- **Investigador Principal**: Dr. Xavier Gironès García

El abajo firmante _____ (Nombre completo), siendo una persona (cuidador principal o persona afectada de deterioro cognitivo leve o que vive con demencia), he leído y entendido el documento informativo sobre el estudio titulado "CaregiversPRO-MMD" que se me ha facilitado.

Tambiérn he tenido la oportunidad de formular las preguntas que me han parecido útiles para la comprensión de la información del estudio recibiendo respuestas claras y precisas por el profesor / Doctor _____ quien también me ha explicado la naturaleza, objetivos los beneficios esperados, la duración del estudio y su seguimiento, riesgos potenciales y las limitaciones relacionadas con mi participación en esta investigación.

Tengo absolutamente claro que yo soy libre de aceptar o rechazar mi participación en esta investigación.

Sé que se reserva la posibilidad de que, por decisión propia unilateral, interrumpa mi participación en esta investigación, en cualquier momento, sin tener que justificar mi decisión. Naturalmente, esto no pone en peligro la calidad de los servicios futuros a mi disposición.

He recibido la garantía de que se van a tomar las mejores decisiones necesarias en relación con el estado de mi salud en todo momento, de acuerdo con el estado actual de los conocimientos médicos.

Mi consentimiento no libera al investigador y el patrocinador de la investigación de sus responsabilidades con respecto a mi persona conservando todos mis derechos personales amparados por la ley.

He leído y me han informado que este proyecto de investigación ha recibido la aprobación del Comité de Ética de Investigación Clínica XXX <fecha de la aceptación> y de la Agencia de XXX en XXX (XXX). Por otro lado: el responsable local de la investigación XXX, dirección, ha contratado un seguro de responsabilidad por daños a la empresa XXX (número de contrato) que se encuentra a mi disposición en el departamento/área XXX del centro XXX.

He manifestado mi acuerdo que mi historial médico pueda ser consultado por el personal vinculado a la investigación bajo el estricto al secreto profesional. Estoy de acuerdo en que las personas que trabajan en esta investigación o que tienen el mandato del promotor y, posiblemente, un representante de las autoridades sanitarias, tengan acceso a mi información en la más estricta confidencialidad. Estoy de acuerdo en que los datos registrados durante esta investigación puedan ser procesados para su análisis bajo la responsabilidad del promotor. He tenido constancia que, de conformidad con la legislación relativa a los datos, archivos y libertades del X de XXX de XXXX, tengo el derecho a acceder y corregir cualquier información referente a mi persona. También tengo el derecho de tomar oposición a la transmisión y difusión de datos amparado por el secreto profesional. Tales derechos los he comprometido con el mi médico responsable en el contexto de esta investigación y que conoce perfectamente mi identidad.

Los resultados generales de la investigación se me comunicarán directamente, si los solicito, de conformidad con la Ley de X de XXX de XXXX, sobre los derechos de los pacientes y la calidad del sistema de salud.

Yo puedo en cualquier momento solicitar información complementaria sobre el proyecto de investigación al profesor / Doctor _____ (nº de teléfono: _____), quien me propuso personalmente para participar en esta investigación.

Después de haber dispuesto de tiempo suficiente para reflexionar antes de tomar mi decisión, acepto libre y voluntariamente estar involucrado en la investigación CaregiversPRO-MMD.

En XXX, a XX de XXX del XXX Nombre de la persona participante en la investigación: Firma:	En XXX, a XX de XXX del XXX Nombre de la persona responsable de la investigación: Firma:

15.3.2 REPRESENTANTE LEGAL

Formulario de Consentimiento informado

Estudio "CaregiversPRO-MMD"

"Estudio piloto multicéntrico para determinar los beneficios del uso de la plataforma CAREGIVERSPRO-MMD basada en las tecnologías de la información y la comunicación (TIC) dedicada al apoyo y la asistencia de las díadas formadas por personas afectas de enfermedades neurocognitivas (deterioro cognitivo leve o demencia leve a moderada) y sus cuidadores principales"

- **Promotor de la investigación**: Universitat Politècnica de Catalunya - Barcelona Tech - European Union
- **Centro de Investigación**: Fundació Universitària del Bages (FUB
- **Centro Clínico Investigador**: Fundació Sociosanitària del Bages (FSSB)
- **Investigador Principal**: Dr. Xavier Gironès García

El abajo firmante _____ (Nombre completo), en calidad de representante legal de la persona _____(Nombre completo) he leído y entendido el prospecto informativo sobre el estudio titulado CaregiversPRO-MMD que se me ha facilitado.

También he tenido la oportunidad de formular las preguntas que me han parecido útiles para la comprensión del estudio y he recibido respuestas claras y precisas por el profesor / Doctor _____ quien también me ha explicado la naturaleza, objetivos, los beneficios esperados, la duración del estudio y su seguimiento, los riesgos potenciales y las limitaciones relacionadas con la participación en esta investigación en referencia a la persona que represento.

Tengo absolutamente claro que yo soy libre de aceptar o rechazar en nombre de la persona que represento su participación.

Sé que se reserva la posibilidad de que, por decisión propia, la persona que represento interrumpa la participación en esta investigación, en cualquier momento sin tener que justificar mi decisión. Naturalmente, esto no pondrá en peligro la calidad de los servicios futuros a disposición de la persona que represento.

He recibido la garantía de que se van a tomar las mejores decisiones necesarias en cualquier momento en beneficio la salud de la persona quien represento, de acuerdo con el estado actual de los conocimientos médicos.

