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D 6.2: Sunfrail Tools for the Identification of Frailty and Multimorbidity

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For deliverables: R = Report; **P** = Prototype; **D** = Demonstrator; **S** = Software/Simulator; **O** = Other
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The present report on the Sunfrail Tools for the Identification of Frailty and Multimorbidity (D 6.2) has been developed building on the deliverable D 4.2 Sunfrail Tool for the Identification of Frailty and Multimorbidity originally submitted to the EC during the first reporting period. This document has been integrated with details of the methodology, results and outcomes of the experimentation of the tool. All steps of development are described in the table above.

The description of all tools identified within the project on the identification, prevention and management of frailty and care of multimorbidity are extensively described in the Experimentation Report D. 6.1.

The description of the Sunfrail Tool for Human Resources and related processes, methodology and outcome are entirely described in deliverable D7.1 Educational Model for health Care Staff and related Tools.

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1.Introduction

As foreseen by the project WP4, within the assessment of Reference Sites health and social services, Sunfrail project carried out the assessment of the instruments used to identify frailty and multimorbidity in Primary Health Care. Reference Sites report an extreme heterogeneity in the clinical assessment of the risk profile of the older person, as the most common risk factors of frailty are not systematically explored (in certain regions quite rarely), and are prioritized differently.

Moreover, the Reference Sites have no specific instrument implemented in the primary care routine. It is more likely to have multiple instruments proposed (or also endorsed) by public health authorities, leaving to the healthcare professional the choice of the most convenient one to use.

Taking into consideration all these aspects, a Sunfrail team composed by geriatricians, public health experts, sociologists and other professionals have developed a tool for the early identification of frailty and multimorbidity within primary care and community settings. The Sunfrail tool has been developed in close collaboration with the European Union Geriatric Medicine Society (EUGMS) – Special Interest Group on “Frailty in older persons”.

The tool, far from being exhaustive, encourages health, social and community actors to identify the key indicators of frailty through a "minimum core of items" within the biomedical, psychological, individual and socio-economical domains, and to generate a proactive response.

It is a first "easy to use" screening tool, usable by different professionals and also by informal carers within health, social and community settings, allowing the generation of a first alert that would then imply:

a) the activation of a referral for further medical assessment and diagnostic investigation or
b) the activation of a response from the social sector and the community.

2.Assessment of Perceptions, Instruments and Needs for the Identification and Management of Frailty and Multimorbidity

The rationale for developing the Sunfrail tool has been based on three different steps regarding:

a. The perception of the terms frailty and multimorbidity by the citizens and GPs, the perceived difference between frailty and multimorbidity and the potential overlap of these two conditions.

b. The analysis of the instruments available in Reference Sites and moments of detection.

c. The assessment of the type of the responses used to counteract frailty and multimorbidity in different settings (primary health and social care, community or Hospital) where the isolate or combined approach to these conditions is needed.

a. The perception on the terms of frailty and multimorbidity by the citizens and GPs

The term frailty is mostly confined to geriatric world without a significant impact in clinical practice and health care system. This term is often seen by patients, GPS and Public Health professionals in different negative ways. Among older subjects, it is usually considered a bad term or an irreversible condition, frequently inducing scare and aversion. In GPs' view, frailty is not considered a true disease, and is often perceived as the inevitable consequence of the single chronic disease and/or multimorbidity. The aging process is a continuous and irreversible process potentially responsible for many age-related adverse outcomes. In this context, frailty may represent a condition to be targeted by preventive and therapeutic strategies in order to reverse some modifiable risk factors and promote independent life. As frailty is a distinct concept than disability, it is important to develop interventions and tools aimed at early detection, prevention and management of frailty conditions (Figure 1 and Figure 2).

Figure 1. Trajectories of Function in older persons

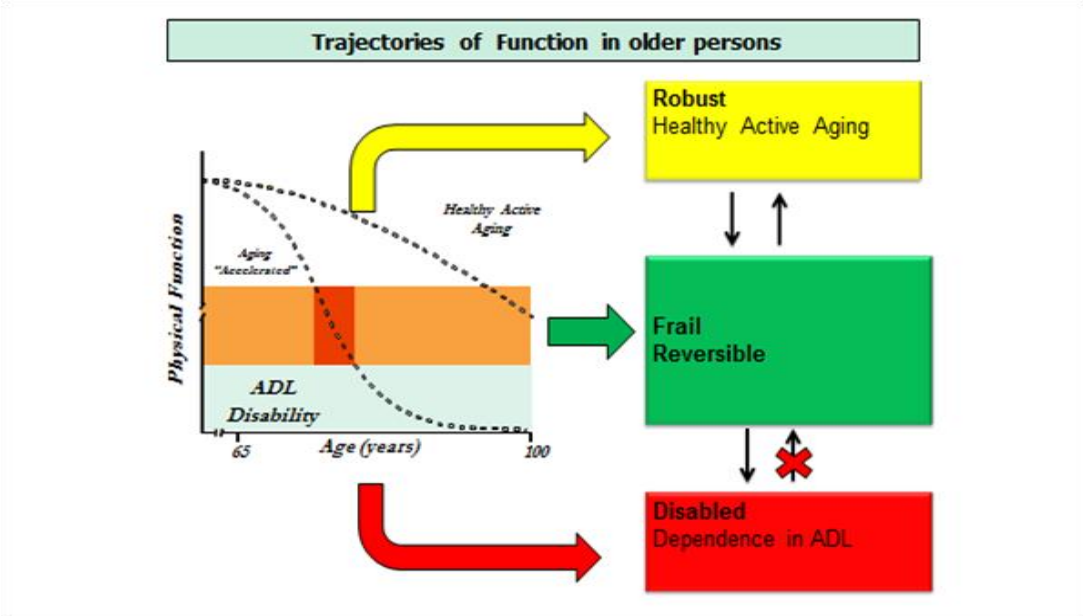
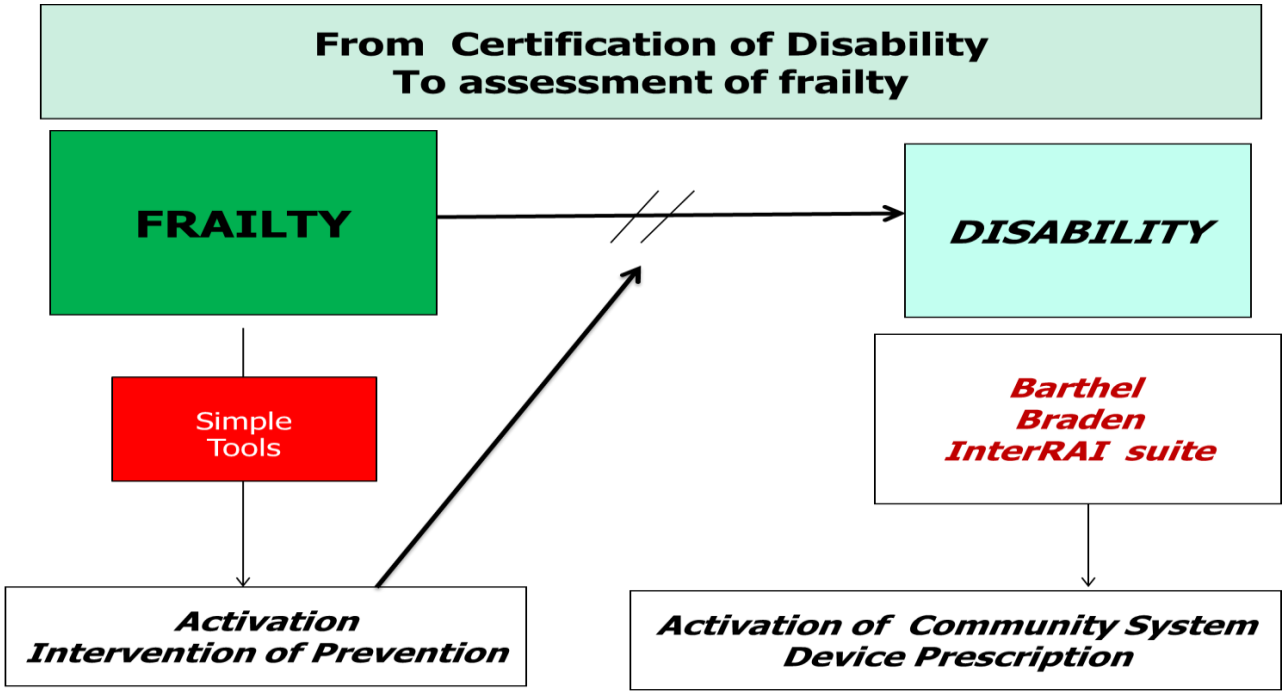


Figure 2. Frailty as distinct concept than Disability - The Need of Simple Tools to identify this condition



There is growing attention among medical disciplines including oncologists, cardiac surgeons, cardiologists, urologists, and haematologists about the opportunity to identify specific frail vulnerable subjects in order to start tailored interventions.

Multimorbidity is defined by WHO as the presence of two or more chronic diseases, independent of the severity and of the presence of specific clusters. It is a very monodimensional construct, centered on diseases rather than on the person, potentially introducing a bias in the proper evaluation of the individual. A good proxy of multimorbidity is the polypharmacotherapy which is the consequence of multimorbidity and is defined by the administration of 5 or more medications on regular basis. The challenge and opportunity of Sunfrail Project is to move through all phases of the continuum of Frailty phenomenon from the early detection of frailty to the management of chronic diseases.

b. The analysis of the instruments available by Reference Sites on frailty and multimorbidity

An analysis at three different steps was conducted in order to identify a suitable instrument for screening physical and multidomain frailty and multimorbidity.

1. A web search literature using the terms frailty and multimorbidity and looking at instruments was performed using the time-period limit between the years 2000 and 2015.
2. In all reference sites, information on good practices in the field of frailty and multimorbidity was collected.
3. An assessment of Reference Sites health and social services, and particularly on the community outreach, diagnosis and management approaches towards frailty and multimorbidity.

The review pointed out that even inside the same Reference Site, different and heterogeneous tools were used, and in most of cases, not validated in the local languages.

The most frequent approach to frailty and multimorbidity is often a separate assessment without integration between the number and/or type of chronic diseases and functional status. The stratification of multimorbid older persons is in some cases available from administrative data (Emilia-Romagna, Northern Ireland) and is usually oriented to address the role of chronic diseases in determining the risk of hospitalization and mortality of adult-older persons. There are not structured and planned moments of contacts with older person (for example vaccinations or others) where the combined detection of frailty (usually physical) and multimorbidity is routinely performed in the Primary Health and Social Care, Community setting. There are no progressive levels of evaluation and assessment, from the primary health and social care to the hospital, addressing frailty and multimorbidity and able to generate tailored and proactive interventions.

Therefore, there is need of “easy to use” and multidomain screening tools or questionnaires combining biological/physical, social and psychological/cognitive aspects of frailty and multimorbidity. The administration of these instruments should allow the identification and activation of early and proactive responses.

