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Running title: Synergies in active and healthy ageing

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Summary

The Strategic Implementation Plan of the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA) proposed six Action Groups. After almost three years of activity, many achievements have been obtained through commitments or collaborative work of the Action Groups. However, they have often worked in silos and, consequently, synergies between Action Groups have been proposed to strengthen the triple win of the EIP on AHA. The paper presents the methodology and current status of the Task Force on EIP on AHA synergies. Synergies are in line with the Action Groups' new Renovated Action Plan (2016-2018) to ensure that their future objectives are coherent and fully connected. The outcomes and impact of synergies are using the Monitoring and Assessment Framework for the EIP on AHA (MAFEIP). Eight proposals for synergies have been approved by the Task Force: Five cross-cutting synergies which can be used for all current and future synergies as they consider overarching domains (appropriate polypharmacy, citizen empowerment, teaching and coaching on AHA, deployment of synergies to EU regions, Responsible Research and Innovation), and three cross-cutting synergies focussing on current Action Group activities (falls, frailty, integrated care and chronic respiratory diseases).

Abbreviations

AG: Action Group
AHA: Active and Healthy Ageing
CoP: Conference of Partners
CRD: Chronic Respiratory Diseases
EICA: European Interdisciplinary Council on Ageing
EIP on AHA: European Innovation Partnership on Active and Healthy Ageing
EU: European Union
ICT: Information and Communication Technology
MACVIA-LR: Reference Site *Contre les MAladies Chroniques pour un VIeillissement Actif en Languedoc-Roussillon*
MAFEIP: Monitoring and Assessment Framework for the EIP on AHA
PROEIPAHA: Support Action to the EIP on AHA
QALY: Quality-Adjusted-Life-Years
QOL: Quality of life
RAP: Renovated Action Plan
RRI : Responsible Research and Innovation
RSCN: Reference Site Collaborative Network
TF: Task Force
WHO: World Health Organization
WHODAS 2.0: World Health Organization Disability Assessment Schedule 2.0

Key words

European Innovation Partnership on Active and Healthy Ageing, polypharmacy, education, falls, frailty, integrated care, citizen empowerment, chronic respiratory diseases

Introduction

The European Commission aims to enhance European competitiveness and tackle societal challenges through research and innovation (European Innovation Partnerships (EIP)). Active and Healthy Ageing (AHA) is a major health and societal challenge in all European countries, and an area with considerable potential for European leadership. An initiative was therefore launched by the EIP on AHA to accomplish a triple win (1):

- Enabling citizens to lead healthy, active and independent lives while ageing.
- Improving the sustainability and efficiency of social and health care systems.
- Boosting and improving the competitiveness of the markets for innovative products and services responding to the ageing challenge.

The EIP on AHA programme framework defined priority areas of work translated into six specific Action Groups (AG). Over 500 commitments were submitted from organisations (Table 1) and 32 Reference Sites were recognised in July 2013 as excellence sites for innovation in AHA.

Table 1: Terminology used in the paper

Organisations can participate in the EIP on AHA using:

- **Individual commitments**: Individual task of an AG.
- **Collaborative work**: Project agreed by an AG and carried out by several organisations.

Results are tangible outcomes from commitments and/or collaborative work (e.g. a report, a completed pilot study, a guideline, etc.). They have to be specific, measurable, achievable and time-bound.

Synergies (defined by the Synergy TF in coordination with AGs): Commitments and/or collaborative work with cross-cutting interest and relevance to several AGs. They were established using a concerted approach. A synergy should be in line with the individual AG's Renovated Action Plan.

Collaborative work and Synergies can be managed on a voluntary basis following the objectives set or in a more agile way using **SPRINTS** that are proposed using a specific template with defined short-term results reported every 6 months. In software product development, a sprint is a set period of time during which specific work has to be completed (http://searchsoftwarequality.techtarget.com/definition/Scrum-sprint).

1- Aim of the Task Force on synergies

The EIP on AHA requires a multidimensional and multidisciplinary approach. After three years of collaboration and activities, many achievements have been obtained. However, AGs have often worked in silos. Now that AGs have matured, more attention can be given to collaboration across AGs for topics with a shared interest.

In the next phase of the EIP on AHA programme, synergies will be initiated for a practical, action-oriented contribution to a common framework to further strengthen the EIP on AHA triple win.