Mi consentimiento no libera al investigador y al patrocinador de la investigación de sus responsabilidades con respecto a la persona que represento para que sean conservados todos sus derechos amparados por la ley.

He leído y comprobado que esta investigación ha recibido la aprobación del Comité de Ética de Investigación Clínica XXX <fecha de la aceptación> y la entidad/agencia XXX en XXX (XXX). El

responsable local de la investigación XXX, dirección, ha contratado un seguro de responsabilidad por daños a la empresa XXX (número de contrato) que tengo la posibilidad de consultar en el área/departamento del Centro de Investigación XXX.

Estoy de acuerdo en que el historial médico de la persona que represento sea consultado por el personal vinculado a la investigación bajo el estricto al secreto profesional. Estoy de acuerdo en que las personas que trabajan en esta investigación o quien tenga el mandato del promotor, y, posiblemente, un representante de las autoridades sanitarias, tengan acceso a la información en la más estricta confidencialidad. Estoy de acuerdo en que los datos registrados durante esta investigación puedan ser procesados para su análisis bajo la responsabilidad del promotor. He observado que, de conformidad con la legislación relativa a los datos, archivos y libertades del XX de XX de XXXX, tengo el derecho a acceder y corregir la información personal de la persona que represento que vea conveniente. También tengo el derecho a tomar oposición a la transmisión y difusión de datos amparado por el secreto profesional. Tales derechos los he adquirido con el médico adscrito a la persona a quien represento en el contexto de esta investigación y que conoce mi identidad y la de la persona que represento.

Los resultados generales de la investigación se me comunicarán directamente, si los solicito, de conformidad con la Ley de XX de XXX de XXXX, sobre derechos de los pacientes y la calidad del sistema de salud.

Yo puedo en cualquier momento solicitar información complementaria sobre el proyecto de investigación al profesor / Doctor _____ (nº de teléfono: _____), quien propuso a la persona que represento para participar en esta investigación.

Después de haber dispuesto de tiempo suficiente para reflexionar antes de tomar mi decisión, acepto libre y voluntariamente que la persona que represento esté involucrado en la investigación CaregiversPRO-MMD.

En XXX, a XX de XXX del XXX Nombre de la persona participante en la investigación:	En XXX, a XX de XXX del XXX Nombre de la persona responsable de la investigación: Firma:
En XXX, a XX de XXX del XXX Nombre del tutor legal de la persona participante en la investigación:	

Firma:

15.4 MATERIAL PROMOCIONAL DEL PROYECTO CAREGIVERSPRO-MMD

personalised care & quality of life

Our aim is to build a digital platform focusing on people living with dementia and their caregivers, considering this dyad as the unit of care and offering both a selection of advanced, individually tailored services that will improve the quality of their lives, wellbeing and medication adherence, and enable them to live well in the community for as long as possible.

PROJECT GOALS

To design a mobile health application targeted to people living with mild to moderate dementia and their caregivers, considering this dyad as the unit of care.

To build CAREGIVERSPRO-MMD platform through a user-centric design.

To demonstrate the CAREGIVERSPRO-MMD's benefits for users through large-scale pilots (600 dyads).

To assess the financial savings that **CAREGIVERSPRO-MMD** provides to **a)** Healthcare and social system and to **b)** informal supporters of people living with dementia.

To prepare for sustainable pan-European rollout of the platform.

PROJECT IDENTITY

- **H2020 Project** (H2020-PHC-2015-25)
- **Grant Agreement:** 690211
- **Research & Innovation action**
- **Start:** January 1st, 2016
- **Duration:** 36 months
- **EU Contribution:** €4,087,198.75
- **Target groups:** People living with dementia, caregivers, doctors, social workers

PROJECT PARTNERS

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personalised care & quality of life

CAREGIVERSPRO MMD

www.caregiversprommd-project.eu


CAREGIVERSPRO-MMD
SERVICES
1 Social network services (C1-C2-C3-C4-C5 services)
2 Clinical, psychological and behavioural screening for caregivers and people living with dementia
3 Therapeutic education and educational intervention service
4 Medical information and treatment adherent service
5 Clinical and social report service
www.caregiverspromd-project.eu
Screening
Please complete the evaluations below:
Depressive episode
Burden Interview
CAREGIVERSPRO-MMD
CAREGIVERS
PEOPLE LIVING WITH DEMENTIA
C2
C3
C4
BOTH
PUBLIC SOCIAL NETWORK (i.e. Facebook)
C1
CLINICIANS & SOCIAL WORKERS
• Evaluation-oriented content service
• Clinical & social screening
• Medication information, treatment adherence service
• Gamification
• Clinical evaluation, reports, EHR
C5
EXPECTED BENEFITS
People living with dementia
Personalised care plan, offering a combination of medication and behavioural treatments customised to their personal needs. A range of services for improving quality of life and independence, through the provision of solution focused information, support and advice through social networking and memory aids. Discrete, constantly available monitoring, allowing fast adjustments to the care plan.
Caregivers
Provision of social networking, information and wellbeing management tools to increase the social integration and support networks for caregivers. Personalised care plan, offering a combination of medication, behavioural and optimised treatment. Reduction of stress and burn-out phenomena.
Healthcare professionals
Reduction of time spent on administration, including data collection on people living with dementia and caregiver's wellbeing. Decision support for treatment options, correlations with behavioural changes and association with medical, psychological and social changes, allowing future improvement in care plans and preventive interventions.
Social worker professionals
Better understanding on elderly user evolution, behavioral changes and social participation. Intervention that facilitates monitoring, interaction and engagement in society.
Overall healthcare system
Reduced hospitalisations of people living with dementia and caregivers. Delayed need for people with dementia entering care homes.

