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TACKLING FRAILTY AND FUNCTIONAL DECLINE: BACKGROUND OF THE ACTION GROUP A3 OF THE EUROPEAN INNOVATION PARTNERSHIP FOR ACTIVE AND HEALTHY AGEING.

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Conflict of interest:

None of the authors have conflict of interest in what concerns the content of this manuscript.

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ABSTRACT

Ageing populations represent a challenge to the sustainability of current healthcare systems. The need to balance these demographic changes with gains in healthy life years and quality of life (QoL) constitutes an additional challenge. Aware of this, the European Commission (EC) launched the European Innovation Partnership on Active and Healthy Ageing (EIPonAHA) in 2012. The EIPonAHA is an interdisciplinary and cross-sector initiative involving more than 3000 partners with two specific objectives: to increase the healthy life expectancy of Europeans by two years by 2020, while increasing their QoL. The initiatives of the EIPonAHA have been organized according to six thematic action groups (AG), with the A3 group targeting areas relating to the prevention of functional decline and frailty. In addition to the good practices of partners, there are several on going collaborative works. The involvement of the EC includes support through an elaborated research programme in which the Consumers, Health, Agriculture and Food Executive Agency (CHAFEA) and the Directorate-General for Communications Networks, Content and Technology (DG CONNECT) are the main funding bodies. Screening approaches and preventive interventions constitute most of the initiatives within the A3 AG. Partners are distributed across five sub-groups according to good practices: i) cognitive decline, ii) food and nutrition, iii) physical activity, iv) caregivers, and v) frailty and functional decline. Regular updates of the progression of both good practices and collaborative works are presented in A3 AG meetings. The 2017 meeting in Valencia, Spain, showcased in this paper, provides an up-to-date overview of the current status of A3 activities.

Key words: healthy ageing, EIPonAHA; frailty; physical activity; nutrition; caregivers.

1. INTRODUCTION

The continuous increase in life expectancy (LE) is a global phenomenon. In Europe, the 2013 update of the World Health Organisation (WHO) has established LE in 80 years for women and 73 yeas for men [1] and is projected to continue rising [2]. Economic advancement and improvements in public health are strongly associated with this achievement. As a consequence, a total of 85 million European people are aged over 65 years, and it is thought that this number will double by 2060.

While a cause for celebration, increasing longevity also represents a challenge to the sustainability of the economies of EU Member States (MS), particularly if improvements in health do not parallel LE. Evidence suggests that there has been an increase in co-morbidity related to non-communicable diseases (NCD) impacting upon healthy life years (HLE) [3]. The need to increase HLE, which should run in parallel to concomitant standards in quality of life (QoL), is a crucial issue. Both European and National bodies are increasingly aware of the urgent need to adequately respond to the challenge.

The European Innovation Partnership on Active and Healthy Ageing (EIPonAHA) constitutes one key proactive action of the European Commission (EC) to that challenge. Conceived under the umbrella of the European Innovation public-private Partnerships (PPPs), the EIPonAHA was created in 2012 [4] as a pilot initiative aiming at the promotion of healthy ageing through interdisciplinary and cross-sector approaches. EIPonAHA has rapidly progressed since the beginning.

Two specific objectives were declared, the increase in LE of Europeans in two years and the improvement of their QoL by 2020. Three priority areas were established to accomplish the EIPonAHA objectives, (i) Prevention, screening and early diagnosis, (ii) Care and cure and (iii) Active ageing and independent living.

EIPonAHA has already involved more than 3000 partners, which are committed to an activity that has been validated as consistent with the principles of EIPonAHA. The array of innovative initiatives, also called good practices, has been compiled, monitored, and openly showcased since the formation of EIPonAHA. Together with the good practices, Reference Sites (RS) are other forms of being integrated within EIPonAHA. Through exchange of their good practices, RS are ecosystems that offer clear examples of impact on active and healthy ageing and that may have different cluster forms and sizes (regions, cities, hospitals, etc.).