More specifically, the aims of the TF are to:

1- Outline the methodology and current status of the EIP on AHA synergies.
2- Align with the AG Renovated Action Plan (RAP).
3- Evaluate the progress, results and impacts of the synergies with MAFEIP (Monitoring and Assessment Framework for the EIP on AHA) (2, 3).
4- Support the existing EIP on AHA Scaling Up Strategy (https://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/scaling_up_strategy.pdf)

2- Methodology used by the Task Force to develop synergies

The Synergy Task Force (TF), initiated November 4, 2015, developed concrete actions that were presented during the 2015 EIP on AHA Conference of Partners (December 9-10, 2015). A transparent methodology was used and all AGs were asked to propose at least one synergy. Nine

proposals were submitted and eight were accepted by the TF after applying the pre-defined quality criteria. A meeting in Montpellier (MACVIA-7), held two days before the Conference of Partners, helped to fine tune the synergy proposals (4).

2-1- Selection of task force members

A TF was set up to identify synergies, and to describe and evaluate them. Initially, each AG selected at least 2 members. Members of the PROEIPAHA Coordination and Support Action and the AG promoters were also invited to participate in the TF.

2-2- Template to develop proposals for synergies

Synergies were based on a common 4-page template that was unanimously agreed upon by all the TF members (Table 3).

Table 3: Template used to submit synergies

1. Title of the proposal
2. Leading organisation
3. Supporting organisations
4. Action groups

	A1	A2	A3	B3	C2	D4
AG initiating the proposal						
AG already involved						
AG to be contacted						

5. Rationale for the synergy
6. Achievements of the EIP on AHA AG
7. Objectives
- General objectives
- Specific objectives
8. Concrete plan
9. SPRINTS (2016-2017)

N°	Name	AG	Starting date	Delivery date	Geographical distribution	Results
S1						
S2						

10. Associated EU programmes
11. Alignment with the EIP on AHA objectives
12. Resources currently available for the projects
13. Expected impact

2-3- Assessment of proposals

A transparent methodology was developed to evaluate the synergies on relevance, quality and applicability. The templates were evaluated by two members from each AG based on a set of criteria checked through Survey Monkey (Figure 1) (www.surveymonkey.com). All proposals with a threshold mean level of 6/10 or above for all the 9 criteria were approved (a unanimous decision was required). The inter-rater variance was low between assessments. Proposals that did not reach the threshold level were revised and further approved. Finally, 8 proposals were accepted and one was withdrawn.

Figure 1: Survey Monkey evaluation of proposed synergies

Task Force Synergies - Rating of proposals

2. Please rate proposal A1 "Studying the role integrated information care systems can play in creating age-friendly environments to measure, monitor and facilitate adherence in medical plans "

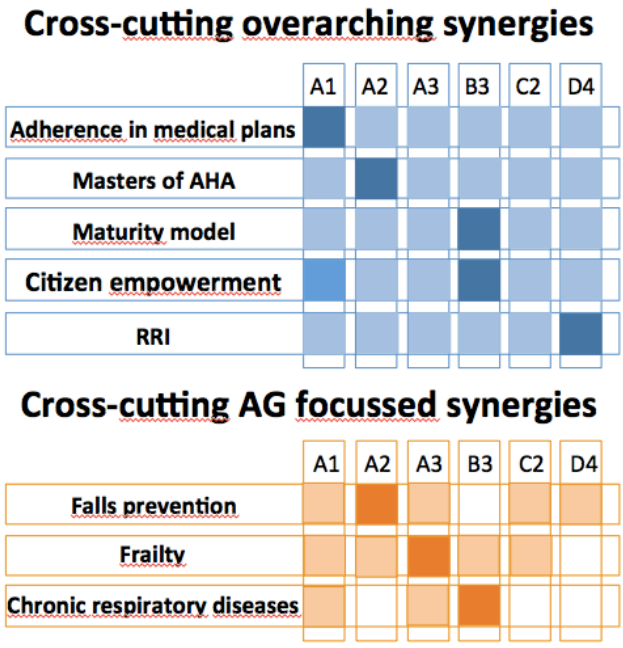
	1 = I do not agree	2	3	4	5	6	7	8	9	10 = I totally agree
a. The objectives (general and specific) are clear	○	○	○	○	○	○	○	○	○	○
b. The proposal follows achievements of the action group	○	○	○	○	○	○	○	○	○	○
c. The plan is concrete	○	○	○	○	○	○	○	○	○	○
d. The plan starts in January-March 2016	○	○	○	○	○	○	○	○	○	○
e. ICT has been considered	○	○	○	○	○	○	○	○	○	○
f. The proposal is aligned on the EIP on AHA objectives and/or MAFEIP	○	○	○	○	○	○	○	○	○	○
g. The budget and available resources are appropriate	○	○	○	○	○	○	○	○	○	○
h. The expected impact is in line with the EIP on AHA	○	○	○	○	○	○	○	○	○	○