16 APÉNDICES

1. Criterios clínicos básicos para el diagnóstico de DCL
2. DSM-IV diagnostic criteria for dementia
3. BADL - Barthel ADL Index / Barthel Index of Activities of Daily Living
4. CDR - Clinical Dementia Rating
5. DAS - Dyadic Adjustment Scale
6. DEMQoL - Dementia Quality of Life Measure
7. DEMQoL proxy - Dementia Quality of Life Measure
8. FS - Flourishing Scale
9. GDS - Geriatric Depression Scale
10. IADL - Lawton Instrumental Activities of Daily Living Scale
11. MMSE - Mini-Mental State Examination
12. MMAS-8 - 8-item Morisky Medication Adherence Scale
13. MSPSS - Multidimensional Scale of Perceived Social Support
14. NPI - NeuroPsychiatric Inventory
15. RUD - Resource Utilization in Dementia
16. SF-36v2 - Medical Outcomes Study (MOS) 36-Item Short Form 2nd version
17. STAI - State Trait Anxiety Inventory
18. ZBI - Zarit Burden Interview

16.1 Criterios clínicos básicos para el diagnóstico de DCL

Referencias:

Albert MS, DeKosky ST, Dickson D, Dubois B, Feldman HH, Fox NC, Gamst A, Holtzman DM, Jagust WJ, Petersen RC, Snyder PJ, Carrillo MC, Thies B, Phelps CH. The diagnosis of mild cognitive impairment due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease. Alzheimers Dement. 2011 May;7(3):270-9. doi: 10.1016/j.jalz.2011.03.008. Epub 2011 Apr 21.

[link: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3312027/]

In this appendix, we outline the core clinical criteria for individuals with mild cognitive impairment (MCI). In considering the specifics of this clinical and cognitive syndrome, it is important to emphasize, as noted earlier in the text, that sharp demarcations between normal cognition and MCI and between MCI and dementia are difficult, and clinical judgment must be used to make these distinctions.

16.1.1 MCI - Criteria for the clinical and cognitive syndrome

16.1.1.1 Concern regarding a change in cognition

There should be evidence of concern about a change in cognition, in comparison with the person's previous level. This concern can be obtained from the patient, from an informant who knows the patient well, or from a skilled clinician observing the patient.

16.1.1.2 Impairment in one or more cognitive domains

There should be evidence of lower performance in one or more cognitive domains that is greater than would be expected for the patient's age and educational background. If repeated assessments are available, then a decline in performance should be evident over time. This change can occur in a variety of cognitive domains, including memory, executive function, attention, language, and visuospatial skills. An impairment in episodic memory (i.e., the ability to learn and retain new information) is seen most commonly in MCI patients who subsequently progress to a diagnosis of Alzheimer's disease (AD) dementia. (See the section on the cognitive characteristics later in the text for further details).

16.1.1.3 Preservation of independence in functional abilities

Persons with MCI commonly have mild problems performing complex functional tasks which they used to perform previously, such as paying bills, preparing a meal, or shopping. They may take more time, be less efficient, and make more errors at performing such activities than in the past. Nevertheless, they generally maintain their independence of function in daily life, with minimal aids

or assistance. It is recognized that the application of this criterion is challenging, as it requires knowledge about an individual's level of function at the current phase of their life. However, it is noteworthy that this type of information is also necessary for the determination of whether a person is demented.

16.1.1.4 Not demented

These cognitive changes should be sufficiently mild that there is no evidence of a significant impairment in social or occupational functioning. It should be emphasized that the diagnosis of MCI requires evidence of intraindividual change. If an individual has only been evaluated once, change will need to be inferred from the history and/or evidence that cognitive performance is impaired beyond what would have been expected for that individual. Serial evaluations are of course optimal, but may not be feasible in a particular circumstance.

16.1.2 Cognitive characteristics of MCI

It is important to determine whether there is objective evidence of cognitive decline, and if so, the degree of this decline in the reports by the individual and/or an informant. Cognitive testing is optimal for objectively assessing the degree of cognitive impairment for an individual. Scores on cognitive tests for individuals with MCI are typically 1 to 1.5 standard deviations below the mean for their age and education matched peers on culturally appropriate normative data (i.e., for the impaired domain(s), when available). It is emphasized that these ranges are guidelines and not cutoff scores.

16.1.2.1 Cognitive assessment

As noted earlier in the text, impairment in episodic memory (i.e., the ability to learn and retain new information) is most commonly seen in MCI patients who subsequently progress to a diagnosis of AD dementia. Research studies have shown that there are a variety of episodic memory tests that are useful for identifying those MCI patients who have a high likelihood of progressing to AD dementia within a few years. These tests share the characteristic that they assess both immediate and delayed recall, so that it is possible to determine retention over a delay. Many, although not all, of the tests that have proven useful in this regard are word-list learning tests with multiple trials. Such tests reveal the rate of learning over time, as well as the maximum amount acquired over the course of the learning trials. They are also useful for demonstrating that the individual is, in fact, paying attention to the task on immediate recall, which then can be used as a baseline to assess the relative amount of material retained on delayed recall. Examples of such tests include (but are not limited to): the Free and Cued Selective Reminding Test, the Rey Auditory Verbal Learning Test, and the California Verbal Learning Test. Other episodic memory measures include: immediate and delayed recall of a paragraph such as the Logical Memory I and II of the Wechsler Memory Scale Revised (or other versions) and immediate and delayed recall of nonverbal materials, such as the Visual Reproduction subtests of the Wechsler Memory Scale-Revised I and II.

