



## Original Article

# Integrated primary and geriatric care for frail older adults in the community: Implementation of a complex intervention into real life

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## ABSTRACT

**Background:** Frailty is highly prevalent in older persons and associated with negative health-related events and costs. Despite successful clinical trials, translation of evidence into implementation of dedicated programs has been scarce. This is probably due to funding limitations and lack of generalizability of rigid schemes adopted in controlled studies. We propose a guidance to implement complex interventions against frailty in the community, and describe the design and early findings of the +AGIL Barcelona program.

**Methods:** A guidance “decatalogue” resulted from an experts’ panel prioritization of recommendations by international independent bodies. On this basis, we reorganized existing primary care, geriatrics and community-based resources to implement our program, which includes a screening, a multi-component intervention modulated on the comprehensive geriatric assessment and integrated follow-up plus continuity through community-based resources. The pre-post impact of the program on physical function, as well as on clinical endpoints, person-center outcomes and costs will be assessed.

**Results:** Integrated care, multi-component, person-centered strategies to empower the final users in a flexible and adaptable way should be promoted after raising awareness and potentially convey long term investments. In 22 months, 185 participants (mean age  $\pm$  SD = 81.6  $\pm$  5.7 years, 72% women) joined the program. Although independent in the activities of daily living, participants showed clear indicators of frailty (Short Physical Performance Battery = 7.1  $\pm$  2.5; gait speed = 0.69  $\pm$  0.2 m/s).

**Conclusions:** +AGIL Barcelona may represent a unique model to manage frailty in older community-dwellers, translating evidence into pragmatic clinical practice. Further research will clarify the effects of this intervention.

## 1. Introduction

The global aging of population, although representing a positive achievement, is associated with the increase of multi-morbidity. It projects potentially dramatic scenarios regarding the prevalence of disability and consequent societal burden and costs.

In older persons, frailty is a dynamic state of increased vulnerability to internal or external stressors, determining a higher risk of negative health events, such as a rapid progression towards disability, fractures, institutionalization, and death [1]. Recently, the World Health

Organization (WHO) promoted a positive view of aging as a life-course process of developing and maintaining functional ability [2]. According to this view, the preservation of “health-related attributes enabling the person to be what he/she has reason to value” is produced by the interaction of intrinsic capacity (i.e., the composite of physical and mental functions) with the environment. In this picture, frailty represents a critical phase of declining capacity associated with aging, which might range from an early decline to advanced stages. The recognition and management of frailty in the community is important to prevent disability. This is feasible, because frailty itself is reversible [3].

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There is solid evidence regarding the effectiveness of managing frailty in the community: this pivots on multi-component strategies based on a comprehensive geriatric assessment (CGA) [4], with physical activity as the main pillar, among other interventions [5]. Such programs should be developed in primary care and in the community, within integrated care models including geriatric expertise [5].

The Medical Research Council (MRC) framework to implement complex interventions indicates that, when evidence from randomized controlled trials is consolidated (Phase 3), it is necessary to move to long-term implementation of interventions, in uncontrolled settings (Phase 4) [6]. However, translating evidence about complex non-pharmacological interventions into contextualized, sustainable clinical models is difficult. This might be due to different reasons, mainly related with funding and feasibility, including the difficult generalization and adaptation to heterogeneous and changing contexts, as well as the limited replicability of experiments originally conducted under controlled conditions (e.g., excluding very old or multi-morbid persons, or maintaining rigid control of protocol adherence). Unfortunately, besides the experience of Gerontopôle in Toulouse [7], translational research and implementation of strategies against frailty are scanty. Also, regarding engagement to regular physical activity itself, despite strong and consolidated recommendations, adherence is generally low and patchy [8].

The aim of this work is to build a reference framework to support the design and implementation of evidence-based complex interventions for independent but frail older adults living in the community. The model stems from a careful evaluation of key recommendations, aimed at implementing integrated care services, by an experts' panel. According to this framework, we translated the available evidence in a practical implementation program integrating primary care, geriatrics and community resources in the Barcelona urban area. In this paper, we present the framework, the design of the program, as well as the baseline characteristics of the participants included to date.