2-4- Type of synergies

Two types of complementary cross-cutting synergies were submitted (Figure 2):

- Synergies considered overarching as they address topics that are relevant for most or all AGs
- Cross-cutting synergies focussing on a current AG activity which will be deployed to other AGs

Figure 2: Synergies of the EIP on AHA



The 8 synergies are detailed in the online supplement.

3- Activities of the Proposed Synergies

3-1- Overarching synergies

3-1-1- Information technology and adherence in an ageing population with chronic diseases and appropriate polypharmacy

Leading AG: A1

Rationale: Multimorbidity leads to multiple medications (polypharmacy), increasing the risk of drug interactions, poor treatment adherence and adverse drug reactions (ADR). Failure to adhere to medical treatment increases therapeutic failure (5), causes unnecessary complications (6) and increases hospitalization and healthcare costs (7).

General objectives: To increase the adherence to treatment of seniors with chronic diseases and polypharmacy (i) assessing the role of ICT-based solutions and (ii) implementing tailored ICT-based interventions.

Specific objectives

1- To study if the application of progressive ICT systems that connect patients with health care professionals can boost the adherence of seniors in long-term therapies and polypharmacy, also considering pharmacists. Results from running pilots in the EU will be used for deployment.

2- To study the role of integrated information systems connecting all stakeholders (e.g. patients, family members, health and social carers, and members of municipalities, hospitals, social care entities). Results from a running pilot in the EU will be used for deployment.

3- To review best practices and available literature to assess whether ICT-based applications that support training, patient empowerment and social interactions can change the behaviour and increase the adherence of seniors to treatment.

4- To use the lessons learnt in Italy by a National plan for Adherence involving the Italian Medicines Agency (AIFA), the national federation of general practitionners (FIMMG), Geriatrics and Patients associations (in particular *Federanziani*) and universities. The barriers and results of this network can be used to develop or scale up innovative approaches at the EU level.

Contribution to the Scaling Up Strategy of the EIP on AHA: The study intends to exploit results from many EU countries.

Expected Outcomes / Contribution to MAFEIP

1- Impact on QOL: Increased adherence of seniors to medical plans will promote healthier ageing and QOL while reducing complications.

2- Increased adherence to medical plans will impact the sustainability of the healthcare systems. Specific metrics used in the study are currently being defined.

3- Impact on Economic, Growth and Jobs for both the pharmaceutical industry and in the area of home care technologies and services. Opportunities for the development and production of new advanced products are expected to be generated leading to the requirement of more qualified jobs for the new services.

3-1-2- Citizen and patient empowerment

Leading AG: B3, Action Area 6

Rationale: Nearly all the Action Plans launched in 2012 refer to patient or citizen empowerment. An active involvement of patients in their interaction with health and social professionals increases care effectiveness and efficiency. Citizen empowerment and the facilitating role of ICT are key topics in the EU H2020 programme. However, the work done in the EIP on AHA has shown divergent understanding of citizen empowerment, defined in terms of education, joint decision-making and self-management. Tools such as measures of health literacy and the capacity of

individuals or groups for self-management in chronic conditions would be of considerable value in reducing social inequalities.

General objectives: To achieve a common understanding of citizen and patient empowerment, and to implement and scale-up good practices.

Specific objectives

1- Develop a consensus view of citizen and patient empowerment across the different AGs.
2- Share and align citizen empowerment-related activities within and across AGs.
3- Formulate a set of broad holistic actions, based on a common understanding, to facilitate the scaling-up of good and effective practices via transverse (Synergies TF) as well as vertical processes (AGs) that support the overall objectives of the EIP on AHA.
4- Scale-up good practices and disseminate knowledge via the Synergies TF, the AGs, the Reference Sites and relevant EU and national initiatives.

Contribution to the Scaling Up Strategy of the EIP on AHA: How many regions?

All EIP on AHA partners and regions will be involved in this synergy. Additionally, all Reference Sites in the Reference Site Collaborative Network (RSCN) will be invited to participate.