Because other cognitive domains can be impaired among individuals with MCI, it is important to examine domains in addition to memory. These include: executive functions (e.g., set-shifting, reasoning, problem-solving, planning), language (e.g., naming, fluency, expressive speech, and comprehension), visuospatial skills, and attentional control (e.g., simple and divided attention). Many

validated clinical neuropsychological measures are available to assess these cognitive domains, including (but not limited to): the Trail Making Test (executive function), the Boston Naming Test, letter and category fluency (language), figure copying (spatial skills), and digit span forward (attention).

If formal cognitive testing is not feasible, then cognitive function can be assessed using a variety of simple, informal techniques. For example, the clinician can ask a patient to learn a street address and to recall it after a delay interval of a few minutes (e.g., John Brown, 42 Market Street, Chicago). Alternatively, the clinician can ask the patient to name three objects (e.g., a pen, a paper clip, and a dollar bill), place them in different locations around the room and subsequently ask the patient to recall the names of the objects and their locations, again after a brief delay. These types of approaches are relatively easy to perform during an office visit, and will yield informative results. It is important, however, for clinicians to recognize that these informal tests will likely be insensitive to subtle cognitive dysfunction during the early stages of MCI, and will often yield normal performance. In addition, these approaches typically do not assess cognitive domains beyond memory.

Finally, it must be recognized that atypical clinical presentations of AD may arise, such as the visual variant of AD (involving posterior cortical atrophy) or the language variant (sometimes called logopenic aphasia), and these clinical profiles are also consistent with MCI due to AD.

16.1.2.2 Summary of clinical and cognitive evaluation

The initiation of a clinical and cognitive evaluation typically includes a cognitive concern expressed by the patient, an informant, or a clinician observing the patient's performance. Cognitive decline can be documented by means of the history from the patient, preferably corroborated by an informant, or on the basis of observation by the clinician. Ideally, if serial assessments are available, they would be preferable, but in the setting of a single evaluation, this information is inferred from the history. The patient's cognition is assessed and found to be outside the normal range of function for the patient's age and educational background, but not sufficiently impaired to constitute dementia. The impairment can involve one or more cognitive domains. The clinician determines whether memory is prominently impaired, or whether the impairments in other cognitive domains predominate, such as spatial or language impairment. Typically, memory is the most common domain involved among patients who subsequently progress to AD dementia, as noted earlier in the text. There is generally mild functional impairment for complex tasks, but basic activities of daily living should be preserved, and the person should not meet criteria for dementia. It should be noted that the clinical syndrome, as summarized in this section and Table 1, is almost identical to the one previously described by Petersen et al [Petersen et al, 1999; Petersen et al, 2004; Winblad et al, 2004].

Table 1. Summary of clinical and cognitive evaluation for MCI due to AD

Establish clinical and cognitive criteria

- Cognitive concern reflecting a change in cognition reported by patient or informant or clinician (i.e., historical or observed evidence of decline over time)
- Objective evidence of Impairment in one or more cognitive domains, typically including memory (i.e., formal or bedside testing to establish level of cognitive function in multiple domains)

- Preservation of independence in functional abilities
- Not demented

Examine etiology of MCI consistent with AD pathophysiological process

- Rule out vascular, traumatic, medical causes of cognitive decline, where possible
- Provide evidence of longitudinal decline in cognition, when feasible
- Report history consistent with AD genetic factors, where relevant

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Abbreviations: AD, Alzheimer's disease; MCI, mild cognitive impairment.

16.1.2.3 Longitudinal cognitive evaluation

Evidence of progressive decline in cognition provides additional evidence that the individual has "MCI due to AD," as noted earlier in the text. Thus, it is important to obtain longitudinal assessments of cognition, whenever possible. It is recognized that a diagnosis will likely need to be given without the benefit of this information; however, obtaining objective evidence of progressive declines in cognition over time is important for establishing the accuracy of the diagnosis, as well as for assessing any potential treatment response.

16.1.2.4 Cautionary issues pertaining to cognitive assessment

It is important to emphasize that virtually all cognitive tests are sensitive to differences in age, education (i.e., literacy), and/or cultural variation among individuals. Age and educational norms are available for some tests, but few have norms that pertain to the oldest old (individuals aged ≥90 years). Moreover, considerable work remains to establish the reliability of cognitive tests across populations with wide cultural variation.

16.1.3 Etiology of the MCI clinical and cognitive syndrome consistent with AD

Once it has been determined that the clinical and cognitive syndrome of the individual is consistent with that associated with AD, but that the individual is not demented, the clinician must determine the likely primary cause, for example, degenerative, vascular, depressive, traumatic, medical comorbidities, or mixed disease. Typically, this information is derived from further historical information and ancillary testing (e.g., neuroimaging, laboratory studies, and neuropsychological assessment) that may prove informative.

