

PREVENTION OF FUNCTIONAL DECLINE BY REFRAMING THE ROLE OF NURSING HOMES?

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Abstract: Institutionalization is generally a consequence of functional decline driven by physical limitations, cognitive impairments, and/or loss of social supports. At this stage, intervention to reverse functional losses is often too late. To be more effective, geriatric medicine must evolve to intervene at an earlier stage of the disability process. Could nursing homes (NHs) transform from settings in which many residents dwell to settings in which the NH residents and those living in neighboring communities benefit from staff expertise to enhance quality of life and maintain or slow functional decline? A task force of clinical researchers met in Toulouse on December 2, 2015, to address some of these challenges: how to prevent or slow functional decline and disabilities for NH residents and how NHs may promote the prevention of functional decline in community-dwelling frail elderly. The present article reports the main results of the Task Force discussions to generate a new paradigm.

Key words: Nursing home; prevention; functional decline; frailty.

Worldwide, the number of dependent older adults is projected to rise from 350 million in 2010 to 488 million in 2030 and 614 million in 2050 (1). These increases are expected to influence the percentage of older adults residing in nursing homes (NHs), which in 2010 in the United States represented approximately 9% of people aged 85 or older (2) and 6% in 2011 in France (3).

In 2011 in the United States, \$134 billion was dedicated to institutional care (ie, skilled nursing facilities, nursing homes, and nursing facilities located in continuing care retirement communities) or about 31% of long-term services and supports expenditures with an additional \$234 billion dedicated to informal care and \$58 billion to community-based care (2). In 2012 in France, 8.3 billion euros were dedicated to health care for institutionalized people and increased each year (4). Similar increases are being observed throughout European nations.

Given rising costs in France, where 40% of dependent (defined as 2 or more activities of daily living [ADL] limitations) older adults are institutionalized (5), the National Assembly convened a panel of experts who estimated that an appropriate program organized in the community to prevent dependency would save a total of 10 billion euros in France (6).

Such a recommendation to focus on prevention of disability has long been proposed as one potential strategy to respond to increasing levels of dependence and costs throughout the United States and Europe. Large randomized controlled trials have demonstrated an impact of primary prevention on morbidity (7). These observations mandate public health strategies and initiatives directed at prevention of disability (8). A shift toward prevention of disability would be consistent with trends in other medical disciplines such as oncology and cardiology that increasingly place an emphasis on proactive preventative approaches (eg, prevention of cancer or myocardial infarction) rather than reactive approaches after advanced disease has already developed.

Different pathways drive functional decline and development of disability with advanced age: loss of mobility, loss of cognitive function, loss of social support, iatrogenic events, and progression of disease. Earlier intervention to prevent decline and iatrogenic events may support geriatric medicine in meeting the challenge of slowing decline, and maintaining function and quality of life for as long as possible during aging.

Institutionalization is often a consequence of functional

decline in older adults and is generally regarded as an outcome that signals failure of care systems to support elders effectively in the community (9-13). The expertise in NHs has long been questioned, but quality improvement is now reported in NH staff (eg, trained nurses and nurse aides, geriatricians, psychologists, dieticians, and physiotherapists). The NH staff could now shift NHs from a place of “dwelling” to a locus of activity both for current residents and for community-dwelling elderly at risk of functional loss (14). The goal would be to provide proactive, preventative approaches to delay disability and avoid iatrogenic events and loss of social supports modeled after other innovative community engagement initiatives such as the “Walk with a Doc” program that encourages physical activity by joining volunteer doctor in the community for a walk, many of which begin their walks at senior centers, assisted living facilities, and other locations where elders reside (15).

A Task Force of Experts in NH care and research met on December 2, 2015, in Toulouse, France, during the 2nd Nursing Home Research International Working Group (NHRIWG2015) conference with the support of the Office for Science and Technology of the Consulate General of France in Los Angeles, USA.

The aim of the workshop was to discuss intervention strategies to prevent disability and functional decline for NH residents. The second aim of the task force was to consider possible implementation strategies to prevent functional decline in community-dwelling frail elderly within the NH setting.

The Task Force was convened by the Global Aging Research Network (GARN), a network of the International Association of Gerontology and Geriatrics (IAGG).

How to Prevent Functional Decline and Disabilities for Nursing Home Residents?

Overview of the Nursing Home Health System in the United States

In the United States, 15,700 nursing homes cared for approximately 1.4 million residents on any given day (16) in 2012 but the number of nursing homes has been steadily decreasing compared to a decade earlier when there were more than 16,000 beds. NH care is still viewed as something to be avoided if possible and NH admission reduction has been actively sought. The declining number of nursing homes has been attributed to availability of assisted living facilities and long-term supports and services such as home and community-based services. Occupancy has also declined slightly over the past decade from 86% in 2003 to 83% in 2012. The majority of nursing homes (68%) are for-profit, whereas only 25% are nonprofit and 7% are government-owned; the majority serve between 26 and 100 residents and approximately one-third serve more than 100 residents. NH staff are usually trained, but available time dedicated to resident care is limited. The vast majority of direct care is provided by nurse aides, who

represent 65% of the total nursing full-time equivalents (FTEs), with an average of 2.46 hours of care per resident each day compared with 23% FTE and 0.85 hours of medical care for licensed practical nurses and only 12% FTE and 0.52 hours of medical care for registered nurses in nursing homes. Nearly all nursing home residents in the United States need assistance with bathing, dressing, and toileting, and more than half also require assistance with eating.