Expected Outcomes / Contribution to MAFEIP: "Patients with chronic conditions are often referred to as the most under-used resource in the health system while patient-centred care models have demonstrated better quality of care as well as potential long-term cost-efficiencies. Too many patients are still struggling to get the support they need to become equal partners in care. To make real progress, we need to make patient empowerment a priority, starting with the development of an EU-wide strategy and action plan"[1]

1. Impact on QOL with an adequate social network and sufficient empowerment (8-11).
2. Empowerment of patients and citizens is seen as a key aspect in maintaining health and care systems sustainable (12, 13)..
3. Empowered citizens are more self-sustaining and economically productive (14, 15).

3-1-3- Masters of AHA educating seniors, health and social carers and entrepreneurs

Leading AG: A2

Rationale: Integrated, interdisciplinary and inter-professional education for all stakeholders is needed to tackle the interrelated syndrome of frailty, malnutrition, falls, chronic diseases, and their social consequences.

General objectives: Development of an innovative, dynamic and sustainable care system for AHA by capacity building through senior/patient-centred, multidisciplinary and inter-professional educational programmes aimed at patients, patient caregivers (both formal and informal), health and social carers, administrators and entrepreneurs.

Specific objectives:

1- Multi-professional education to improve the links between all stakeholders through better understanding of the knowledge and competencies of each stakeholder.
2- Master of Gerontology and Geriatrics: To develop dynamic and sustainable care systems that will encompass inter-disciplinary, inter-professional education (IPE) and learning (IPL) including RRI business models.
3- Best evidence holistic perspective to bring together research, practice, policies and market by courses in medical, nursing, pharmacy, social, behavioural, psychological, economic physiological, management service aspects related to the prevention and management of ageing and using the innovation loop of planning up-scaling strategies.

[1] EPF President, Anders Olauson

4- To promote AHA as well as the empowerment of self-care and (care) independency, by placing the older person at the centre of care.

Contribution to the Scaling Up Strategy of the EIP on AHA: The programme will be started at the Medical University of Graz, Austria by a well-defined Master of Gerontology and Geriatrics. The course will be in English and the teachers and participants will be from different institutions in Europe. This programme will be a pilot for other European programmes. The multi-professional approach will be developed in collaboration with the European Interdisciplinary Council on Ageing (EICA) gathering professionals from all disciplines interested in AHA and also implementing knowledge transfer to political, economic and lay stakeholders in the field.

Regions to be included: Regions will have a role for contributors, sharing their experiences and best practices, as well as for learners. Some examples of education programmes carried out in other regions are given in Table 4.

Table 4: Examples of Masters of Gerontology and Geriatrics in Europe

Country	Region or Reference site	Website	Title	Language
Austria	Graz Medical University		Master of Gerontology and Geriatrics	English
Austria	Medical Doctors' Association Austria	http://www.aerztekammer.at/veranstaltungen	Postgraduate Training Course for Medical Doctors in Geriatric Medicine	German
Belgium	European Academy of Aging (EAMA)	http://eama.eu	Leadership programme for academic geriatricians	English
France	Languedoc Roussillon (16-18)	http://reseau-idefi-2015.strikingly.com	***Trans Innov Longévité***: Trans-disciplinary, multisectoral, private-public partnership to train and coach on frailty, ageing and independent living	French
Portugal	Ageing@Coimbra	http://www.ed.uc.pt/educ/cursoid=96	Distance Learning Course for Care Providers and the general public	Portuguese
UK	British Geriatric Society	http://www.bgs.org	Spring Postgraduate training course, geriatric medicine, Edinburgh Scotland	English
UK	University of Oxford	http://www.oxford.edu.	Onsite training courses	English

Efficient running of the programme: A scientific advisory committee is elaborating a landscape of educational events (homepage of the Medical University of Graz/Austria). Experts in the field of AHA will set up quality standards for live or long-distance educational events in the field of AHA (e-learning). The committee is composed of members from all stakeholders involved in AHA across Europe. The committee will work closely with the members of the RRI framework to ensure evidence-based multi-professional education and to deliver educational research results.