To meet the core clinical criteria for MCI, it is necessary to rule out other systemic or brain diseases that could account for the decline in cognition (e.g., vascular, traumatic, medical). The goal of such an evaluation is to increase the likelihood that the underlying disease is a neurodegenerative disorder with characteristics consistent with AD. This diagnostic strategy is similar to the one that is used to diagnose "dementia due to AD." This may include seeking evidence for:

(1) Parkinsonism, including prominent visual hallucinations, and rapid eye movement sleep abnormalities, often seen in dementia with Lewy bodies,

(2) multiple vascular risk factors and/or the presence of extensive cerebrovascular disease on structural brain images, which is suggestive of vascular cognitive impairment,

(3) prominent behavioral or language disorders early in the course of disease that may reflect frontotemporal lobar degeneration, or

(4) very rapid cognitive decline that occurs over weeks or months, typically indicative of prion disease, neoplasm, or metabolic disorders. It should be noted that the pathological features of some of these disorders can exist in combination with AD (e.g., Lewy bodies and vascular disease), particularly among individuals at an advanced age.

The presence of vascular pathology, in the setting of MCI, is particularly challenging from a diagnostic perspective. Because AD pathology frequently coexists with vascular pathology, particularly at older ages, both may contribute to cognitive dysfunction. Thus, during life, it may be difficult to determine which pathological feature is the primary cause of the cognitive impairment.

Among the oldest old (i.e., those aged ≥90 years), there are additional difficulties in determining the etiology of the cognitive decline. For example, the pathological criteria for AD remain unclear for the oldest old.

16.1.3.1 Role of autosomal genetic mutations for AD

An additional issue is the role of genetics in the diagnosis. If an autosomal dominant form of AD is known to be present (i.e., mutation in APP, PS1, PS2), then the development of MCI is most likely the prodrome to AD dementia. The large majority of these cases develop early onset AD (i.e., onset below 65 years of age). There remains, however, variable certainty about the time course over which the progression from MCI to AD dementia will evolve in these individuals [Schellenberg et al, 2006].

16.1.3.2 Role of genes that increase risk for AD

In addition, there are genetic influences on the development of late onset AD dementia. To date, the presence of one or two ε 4 alleles in the apolipoprotein E (APOE) gene is the only genetic variant broadly accepted as increasing risk for late-onset AD dementia, whereas the ε2 allele decreases risk. Evidence suggests that an individual who meets the clinical, cognitive, and etiologic criteria for MCI, and is also APOE ε4 positive, is more likely to progress to AD dementia within a few years than an individual without this genetic characteristic. It has been hypothesized that many additional genes play an important, but smaller role than APOE; these additional genes will also confer changes in risk for progression to AD dementia [Bertram et al, 2010].

16.1.4 References

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- Petersen RC. Mild cognitive impairment. J Int Med. 2004;256:183–94
- Petersen RC, Smith G, Waring S, Ivnik R, Tangalos E, Kokmen E, et al. Mild cognitive impairment: clinical characterization and outcome. Arch Neurol. 1999;56:303–8
- Schellenberg G. Early Alzheimer’s disease genetics. J Alzheimers Dis. 2006;9:367–72.

- Winblad B, Palmer K, Kivipelto M, Jelic V, Fratiglioni L, Nordberg A, et al. Mild cognitive impairment—beyond controversies, towards a consensus: report of the International Working Group on Mild Cognitive Impairment. J Intern Med. 2004;256:240–6

16.2 DSM-IV CRITERIOS DIAGNÓSTICOS PARA DEMENCIA

Referencia:

American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 4th edition. Washington, D.C.: American Psychiatric Press, 1994.

The disorders in the "Dementia" section are characterized by the development of multiple cognitive deficits (including memory impairment) that are due to the direct physiological effects of a general medical condition, to the persisting effects of a substance, or to multiple etiologies (e.g., the combined effects of cerebrovascular disease and Alzheimer's disease). The disorders in this section share a common symptom presentation but are differentiated based on etiology. The diagnostic features listed in the next section pertain to Dementia of the Alzheimer's Type, Vascular Dementia, Dementia Due to HIV Disease, Dementia Due to Head Trauma, Dementia Due to Parkinson's Disease, Dementia Due to Huntingdon's Disease, Dementia Due to Pick's Disease, Dementia Due to Creutzfeldt-Jakob Disease, Dementia Due to Other General Medical Conditions, Substance-Induced Persisting Dementia, and Dementia Due to Multiple Etiologies. In addition, Dementia Not Otherwise Specified is included in this section for presentations in which the clinician is unable to determine a specific etiology for the multiple cognitive deficits.

16.2.1 DIAGNOSTIC FEATURES

The essential feature of a dementia is the development of multiple cognitive deficits that include memory impairment and at least one of the following cognitive disturbances: aphasia, apraxia, agnosia, or a disturbance in executive functioning. The cognitive deficits must be sufficiently severe to cause impairment in occupational or social functioning and must represent a decline from a previously higher level of functioning. A diagnosis of a dementia should not be made if the cognitive deficits occur exclusively during the course of a delirium. However, a dementia and a delirium may both be diagnosed if the dementia is present at times when the delirium is not present. Dementia may be etiologically related to a general medical condition, to the persisting effects of substance use (including toxin exposure), or to a combination of these factors.

Memory impairment is required to make the diagnosis of a dementia and is a prominent early symptom (Criterion Al). Individuals with dementia become impaired in their ability to learn new material, or they forget previously learned material. Most individuals with dementia have both forms of memory impairment, although it is sometimes difficult to demonstrate the loss of previously learned material early in the course of the disorder. They may lose valuables like wallets and keys, forget food cooking on the stove, and become lost in unfamiliar neighborhoods. In advanced stages of dementia, memory impairment is so severe that the person forgets his or her occupation, schooling, birthday, family members, and sometimes even name.