Overview of the Nursing Home Health System in Europe

Over the past 10 years, the growing number of patients who benefit from long-term care at home, especially in Sweden, France, and United Kingdom, generated a larger proportion of severely disabled residents living in NHs (17). In Europe, as in other regions of the world, NHs are more unique than similar (18). Since 2000, the number of NH beds has been increasing in Europe. In 2013 in Belgium, there were 72.1 NH beds per 1000 population aged 65 and older (59 in France, 18.9 in Italy) (19). Similar trends of increasing numbers of long-term care beds were observed in Finland or Iceland between 2000 and 2013. During that same period, Spain reported one of the highest increase of NH beds by adding an average of 3.7 beds per 1000 population older 65 than years, each year in institutions (19).

The Paradox of Nursing Home Funding

Although it was beyond the scope of our Task Force to comment on the complexities of NH funding, all countries face similar challenges of increasing costs related to financing the care of older adults and incentives that do not necessarily align with prevention of disability. In the United States, the majority of funding for nursing home care is provided by 3 main sources (the first 2 are federally funded): (1) Medicaid (63%), for those who do not have personal funds to pay for care, (2) Medicare (14%), primarily for persons undergoing post-acute rehabilitation, and (3) private out-of-pocket payments (22%) (20). The median annual cost for nursing home care with a semi-private room in 2012 was US \$73,000 per year or approximately US \$200 daily (21). This cost exceeds the median household income of older persons several-fold and frequently results in the exhaustion of personal assets and reliance on the federally funded Medicaid program to cover the cost of care. From a policy perspective, this is significant because there is now financial and social pressure causing a trend toward reductions in nursing home expenditures or bed as more emphasis is placed on home- and community-based services. Medicaid expenditures on institutional care decreased from 76% in 1997 to 52% in 2011 as home and community-based services rose from 24% to 48% of Medicaid expenditures during this 15-year time period (22). Rehabilitation services in NHs for older adults that tend to be low intensity (23) do not appear to adequately address deficits in physical function or performance and tend to foster inactivity (24). Both low-intensity interventions and inactivity may perpetuate further functional decline or impede maximal recovery. This

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observation is concerning because decline in ability to perform ADL and subsequent increased need for caregiver assistance are strongly associated with the need for costly long-term services because in most developed nations, the size of NH payment depends on the residents' degree of disability.

In France, the model of funding for NH in France relies on 2 comprehensive assessment tools [the GIR (Groupe Iso-Ressource) (25) and the PATHOS (26)] that are regularly performed by staff members. Briefly, the more disabled and ill residents generate more money for the institution. For policy makers, the way NHs are financed is relevant, but for NH staff this relationship between commitment to residents and resources can create perverse incentives and may not encourage the medical director, the registered nurse, or the administrator to implement preventive measures in their care facility. Prevention of adverse events, such as falls, hospitalization, infection, iatrogenic events, undernutrition, wounds, and finally functional decline is however regarded by NH staff as the main driver for quality improvement and for core health care. Prevention of these adverse events is also a clinically meaningful axis of care to improve the quality of life of the residents.

In summary therefore, on one hand carers are encouraged to improve care quality and to reduce the risk of functional decline, but on the other hand, financial incentives are such that resources are greater when functional status is worse. Based on these observations, Task Force members recommend reframing NH care with the purpose of addressing the lack of rigor in rehabilitation, which currently results in failure to sustain or slow the loss of function. Policies to promote reframing of the focus in NHs need to be in alignment with the highest practicable level of care.

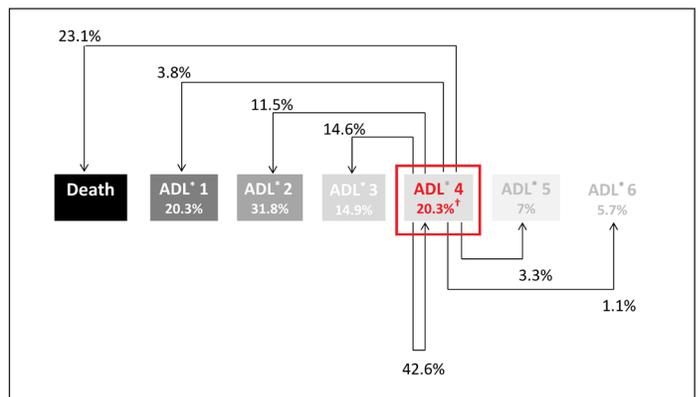
Changing the Culture in the Nursing Home

Nursing home residents are at risk of falls (27), malnutrition (28), weight loss (29), pressure ulcers (30), restraints (31, 32) polypharmacy, and inappropriate drug prescribing (33). In fact, some NHs themselves may be a risk factor for the residents. For instance, previous studies showed that in addition to resident characteristics, NH characteristics were associated with potentially inappropriate drug prescribing (34), particularly for neuroleptic drugs (35). Potentially avoidable hospitalizations are another high risk for NH residents. Hospitalizations are often associated with added disabilities due to iatrogenic events (36-38).