## 2. Methods

### 2.1. Guidance to implement evidence-based intervention for initial stages of frailty in the community

An expert panel of 10 people, including healthcare professionals and researchers (geriatricians, primary care physicians, geriatric and primary care nurses, physical therapists and social workers), reviewed specific recent guidance documents (gray papers or task force consensus papers from independent international bodies) focusing on the prevention of disability in community-dwelling frail older adults. The main sources were the World Health Organization (WHO), the International Association of Gerontology and Geriatrics (IAGG) and the Commonwealth Fund. The retrieved documents were in turn based on a systematic review process [5]. During a dedicated workshop, 10 main recommendations (in terms of consistency across the sources, meaningfulness based on the panel's experience and daily practice, as well as feasibility) were extracted from these documents, and prioritized. On this basis, we developed a "decatalogue" as reference for the design of a subsequent implementation model. Three main principles were followed: 1) to rely on existing evidence, 2) to produce a feasible and sustainable model, involving different actors within and outside of the healthcare system and 3) to empower older people to enable wellbeing, independence and participation as active citizens in the community.

We detail hereafter these 10 main recommendations (also summarized in Table 1):

1. *To design and implement multicomponent programs.* These should incorporate physical activity and nutritional interventions [5]. Physical activity has a solid evidence-based impact on physical performance in frail older adults [9, 10], and multi-modal schemes are recommended. Due to inconclusive evidence, nutritional

**Table 1**

Decatalogue to implement an evidence-based, feasible and sustainable intervention for frail older adults in the community with the aim of preventing functional decline.

Principles
Design a <b>multi-factorial</b> strategy
Design a <b>person-centered</b> approach
<b>Empower</b> the person and its caregivers
Design adaptable and <b>flexible</b> interventions
Move the intervention <b>close to the person</b> (primary and community care)
Build <b>integrated care</b> models, involving primary care, geriatrics and community resources
Use an <b>opportunistic</b> case finding/recruitment strategy
Contextualize through <b>users' participation</b> (older adults, caregivers, professionals)
Raise <b>awareness</b> and sensibility in decision-makers and the general population
Make an adequate and sound <b>plan for investments</b> and <b>assessment</b>

supplementation should be conditioned to the detection of specific deficits [5]. However, the adoption of a healthy diet should be systematically pursued, with Mediterranean diet being associated to a reduced risk of frailty [11].

2. *To use a person-centered approach.* Focusing on the person and taking into special account his/her preferences and values is crucial [5, 12]. A person-centered approach is also pivotal to guarantee adherence to the physical activity intervention, which is influenced by the individual's preferences and psychological and environmental aspects [13]. In facts, the WHO European Union Regional Office recommends to develop adapted/engaging strategies to promote physical activity [14]. Facilitating elements include training in non-technical skills (such as motivational interviewing) and tools to promote shared goal-setting [15, 16].
3. *To empower the person and the caregivers.* Behavioral change techniques should be combined with a person-centered approach in order to encourage confidence in self-management [17]. This point is critical to maintain the sustainability of the intervention, also in order to avoid potential "addiction" to such programs. Caregivers should also be involved [12].
4. *To design adaptable and flexible interventions.* Aging is associated with a variable range of deficits and needs, so that the translation of rigid research protocols into practice might limit the "bench-to-bedside" transfer of these interventions. A "one-fits-for-all" approach, even if successful in controlled trials, might lead to over-treatment, because it might target potentially unnecessary/irrelevant aspects without considering the individual's real needs. Moreover, it might imply rigid inclusion/exclusion criteria designed to guarantee its applicability, but affecting the generalizability of the model. For example, many randomized controlled trials (RCTs) exclude participants with cognitive impairment, a highly prevalent condition, whereas adapted approaches could still be promoted. Multi-component interventions based on a defined range of possible components should always be tailored to the problems and needs revealed by a comprehensive geriatric assessment (CGA) [18]. Also the type and dose of physical activity should be customized. Flexibility is indeed the key when designing successful pragmatic interventions [19].
5. *To move the intervention close to the person.* In a patient-centered approach and in order to promote a meaningful intervention for the person, the WHO recommends implementation in primary care settings and in the community [5].
6. *To build integrated care models, involving community agents and resources.* The wide range of comorbidities, deficits and needs of older adults requires complementary expertise and resources. Care of frail older adults, even in the absence of disability, cannot be delegated to single professionals or settings, and integrated approaches are preferable [5]. In this framework, CGA-based programs [20] coordinated by a geriatrician [21] may provide better

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