Memory may be formally tested by asking the person to register, retain, recall, and recognize information. The ability to learn new information may be assessed by asking the individual to learn a list of words. The individual is requested to repeat the words (registration), to recall the information after a delay of several minutes (retention, recall), and to recognize the words from a multiple list (recognition). Individuals with difficulty learning new information are not helped by clues or prompts (e.g., multiple-choice questions) because they did not learn the material initially. In contrast, individuals with primarily retrieval deficits can be helped by clues and prompts because their impairment is in the ability to access their memories. Remote memory may be tested by asking the individual to recall personal information or past material that the individual found of interest (e.g., politics, sports, entertainment). It is also useful to determine (from the individual and informants) the impact of the memory disturbances on the individual's functioning (e.g., ability to work, shop, cook, pay bills, return home without getting lost).

Deterioration of language function (aphasia) may be manifested by difficulty producing the names of individuals and objects (Criterion A2a). The speech of individuals with aphasia may become vague or empty, with long circumlocutory phrases and excessive use of terms of indefinite reference such as "thing" and "it." Comprehension of spoken and written language and repetition of language may also be compromised. In the advanced stages of dementia, individuals may be mute or have a deteriorated speech pattern characterized by echolalia (i.e., echoing what is heard) or palilalia (i.e., repeating sounds or words over and over). Language is tested by asking the individual to name objects in the room (e.g., tie, dress, desk, lamp) or body parts (e.g., nose, chin, shoulder), follow commands ("Point at the door and then at the table"), or repeat phrases ("no ifs, ands, or buts").

Individuals with dementia may exhibit apraxia (i.e., impaired ability to execute motor activities despite intact motor abilities, sensory function, and comprehension of the required task) (Criterion A2b). They will be impaired in their ability to pantomime the use of objects (e.g., combing hair) or to execute known motor acts (e.g., waving goodbye). Apraxia may contribute to deficits in cooking, dressing, and drawing. Motor skill disturbances may be tested by asking the individual to execute motor functions (e.g., to show how to brush teeth, to copy intersecting pentagons, to assemble blocks, or to arrange sticks in specific designs).

Individuals with dementia may exhibit agnosia (i.e., failure to recognize or identify objects despite intact sensory function) (Criterion A2c). For example, the individual may have normal visual acuity but lose the ability to recognize objects such as chairs or pencils. Eventually they may be unable to recognize family members or even their own reflection in the mirror. Similarly, they may have normal tactile sensation, but be unable to identify objects placed in their hands by touch alone (e.g., a coin or keys).

Disturbances in executive functioning are a common manifestation of dementia (Criterion A2d) and may be related especially to disorders of the frontal lobe or associated subcortical pathways. Executive functioning involves the ability to think abstractly and to plan, initiate, sequence, monitor, and stop complex behavior. Impairment in abstract thinking may be manifested by the individual having difficulty coping with novel tasks and avoiding situations that require the processing of new and complex information.

The ability to abstract can be formally assessed by asking the person to find similarities or differences between related words. Executive dysfunction is also evident in a reduced ability to shift mental sets, to generate novel verbal or nonverbal information, and to execute serial motor activities. Tests for executive function include asking the individual to count to 10, recite the alphabet, subtract serial 7s,

state as many animals as possible in 1 minute, or draw a continuous line consisting of alternating m's and n's. It is also useful to determine (from the individual and informants) the impact of the disturbances in executive functioning on the individual's daily life (e.g., ability to work, plan activities, budget).

The items in both Criterion Al (memory impairment) and Criterion A2 (aphasia, apraxia, agnosia, or disturbance in executive functioning) must be severe enough to cause significant impairment in social or occupational functioning (e.g., going to school, working, shopping, dressing, bathing, handling finances, and other activities of daily living) and must represent a decline from a previous level of functioning (Criterion B).

The nature and degree of impairment are variable and often depend on the particular social setting of the individual. The same level of cognitive impairment may significantly impair an individual's ability to perform a complex job, but not a job that is less demanding. Standardized published rating scales that measure physical maintenance (e.g., personal hygiene), intellectual functioning, and the ability to use implements or tools (e.g., telephone, washing machine) can be used to measure the severity of impairment.

Dementia is not diagnosed if these symptoms occur exclusively during the course of a delirium. However, a delirium may be superimposed on a preexisting dementia, in which case both diagnoses should be given.

16.2.2 Associated Features and Disorders

16.2.2.1 Associated descriptive features and mental disorders

Individuals with dementia may become spatially disoriented and have difficulty with spatial tasks. Visuospatial functioning can be assessed by asking the individual to copy drawings, such as a circle, overlapping pentagons, and a cube. Poor judgment and poor insight are common in dementia. Individuals may exhibit little or no awareness of memory loss or other cognitive abnormalities. They may make unrealistic assessments of their abilities and make plans that are not congruent with their deficits and prognosis (e.g., planning to start a new business). They may underestimate the risks involved in activities (e.g., driving). Occasionally, they may harm others by becoming violent. Suicidal behavior may occur, particularly in early stages when the individual is more capable of carrying out a plan of action. Dementia is sometimes accompanied by motor disturbances of gait leading to falls. Some individuals with dementia show disinhibited behavior, including making inappropriate jokes, neglecting personal hygiene, exhibiting undue familiarity with strangers, or disregarding conventional rules of social conduct. Slurred speech may occur in dementia that is associated with subcortical pathology such as Parkinson's disease, Huntington's disease, and some cases of Vascular Dementia. The multiple cognitive impairments of dementia are often associated with anxiety, mood, and sleep disturbances. Delusions are common, especially those involving themes of persecution (e.g., that misplaced possessions have been stolen). Hallucinations can occur in all sensory modalities, but visual hallucinations are most common. Delirium is frequently superimposed on dementia because the underlying brain disease may increase susceptibility to confusional states that may be produced by medications or other concurrent general medical conditions. Individuals with dementia may be especially vulnerable to physical stressors (e.g., illness or minor surgery) and psychosocial stressors (e.g., going to the hospital, bereavement), which may exacerbate their intellectual deficits and other associated problems.