3.Potential Innovative Solutions

- Educational strategies aimed a) to underline the reversibility of frailty and the high priority of the early detection and management of this condition b) to address the importance of multimorbidity not only in terms of number of diseases but also in terms of severity c) to consider multimorbidity not separately from frailty.
- Easy to use and multidomain screening tool for frailty and multimorbidity, focusing on detection and inducing proactive responses.
- To provide structured moments for the identification of frailty and multimorbidity combined and adopted by different professionals.
- To organize structured models and responses to these conditions by creating a Territory-Hospital Platform.

4.The Design of the Sunfrail Tool to Screen Frailty and Multimorbidity

A Working Group was created to build-up an instrument aimed to identify and manage frailty and multimorbidity in non-institutionalized older persons. The group was composed of one sociologist and three geriatricians and public health experts of three different reference sites. The idea underlying the composition of the group was to combine the expertise in multidimensional comprehensive geriatric assessment, sociological and public health fields and to take advantage from the experiences generated in pivotal studies conducted in Toulouse, Genova and Parma.

The aim of the group was to create an easy to use questionnaire by any professional figure (Nurse, Social Worker, GPs,) or in-formal Caregiver adequately trained and in different settings (primary health and social care, community and hospital).

The Bio-Psycho Social Paradigm was the inspiring model. The rationale for identifying the items to include in the questionnaire was based on the bio-physical, psychological-cognitive and social- economic domains, and on the questions already available in the instruments adopted in the literature.

9 items (2 in the socio-economic domain, 2 in the Psychological-Cognitive domain, 5 in the Biological Physical domain) were generated, discussed within the Sunfrail consortium and with external groups of different Professionals, including the European Working Group on Frailty of the European Union Geriatric Medical Society (Figure 5).

Figure 5. Sunfrail tool for the Early Identification of Frailty and Multimorbidity

Domain: ***B*** *= Biological* ***P*** *= Psychological* ***S*** *= Social*

1. **Do you regularly take 5 or more medications per day B**
2. **Have you recently lost weight such that your clothing has become looser? B**
3. **Your physical state made you walking less during the last year ? B**
4. **Have you been evaluated by your GP during the past year? B**
5. **Have you fallen 1 or more times during the last year? B**
6. **Have you experienced memory decline during the last year? P**
7. **Do you feel lonely most of the time? P**
8. **In case of need, can you count on someone close to you? S**
9. **Have you had any economic difficulties in facing dental care and health care costs during the last year? S**

Bio-Physical Domain – Five specific questions addressing the areas of malnutrition, walking and physical function, falling, regular GP visits and number of regular medications were selected in the bio-physical domain. **"Have you lost weight during the last year such that your clothing has become looser?"** was the first item evaluating the importance of weight and weight loss as important parameters of the physical status and related changes during the last year. This item can have important consequences in terms of physical function if not adequately addressed and treated. Walking is the proxy of the general health status of older individual, and the slow walking speed, especially 4-meter (<0.8 meters/sec), has been shown in different studies as an important predictor of adverse health outcomes in older persons (Studenski S. et al. JAMA. 2011; 305:50-8). The ability, but also the habit of walking, might depend on different barriers including weather, social isolation, and lack of transportation. Thus, the item **"Your physical state made you walking less during the last year?"** was selected in order to address the causal link between the physical status and reduced walking and finally, we chose the "falling event", because it is a critical sentinel/event in the risk of frailty and disability. The statuses of faller and recurrent faller are both addressed in the question **"Have you fallen 1 or more times during the last year?".** It should be underlined that fall has also relevant psychological implications in addition to the well-known physical consequences. Another important issue in terms of heath care and preventive strategies is the frequency of the access or regular visits performed by GPs during the year. In most of EU Countries the access to GPs is not only devoted to check just physical health-related problems but also directed to explain and communicate social pending issues. This explains the rationale of choosing the item **"Have you been evaluated by your General Practitioner Physician during the past year?"** as proxy of what this subject has been monitored in terms of physical/biological and social aspects. In the physical domain we decided to include a clinical item more related to multimorbidity/polypharmacotherapy. Two different options, number of chronic diseases and the number of medications, were discussed inside the group. We argued that in the real clinical world the reporting of number of diseases is much more difficult to be performed by older persons. They might have more difficulties to remind the type of diseases but are definitively more familiar with the number and type of medications taken on regular basis.

Number of medications is much more relevant even though the confounding effect of occasional and temporary medications, supplements should be taken into account. That's why the final choice, based also on the available items in the literature, was **"Do you regularly take 5 or more medications per day?".**

Psychological Cognitive Domain – the cognitive and psychological domain were tested by 2 questions: **"Have you experienced memory decline during the last year?".**

We are aware that changes and symptoms of memory decline may occur later than expected during the course of dementia, but it is rarely systematic tested even with a single question. It should be underlined that it is present in other questionnaires available in the literature. The other item **"Do you feel lonely most of the time?"** already described in the social domain can be surely also considered a psychological one. As above mentioned, recent epidemiological studies support the more powerful ability of the loneliness to predict the risk of frailty in older population. (Soysal P. et al. Ageing Res Rev. 2017 Jul;36:78-87).

Socio-economic Domain – The group selected 3 questions specifically addressing the Social Domain. The first question is aimed to address whether the older individual feels really alone independent of the real or potential presence of relatives and/ or other caregivers. The question "**Do you feel lonely most of the time?"** was chosen because more exhaustive and solid than "Do you live alone?" available in other questionnaires (Perissinotto C. et al. Arch Intern Med. 2012; 172(14):1078-1084), as loneliness has been shown to be a more powerful predictor of functional decline and death in older persons than social isolation (Gale CR. et al. Age and Ageing. 2017; 0:1-6).

To live alone in fact might be a misleading concept being a specific choice of the individual and not implying a proxy of social frailty. In addition, the experience from different reference sites suggests that sometimes the condition of living alone is an erroneous and inadequate proxy the real-life condition. The older persons may not declare the presence of assistant /caregivers because of taxes or other economic issues. The second question on the social domain is **"In case of need, can you count on someone close to you?".** This item addresses the important concept of the resilience or the ability of the individual to cope with change or changed need" and can adequately address the important value of the "social reserve". The third question is **"Have you any economic difficulty in facing the basic expenses and the health care costs?"**, old and more recent data suggest that low income and economic difficulties are independent predictors of survival and a key factor in favouring preventive strategies in older persons (Chetty R et al. JAMA. 2016; 315(16):1750-1766).

The **Sunfrail Tool**, above described, should address different issues with the goals:

a. To be flexible enough and compatible with the different instruments/questionnaires already available in the different Reference Sites;

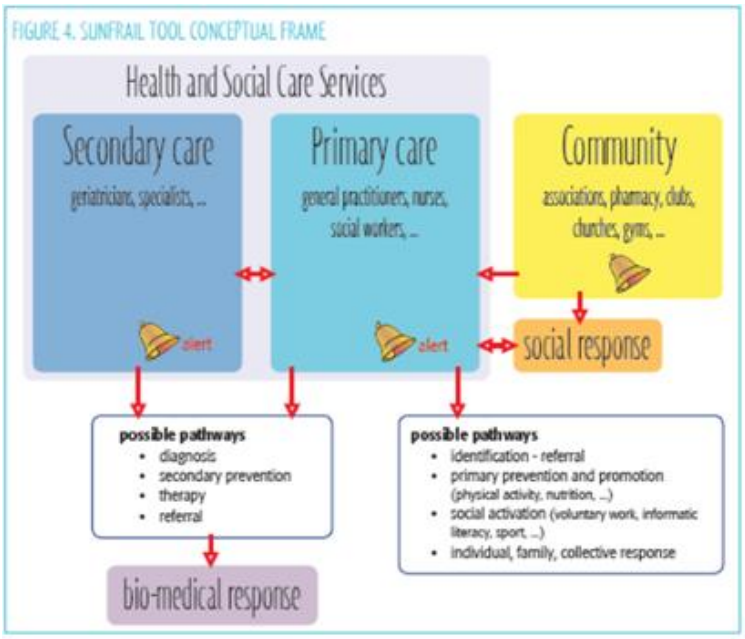
b. To be easily administered by Any Professional (Nurse, Social Worker, GPs, Pharmacists) and informal Caregiver adequately trained;

c. To generate alerts otherwise never detected but that need to be validated by the different Professionals present in the Multiprofessional team;

d. To induce, once the alerts are confirmed, proactive mono or multidomain interventions based on the resources already available in the Reference Sites.

According to the bio-psycho social domains of frailty and the importance of responding to patients/beneficiaries needs to maintain independence, a first priority is to work on the assessment of frailty risk factors and its prevention. As indicated in the Sunfrail Tool Conceptual Frame below (Figure 6), this can be done through a "multiple entry door system", where frailty and its risk factors can be identified through health, social and community-informal system. By using the Sunfrail Tool, professionals and community actors opportunely trained may identify frailty and its risks, and activate an initial "alert" for further prevention activities, professional/specialist and diagnostic investigation.

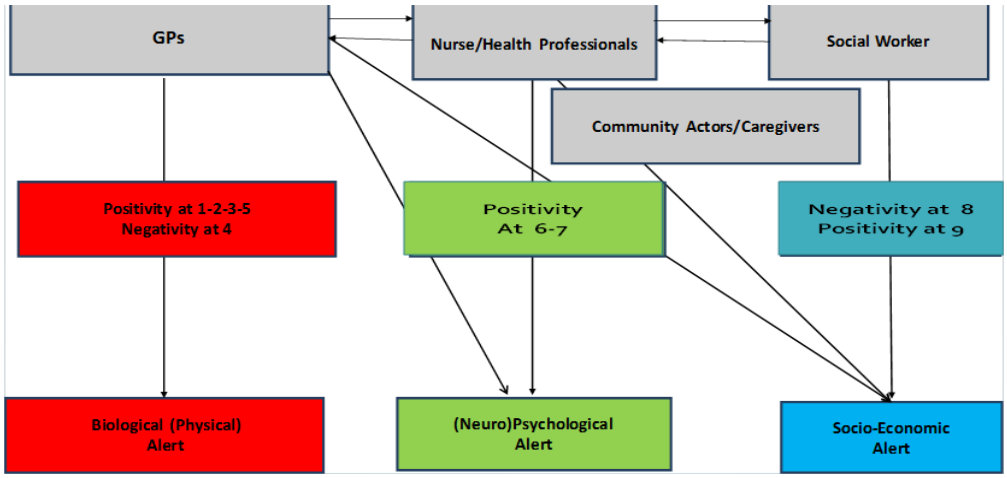
Figure 6. Sunfrail Tool Conceptual Frame



5.From the Alert to the Validation and the Activation of Pathways of Care

Different scenarios and pathways of care may emerge after the administration of the Sunfrail Conceptual Frame and Tool, according to the different alerts generated and their confirmation (Figure 7).

