# Community-Based Fragility Care Program: Strategies for Early Recognition and Prevention of Frailty Syndrome in Older Adults

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**Abstract:** Almost one third of the population above 65 years old suffers at least 1 episode of fall per year, with an estimated 500,000 fragility fractures in this same population. One of the main directions of current literature regarding gerontology is to optimize the understanding and definition of Frailty Syndrome in the elderly, as well as its proper management. This program intends to develop a practical and accessible method to broadly screen individuals in the community, Long-term care facilities, and Elderly Care Centers who are susceptible to this syndrome or those who already have it but are unaware. To achieve this, a systematic approach of practical interviews will be created to differentiate healthy individuals from those with a predisposition to the syndrome or those with an established diagnosis, allowing us to focus on conducting more elaborate studies and tests on those who truly need attention in this regard. After the completion of this program, the data will be collected, compared with each other and with current literature to conclude and point out relevant data for the development of geriatric health care.

## 1 INTRODUCTION

Almost one third of the population above 65 years old suffers at least 1 episode of fall per year, with an estimated 500,000 fragility fractures in this same population. On an individual approach, fractures and falls due to frailty can cause disabilities, physiological dysfunctions and death in

the elderly population, and on a public policy approach, these issues severely increase the number of emergency admissions and health costs. (PUBLIC HEALTH ENGLAND, 2017) Although there are various definitions of Frailty Syndrome in the literature, we can consensually define it broadly as a set of psychological and organic dysfunctions that cause a general and functional deficit in the individual. (PATRIDJE, 2012)

Due to being the biggest common factor among individuals who suffer falls, hip fractures and high morbimortality, one of the main focuses of current literature in gerontology is to optimize the understanding and definition of the Frailty Syndrome in the elderly, as well as its appropriate management (LEE, 2017). As it is a major indicator and precursor of an individual's morbidity, greater attention to symptoms is necessary since Frailty can be prevented. This program intends to develop a practical and accessible method to broadly screen individuals susceptible to this syndrome and those who already have it but are unaware (THEOU et.al, 2012).

Screening has a significant effect on attention to functional deficits in the elderly (SAENGER, 2016). By screening and identifying patients with or predisposed to Frailty, we can assist the multidisciplinary team in their appropriate interventions, both in treatment and preventive approaches. This program serves as support to the methods already used by the multidisciplinary team and aims to make attention to this important syndrome practical, without excluding the already applied measures or the due attention to other senile and senescent factors that we encounter in our work routine.

By the end of this process, patients will be classified into groups based on their need for attention to Frailty: Green Flag; Yellow Flag; Orange Flag; and Red Flag. Thus, we can better indicate therapeutic approaches for each individual, as well as which sector of the multidisciplinary team has treatment priority.

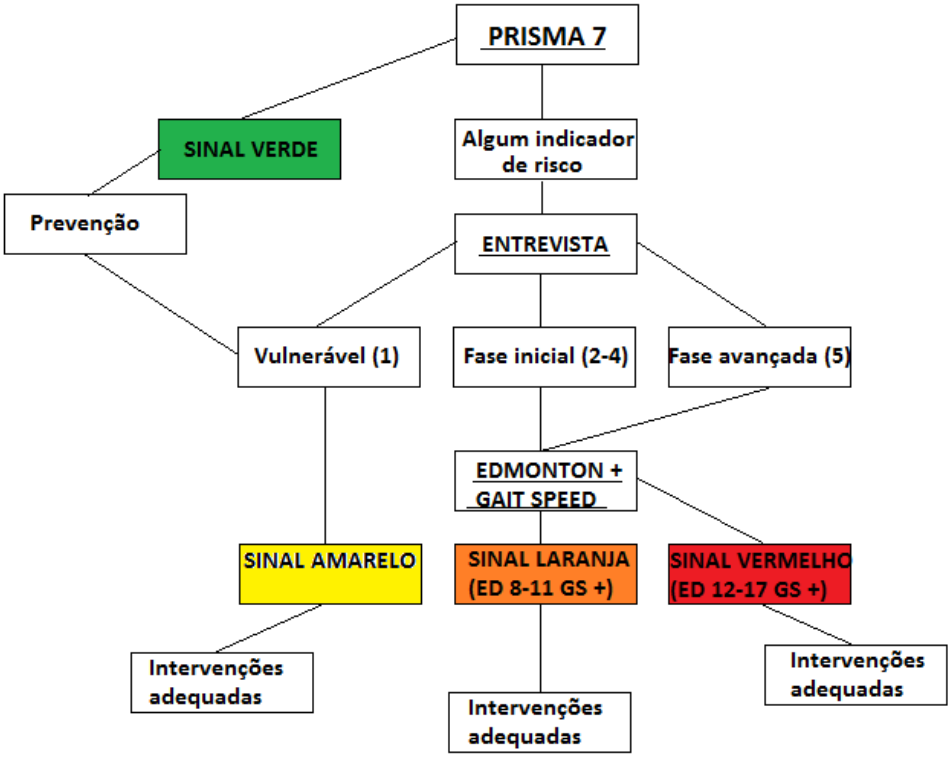
**2 OBJECTIVES**

The main objective of this program is to collect diverse data on Frailty in the community, as well as to facilitate the early diagnosis of frail or pre-frail individuals, providing geriatric health teams with better management of these elderly individuals. In addition, due to the possibility of collecting data from a large number of individuals, this work may lead to the emergence of new studies with different emphases, using the evaluation and screening method presented here. It

may even be implemented as a method for assessing population health in municipalities or communities.