16.2.2.2 Associated laboratory findings

A discussion of associated laboratory findings that are specific to types of dementia is included in the text for each dementia. Invariably there are abnormalities in cognitive and memory functioning, which can be assessed using mental status examinations and neuropsychological testing. Neuroimaging may aid in the differential diagnosis of dementia. Computed tomography (CT) or magnetic resonance imaging (MRI) may reveal cerebral atrophy, focal brain lesions (cortical strokes, tumors, subdural hematomas), hydrocephalus, or periventricular ischemic brain injury. Functional imaging such as positron-emission tomography (PET) or single photon emission computed tomography (SPECT) are not routinely used in the evaluation of dementia, but may provide useful differential diagnostic information (e.g., parietal lobe changes in Alzheimer's disease or frontal lobe alterations in frontal lobe degenerations) in individuals without evidence of structural changes on CT or MRI scans.

16.2.2.3 Associated physical examination findings and general medical conditions

The associated physical examination findings of dementia depend on the nature, location, and stage of progression of the underlying pathology. The most common cause of dementia is Alzheimer's disease, followed by vascular disease, and then by multiple etiologies. Other causes of dementia include Pick's disease, normal-pressure hydrocephalus, Parkinson's disease, Huntington's disease, traumatic brain injury, brain tumors, anoxia, infectious disorders (e.g., human immunodeficiency virus [HIV], syphilis), prion diseases (e.g., Creutzfeldt-Jakob disease), endocrine conditions (e.g., hypothyroidism, hypercalcemia, hypoglycemia), vitamin deficiencies (e.g., deficiencies of thiamine, niacin, vitamin 612), immune disorders (e.g., polymyalgia rheumatica, systemic lupus erythematosus), hepatic conditions, metabolic conditions (e.g., Kufs' disease, adrenoleukodystrophy, metachromatic leukodystrophy, and other storage diseases of adulthood and childhood), and other neurological conditions (e.g., multiple sclerosis).

16.2.3 Specific Culture and Age Features

Cultural and educational background should be taken into consideration in the evaluation of an individual's mental capacity. Individuals from certain backgrounds may not be familiar with the information used in certain tests of general knowledge (e.g., names of presidents, geographical knowledge), memory (e.g., date of birth in cultures that do not routinely celebrate birthdays), and orientation (e.g., sense of place and location may be conceptualized differently in some cultures). The prevalence of different causes of dementia (e.g., infections, nutritional deficiencies, traumatic brain injury, endocrine conditions, cerebrovascular diseases, seizure disorders, brain tumors, substance abuse) varies substantially across cultural groups.

The age at onset of dementia depends on the etiology, but is usually late in life, with highest prevalence above age 85 years. A significant deterioration in memory and in multiple cognitive skills, which is necessary for the diagnosis of dementia, may be difficult to document in very young children. Thus, the diagnosis of dementia may not be practical until the child is older (usually between ages 4 and 6 years). In individuals under age 18 years with Mental Retardation, an additional diagnosis of a dementia should be made only if the condition is not characterized satisfactorily by the diagnosis of Mental Retardation alone. Dementia is uncommon in children and adolescents, but can occur as a result of general medical conditions (e.g., head injury, brain tumors,

HIV infection, strokes, adrenoleukodystrophies). Dementia in children may present as a deterioration in functioning (as in adults) or as a significant delay or deviation in normal development. Deteriorating school performance may be an early sign.

16.2.4 Prevalence

Reported prevalence of dementia varies among epidemiological studies, depending on the ages of the subjects sampled; methods of determining the presence, severity, and type of cognitive impairment; and the regions or countries studied. Community studies estimated a 1-year prospective prevalence of almost 3.0% with severe cognitive impairment in the adult population. The study assessed individuals with a brief instrument that assessed current cognitive status (the Mini-Mental State Exam), which does not identify specific diagnoses. It is estimated that 2%-4% of the population over age 65 years have Dementia of the Alzheimer's Type, with other types being much less common. The prevalence of dementia, especially Dementia of the Alzheimer's Type and Vascular Dementia, increases with age, particularly after age 75 years, with a prevalence of 20% or more over age 85 years.

16.2.5 Course

Historically, the term dementia implied a progressive or irreversible course. The DSM-IV definition of dementia, however, is based on the pattern of cognitive deficits and carries no connotation concerning prognosis. Dementia may be progressive, static, or remitting. The reversibility of a dementia is a function of the underlying pathology and of the availability and timely application of effective treatment. The mode of onset and subsequent course of dementia also depend on the underlying etiology. The level of disability depends not only on the severity of the individual's cognitive impairments but also on the available social supports. In advanced dementia, the individual may become totally oblivious to his or her surroundings and require constant care. Individuals with severe dementia are susceptible to accidents and infectious diseases, which often prove fatal.