Figure 7. Flow-Chart - Potential Scenarios Emerging from the Administration of the Sunfrail tool.



- **The Subject 1** has no alert generated by 9 item Sunfrail tool and does not require additional evaluation during the short term period.

- **The Subject 2** has only alert in one or more items of socio-economic domain with positivity at item 7, 8 and 9. The Social workers working in the primary health care or community settings are the main actors that need to be activated in order to provide a response to these alerts. The Professional Figure may contact the subject and, if he/she agrees, plan a home-visit to verify all needs and generate all the responses required. For instance, social taxi, help in preparing food, activation of volunteer network. The other professional figures working in the team (GPs and Community Nurse) need to be informed and involved.

- **The Subject 3** has alerts in Psychological cognitive Domain addressed by positivity at 1 of the items 6 and 7. The Community Nurses and GPs, and Social worker working in the primary health care settings, need to confirm the alert with the administration of specific tests including General Practitioner assessment of Cognition (GPCOG) more oriented to address the Cognitive Domain. If the alert is confirmed, GPs can schedule a second level Neuropsychological Assessment.

- **The Subject 4** has in 1 or more Positivity at 1,2,3,5 items and/or did not receive any General Practitioner assessment during the past year (Negative response at item 4). He/she should

undergo additional evaluation by Community Nurse and GPs (Item 4) to confirm these alerts. Mini Nutritional Assessment Short Form (Item 2), 4 meter gait speed with a manual chronometer and Hand grip strength (dynamometer) (Item 3) and Revision of Therapeutic plan and adherence to current pharmaceutical treatment (Item 1) are the minimum tests required to confirm the Frailty in Physical Domain (Minimum Comprehensive Geriatric Assessment CGA). Short Physical performance Battery (SPPB), and Timed up and go would be of particular utility to better inquire the risk of falling (item 5), together with PASE questionnaire or assessment of physical activity by Professional physical activity logger (when available) (Full CGA). These assessments are easy enough to be performed in the Primary Health and Social Care, Community or in the Hospital according to the different profile and Organizing Model existing in the Reference Sites (Figure 6). Once the single item of physical frailty is confirmed, specific tailored interventions including programs of resistance exercise, nutritional interventions with nutrients (whey proteins, vitamin D, leucine) already known to increase muscle strength, additional tests to address the cause of weight loss, revision of medications list in order to address adherence to treatment, interactions between treatment and appropriateness according to guidelines available and specifically targeting older persons and healthy active lifestyle education programs aimed at improving and monitoring aerobic exercise and physical activity, and nutritional habit might be activated.

- **The Subjective 5** can have alerts in the 3 different domains. In this case, the multi-professional intervention already described in separate profiles can be activated.

All this information should be integrated with the administrative data, when available, in order to combine the assessment of frailty with different degree of severity of multimorbidity and to target different outcomes, including the risk of hospitalization and death, and activating specific plans of individual assessment and treatment according to disease and case management approach.

Moments of Interceptions: two different approaches can be followed to intercept frailty and multimorbidity. In Reference Sites where the administrative data are sensitive enough to collect information on risk profile of older populations (hospitalization and death), the items selected by the Sunfrail questionnaire can be added. Alternatively (or in addition), structured events including vaccination, educational moments such as obesity week and nutrition days, or informal routinely events including access to malls, pharmacies, churches, post-offices, specialists waiting rooms can be used to administer the questionnaire and to activate the other phases. These two approaches could be combined.

6.The Experimentation of the Sunfrail Tool

In order to prepare the experimental phase of the project, the consortium elaborated a protocol to test the Sunfrail tool in participating Reference Sites. The objective was to verify its adaptability, understandability and applicability into the current professional practice.

It included the following phases:

1. Translation and back translation of the Sunfrail tool into all languages spoken in the participating sites;
2. Verify the understandability/comprehensibility of the Sunfrail tool by beneficiaries and professionals;
3. Verify the applicability of the Sunfrail tool into the current professional practice;
4. Analysis and interpretation of the Results;
5. Assessment of the professionals' opinion on the applicability and transferability of the Sunfrail Tool.

Phase 1. Translation and back translation of the Sunfrail tool

The Sunfrail tool was translated and back translated by native speakers from English into all languages spoken in the participating sites (Italian, English, French, Polish, Spanish), and cross-culturally adapted to make sure that the original meaning of the items was fully understood.

Phase 2. Verify the understandability/comprehensibility of the Sunfrail tool

The understandability of each item/question of the questionnaire was checked by R Liguria, Gerontopole, Northern Ireland and Poland in their respective languages. Each item/question of the questionnaire was tested with a group of 10 professionals and community actors and 20 beneficiaries for each reference site and a score attributed (Understandable, not Understandable), for each potential option. Results indicated a very good understandability by beneficiaries and by professionals. Suggestions for improvement were adopted, in order to finalize the tool in all languages spoken in the participating sites (see results in Annex 1).

Phase 3. Verify the applicability of the Sunfrail tool into the current professional practice (Experimentation)

The assessment of the applicability of the Sunfrail tool into the current professional practice has been conducted by 5 Reference Sites (R. Liguria, R. Campania, Lodz Poland, Northern Ireland, Deusto-Spain). Reference Sites have selected different experimentation settings based on their organizational structure. In some cases the administration of the tool has occurred within community and primary care settings, while based on specific organizational set-up other RS have administered the tool within secondary care settings (outpatients departments).

A number of at least 100 beneficiaries (age group 65-74 and 75-85) were selected in order to be assessed by each reference site. Professionals (nurses, social workers, GPs) and community actors have administered

the Sunfrail tool into their daily practice by collecting the responses and registering the results (option yes and no).

The applicability of the Sunfrail tool into the current professional practice was tested by adopting the following instruments:

a. **Sunfrail Tool** for the Experimental Phase – Alert Generation.
b. **Flow Chart -** Potential scenarios emerging with the administration of the Sunfrail tool.
c. **Suggested Care Pathways.**

The alerts generated by the administration of the Sunfrail Tool (Figure 8) were assessed through the flow-chart (Figure 7), used to identify specific care pathways among Reference Sites available services (Figure 9), or in alternative to point out their specific needs.

Figure 8. Sunfrail Tool for the Experimental Phase – Alert Generation

QUESTIONNAIRE NUMBER			
Date and place			
PROFESSIONALS			
Professional	□ Nurse □ GPs □ Other Professionals □ Social Worker □ Community Actor □ Caregiver		
BENEFICIARIES			
Gender □M □F	**Age** □65-74 □75-85	**Level of education** □ Low (Without studies, Primary School) □Medium (Secondary school, or vocational degree) □ High (University, Master or PhD degree)	
Questions			
1. Do you regularly take 5 or more medications per day?		□ Yes	□ No
2. Have you recently lost weight such that your clothing has become looser?		□ Yes	□ No
3. Your physical state made you walking less during the last year?		□ Yes	□ No
4. Have you been evaluated by your GP during the last year?		□ Yes	□ No
5. Have you fallen 1 or more times during the last year?		□ Yes	□ No
6. Have you experienced memory decline during the last year?		□ Yes	□ No
7. Do you feel lonely most of the time?		□ Yes	□ No
8. In case of need, can you count on someone close to you?		□ Yes	□ No
9. Have you had any financial difficulties in facing dental care and health care costs during the last year?		□ Yes	□ No

Figure 9. Suggested Care Pathways (multiple choices are allowed)

Request GP visit		□
Request Specialist-Geriatrician evaluation		□
Diagnostic Evaluation		□
Proactive & Preventive Interventions	**Social Support** transportation for social activity/services, Nutritional Support, economic support, leisure and community and social activities	□
	Physical Exercise	□
	Psychological and/or Cognitive support	□
Non-relevant		□
Relevant but not available		□

Additional information on partner experimental plans and related methodology is provided with the report on the experimentation (6.1-A report on experimentation of the model, its transferability and sustainability).

Reference Sites testing the Sunfrail tool at secondary level facilities have confirmed the responses obtained from some items of the questionnaire by using specific confirmatory tests.

Phase 4 - Analysis and interpretation of the Results

The data obtained from the application of the Sunfrail tool has provided information on its capacity to assess frailty risk profile of the selected population in different settings, and how the alerts generated can support the selection of care pathways among the existent ones.

Phase 5 - Assessment of Professionals and Community Actor Opinion on the Use of the Sunfrail Tool

The working group has also carried out an assessment of interviewers (professionals'/ community actors) opinion on the use of the Tool, to check the compliance and the comments made while using and managing

the instrument and the ability to evocate proactive responses in the different Reference Sites participating at the Experimental phase. The appraisal was conducted through the administration of a questionnaire with open and closed ended questions. For further details see the questionnaire and the results in Annex 2.

The experimentation of the Sunfrail tool was conducted from February through September 2017.

Through the EU **CoNSENSo** project (COmmunity Nurse Supporting Elderly iN a changing Society-http://www.alpine-space.eu/projects/consenso/en/home), the Sunfrail tool has been adopted also in other EU countries/Regions (France, Slovenia, Austria). R. Piemonte contributed to the experimentation also by developing the model and tool for Human Resources Development.

Beside the support provided for the design and implementation of all phases, given the promising results obtained from the Sunfrail Tool, RER-ASSR has decided to conduct an additional specific study to validate the Sunfrail tool (criterion and construct validity), by GPs and Multidimensional teams in community based settings (Case della Salute). The results of this Study will be available by June 2018.

Phase 6 - Data Collection and Analysis

Data collected from the Sunfrail Tool was collated and entered onto a spreadsheet via SharePoint. RER-ASSR analyzed the information collected and provided it to partners for further analysis and comments. RER-ASSR also perform the data control and analysis on the results obtained from confirmatory tests of the Sunfrail tool performed by Lodz, Federico II of Campania Region and Liguria Region.

7.Sunfrail Tool Results

The results obtained by the experimentation of the Sunfrail tool in different settings are summarized below (assessment of the applicability into the current professional practice - Phase 3). These findings have been anticipated at the recent Sunfrail Scientific Committee and Advisory Board meeting held in Belfast on October 18, 2017.

The settings, where the questionnaire was proposed, changed from partner to partner, as described in the table 1.

Table 1. Characteristics of the Setting and the Reference Sites

Reference Sites	Setting
Deusto University (Spain)	Primary health-social care
HSCB (Northern Ireland)	Community-Primary health care
Medical University of Lodz (Poland)	Community-Secondary care (outpatient department)
Galliera Hospital (Italy)	Primary care-Secondary care (outpatient department)
University of Naples Federico II (Italy)	Secondary care (outpatient department)
Regione Liguria/Piemonte (Consenso project)	Community-Primary health care

Overall, a total of 651 participants were evaluated across the study sites with the Sunfrail Tool. 34,1% were belonging to the age group 65-74 and 65,9% to the age group 75-85. 57, 14% were females and 42,86% males. 18.89% had a higher education level, 48,39% a medium and 32.72% were belonging to the low education level group (Table 2 and Figure 10, 11 and 12).