## 3 METHODOLOGY

To carry out this program, a practical interview system will be created to separate healthy individuals from those with a predisposition to the syndrome or those already established with it, so that we can focus on more elaborate studies and tests on individuals who really need attention in this regard. Therefore, initially, the elderly individual will undergo a brief questionnaire that will indicate which risk group they fall into, and then those at risk will undergo an elaborate interview and continue with evaluations, as shown in Figure 1.




***Os métodos utilizados são cientificamente validados e indicados por instituições referências na área.**

### 3.1 Questionnaires and Assessments

The first screening will be carried out during the patient's medical record preparation, where the validated PRISMA 7 questionnaire for frailty traceability, consisting of 7 simple questions,

will be handed over to the patient or their caregiver to answer. This questionnaire distinguishes healthy individuals from those with predisposing factors of the Syndrome. It can score from 0 to 7, where 3 or more would indicate advancement to the other stages. (SAENGEN, 2016)

**PRISMA 7- Questions**

1- Are you over 85 years old?

2- Male gender?

3- Do you generally have health problems that limit your activities?

4- Do you need someone to help you with daily activities?

5- Do you generally have health problems that keep you at home?

6- In case of need, do you need someone nearby?

7- Do you usually use a cane, walker or wheelchair?

Total

In the second stage, the assessed person will undergo an interview conducted by a professional, who will indicate the presence of established alterations, as well as key Risk Factors for a diagnosis. (TANGUEN, 2001; FHON et.al 2018)

• Recurrent falls

• Immobility

• Delirium

• Incontinence

• Susceptibility to medication side effects

• Risk factors - Vital signs, Diabetes, Vo2 max.

(FHON et.al 2018; TODD, SKELTON, 2004, TANGUEN, 2001)

Individuals who present 2 or more of these icons will move on to the third and final phase of evaluations, where specific, validated tests, Edmonton Frail Scale and Gait Speed, will be applied.

Edmonton Frail Scale is a validated test (COELHO et al. 2013) recommended by the British Geriatrics Society that grades the intensity of the Frailty Syndrome in the individual from 0 to 17. Through specific questions and tests, the higher the score, the higher the level of present alterations. Model in figure 2.

The Gait Speed Test assesses the individual's functional capacity, where they are asked to walk a distance of 4 meters, and the time taken to cover this distance is observed, excluding the initial acceleration and the final deceleration phase. The test is positive for those who do not finish the test or perform it in a time greater than or equal to 5s, indicating a risk of frailty.

Table 1. The Edmonton Frail Scale

| Frailty domain | Item | Score 0 | Score 1 | Score 2 |
|---|---|---|---|---|
| Cognition | Imagine this pre-drawn circle is a clock. Place the numbers in the correct positions, then place the hands to indicate a time of 10 past 11 | No errors | Minor errors | Other errors |
| General health status | In the past year, how many times have you been admitted to hospital? | 0 | 1-2 | >2 |
| | In general, how would you describe your health? | Excellent, very good or good | Fair | Poor |
| Functional independence | With how many of the following activities do you require help: meal preparation; shopping; transportation; telephone; housekeeping; laundry; managing money; taking medications? | 0-1 | 2-4 | 5-8 |
| Social support | When you need help, can you count on someone who is willing and able to meet your needs? | Always | Sometimes | Never |
| Medication use | Do you use five or more different prescription medications on a regular basis? | No | Yes | |
| | At times, do you forget to take your prescription medicines? | No | Yes | |
| Nutrition | Have you recently lost weight such that your clothing has become looser? | No | Yes | |
| Mood | Do you often feel sad or depressed? | No | Yes | |
| Continence | Do you have a problem with losing control of urine when you don't want to? | No | Yes | |
| Functional performance | Timed Up and Go test (Box 4) | 0-10 seconds | 11-20 seconds | >20 seconds, patient unwilling or requires assistance |
| Total (final score is the sum of column totals out of 17) | | | | |
| Scoring: 0-5 = not frail; 6-7 = apparently vulnerable; 8-9 = mild frailty; 10-11 = moderate frailty; 12-17 = severe frailty | | | | |

The program proposed aims to provide health education and prevention for the elderly in two institutions in São José dos Campos, São Paulo, Brazil: Casa do Idoso and Hospital de Retaguarda Geriátrica - REGER. The program will be developed throughout 2019, and after its completion,

data will be collected, analyzed, and compared to the current literature to draw relevant conclusions about geriatric health care.

The program will be based on the literature review of relevant studies, including systematic reviews and meta-analyses, such as Lee and Kim's "Exercise interventions for preventing falls among older people in care facilities: a meta-analysis," and Collard et al.'s "Prevalence of frailty in community-dwelling older persons: a systematic review." Additionally, the program will be designed to address specific issues identified in the literature, such as the importance of health-promoting interventions for the elderly, as seen in Gustafsson et al.'s "Health-promoting interventions for persons aged 80 and older are successful in the short term-results from the randomized and three-armed elderly persons in the risk zone study."

The program will include educational activities and exercise interventions, as recommended in the literature, such as balance exercises and strength training, to prevent falls and promote physical activity, which can have a positive impact on overall health. Additionally, the program will address frailty, using the PRISMA-7 tool, adapted for Brazil, as described in Ana Luiza Flores Saenger et al.'s "Adaptação transcultural para o Brasil do instrumento PRISMA-7: avaliação das equivalências conceitual, de item e semântica."

The program's results will be analyzed and compared to the literature, including Jack Roberto Silva Fhon et al.'s "Factors associated with frailty in older adults: a longitudinal study," to identify any significant trends or improvements in the health of the elderly population served by the two institutions. By analyzing the program's results, the program's designers hope to identify areas for improvement in geriatric health care and provide valuable information for future programs.

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