16.2.6 Differential Diagnosis

Memory impairment occurs in both delirium and dementia. Delirium is also characterized by a reduced ability to maintain and shift attention appropriately. The clinical course can help to differentiate between delirium and dementia. Typically, symptoms in delirium fluctuate and symptoms in dementia are relatively stable. Multiple cognitive impairments that persist in an unchanged form for more than a few months suggest dementia rather than delirium. Delirium may be superimposed on a dementia, in which case both disorders are diagnosed. In situations in which it is unclear whether the cognitive deficits are due to a delirium or a dementia, it may be useful to make a provisional diagnosis of delirium and observe the person carefully while continuing efforts to identify the nature of the disturbance.

An amnestic disorder is characterized by severe memory impairment without other significant impairments of cognitive functioning (i.e., aphasia, apraxia, agnosia, or disturbances in executive functioning).

The presumed etiology determines the specific dementia diagnosis. If the clinician has determined that the dementia is due to multiple etiologies, multiple codes based on the specific dementias and their etiologies should be used (see Dementia Due to Multiple Etiologies, p. 154). In Vascular

Dementia, focal neurological signs (e.g., exaggeration of deep tendon reflexes, extensor plantar response) and laboratory evidence of vascular disease judged to be related to the dementia are present. The clinical course of Vascular Dementia is variable and typically progresses in stepwise fashion. The presence of Dementia Due to Other General Medical Conditions (e.g., Pick's disease, HIV) requires evidence from the history, physical examination, and appropriate laboratory tests that a general medical condition is etiologically related to the dementia. The onset of the deterioration (gradual or sudden) and its course (acute, subacute, or chronic) may be useful in suggesting the etiology. For example, the severity of the impairment in cognitive functioning often remains static after head injury, encephalitis, or stroke.

Multiple cognitive deficits that occur only in the context of substance use are diagnosed as Substance Intoxication or Substance Withdrawal. If the dementia results from the persisting effects of a substance (i.e., a drug of abuse, a medication, or toxin exposure), then Substance-Induced Persisting Dementia is diagnosed. Other causes of dementia (e.g., Dementia Due to a General Medical Condition) should always be considered, even in a person with Substance Dependence. For example, head injury is not infrequent during substance use and may underlie the dementia. Dementia of the Alzheimer's Type is currently a diagnosis of exclusion, and other causes for the cognitive deficits (see above) must first be ruled out. In addition, the course is characterized by gradual onset and continuing cognitive decline. In those cases in which there is insufficient evidence to determine whether the dementia is due to a general medical condition or is substance induced, Dementia Not Otherwise Specified should be coded. Individuals may present with some but not all of the symptoms of dementia. Such presentations should be coded as Cognitive Disorder Not Otherwise Specified.

Mental Retardation is characterized by significantly subaverage current general intellectual functioning, with concurrent impairments in adaptive functioning and with an onset before age 18 years. Mental Retardation is not necessarily associated with memory impairment. In contrast, the age at onset of dementia is usually late in life. If the onset of the dementia is before age 18 years, both dementia and Mental Retardation may be diagnosed if the criteria for both disorders are met. Documenting a significant deterioration in memory and in other cognitive skills, which is necessary for the diagnosis of dementia, may be difficult in persons under age 4 years. In individuals under age 18 years, the diagnosis of dementia should be made only if the condition is not characterized satisfactorily by the diagnosis of Mental Retardation alone.

Schizophrenia can also be associated with multiple cognitive impairments and a decline in functioning, but Schizophrenia is unlike dementia in its generally earlier age at onset, its characteristic symptom pattern, and the absence of a specific etiological general medical condition or substance. Typically, the cognitive impairment associated with Schizophrenia is less severe than that seen in Dementia.

Major Depressive Disorder may be associated with complaints of memory impairment, difficulty thinking and concentrating, and an overall reduction in intellectual abilities. Individuals sometimes perform poorly on mental status examinations and neuropsychological testing. Particularly in elderly persons, it is often difficult to determine whether cognitive symptoms are better accounted for by a dementia or by a Major Depressive Episode. This differential diagnosis may be informed by a thorough medical evaluation and an evaluation of the onset of the disturbance, the temporal sequencing of depressive and cognitive symptoms, the course of illness, family history, and treatment response. The premorbid state of the individual may help to differentiate "pseudodementia" (i.e., cognitive impairments due to the Major Depressive Episode) from dementia.

In dementia, there is usually a premorbid history of declining cognitive function, whereas the individual with a Major Depressive Episode is much more likely to have a relatively normal premorbid state and abrupt cognitive decline associated with the depression. If the clinician determines that both a dementia and Major Depressive Disorder are present with independent etiologies, both should be diagnosed.

Dementia must be distinguished from Malingering and Factitious Disorder. The patterns of cognitive deficits presented in Malingering and Factitious Disorder are usually not consistent over time and are not characteristic of those typically seen in dementia. For example, individuals with Factitious Disorder or Malingering manifesting as dementia may perform calculations while keeping score during a card game, but then claim to be unable to perform similar calculations during a mental status examination.

Dementia must be distinguished from the normal decline in cognitive functioning that occurs with aging (as in Age-Related Cognitive Decline). The diagnosis of dementia is warranted only if there is demonstrable evidence of greater memory and other cognitive impairment than would be expected due to normal aging processes and the symptoms cause impairment in social or occupational functioning.

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