Table 2. Characteristics of the Study Population

Characteristics	**n=651**	**%**
Deusto University, Spain	*105*	16.1
Galliera Hospital, Italy	*194*	29.8
HSCB, Northern Ireland	*127*	19.5
Medical University of Lodz, Poland	*114*	17.5
University of Naples Federico II, Italy	*111*	17.1
Women	372	57.1
Age groups		
65-74 yo	*222*	*34.1*
75-85 yo	*429*	*65.9*
Education level		
High (University, Master or PhD)	*123*	*18.9*
Medium (Secondary school)	*315*	*48.4*
Low (Primary school or lower)	*213*	*32.7*

Figure 10. The distributions of age-groups across the different Reference Sites

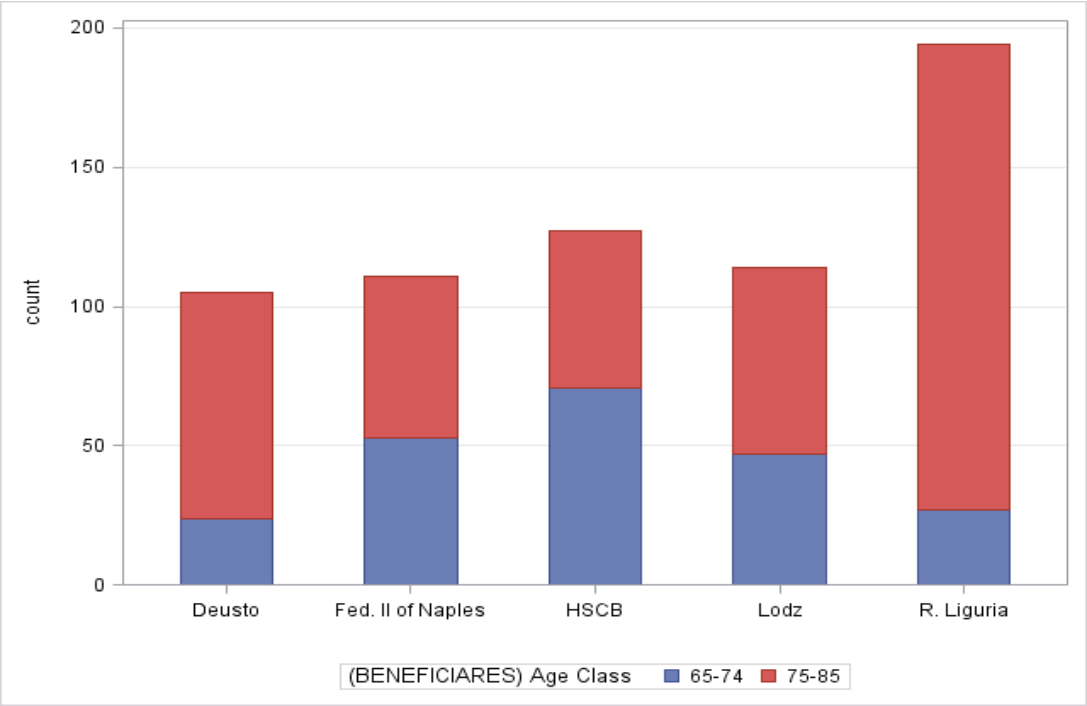


Figure 11. The distributions of gender across the different Reference Sites

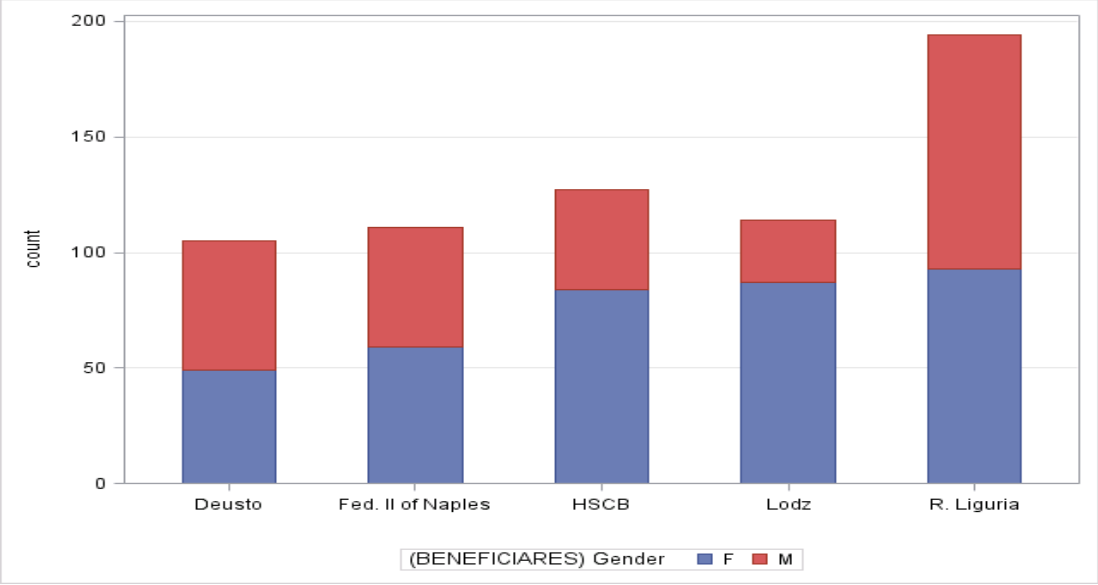


Figure 12. The distribution of education level across the different reference sites

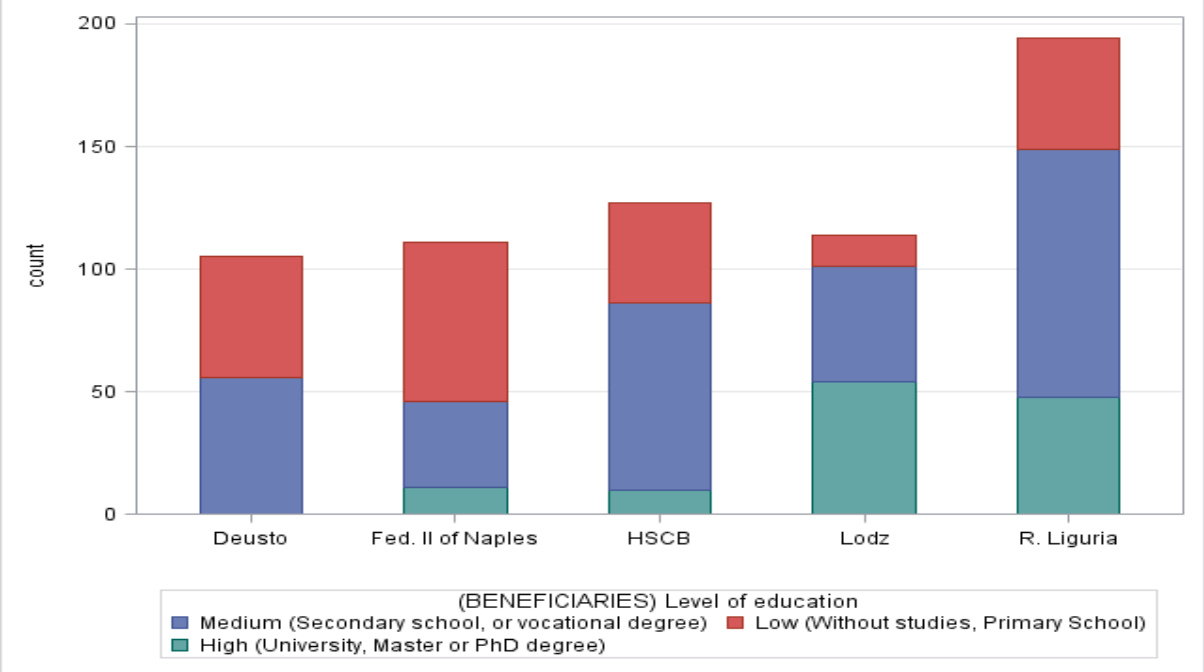


Table 3. Prevalence of the alerts reported by the beneficiaries after the administration of Sunfrail Tool

Questions	N	%	95%CI
1. Do you regularly take 5 or more medications per day? (YES)	329	50.5	46.7-54.3
2. Have you recently lost weight such that your clothing have become looser? (YES)	160	24.6	21.4-28.0
3. Has your physical status made you walking less during the last year? (YES)	347	53.3	49.5-57.1
4. Have you been evaluated by your GP during the last years? (NO)	80	12.3	10.0-15.0
5. Have you fallen one or more times during the last year? (YES)	199	30.6	27.2-34.2
6. Have you experienced memory decline during the last year? (YES)	323	49.6	45.8-53.5
7. Do you feel lonely most of the time? (YES)	173	26.6	23.3-30.1
8. In case of need, can you count on someone close to you? (NO)	51	7.8	6.0-10.2
9. Have you experienced any financial difficulties in facing dental or health care during the last year? (YES)	96	14.8	12.2-17.7

By considering all settings together, the higher proportion of frailty risk factors (alerts) applies to Polypharmacy (50,5%), walking less because of physical status, (53.3%), and memory decline (49.62%) in different settings (Table 3).

By considering the source of data of different setting (Secondary Care, Primary and Community), a sort of "dose-response" was observed in the sequence Community-Secondary care with the subjects of Secondary Care reporting the higher prevalence of positive answers.

Interestingly, a high proportion of the frailty alerts, especially for questions 1, 3, 5 and 7 was also found in Community - Primary Care; settings more likely to have a population without evident signs of disability or unknown by services (Table 4).

Table 4. Prevalence of the alerts reported by the beneficiaries after the administration of Sunfrail Tool in 3 different settings

Questions	Total n=651	Secondary Care (Outpatient)	Primary Care n=363	Community n=127
	%	%	%	%
1- Do you regularly take 5 or more medications per day?	**50,54**	**65,22**	**42,7**	**54,33**
2- Have you recently lost weight such that your clothing has become looser?	24,58	36,02	21,76	18,11
3- Your physical state made you walking less during the last year?	**53,3**	**64,6**	**46,83**	**57,48**
4- Have you been evaluated by your GP during the last year? (NO)	12,29	10,56	11,85	15,75
5- Have you fallen 1 or more times during the last year?	**30,57**	**42,86**	**29,48**	18,11
6- Have you experienced memory decline during the last year?	**49,62**	**60,87**	**55,37**	18,9
7- Do you feel lonely most of the time?	26,57	31,06	26,72	20,47
8- In case of need, can you count on someone close to you? (NO)	7,83	8,7	9,37	2,36
9- Have you had any financial difficulties in facing dental care and health care costs during the last year?	14,75	**22,98**	14,88	3,94

These results were confirmed after the analysis stratified of the population according to the different reference site (Table 5). In bold, the problem most frequently reported by the participants in each reference site. In italic, the least prevalent in each reference site.