Good practices within EIPonAHA are organized into six different thematic action groups (AG). The A3 AG is focused on the promotion of healthy life span and the prevention of age-related frailty and disease [5]. Frailty is a construct aimed at measuring the individual vulnerability for developing an ominous outcome when exposed to a stressor [6]. Frailty is understood as a step, often prior to, and in any case related with NCD, which may present in the form of multimorbidity [7]. Therefore, given the urgent need to optimize the use of societal resources, attention is being paid to frailty as a potentially modifiable risk syndrome. Indeed, the activation of policies to maintain acceptable standards of health during ageing requires effective strategies to identify the most vulnerable citizens, individuals most likely to develop NCD and in time, dependency, hospitalization, or death. It is assumed that by concentrating active measures in frail individuals the societal gains in health will be maximal.

2. METHODS

The data in this report have been provided by coordinators of AGA3 from EIPonAHA, and completed from information in the papers presented in A3 meetings. The websites of the Consumers, Health, Agriculture and Food Executive Agency (CHAFEA), the Directorate-General for Health and Food Safety (DG SANTE), and the Directorate-General for Communications Networks, Content and Technology (DG CONNECT) were used to extract documents reflecting general policy on healthy ageing. The EIPonAHA portal was also explored and, when clarifications concerning activities of specific partners were required, the EIPonAHA commitment tracker was searched. Information from specific European projects was retrieved from the corresponding websites.

3. THE EIPonAHA A3 AG

The exchange of innovative approaches has been one important tactic to promote advancements in AGs. Online platforms have been introduced to facilitate contacts, including the openly available Yammer [8] and since 2017 the Health Policy Platform [9]. Moreover, group meetings in which both partners and EC officers interact about running issues, and annual conferences, are being regularly organized. As a result of all those efforts, collaborative works have emerged and are being the incipient structure of consistent consortia.

Among the consolidated achievements of A3 a particular mention should be given to the Decalogue on Frailty Prevention [10]. Also of interest, the implication of the EC in the promotion of EIPonAHA has included specific funding within the Calls of

the 3rd Health Programme. CHAFEA, on behalf of DG SANTE, exemplify this interest through the financial support to several projects. One of them is the recently launched Joint Action ADVANTAGE, which involves 22 MS and over 35 organizations [11].

Together with the attention to frailty, the EC supports its MS to reach commonly agreed goals and targets set by the United Nations (UN) and the WHO to prevent and control NCD. Concretely, the EC supports its MS in their efforts to reach the nine voluntary targets of the UN and the WHO by 2025 [12], as well as to meet Sustainable Development Goal 3.4 [13], which aims to reduce premature mortality from NCD by one third and at promoting mental health and wellbeing by 2030. The recent EU Social Pillar recognizes that …"almost 50 million people in the EU-27 suffer from chronic diseases and nearly ½ million people of working age die prematurely from these every year. Those deaths are avoidable through more effective public health and prevention policies, or more timely and effective health care" [14].

4. THE ACTION GROUP A3 ONGOING ACTIVITIES

During its still short life, A3 AG has been enhanced by a second open Call for commitments, which has added new partners and good practices. The most recent update includes a total of 222 registered good practices involving partners from 21 countries. The Commitment Tracker Tool [15] is the on-line registry where basic details can be examined. Also, collaboration activities between partners have arisen and are on-going. These are in addition to the progression of the particular good practices of partners, as shown by the updates in the commitment tracker.

In the A3 AG meeting in Valencia, Spain, on the 29th June 2017, partners had the opportunity to update the group in consistence with the frame of the streamline and focus that DG SANTE is establishing with regard to NCD. Six objectives were defined:

- work with MS through the Steering Group on Prevention and Promotion
- collect best practices and work with MS to transfer and scale them up
- provide an online resource centre with best practices and more
- work on multi-sectorial collaboration
- support a few flagship actions such as CHRODIS PLUS, the joint action on chronic diseases [16] and ADVANTAGE
- work with stakeholders through the Health Policy Platform [9].