Expected Outcomes / Contribution to MAFEIP

1- Impact on the QOL of seniors
2- Ensure health promotion, literacy, engagement and empowerment of senior citizens in aspects related to adopting interventions and life styles that promote active and health ageing (e.g. acceptance of evidence-based interventions, behavioural changes towards AHA).
3- Impact on the Sustainability of Health and Care Systems
4- Impact on Economic, Growth and Jobs

3-1-4- AHA in the framework of Responsible Research and Innovation (RRI)

Leading AG: D4

Rationale: Responsible Research and Innovation (RRI) is an approach anticipating and assessing potential implications and societal expectations of research and innovation (19, 20). RRI allows all stakeholders involved in research and innovation (i) to obtain relevant knowledge on the consequences of the outcomes of their actions, (ii) to effectively evaluate outcomes in terms of societal needs and moral values and (iii) to use these considerations for the design and development of new research, products and services (19). The concept in Europe considers eight key areas (21) that should be included in the dialogue among the different AGs of the EIP on AHA: Governance, Public Engagement, Gender Equality, Science Education, Open Science/Open access, Ethics, Sustainability and Social Justice/Inclusion.

General objectives: To provide a roadmap of actions to be undertaken to promote RRI in AHA.

Specific objectives:

1- To identify the current state of the actions and initiatives related to the concept of RRI in the AHA framework and the concrete contribution of the partners and AGs.

2- To create a group of partners interested in working in this area and to identfy the most urgent actions and the plan of execution for RRI in AHA for the following years.

3- To analyse the work done in AHA in terms of RRI in the framework of the EIP on AHA and other related networks.

4- To provide a roadmap of urgent actions to be undertaken in RRI for AHA.

Contribution to the Scaling Up Strategy of the EIP on AHA: The synergy considers the engagement of higher numbers and more diverse stakeholders involved in the chain supply of active and healthy ageing products and services. These would include grass-root stakeholders (at local and regional level) with no possibility to join the EIP on AHA in Brussels due to economic, linguistic or time limitations and would enable the promotion of a richer dialogue and collaboration. The D4 partners/coordinators suggested the consideration of new agents as actors participating in AHA promotion at early stages and other actors supporting innovative ways of promoting active seniors i.e., schools, volunteers, touristic operators, social entrepreneurs.

Expected Outcomes / Contribution to MAFEIP: Integration of the concept of RRI to AHA is lacking. This synergy will create a baseline for future development and the integration of this trend in a structured and holistic way with the support of relevant stakeholders.

3-1-5- Maturity Model for Integrated Care

Leading AG: B3, Action Area 7

Rationale: Scaling up of EIP on AHA good practices in integrated care to EU regions is essential to reduce health, gender and social inequities in Europe.

General objectives: The B3 AG has developed the B3 Maturity Model to assist regions with their efforts to deploy integrated care in Europe in order (i) to reveal the strengths and weaknesses of European regions, (ii) to match those with similar problems and environments to work together and (iii) to help regions scale up their activities.

Specific objectives

1. To share learning and expertise gained during development of the B3 Maturity Model
2. To adjust the Maturity Model to address challenges of ageing in Europe such as adherence, frailty, falls prevention and assisted living solutions.
3. To develop self-assessment tool(s) to assess the readiness of regions in the implementation of solutions for AHA.
4. To test and validate the Maturity Model as a tool for supporting the scaling up and replication of innovative solutions; and facilitating knowledge transfer and exchange of good practices in Europe.

Contribution to the Scaling Up Strategy of the EIP on AHA: Aiming to conduct self-assessment in 8 regions, with twinning and coaching activities facilitated by B3 regions.

Expected Outcomes / Contribution to MAFEIP

1- Scaling up effective integrated care will improve the quality of care, health and wellbeing of citizens.
2- Positioning of European regions in terms of strengths and weaknesses will inform national, regional and local authorities about their "future direction of travel" – quick and systematic identification of areas that need attention to achieve improvement in AHA solutions.
3- Integration of health and care will lead to new roles and competencies for the workforce, and will generate opportunities for growth through scaling up of effective models of care / solutions.

3-2- Cross-cutting synergies focussed on an Action Group

3-2-1- Falls prevention and injuries: a grand societal challenge

Leading AG: A2

Rationale: Falls represent a major cause of burden and death in seniors (22). Approximately 30% of falls result in an injury that requires medical attention. Fractures occur in approximately 5% of falls and hip fractures in 1% (23-26). Falls-related injuries account for over 5% of the medical expenditures in seniors. Falls are the third leading cause of years lived with disability.

General objectives: To scale up a falls prevention and injuries initiative from local pilot studies to a practical and feasible pan-European programme including all stakeholders.