Table 5. The prevalence of positive answers to the items included in the Sunfrail Tool, stratified by reference site

Questions	Deusto n=105	Naples n=111	Lodz n=114	HSCB n=127	Liguria n=194
1. Do you regularly take 5 or more medications per day? (YES)	35.2	68.5	**53.5**	54.3	44.3
2. Have you recently lost weight such that your clothing have become looser? (YES)	23.8	42.3	14.9	18.1	24.7
3. Has your physical status made you walking less during the last year? (YES)	45.7	**70.3**	46.5	**57.4**	49.0
4. Have you been evaluated by your GP during the last years? (NO)	*8.6*	*10.8*	12.3	15.8	12.9
5. Have you fallen one or more times during the last year? (YES)	24.8	43.2	36.8	18.1	30.9
6. Have you experienced memory decline during the last year? (YES)	**50.5**	64.0	51.8	18.9	**59.8**
7. Do you feel lonely most of the time? (YES)	33.3	34.2	19.3	20.5	26.8
8. In case of need, can you count on someone close to you? (NO)	15.2	*10.8*	*6.1*	*2.4*	*6.7*
9. Have you experienced any financial difficulties in facing dental or health care during the last year? (YES)	13.3	28.8	12.3	3.9	16.0

In general, the oldest group of participants had a higher prevalence of positive (Q1, Q2, Q3, Q5, Q6, Q7, Q9) and negative response (Q2) than youngest age group. The difference between the 2 age-groups was statistically significant for Q1 (polypharmacy) Q3 (walking less) Q4 (GP visit), Q6 (memory decline), Q7 (loneliness) and financial difficulties (Q9) (Figure 13).

Figure 13. Percentage of positive (or negative for Q4 and Q8) answers to the Sunfrail Tool by Age-group categories (65-74 in orange and 75-85 in grey)

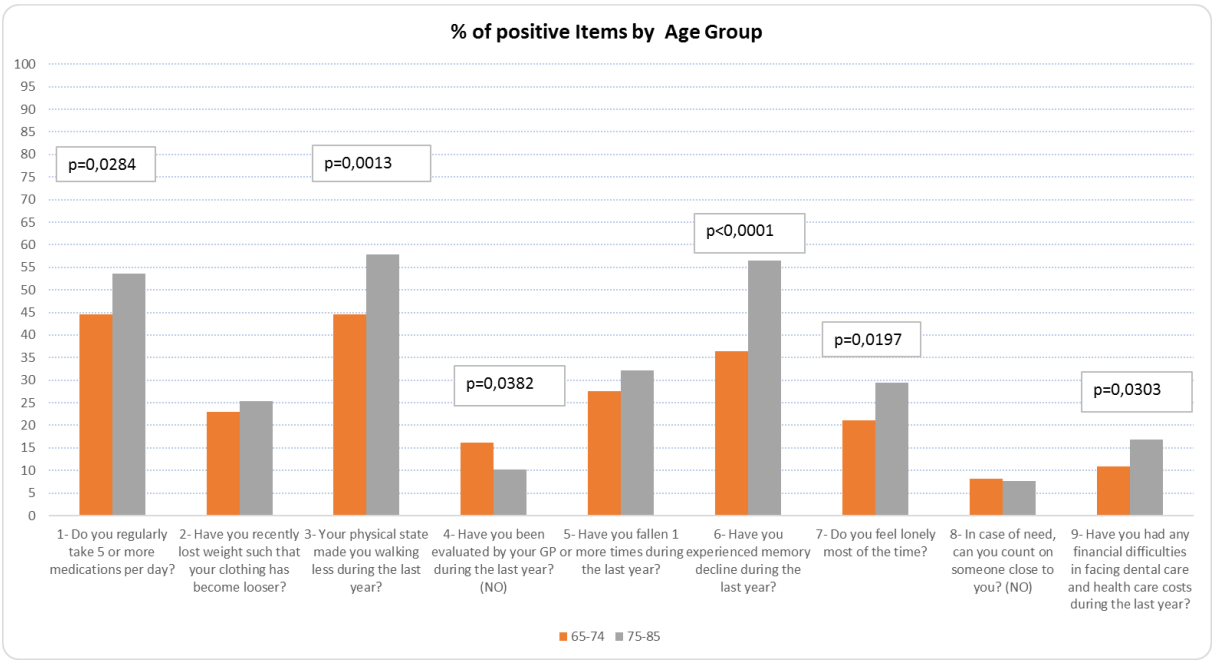
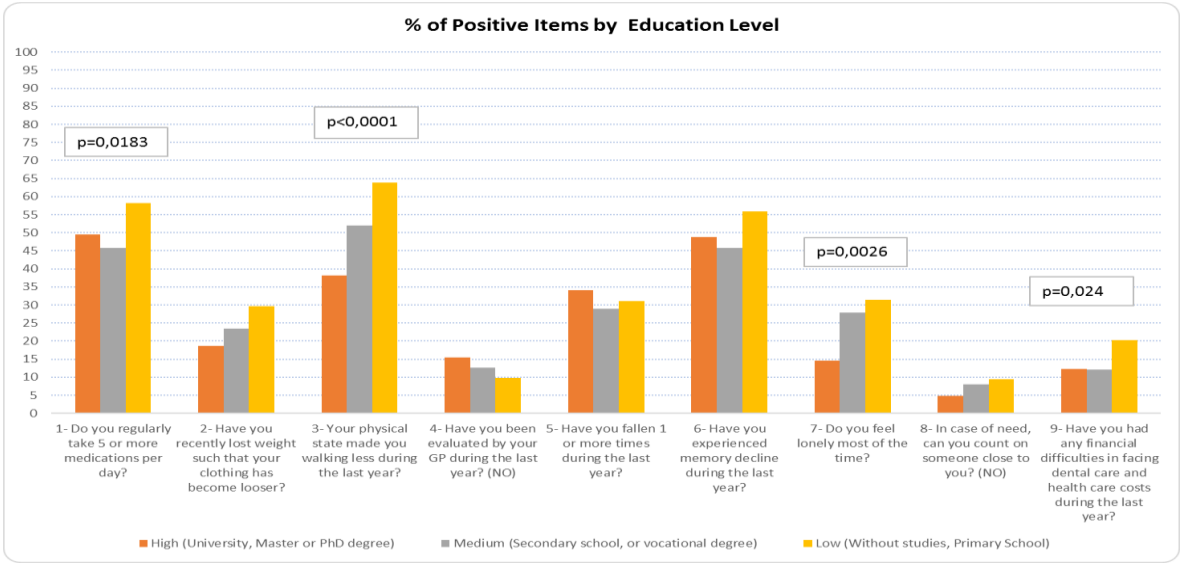


Figure 14. Percentage of positive (or negative for Q4 and Q8) answers to the Sunfrail Tool by Education Level



Participants with a lower education level were also more likely to be positive at the different Sunfrail questionnaire items (Figure 14). The relationship is statistically significant especially for functional decline, followed by feeling lonely, polypharmacy and financial difficulties. Beneficiaries with lower educational level have also greater financial difficulties of access; thus with potential greater equity problems.

7.1 Suggested Pathways of Care

Based on the alerts generated by the application of the Sunfrail tool and use of the flow-chart, specific care pathways were identified among available services, ranging from further diagnostics and specialist assessments, proactive interventions and social support; or in alternative to point out its need.

Table 6. The pathways activated after the alerts generated by the administration of the Sunfrail Tool

Suggested pathways	n	%	95%CI
GP's evaluation	137	21.0	18.1-24.3
Specialist's evaluation	183	28.1	24.8-31.7
Diagnostic procedure	74	11.4	9.2-14.0
Physical exercise	358	55.0	51.2-58.8
Psychological/Cognitive support	205	31.5	28.0-35.2
Social support	163	25.0	21.9-28.5
Other	173	26.6	23.3-30.1
Not available	5	0.8	0.3-1.8
Non-relevant	19	2.9	1.9-4.5

The table 6 above describes the interventions suggested by the healthcare, social care professionals and community actors to beneficiaries reporting one or more frailty issue.

Overall, an important variability was found among suggested pathways across reference sites; mainly depending on the settings in which the tool was administered.

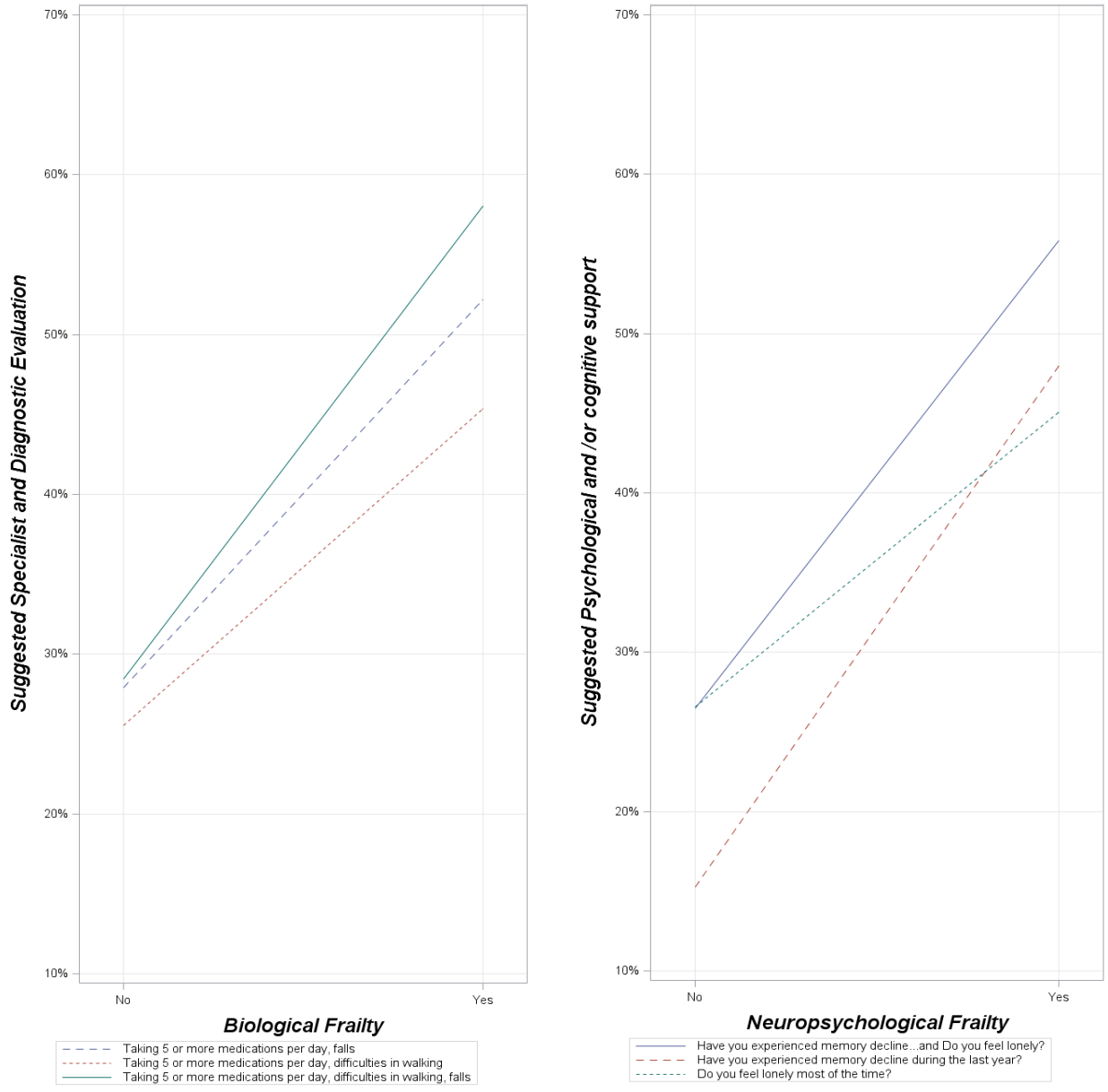
Beneficiaries with biological and neuro-psychological alerts were generally referred for further assessment or diagnostic investigation. The alerts of the biological domain brought to recommended specialist/diagnostic evaluation and the alerts of the Neuropsychological to psychological and cognitive support.

