



## Telemedicine for housebound older persons during the Covid-19 pandemic

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### ABSTRACT

Targeting older at-risk patients with decision-making algorithms is a priority at a time when hospitals are receiving an influx of Covid-19 patients that may exceed their capacity. Such screening could likely be extended to primary care settings in order to identify older community dwellers with Covid-19, but also those experiencing the adverse consequences of prolonged home confinement. The Centre of Excellence on Longevity of McGill University (Quebec, Canada) designed a short assessment for Montreal's housebound community-dwelling older adults. It acts as the first step in connecting older community dwellers who are housebound during the Covid-19 outbreak to telemedicine.

### 1. Introduction

Recently, Hollander and Brendan highlighted the benefit to decision-making that may be drawn from the use of automated screening algorithms in prioritizing patient care to better allocate resources during the Coronavirus disease 2019 (Covid-19) pandemic [1]. They also emphasized direct-to-patient telemedicine as an approach to forward triage that allows patients to be efficiently screened while promoting both the patient-centered model of care and the physical distancing that protects patients, clinicians, and the community from exposure to SARS-CoV-2 [1]. Definitively, this strategy is of central importance to the care of older patients, who are at a significantly increased risk of contracting Covid-19 and developing complications [2]. Targeting older at-risk patients with decision-making algorithms is a priority at a time when hospitals receiving a high Covid-19 patient influx may exceed their capacity [2]. Such screening could likely be extended to primary care settings in order to identify older community dwellers with Covid-19, but also those experiencing the adverse consequences of prolonged home confinement, before they present to emergency departments (EDs).

Social distancing, which includes physical distancing and home confinement, is used to describe the practice of maintaining space between individuals and is an effective intervention to reduce Covid-19

spread [3]. Nevertheless, this key prevention strategy may provoke adverse consequences in the older community-dwelling population [3]. First, it may break down their primary care continuum and, in the frailer individuals of this population, increase their risk of visiting EDs and being admitted to hospitals. Second, physical distancing implies home confinement for older community dwellers and, thus, exposes them to a breakdown in their social networks, with ensuing issues related to medication or food delivery and psychological fallout. As a result, many health and social professionals who deliver primary care are experiencing a surge in demand for home services catered to older community-dwellers, possibly leading to an overcapacity of the primary care system [2,3]. A strategy to screen older community dwellers at risk for home confinement-related adverse consequences must, therefore, be adopted based on an efficient and effective forward triage framework.

Triage is the process of prioritizing patients' care based on the severity of their condition or the likelihood of recovery with and without care [4]. Forward triage, which screens older community dwellers before admission to a primary care system, emerges as a priority in ensuring primary care surge control during the Covid-19 pandemic. In older community dwellers, assessing frailty is a definite cornerstone of triage, as it provides insight into the degree of vulnerability in their health status and their risk for adverse consequences [3]. However, there are additional components to consider, including Covid-19 status,

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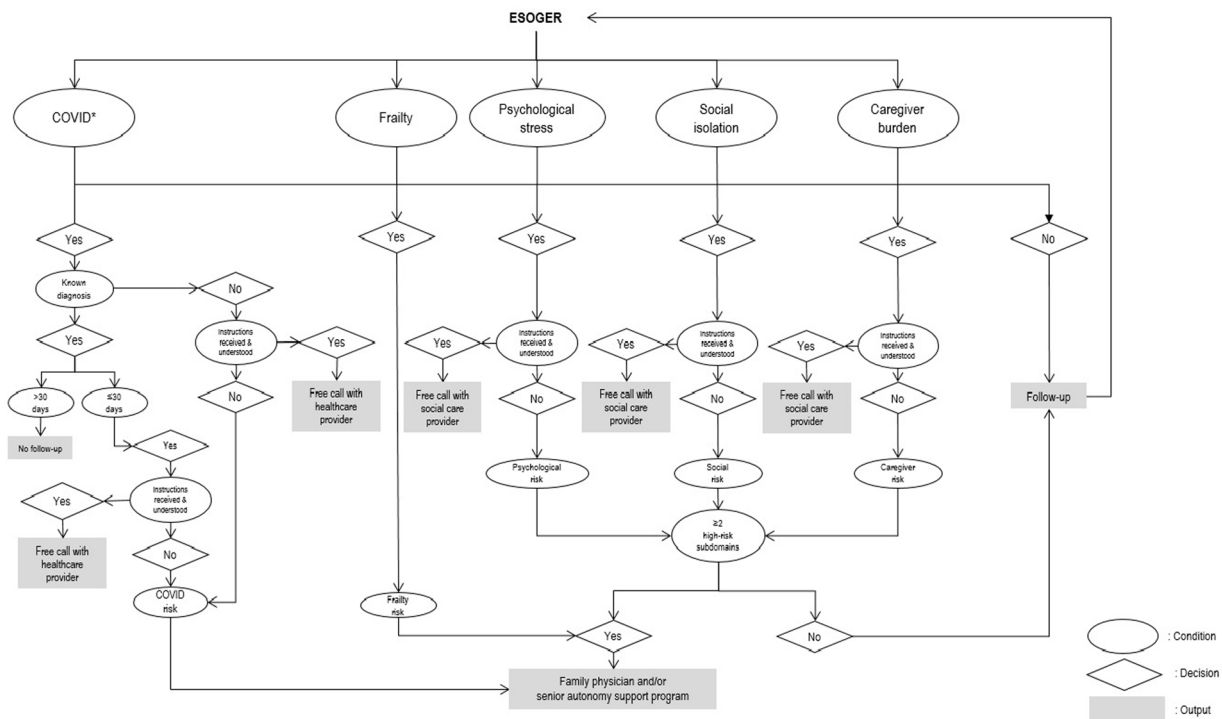


Fig. 1. ESOGER Algorithm decision-making.

psychological stress, social isolation and caregiver burnout [3]. To guarantee the success of such an intervention, a person-centered approach must be adopted as the procedure for care to focus on the needs of the person rather than on the needs of the service.