Specific objectives

1- Enable macro-, meso- and micro-level analysis including governance and policy-making based on screening, prevention, rehabilitation and monitoring, as well as an integration with the Silver Economy, and related to WHO's consultation on Global Strategy and Action Plan on Ageing and Health.
2- Engage regional and municipal levels in fall prevention campaigns, thereby enabling and promoting early frailty and fall risk assessment, and identifying frail and faller profiles.
3- Anticipate and identify the data analytic scope for health outcome studies in order to utilize the infrastructure and support the widest possible variety of health and social studies, including support for further methods and care service developments related to frailty and fall injury intervention and prevention.
4- Raise awareness and promote behavioural change among citizens in the prevention of frailty and fall injuries including post-operative interventions.
5- Understand falls-risk-increasing drugs and frailty.
6- Provision of specific smart home and smart building oriented ICT solutions viewed from a socio-economic Key Performance Index perspective.

Contribution to the Scaling Up Strategy of the EIP on AHA: How many regions?: Five to ten demonstrator regions are proposed, including Austria/Steiermark, Finland, France/Languedoc-Roussillon, Ireland, Scotland, Spain (Region of Madrid-Getafe University Hospital and Basque country). Austria, Finland and France have agreed. Discussions are ongoing with others.

Expected Outcomes / Contribution to MAFEIP: Scaling-up of good practices with an extended MAFEIP monitoring framework (2, 3) including socio-economic and macro-economic aspects.

1- Fall risk assessment is often embedded into a broader scope of geriatric assessment, e.g. including cognitive and non-cognitive aspects of dementia, activities of daily life (ADL), QOL, depression and nutrition. EQ5D is often used but is not sufficient for a broader scope of assessment. Finer granularity is needed.

2- Pathways and care processes are important ingredients in sustainability. This process of sustainability is discussed within the AG.

3- Impact on Growth and Jobs: The AG is discussing the whole *ecosystem*, from both topdown and bottom up approaches.

3-2-2- Impact of the Community-based Programme on Frailty Prevention and frailty Mitigation (ICP – FPM)

Leading AG: A3

Rationale: Prevention, screening, early identification and diagnosis of frailty and functional decline are closely related with the integrated care of chronic diseases. They operate primarily in the community, requiring the integration of health (primary, secondary) and social care to deliver screening, targeted assessment (e.g. Comprehensive Geriatric Assessment) and evidence-based, cost effective and tailored interventions (27-30). This comprehensive approach aims to prevent disability, recurrent hospitalizations, institutionalization and related heath-social care costs (27, 31, 32). Interventions must integrate health care and a supportive social environment for the patient and caregiver (33, 34). Women may be at higher rates of physical and cognitive frailty and interventions must be gender and cultural sensitive.

General Objective:

To set up a public health approach

- To prevent, identify and manage frailty in community dwelling older adults, to be validated in different EU member states,
- To identify the factors that can be targeted in order to, delay or postpone further decline and disability.

Specific objectives

1. To join systematic frailty assessment with good practices in frailty prevention and management, by counteracting social isolation, and improving nutrition, adherence to therapy and physical activity.
2. To promote the continuum of care by integrating social and health care at primary,secondary and tertiary levels.
3. To assess the impact of this public health model to manage frailty in the community in terms of cost effectiveness, use of health services, acceptance by citizens and patients' QOL.
4. To test the relation between a set of indicators and the prevalence of frailty.
5. To exploit existing ICT-supported assessment and intervention tools.
6. To describe caregiver network's weaknesses and strengths, and implement strategies to maintain, supplement and improve this network.

Contribution to the Scaling Up Strategy of the EIP on AHA: The proposal includes projects already developed in six European countries and is going to include organizations based in two more countries. The objective of the proposal is to represent all European Regions.

Expected Outcomes / Contribution to MAFEIP

1- Community-based programmes should reduce mortality, hospitalization and institutionalization rates in order to improve QOL in the elderly.

2- The proposal will assess the capacity of different interventions aimed to strengthen community-based health and social care programmes and reduce the work load on hospitals and residential Long Term Care services that are much more expensive.

3- Impact on Growth and Jobs: strengthening community-based services needs an increased number of dedicated personnel with potential benefit for the employment levels.

4- Some markers of the availability of socio-economic resources will be also assessed for their impact on frailty because of their strong relation with mortality rate and an increased use of health resources such as hospitalization and institutionalizations.

3-2-3- Multimorbidity of chronic respiratory diseases in seniors: an under-recognised societal problem (B3)

Leading AG: B3, Action Area 5

Rationale: Chronic Respiratory Diseases (CRD) are major chronic diseases. Some occur early in life (e.g. asthma-rhinitis) and persist throughout life (35, 36). COPD is associated with frailty in seniors (multimorbidity, polymedication). CRDs are intertwined with ageing and negatively impact AHA. The prevention and control of CRD in the ageing population is vital. Integrated care pathways have been set for CRDs (AIRWAYS ICPs) in the B3 AG (37-39).