Community actors mainly advised beneficiaries to visit their GPs for further diagnostic assessments and/or preventive actions.

In terms of preventive activities, physical exercise, counselling and promotion were suggested to a good proportion of beneficiaries.

Overall, the Sunfrail tool demonstrates that it supports selection of existent pathways of care, and due to its biological, psychological and socio-economic dimensions fosters integrated care between services (health, social and community).

Figure 15. Activation of specialist and diagnostic evaluation according to positivity of Q1, Q3 and Q5 (physical frailty) or Q6 and Q7 (Neuropsychological Frailty)



In Figure 15, are reported respectively the pathways of specialist and diagnostic evaluation and of psychological and cognitive support suggested after the positivity to questions Q1, Q3 and Q5 (Biological Frailty) and Q6 and Q7 (Neuropsychological frailty). Interestingly, the multiple positivity to all 3 “biological” questions and to 2 “neuropsychological” items was associated to a higher prevalence of pathways activated.

7.2 Confirming the Responses of the Sunfrail tool by Secondary Level Services

Table 7. Difference of the Means in the Confirmatory tests score of Questions number 1, 3 and 6 stratified by Reference Site

			Fed. II of Campania n=101						Lodz n=114						Liguria Region N=194					
Questions			**n**	**mean**	**sd**	**diff***	**95% CI**	**p**	**n**	**mean**	**ds**	**diff***	**95% CI**	**p**	**n**	**mean**	**sd**	**diff***	**ic95%**	**p-value**
1- Do you regularly take 5 or more medications per day?	**n. medications per day**	no	33	2,818	1,467				17	3,529	1,772				109	2,954	1,734			
		yes	68	7,529	2,216	**4,711**	**3,886-5,536**	**<0,0001**	35	7,229	2,591	**3,699**	**2,274-5,124**	**<0,0001**	85	**7,082**	**2,117**	**4,119**	**3,575-4,664**	**<0,0001**
3- Your physical state made you walking less during last year?	**4-m WS (0,8 m./sec.)**	no	31	0,821	0,06				28	1,243	0,2047*				98	1,249	0,291			
		yes	70	0,365	0,127	**0,456**	**0,408-0,503**	**<0,0001**	24	1,069	0,281	**0,174**	**0,041-0,307**	**0,033**	94	**0,995**	**0,305**	**0,254**	**0,169-0,338**	**<0,0001**
6- Have you experienced memory decline during the last year?	**MMSE (<24)**	no	34	25,621	4,123				23	29,348	1,071				76	27,79	2,271			
		yes	63	20,656	3,597	**4,965**	**2,531-7,399**	**0,002**	29	28,655	1,518	0,693	-0,069-1,455	0,082	**117**	**26,684**	**3,458**	**1,091**	**0,198-1,984**	**0,017**

The table 7 describes how frailty alerts generated by some Sunfrail tool items (Q1, Q3 and Q6) can be confirmed by specialist's tests (n. of medications, 4 meter gait speed, MMSE) commonly performed during the Comprehensive Geriatric Assessment. The means of the score generated in the confirmatory tests were significantly different in participants answering yes to Q1, Q3 and Q6. In particular, those participants who answered yes to Q1, Q3 and Q6 had higher number of medications, higher gait speed and higher MMSE score than those who answered no. These values of two different groups were statistically different in both Italian Reference Sites (R. Liguria, Fed. II of Campania) and Lodz Poland.

7.3 Potential For Replicability

7.3.1 Results from the Application of the Sunfrail Tool within the Consenso Project

The Sunfrail tool has been also adopted in other EU countries/Regions (France, Slovenia, Austria), through the EU CoNSENSo project (COmmunity Nurse Supporting Elderly iN a changing Society-http://www.alpine-space.eu/projects/consenso/en/home). Its results confirm the adaptability and replicability of the tool in different settings, especially primary care and community.

Table 8. The prevalence of positive (or negative) answers in Sunfrail and Consenso Project

Questions	Sunfrail n=651	CONSENSO n=300
Item	%	%
1- Do you regularly take 5 or more medications per day?	50,54	44,00
2- Have you recently lost weight such that your clothing has become looser?	24,58	20,33
3- Your physical state made you walking less during the last year?	53,3	46,00
4- Have you been evaluated by your GP during the last year? (NO)	12,29	33,33
5- Have you fallen 1 or more times during the last year?	30,57	22,00
6- Have you experienced memory decline during the last year?	49,62	48,00
7- Do you feel lonely most of the time?	26,57	10,33
8- In case of need, can you count on someone close to you? (NO)	7,83	1,33
9- Have you had any financial difficulties in facing dental care and health care costs during the last year?	14,75	18,67

7.3.2 Results of the Study conducted on the Sunfrail tool in the Netherlands by Prof. Gobbens

A pilot study was conducted on the Sunfrail tool in the Netherlands, by R. Gobbens. Its objectives were to determine the associations between the Sunfrail tool and the Tilburg Frailty Indicator (TFI), and other indicators of frailty and health care utilization.

A questionnaire was sent to 241 community-dwelling elderly aged 70 years and older living in the Netherlands, of whom 156 completed the questionnaire (response rate 64.7%). The TFI was used to assess total frailty and frailty in each domain (physical, psychological, social). Five indicators of health care utilization were used: visit to a general practitioner, hospital admission, receiving personal care, receiving

nursing care, and contacts with health care professionals. The Pearson correlation coefficient was used to determine the associations between the Sunfrail tool and the other variables.
The mean age of the participants was 77.1 years (SD 5.0). The Sunfrail tool total, and the biological and neuropsychological domains were associated with the TFI total and the physical, psychological and social domains. In addition, the Sunfrail tool score and the biological domain were associated with four and five indicators of health care utilization, respectively. The Sunfrail neuropsychological domain was only associated with contacts with health care professionals and the socio-economic domain with none of these indicators.
This pilot study has shown that the Sunfrail tool was associated with the TFI, and many indicators of health care utilization. The tool is a promising instrument to measure frailty in older people.

7.3.3 Results of the Study conducted on the Sunfrail tool in Italy by Prof. P. Abete and Dr. I. Liguori

In Campania, at the Azienda Ospedaliera Universitaria (AOU) “Federico II”, Sunfrail tool was administered in 111 outpatients admitted to the “Geriatric Evaluation Unit” subjects for a Comprehensive Geriatric Assessment (CGA). The CGA consisted of several multidimensional tools including the evaluation of cognitive impairment (Mini Mental State Examination), depression (Geriatric Depression Scale), disability (Basic and Instrumental Activity Daily Living), and comorbidity (Cumulative Illness Rating Scale). After the CGA, the Italian version of Frailty index (IFi) together with Sunfrail tool was administered. The IFi has recently been validated and includes 40 items, which explore the 4 domains of frailty: physical, mental, nutritional and social. The latter two domains are investigated in the IFi by changing the item #24 (feel lonely) and item #39 (usual pace) of “frailty index” with the “Social Support Scale” (SSS) and the “Mini Nutritional Assessment” (MNA), respectively (Abete P et al. AGING CLIN EXP RES. 2017;29(5):913-926.). A linear regression analysis between the two tools was performed and a good linear correlation ($r=0.67$, $p<0.001$) was found. This analysis supports that SUNFRAIL tool can be used for frailty evaluation in a fast way and by non-geriatricians or specialists with the same efficacy as the IFi.

7.4 Results of the Assessment of Professionals and Community Actors' Opinion on the Use of the Sunfrail Tool

The assessment of professionals and community actor opinion on the use of the Sunfrail Tool was performed between October and November 2017 in the reference sites of Lodz, HSCB, Deusto, R. Liguria, Fed. II of Campania by administering a short questionnaire, with the aim to assess:

1. Whether the tool was suitable to identify the domains of frailty and to activate care pathways;
2. Whether it was easily understandable and applicable during the daily professional/care practice;
3. Whether it needed to be modified/improved and how.

The questionnaire included closed and open-end questions and was completed in English. HSCB processed the answers and provided the data to RER-ASSR for the analysis.

24 persons were interviewed: 6 from Lodz; 2 from HBSC; 2 from Deusto; 8 from Campania and 6 from Liguria. 17 were Health Professionals and 6 Community Actors; 1 did not answer to the question.

Main Key Findings

- The tool is a friendly instrument, easy to apply; its questions are simple to be understood and encourage a more in-depth dialogue. Thanks to the short "application time", it is non-invasive and allows the use in everyday practice.
- The training is proved to be useful and important for both health professionals and community actors, in particular to clarify the conceptual model based on the multi-domain nature of frailty; the care-pathways to be suggested/activated and the information on how to access the different territorial services.
- The tool can help identifying early frailty signs, to be explored with further interventions/ assessments. When approaching the beneficiaries, it is important to pay attention to the cultural and social context of application.
- The tool can improve beneficiaries' awareness, encouraging them to move from a "disease" oriented vision to a proactive and preventive approach.
- It is important to map the local network of services and community resources, in order to activate sustainable and accessible care pathways.

Further details of the assessment are included in the Annex 2.

8.Sunfrail Tool Main Findings

The data obtained from the application of the Sunfrail tool has provided information on its capacity to assess frailty risk profile of the selected population in different settings, and how the alerts generated can support the selection of care pathways among the existent ones.

The Sunfrail tool allows identifying frailty risk alerts in the population over 65 of community dwelling settings. The most frequent alerts detected in all settings were on functional decline, memory decline and polypharmacy items in all settings, particularly in Community - Primary Care Settings. As the Sunfrail tool was tested on a target population without any evident sign of physical and cognitive disability, these alerts confirm the ability of the tool to increase the awareness on frailty risk factors in the population at low-medium risk of disability.