2. Methods

A successful remote multi-domain assessment accompanied by related interventions for older community dwellers results from the unification of several attributes. Notably, simplicity, accessibility, and brevity emerge as key points. For instance, such an assessment needs to provide a simple risk classification (i.e., low versus high) for adverse consequences like ED visits or hospitalisations alongside recommended interventions. With nearly 1.8 million citizens, Montreal is the city with the highest number of confirmed Covid-19 cases in Canada as of May 2020. The Centre of Excellence on Longevity (CEEXLO) of McGill University (Montreal, Quebec, Canada) designed, in late March 2020, a short assessment known as “Evaluation Socio-GERiatrique” (ESOGER) for Montreal’s household community-dwelling older adults (Fig. 1). ESOGER is a clinical assessment consisting of a short questionnaire that includes close-ended questions exploring five complementary subdomains: 1) Covid-19 symptomatology (i.e., fever ≥ 38 C, cough, shortness of breath and other symptoms); 2) frailty, using the 6-item brief geriatric assessment with a score range from 0 (no frailty) to 14 (severe frailty), regarding age ≥ 85 years, male, polypharmacy (i.e., ≥ 5 different medications per day), use of formal (health care or social professional) and/or informal (family and/or friend) home support, use of a walking aid regardless of its type, and temporal disorientation (inability to give the current month and/or year); 3) psychological stress using a verbal analogic scale (VAS) of anxiety ranging from 0 (no anxiety) to 10 (severe anxiety); 4) social isolation assessing accessibility to medication, food and home care; 5) caregivers’ burden, using the 4-item Zarit scale [5].

3. Results

For each subdomain, a risk level (i.e., low versus high) is identified

and associated to recommendations involving two categories of interventions: 1) initiating a phone call with health or social care providers and/or 2) contacting the family physician and/or a professional at the support program for senior autonomy (SAPA), which provides health and social home services in Quebec. High risk levels are defined as follows: for Covid-19 symptomatology, ≥ 3/4 symptoms; for frailty, a score ≥ 5/14; for psychological stress, a VAS score > 5/10; for social isolation, a score ≥ 1/3; and, for caregivers’ burden, a 4-item Zarit score ≥ 4/16. In addition, a global risk level (i.e., low defined as one or no high-risk domain versus high as ≥ 2 high-risk domains) unifying all subdomain risk levels is generated to detect older adults exposed to the highest overall risk and thus give priority to those requiring rapid contact with a family physician and/or the SAPA. In cases of new-onset Covid-19 symptomatology, healthcare providers perform a free, exhaustive assessment and intervention by phone call, if the older adult is able to understand and follow instructions. In parallel, the latter, along with being high-risk in the frailty subdomain, are indications to contact the family physician directly and/or the SAPA. Free phone call interventions are offered to older adults at high risk levels in the psychological stress, social isolation and caregiver burden subdomains. These phone calls are carried out by community social care providers. If older adults are not able to understand and follow instructions for the free phone call and are at high risk in at least 2 subdomains, their family physician and/or SAPA are contacted for assessment and care provision. Finally, if there is no high-risk subdomain detected using ESOGER, follow-up phone calls are recommended every two weeks, initiated either by the older adults themselves, if they are able to understand and follow instructions, or otherwise by the person who initiated the first call.

4. Discussion

The ESOGER questionnaire is freely accessible on the CEEXLO web platform using an electronic device (i.e., computer, tablet/iPad or smartphone). It may be filled out by trained volunteers during a phone call with older community dwellers or their caregivers. Volunteers are McGill University and University of Montreal medical students who are

organized into teams, with each team being composed of five students: four who call older community dwellers and fill out the ESoger questionnaire and one who supervises workflow, identification of complex cases and discussion with a referent geriatrician. Thus, ESoger acts as the first step in connecting housebound older community dwellers during the Covid-19 outbreak to telemedicine. It is a solution to rapidly assess risk and provide tailor-made recommendations.

We decided to assess frailty, but not diseases other than Covid-19, with ESoger. Frailty refers to a vulnerable physical and mental condition attributable to the accumulation of morbidities. It exposes individuals to incident adverse health events and disabilities that negatively impact their quality of life, expose them to social isolation and increase the costs related to health and social care (6). We made this choice because frail older adults are particularly exposed to severe forms of Covid-19, as well as to the negative consequences of social distancing (6). ESoger is a screening assessment and, when positive, needs to be followed by a comprehensive geriatric assessment, which is a multidimensional and interdisciplinary diagnostic assessment of frailty that helps determine the medical, psychological, and functional capabilities of older adults. A limitation in the use of ESoger emerges in older adults with impaired hearing or cognition who live alone. In this case, ESoger must be completed with assistance from another person, such as a caregiver or a health or social professional. At the present time, ESoger is a clinical tool used to retrieve an objective evaluation of housebound older adults' health and social conditions. The care provided to these older adults may be further improved through additional research that incorporates data collected with ESoger following approval of Research Ethics Boards.

#### Contributors

Olivier Beauchet contributed to conception and design of the decision-making tool, analysis, and writing of the manuscript.

Liam Cooper-Brown contributed to analysis and revision of manuscript.

Victoria Ivensky contributed to analysis and revision of manuscript.  
Cyrille P Launay contributed to conception and design of the

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#### Conflict of interest

The authors declare that they have no conflict of interest.

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#### Ethics

The section Ethic Statement is not applicable for our manuscript.

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