General objectives: To better understand, prevent, detect and manage CRDs in elderly people, and to assess the impact of their socio-economic and health services utilization. Simple ICT tools allowing individualised medication should be developed. To raise the awareness of the role of CRDs in the elderly, and advocate for a European strategy, in order to support the scaling up of regional interventions. A stepwise action plan is proposed including scientific societies and the involvement of patient's organisations.

Specific objectives

1- **Promotion of AHA: Fit at work with rhinitis**: Rhinitis impacts work productivity more than diabetes, hypertension or asthma. In Europe, work productivity costs due to rhinitis are over 30 B€ yearly. The control of rhinitis by treatment improves work productivity (40). This project includes care pathways and should be a pilot for other common chronic diseases.

2- **Ageing well with rare paediatric diseases** (e.g. cystic fibrosis (CF) or bronchopulmonary dysplasia): The transition between paediatrics, adult medicine and geriatrics is a key issue for AHA in this severe genetic disease. The model of CF can be deployed to other rare diseases (41).

3- **Understanding, promoting health and controlling CRDs across the life cycle for AHA** (36) following the Polish (11, 42) and Cyprus priorities of the EU Council (43).

4- **Understanding CRDs in elderly people:** Care pathways for airway diseases (rhinitis, asthma and COPD) and their multimorbidities in elderly people need to identify prioritized questions and use ICT tools (44, 45). Public health initiatives are needed for the early identification of those presenting in a pharmacy to purchase treatment.

5- **Multimorbidity in CRDs.** To describe the clinical profile of patients with CRDs, the patterns of multimorbidity, and the use of health services in this group of patients based on the EpiChron cohort study (1.3M inhabitants).

6- **Integrated care pathways for rhinitis across the life cycle and remote monitoring** with a specific focus on seniors (44, 45).

7- **Interactions between chronic respiratory diseases and frailty**

8- **Polymedication:** In CRDs, and particularly in COPD, patient adherence is far from perfect. Most often, patients discontinue their treatment very soon after its initiation. Polymedication has profound medical and economical consequences.

9- **Societal problems in CRDs** will be initially tackled with the CARSAT (*Caisse d'Assurance Retraite et Santé au Travail*, Social Security, France) (4, 18) and scaled up to EU regions using the ICT tool on AHA (46-48).

10- **Scaling up strategy, education, coaching and training** (EUFOREA).

Contribution to the Scaling Up Strategy of the EIP on AHA: AIRWAYS ICPs is currently deployed in 25 EU countries with national coordinations.

Expected Outcomes / Contribution to MAFEIP

1- All CRDs impact QOL severely across the life cycle. AIRWAYS ICPs is likely to have a major impact in seniors.

2- Novel care pathways including self-care, health and social carers that are patient-centered are required and represent one of the major objectives of AIRWAYS ICPs. Better knowledge of the patterns of multimorbidity in CRDs and the characteristics of health care use.

3- Fit at work with rhinitis will have a major impact on economy.

4- Embedding synergies in EIP on AHA Reference Sites

Synergies have been built among EIP on AHA Reference Sites as examples of comprehensive, innovation-based approaches to AHA. EIP on AHA Reference Sites are coalitions of regions, cities, integrated hospitals or care organisations able to show a concrete impact of innovative practices, which could be transferred to other European contexts. A total of 32 Reference Sites have been awarded (1).

Reference Sites conscious of the need for synergies and a collaborative approach to address health and care challenges of an ageing population expressed the common will to establish a Collaborative Network to facilitate joint reflection and action in sharing and transferring best practice in the development and scaling up of health and care strategies, policies and service delivery models.

The interregional Reference Site Collaborative Network (RSCN) includes References Sites recognised by the Commission as well as Regions intending to apply for Reference Site status (candidate Reference Sites). Its main goal is to improve health and care through an active cooperation, contributing to the general debate with the EU institutions, in order to optimise the possibilities for sharing a strong, sustainable health and care system for all, while respecting the different competences and responsibilities in the direct organisation of the health and care services of the Member States and Regions.

5- Support for the EIP on AHA Scaling up strategy

The Scaling Up Strategy will follow the 5-step approach that has been proposed by the EIP on AHA and that has already been applied to AIRWAYS ICPs ((https://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/scaling_up_strategy.pdf, Bousquet et al, submitted).