In addition, the Sunfrail tool allows identifying the population with major risk for inequalities, as citizens with a lower education level showed a higher prevalence of frailty alerts and greater financial difficulties in accessing health services.

Interestingly, frailty alerts on polypharmacy, functional decline and memory decline items are confirmed by specific tests (clinical history of the patient with n. of medications per day, 4 meter walking speed and MMSE), suggesting that frailty alerts could be further confirmed by GPs and multiprofessional team already in primary care settings.

The Sunfrail tool, after confirmation of the alerts by clinical and social judgment, supports the usefulness of selecting existent pathways of care. Given the biological, psychological and socio-economic dimensions addressed by the tool, fosters integrated care between services (health, social, community), or in alternative highlights gaps in service provisions.

The application of the Sunfrail tool allows bridging the gap between services offer and access especially in primary care and community settings. This goal can be reached by improving beneficiaries awareness on their risk factors and on services available and by promoting multi-professional involvement and the integration between available services.

Overall, the majority of Sunfrail Good Practices are mainly used for the identification and management of high and very high risks conditions, with a consequent higher burden on health care services and related costs. The application of the Sunfrail tool complements these approaches, by allowing early identification of the population with medium-low risk to orient a proactive approach based on prevention.

9.Conclusions

- Frailty is a reversible condition, and needs to be addressed through its main dimensions and early identification of risk factors, to orient proactive and preventive strategies.
- Frailty alerts can be identified especially in community and primary care settings, targeting a population that may be unknown by services.
- Frailty risks factors can be found especially in citizens with lower educational level; this may influence their access to care. Equity and affordability of preventive services need to be carefully addressed by policy makers and services planners.
- Frailty requires operational multi-professional and integrated strategies connecting existent health, social and community services. This will help to provide more efficient and cost-effective responses across services and sectors, bridging the gap between peoples' needs and services provision.

10.Sunfrail Tool References

1. Do you take 5 or more medications per day?

Rolfson DB, et al. *Validity and reliability of the Edmonton Frail Scale*. Age Ageing. 2006;35(5):526–529.

Scott IA, et al. *Reducing inappropriate polypharmacy: the process of deprescribing*. JAMA Intern Med. 2015 May;175(5):827-34.

Di Bari M et al. *Screening for frailty in older adults using a postal questionnaire: rationale, methods, and instruments validation of the INTER-FRAIL study*. J Am Geriatr Soc. 2014 Oct;62(10):1933-7

2. Have you recently lost weight such that your clothing has become looser?

Rolfson DB, et al. *Validity and reliability of the Edmonton Frail Scale.* Age Ageing. 2006;35(5):526–529.

3. Have you recently experienced any worsening of your mobility due to physical state?

Raîche M, et al. *PRISMA-7: a case-finding tool to identify older adults with moderate to severe disabilities*. Arch Gerontol Geriatr. 2008; 47(1):9-18

4. Have you been evaluated by a healthcare professional during the past 12 months?

Gobbens RJ et al. *Testing and integral conceptual model of frailty*. J Adv Nurs. 2012 Sep;68(9):2047-60

5. Have you experienced one or more fall events during the past 12 months?

Hebert R et al. *Predictive validity of a postal questionnaire for screening community-dwelling elderly individuals at risk of functional decline.* Age Ageing. 1996; 25(2):159-67

Di Bari M et al. *Screening for frailty in older adults using a postal questionnaire: rationale, methods, and instruments validation of the INTER-FRAIL study*. J Am Geriatr Soc. 2014 Oct;62(10):1933-7

6. Have you experienced a memory decline during the past 12 months?

Deokar AJ et al. *Increased Confusion and Memory Loss in Households, 2011 Behavioral Risk Factor Surveillance System*. Prev Chronic Dis. 2015;12:140430.

Vellas B et al. *Looking for frailty in community-dwelling older persons: the Gérontopôle Frailty Screening Tool (GFST)*. J Nutr Health Aging 2013 Jul;17(7):629-31

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7. Do you feel lonely most of the time?

Bielderman A, et al. *Multidimensional structure of the Groningen frailty indicator in community-dwelling older people.* BMC Geriatr. 2013;13:86.

Steverink N, et al. *Measuring frailty: developing and testing of the Groningen frailty indicator (GFI*). Gerontologist. 2001;41(1):236–7.

8. In case of need, can you count on someone close to you?

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Hebert R et al. *Predictive validity of a postal questionnaire for screening community-dwelling elderly individuals at risk of functional decline*. Age Ageing. 1996; 25(2):159-67

Jylha M, Saarenheimo M. *Loneliness and ageing. Comparative perspectives*

In: The SAGE Handbook of Social Gerontology. Chapter 24. Dale Dannefer & Chris Phillipson. 2010

Raîche M, et al. *PRISMA-7: a case-finding tool to identify older adults with moderate to*

severe disabilities. Arch Gerontol Geriatr. 2008; 47(1):9-18

9. Have you had any financial difficulties in facing dental care and health care costs during the last year?

- Self-reported unmet needs for medical examination by sex, age, detailed reason and income quintile
- Self-reported unmet needs for dental care by sex, age, detailed reason and income quintile

OECD Health Statistics, extracted on 29 January 2015

11.Annexes

Annex 1 - Results on the Understandability/Comprehensibility of the Sunfrail Tool (Gerontopole)

CHU-TOULOUSE

1.1 Summary of tests done with professionals (from Table 1)

NUMBER OF TESTS PERFORMED PER PROFESSIONAL TYPE						
Summary table	**Nurse**	**GP**	**Social worker**	**Caregiver**	**Community actor**	**Other professionals**
Profession	2	1	1	0	5	1
Total tests	10					

Number of answers per question:

PROFESSIONALS: TEST OF UNDERSTANDABILITY OF SUNFRAIL TOOL			
Questions	**Understandable**		**Ambiguous**
Indicate the total number of answers per question	**Yes**	**No**	**Yes**
1. Do you regularly take 5 or more medications per day?	10	0	0
2. Have you unintentionally lost weight during the past year such that your clothing has become looser?	10	0	0
3. Your physical state made you walk less during the past year?	10	0	0
4. Have you been seen by your GP during the past year?	9	0	1
5. Have you fallen 1 or more times during the past year?	9	0	1
6. Have you experienced any memory decline during the past year?	9	0	1
7. Do you experience loneliness most of the time?	10	0	0
8. In case of need, can you count on someone close to you?	10	0	0
9. Have you had any economic difficulty in facing dental care and health care costs during the past year?	10	0	0
Total	87	0	3*

*Please note that all the three ambiguities reported were due to a poor formulation in the French translation of the sentence and not on the contents of the item.

1.2 Summary of tests done with beneficiaries (from Table 2).

NUMBER OF TESTS PERFORMED PER BENEFICIARY TYPE					
Gender	**Age**		**Education**		
	65-75	**75-85**	**Low**	**Medium**	**High**
Men	4	4	2	4	4
Women	6	6	3	4	3
Total	10	10	6	10	4

BENEFICIARIES: TESTS OF UNDERSTANDABILITY OF SUNFRAIL TOOL			
Questions	**Understandable**		**Ambiguous**
Indicate the total number of answers per item	**Yes**	**No**	**Yes**
1. Do you regularly take 5 or more medications per day?	20	0	0
2. Have you unintentionally lost weight during the past year such that your clothing has become looser?	20	0	0
3. Your physical state made you walk less during the past year?	20	0	0
4. Have you been seen by your GP during the past year?	20	0	0
5. Have you fallen 1 or more times during the past year?	20	0	0
6. Have you experienced any memory decline during the past year?	20	0	0
7. Do you experience loneliness most of the time?	20	0	0
8. In case of need, can you count on someone close to you?	20	0	0
9. Have you had any economic difficulty in facing dental care and health care costs during the past year?	20	0	0
Total	180	0	0

1.3 Suggested Revisions to the Sunfrail tool.

Based on the outcome of the test of understandability performed on professionals and beneficiaries, **if considered relevant**, please suggest revisions to the questions proposed for the Sunfrail Tool.

Questions
1. Do you regularly take 5 or more medications per day? No comments
2. Have you unintentionally lost weight during the past year such that your clothing has become looser? No comments
3. Your physical state made you walk less during the past year? No comments
4. Have you been seen by your GP during the past year? No comments
5. Have you fallen 1 or more times during the past year? No comments
6. Have you experienced any memory decline during the past year? No comments
7. Do you experience loneliness most of the time? No comments
8. In case of need, can you count on someone close to you? No comments
9. Have you had any economic difficulty in facing dental care and health care costs during the past year? No comments

Annex 2. Phase 3 - Assessment of Professionals and Community Actor Opinion on the Use of the Sunfrail Tool – Methodology and Instruments

The assessment of professional and community actor opinion on the use of the Sunfrail Tool will be performed by administering short questions through a Word document to be completed. It aims to assess:

a) Whether the Sunfrail tool is suitable to identify the domains of frailty and to activate care pathways;
b) Whether it is easily understandable and applicable during the daily professional/care practice;
c) Whether it needs to be modified/improved and how.

Lodz, HSCB, Deusto, R. Liguria, Fed. II of Campania and RER-ASSR will participate to the assessment. It is anticipated the involvement of at least three professionals/three community actors by each Centre would be required.

The questionnaire will cover the following aspects:

PART I - Information about the person filling the form

PART II – Utilization of the Sunfrail Tool

PART III - Applicability and impact of the Sunfrail Tool

- The questionnaire must be completed **by return of a Word document.** It includes closed-end questions and open end questions (with a maximum of 300 characters for each field).
- The questionnaire will be in **English**. Participants are free to translate it and answer in their own language.
- Each Centre will have to provide the English translation of the answers.
- HSCB will process the answers and provide it to **RER-ASSR** for the analysis.
- **RER-ASSR** will be in charge to do the analysis, through **qualitative methodologies** (content analysis).

PART I – INFORMATION ABOUT THE PERSON FILLING IN THE FORM:

❑ Health Professional

please specify (maximum 300 characters)

❑ Community actor

Which Sunfrail partner do you belong? (Please indicate)

❑ Lodz ❑ HSCB ❑ Deusto

❑ R. Liguria ❑ Fed. II of Campania ❑ RER-ASSR

PART II – UTILIZATION OF THE SUNFRAIL TOOL

1. Did you receive any **training** concerning the application of the Sunfrail Tool?

❑ YES ❑ NO ❑ PARTIALLY

If YES, was it useful?

❑ YES ❑ NO ❑ PARTIALLY

Please describe (maximum 300 characters)

2. Which was the **setting of application of the Sunfrail Tool**? (If the application took place in multiple settings, please indicate the main one)

❑ Primary health care facility

❑ Hospital / secondary care

❑ Community setting

3. Did you face any difficulties during the application of the Sunfrail Tool? (eg. clear/unclear instructions; comprehensibility; flexibility of the tool)

Please describe (maximum 300 characters)

4. How was the interaction with the patients/beneficiaries?

Please describe (maximum 300 characters)

PART III - APPLICABILITY AND IMPACT OF THE SUNFRAIL TOOL

5. Do you think that the Sunfrail Tool is easily usable to identify frailty according to its main domains: Biomedical, Psychological, or Socio-economical?