These also fit within the regular collaboration between DG SANTE and DG CONNECT to boost the implementation of digital solutions for health.

4.1 Areas of principal interest in A3 AG of EIPonAHA

The diversity of collaborative works in A3 may be better understood if considered in a matrix, in which four pillars, i) screening, monitoring and early diagnosis; ii) prevention; iii) care and cure; iv) research and education, cross with general objectives. This matrix defines the areas in which more or less directly collaborative works are integrated (Figure 1).

In light of the complexity, partners in A3 are divided across five different thematic subgroups categorized according to the nature of the good practices: i) cognitive decline; ii) food and nutrition; iii) physical activity; iv) care-givers; and v) frailty and functional decline. While being somewhat heterogeneous, the subgroups

maintain contact with each other and communicate with all partners and their activities.

The organizational structure of the group is simple, with a coordination team that, with the support of the Coordination and Support Action (CSA), facilitates harmonization through the subgroups. The main features about progression and outcomes, as updated in the meeting in Valencia, included a few salient areas.

4.1.1 Cognitive decline

Cognitive decline is a main factor in the deterioration imposed by ageing. The WHO has estimated that the number of individuals with dementia will approach 120 millions in 2050 [17].

The main interest among partners of A3-cognitive decline is being prevention, with particular attention to states of higher risk (cognitive frailty, [18]) or already perceptible, but light, deterioration (mild cognitive impairment, MCI) [19].

Collaborative works have aimed at finding common grounds for synergizing and scaling up. Among them,

a) Harmonization, and progressive convergence when possible, of existing databases.

   Basic anthropometric and analytical parameters from women in 4 ongoing cohorts, The Irish Longitudinal Study on Ageing (TILDA), The English Longitudinal Study of Ageing (ELSA), the University do Minho cohort in Portugal, and the Chronic Ailment Reduction after MENopause (CARMEN) cohort in Spain have been crossed and compared. This has been the basis for a longitudinal monitoring programme between the Aston Research Centre for

Healthy Ageing (ARCHA) in UK and the CARMEN cohort in Valencia, Spain. Targets additional to cognition, such as mood or QoL, and common assessment tools have been added in order to facilitate progressive merging. The efforts have been supported by funds from FOCUS [20], an European project aiming at optimizing the management of frailty within EIPonAHA.

b) Screening of memory deficiencies in subjects with MCI has been explored in Italy with innovative information and communication technology (ICT) using serious games [21]. Serious games based ICT technology is being also used in the DOREMI project [22], where groups from Italy, UK, Austria and Spain work in conjunction with a trans-European patient organization to fight cognitive decline, sedentariness and malnutrition in elderly people.
c) Education in the use of ICT is being the purpose of initiatives fighting the widespread technological illiteracy of elderly population in Italy, Spain and Greece. This type of initiatives are strongly fuelled by the EC, which is actively pushing with big, overarching programmes, like for example the Digital Single Market [23].
d) A very dynamic interaction has been created through a network of academia and health services in the region of Coimbra, in Portugal. Validation of screening tools, evaluation of stimulation programmes by caregivers, and regular scientific support by academia define the main activities.

4.1.2 Food and Nutrition

Because of the impact of nutrition in healthy ageing and in risk reduction against NCD, several examples of collaborative works have arisen.