An up-scaling strategy is multidimensional where accurate, appropriate and complete execution of each step is necessary to enable rigorous and systematic fulfilment of subsequent steps in the up-scaling process. As an example, up-scaling the IKINÄ (THL National Falls Prevention Initiative) guideline for fall prevention by THL (*Terveyden ja Hyvinvoinnin Laitos*, National Institute for Health and Welfare, Finland) in Finland (49) may be proposed. WHO's ExpandNet guides (50) to up-scaling may provide potential additions to the Scaling-up Strategy of the EIP on AHA's.

The dissemination was proposed to be carried out using the same model as previous B3 AG and/or AIRWAYS ICPs meetings (36, 39, 43, 46-48, 51-55).

5- Monitoring of activities carried out within the synergies

5-1- MAFEIP

Monitoring the activities carried out within the EIP on AHA needs a flexible and consistent approach to estimate health and economic impacts across interventions and commitments. A generic and flexible web-based monitoring and assessment tool has been developed. The MAFEIP tool estimates health and economic outcomes in terms of incremental changes in Quality Adjusted Life Years (QALYs) as well as health and social care utilisation. The MAFEIP-tool can provide an early assessment of the likelihood that interventions will achieve the anticipated impact. It can also to identify what drives the effectiveness or efficiency of interventions to guide further refinement, design upgrades and evaluation (2, 3).

5-2- AHA operative questionnaire

A core operational definition of AHA is needed to conduct comparisons (56). A conceptual AHA framework proposed by the RSCN includes several items such as functioning ((the following bracket needs to be closed but I don't know where)) (individual capability and underlying body systems, well-being, activities and participation, and diseases (including non-communicable

diseases, frailty, mental and oral health disorders) (46, 47). The instruments include core and optional domains/instruments depending on the needs and questions (48). A major common domain is function as measured by the World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0) that can be used across all diseases and healthy individuals. It covers many of the AHA dimensions proposed by the RSCN. However, WHODAS-2.0 does not include all dimensions proposed for AHA assessment. The second common domain is Health-Related QOL (HRQL). EQ-5D is one of the QALY measurements and the AHA questionnaire is therefore interoperable with MAFEIP. The instrument is translated and culturally validated for most EU countries and will be digitalized in the first quarter of 2016. A report of the AHA questionnaire in the form of a spider diagramme will facilitate usual comparisons across individuals and groups of interest (56).

5-3- Other tools

Assessment scales, as information entities, are not often equipped with a rigorous typing of data. This disables the gap between logic and guidelines, not only in geriatric assessment (57) but also within municipal and regional decision-making in elderly care. Logic is, on the one hand, a carrier of information, and, on the other hand, it includes a mechanism for rigorous logical inference which underlies decision-making. Gerontological conditions and circumstances are about information and knowledge, and gerontological data can be properly typed to open up possibilities e.g. for comparative studies and development of regional and national repositories involving gerontological data and information (58).

The information structure representation of nomenclatures and classifications is also important. WHO classifications are logically lative (59). The reference classifications ICD (International Classification of Diseases) and ICF (International Classification of Functioning, Disability and Health) then appear in structured relation with each other. Similar transformations can be made for the derived and related classifications ICPC-2, ICECI, ISO9999, ATC/DDD and ICNP (60).

These information entities are inherently multivalent, and classifications like the ICF explicitly recognize this multivalence through introduction of its generic scale. This, in turn, requires the formal management of many-valuedness and uncertainty in a logical setting (49).

Conclusion

AHA requires a multidimensional and multidisciplinary approach to allow people from multiple backgrounds to work together sharing a common language. The experience of different stakeholders working in a collaborative way producing concrete results in the different Action Groups sets a promising ground for the difficult challenge of scaling up good practices at European level.

The added value of working together requires identifying synergies not only between different good practices but also between different Action Groups results. To yield actual benefits, they have to be developed in concrete action plans that explain the rationale for the synergy, the participants, the objectives and a concrete plan with sprints.

EIP AHA implementation can manage a limited number of synergy actions. To select them, a flexible but structured process, with a transparent evaluation methodology, had to be used. The success of the first call, with nine proposals submitted and evaluated, supports the viability of the approach chosen. Eight of the proposals were selected.

New stakeholders have to join and new proposals need to be implemented. To ensure the added value of the whole process, Actions have to be assessed according to their estimated health and economic outcomes as well as health and social care utilisation using MAFEIP and other tools.

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