❑ YES ❑ NO ❑ PARTIALLY

Please provide reason for your answer (maximum 300 characters)

6. Do you think that the Sunfrail Tool can help beneficiaries to identify their potential condition of frailty?

❑ YES ❑ NO ❑ PARTIALLY

Please provide reason for your answer (maximum 300 characters)

7. Do you think that the Sunfrail Tool is suitable to **activate care pathways** (professional evaluation, diagnostic investigation, preventive activities or support)?

❑ YES ❑ NO ❑ PARTIALLY

Please provide reason for your answer (maximum 300 characters)

8. Do you think that the Sunfrail Tool can be **applicable during the daily professional/care practice**? (e.g. Useful/not useful; of support for further activities/obstacle to planned activities etc.)

❑ YES ❑ NO ❑ PARTIALLY

Please provide reason for your answer (maximum 300 characters)

9. What aspects could be improved for the application of the Sunfrail Tool during the daily professional/care practice?

Please provide reason for your answer (maximum 300 characters)

Phase 3 - Results of the Assessment of Professionals and Community Actor Opinion on the Use of the Sunfrail Tool

The assessment of professional and community actor opinion on the use of the Sunfrail Tool was performed between the months of October and November 2017 in the reference sites of Lodz, HSCB, Deusto, R. Liguria, Fed. II of Campania Region, with the aim to appraise:

1. Whether the tool is suitable to identify the domains of frailty and to activate care pathways;
2. Whether it is easily understandable and applicable during the daily professional/care practice;
3. Whether it needs to be modified/improved and how.

A short questionnaire including closed and open end questions and was completed in English. HSCB processed the answers and provided the data to RER-ASSR for the analysis.
24 people were interviewed: 6 from Lodz; 2 from HBSC; 2 from Deusto; 8 from Campania and 6 from Liguria. 17 were Health Professionals and 6 Community Actors; 1 did not answer the questions.

I) INFORMATION ABOUT THE PERSONS FILLING THE FORM

Community Actors: 6
Health Professionals: 17
Missing Data: 1

II) UTILIZATION OF THE SUNFRAIL TOOL
TRAINING USEFULNESS
Almost all interviewed received (75%)/partially received (21%) the training.
Among them, almost all reported that the training was useful (totally useful: about 86%; partially useful: about 14%); particularly to clarify the conceptual model based on the multi-domains of frailty; the care-pathways to be suggested and the information on how to access local services.
The training was also useful to get acquainted with the Sunfrail tool and with the instructions on how to correctly fill it/how to interact with patients.
Some interviewed (community actors) reported problems with the concept of “referral pathways”, that was not explained in details during the training sessions.

The training on the Sunfrail tool was performed with different methodologies varying from settings. In some cases (Liguria), the training was conducted in University classes (Post Graduation in Family and Community Nursing, Module on Frailty in older adults), or during specific training weeks. In some other cases (Campania), the training was provided through the training for trainers methodology: workshops held throughout the project timeframe by Sunfrail Project coordinators, as well as by the trained team to downstream operators.

DIFFICULTIES ENCOUNTERED DURING THE APPLICATION OF THE TOOL
About 54% of the interviewed applied the tool in health care settings.
About 46% of the interviewed applied the tool in community settings.

All the health professionals interviewed reported no difficulties during the application of the tool in health care settings.

In secondary care settings, the tool was administered as part of a comprehensive geriatric assessment.

In community settings, some interviewed underlined the need to interact with the patients in a "secure, protected environment", given the confidential nature of the questions and the delicacy of the issues to be addressed. Furthermore, they pointed out that some sensitive questions could also create difficulties in some cultural settings.
Some community actors reported also difficulties in suggesting appropriate pathways, due to difficulties in matching the needs detected and the existing care resources and problems in monitoring the effective results of the referral process, etc).

INTERACTION WITH PATIENTS/BENEFICIARIES
The totality of the interviewed who applied the tool in health care settings expressed great satisfaction in the interaction with the patients. The tool is defined as a "friendly formula", not time consuming, flexible, with easy and short questions, very simple to understand. The questions are not stressful and can also encourage a more in-depth dialogue. At the same time, the short "examination time" is non-invasive and allows the application also in everyday clinical practice.
The interviewed reported also that a clear explanation of the aims of the tool (combination of "alerts" on pre-frailty/early frailty conditions, and referral to care pathways), helped in raising interest and good predisposition in the beneficiaries.
Some interviewed suggested to further simplify some items, considering that some patients have a low education level and needed some clarification (see suggestions below).
In community settings, some interviewed reported that beneficiaries were a bit shy, at least at the beginning. A more open-ended approach helped beneficiaries to understand better the aim of the tool and to give more relevant information on frailty risks and on their needs; thus to allow interviewers to provide relevant suggestions on care pathways/access to services etc.

III) APPLICABILITY AND IMPACT OF THE SUNFRAIL TOOL

FRAILTY IDENTIFICATION ACCORDING TO THE BIOMEDICAL, PSYCHOLOGICAL AND SOCIO-ECONOMICAL DOMAIN
The totality of the interviewed reported that the Sunfrail tool helped detecting key aspects of frailty in its three domains (about 83% totally agreed; about 17% partially agreed). The inclusion of items dealing with the economic aspects was considered a distinctive and innovative element.
Among the ones who partially agreed, some reported that few questions were vague and/or not always suitable to identify frailty (e.g. deliberate weight loss could be due to a choice of a healthier lifestyle; falls could be caused by accidents like ice during winter; occasional memory loss might not be seen as an early dementia indicator).
They suggested that in order to overcome these aspects and to get a true picture of a person's needs/difficulties it is necessary to stimulate a more in-depth dialogue going beyond the yes/no answers.
In general, the Sunfrail tool is described as a really useful screening instrument, that has to be accompanied by a more detailed assessment, like for example the multi-dimensional geriatric assessment.

CAPACITY TO PROMOTE BENEFICIARIES AWARENESS
According to all the interviewed, the tool can improve beneficiaries' awareness, helping in identifying needs referred to frailty, and also providing information on how to access assistance and support if required (about 79% totally agreed; and about 21% partially agreed).
As suggested before, open-ended questions or a more in-depth approach could help patients discern their potential frailty.
Some interviewed reported that, by receiving the Sunfrail tool questions patients become rather "mindful" about their well-being, the importance of self-monitoring, and the existing care pathways in their

community. Overall, they were encouraged to move from a "disease" oriented vision, to a "multi-dimensional" concept of frailty.

In order to be more effective, some community actors suggested preparing a leaflet with a detailed description of the Sunfrail tool 9 items, explaining how to behave to prevent frailty and its progression. Some interviewed suggested also to administer the questionnaire periodically as a "monitoring" tool.

CAPACITY TO ACTIVATE CARE PATHWAYS

According to the interviewed, the Sunfrail Tool can help activating pathways for preventive activities and for different types of support (about 83% totally agreed; about 17% partially agreed).

The suggested pathways include a wide range of interventions: from the activation of preventive pathways to address frailty risk factors to other types of support available by local services.

Some health professionals reported that the identification of frailty risk factors can facilitate the detection of early signs of unbalance in chronic disease state that can be addressed by specialists through appropriate interventions/care pathways; thus preventing adverse events and hospitalizations. Some conditions can also be tackled by preventive activities, such as nutritional interventions, physical activity or physiotherapy, logotherapy, memory training.

Some interviewed underlined the necessity to map the local available services, in order to provide a coherent and sustainable responses taking into account existing and accessible care resources. An in-depth training can be useful to improve this aspect.

APPLICABILITY DURING DAILY PROFESSIONAL/CARE PRACTICE

According to all the health professionals interviewed, the Sunfrail tool can be applicable during the daily professional/care practice (about 83% totally agreed; about 17% partially agreed). It is considered easy to be performed, useful in daily practice and supportive for further activities.

Overall, professionals suggested using the tool especially in primary care/community settings, by stimulating the dialogue with beneficiaries through more detailed questions aimed to gather an in-depth understanding of their background and needs. The tool is supposed to orient further investigations in secondary care settings.

ASPECTS OF THE SUNFRAIL TOOL TO BE IMPROVED

The majority of the interviewed reported no aspects to be improved or suggestions on it.

Others suggested some points to be addressed, here resumed:

- to add a leaflet with more detailed explanations on the Sunfrail tool items and on the importance to work on frailty primary and secondary prevention;
- to strengthen the connections among the Sunfrail tool items responses and the pathways to be suggested, according to the existent services;
- to administer the tool by using open ended questions, to avoid the risks of misinterpretation of subjects' needs;
- To integrate the tool with ICT support, and downstream comprehensive geriatric questionnaires, providing information about monitoring and effectiveness of subsequent interventions;
- to explore more the psycho-social domain, through open-ended questions, in particular about the item on cognitive decline;
- to add another question on Self reported Health: "How much do you value your Health from 0 to 10?".

Key points:

- The training is proved to be useful and important for both health professionals and community actors, in particular to clarify the conceptual model based on the multi-domains of frailty; the care-pathways to be suggested/activated and the information on how to access the different territorial services.

- The Tool is reported to be a friendly instrument, easy to apply, in particular in health care settings. Its questions are simple to understand and can also encourage a more in-depth dialogue. Thanks to the short "application time", it is non-invasive and allows the use also in everyday clinical practice.

- When approaching the beneficiaries it is important to pay attention to the cultural and social context of application. When applied in community settings, given the confidential nature of the questions, subjects should be approached in "secure, protected environments", with guarantees of privacy.

- When used in community, the Sunfrail tool can help identifying frailty risk factors or early frailty conditions, to be explored with further interventions / assessments (eg: multi-dimensional geriatric assessment). Its potential for identification of frailty domains and activation of care pathways depends also on the capacity of the interviewers to gather further information. In order to get a true reflection of the persons needs/difficulties, it is important to trigger a more in-depth dialogue, with open ended questions that allow to estimate better patients' condition.

- The tool can help detecting early signs of unbalance in chronic disease state that can be addressed by specialists with appropriate interventions, thus preventing adverse events and hospitalizations. Some conditions can also be addressed by preventive activities, such as nutritional interventions, physical activity or physiotherapy, logo-therapy, memory training. For that purpose, it is also important to strengthen the connections among the Sunfrail tool items and the pathways to be suggested, by mapping the local available services, in order to provide coherent and sustainable responses taking into account existing and accessible care resources.

- The tool can improve beneficiaries' awareness, encouraging them to move from a single "disease" oriented vision, to a "multi-dimensional" concept of frailty. Open-ended questions could help patients in discerning their potential frailty and be informed on how to access assistance and support if required.