a) Creation and harmonization of a database of current programmes is being developed too, in this case through the integrated strategy of two RS, Campania in Italy and Twente in Holland.
b) Cross-sectional nutritional assessments of population in Southern Italy have been performed within the context of the European project PERSILAA [24], which integrate partners from 5 different European countries. Adherence to the Mediterranean diet, as defined in the PREDIMED study [25], is being investigated.
c) The awareness that malnutrition is a challenge in wide groups of older citizens has moved partners from Portugal, Austria and Italy to search practices of success in tackling malnutrition. The interest in dietary games has been extended to the regular practices with the support of the i.Prognosis, an European project [26].
d) Other active initiatives to improve nutrition include i) the development of a digital Modular Gastrological Platform that facilitates the inter-professional efforts aiming at managing taste control and optimising meal contexts with the support of the European Social Fund; ii) a twinning between Flanders in Belgium and Campania in Italy has tried to scale up the gastrological approach through the implication of kitchen staff in health care institutions and catering companies; and iii) education and advocacy through participation in campaigns like the Optimal Nutritional Care for All (ONCA) promoted by the European Nutrition Health Alliance [27] in collaboration with the Campus Salute in Italy.

4.1.3 Physical activity

The benefits of healthy lifestyle are increasingly associated with regular practice of physical activity. Important initiatives in the A3 AG are:

a) The integrated strategy of two RS, Campania in Italy and Twente in Holland, which are using a common tool, the OTAGO programme of physical exercises [28].

b) Scaling up strategies supported by ICT, which includes the tasks carried by the projects FOCUS [20] and PERSSILAA [24], and a telerehabilitation experience consisting of screening questionnaires or ambulant monitoring tools, already experienced in a cohort of 10.000 adults.

4.1.4 Caregivers

The importance of this area derives from the considerable amount of resources consumed by caregiving activities as well as from its high social impact. According to Eurostat, European countries use 0.6% of their healthcare expenditure on homecare compared to 3.5% on long-term (nursing) care at home [29]. The demand for these resources is estimated to double between 2000 and 2050 [30]. The home-care model, preferred by users [31] is supported by cost-effective analyses [32]. Informal care is common in the care of older or disabled adults including relatives, with a majority of the EU-27 countries reporting an impact on either home or work life [33].

a) CARESS (seCtor skills for elderly home care - An integRatEd framework for domiciliary healthcare SkillS development), an on-going project co-funded by the Erasmus programme, aims at reducing the poor integration between health and social services [34].

b) The CARTS (Community Assessment of Risk & Treatment Strategies) project is a screening and assessment initiative based on an easy to perform risk-stratification scale (pre-screen), the Risk Instrument for Screening in the Community (RISC) [35-37], and a brief comprehensive geriatric assessment instrument, the Community Assessment of Risk Instrument (CARI) [38].

4.1.5 Frailty and Functional decline

Partners in this sub-group are leading two European projects, Frailclinic [39] and Frailtools [40]. Among the preliminary results, investigators have shown that the intervention of geriatricians seems to improve both frailty and patients' outcomes. SPRINTT is another project [41], which aims at testing the impact of an intervention integrating diet, physical activities and health education on patients with sarcopenia.

Also important, partners have developed the SUNFRAIL tool [42] and the Short Functional Geriatric Evaluation (SFGE). The main objective is to better know frailty in order to develop personalized prevention and care pathways. Aware of the multidimensional dimension of frailty, investigators are promoting community-based social intervention programmes like "Long Live the Elderly!" [43].

4.1.6 Synergies

The synergies are transversal working groups joining the different AG of the EIPonAHA around a common interest. The assessment of the "Impact of Community-based Programs on Prevention and Management of Frailty (ICP-PMF)" is the core activity of the A3-B3-A1 synergy, which includes 15 private and public

institutions from 7 EU countries. The working group, led by the Biomedicine Department of the University of Rome “Tor Vergata”, is assessing some 8000 elderly citizens to measure the impact on hospitalization and mortality.

5. CONCLUSION

The EIPonAHA is a main initiative of the EC to address the societal change imposed by the increase in LE. EIPonAHA involve different MS in Europe and actors at national, regional and local levels from the public and the private sector. The difficulties found in such a huge initiative do not blur the many achievements, which include the different examples described in this report.

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9. FIGURE LEGEND

The collaborative works within A3 are integrated into the matrix defined by four pillars and seven general objectives.