Workforce issues also are important when considering the role of prevention. In a survey of French NH staff, researchers found that between completing the broad range of everyday tasks necessary to support basic daily living and managing behavioral disturbances associated with dementia, staff report little time for promoting prevention programs (39). Prevention of functional decline was ranked eighth in terms of importance according to coordinating physicians and staff in the NH setting (39).

In France, the mean age of NH residents is 85 years and more than half of this population is bedridden or very dependent (39, 40), requiring much commitment on behalf of nurses and nurse aides, and evidence suggests that this disability accelerates following NH admission. In the IQUARE study, an 18-month multicenter controlled trial, one-third of the NH residents reported a low level of disability (ADL score of 4 or higher) at baseline (40). However, after a short 18-month period, 30% of residents had a lower ADL score (Figure 1) (41). Although these results may represent an unavoidable decline, interventions to prevent or slow decline are needed.

Figure 1
Functional decline at 18 months in NH residents according to the baseline ADL* score. Personal data IQUARE (175 EHPAD; 6275 residents)



*A total score of 6 indicates full function, and 0 indicates severe disability. †The percentages under the ADL score correspond to the distribution of residents at baseline.

The Task Force recognized that there is an urgent need for cultural change to incorporate physical activity as an integral intervention as it is one of the most important components in improving the functional capacity of frail older people living in NHs (42, 43). With many residents spending at least 17 hours in bed daily (44), encouraging mobility, if possible, should be an important objective in each resident's plan of care. Physical activity is a key factor contributing to maintenance of muscle mass and functional status (ie, leading to positive effects of exercise tolerance, falls reduction, balance, cardiorespiratory fitness, and strength performance), especially when multiple physical conditioning components (ie, strength, endurance, and balance) are included in the exercise intervention compared with only one type of exercise (42, 43). Multicomponent exercise programs, and particularly those including strength training, are the most effective interventions to delay disability and other adverse events (42). Indeed, it has been recently reported that multicomponent exercise training including explosive resistance training improved neuromuscular function and functional outcomes in frail NH nonagenarians after long-term physical restraint (43), as well as in frail multimorbid patients (45). Furthermore, physical exercise administration is relatively free of potential unwanted side effects.

Can Nursing Home Staff Provide Expertise in the Prevention of Functional Decline for Older People Living in the Community?

Screening Frailty and Cognitive Decline in the Elderly

Frailty is usually defined as a state of growing vulnerability that increases the risk of adverse outcomes, resulting in worsening physical function (46). Preventive strategies, aimed at reducing the burden of frailty in NH residents and in the community, necessarily imply a careful and objective evaluation of the patient's needs and resources. The early stage of disability is occasionally reversible, and screening for frailty is conducive to preventive interventions (47). Various international initiatives have been proposed to screen and implement prevention programs for frail older adults living in the community (48).

The Toulouse Gérontopôle Frailty Clinic serves as a specialized team located in a day hospital who assess, manage, and prevent disability in frail older adults (48-50). Could this team be replicated for dissemination into community NHs such that resources were in closer proximity to the frail older adult's residence? Nursing homes have many of the assets to participate in frailty assessment and become multidisciplinary outpatient care centers for the benefit of the community (51).

Table 1
Table of Main proposals

Why nursing homes (NHs) can play a role in prevention?	<ul style="list-style-type: none"> - They are localized all over the country - They have the knowledge and the human resources - They can change the image of the nursing home
What kind of prevention?	<ul style="list-style-type: none"> - Frailty assessment and disability prevention - Cognitive assessment and prevention of decline - Nutritional evaluation and intervention - Mobility assessment and physical exercise - Multidomain intervention
What is the target population?	<ul style="list-style-type: none"> - Long-term care residents - Community-dwelling frail older adults
What can hinder implementation of prevention in NHs?	<ul style="list-style-type: none"> - NH funding - Poorly trained staff - Need for cultural change in NH care

The Necessity of a Multidomain Intervention

The complex health status of frail elders requires a multidomain and interprofessional approach to prevent or slow functional decline. Multidomain interventions, designed by a "simple addition" of strategies against multiple risk factors/diseases, may result in unfavorable cost-effectiveness, infeasibility, and harm (52, 53). Interventions should be tailored for each individual according to personal needs and system resources. Multidomain interventions aimed at targeting

multiple risk factors (eg, poor cognitive function and sedentary lifestyle) (54, 55) coordinated by geriatricians have been shown to make a positive impact on older persons (56, 57). Recent clinical trials have been designed to test combinations of interventions aimed at reducing functional decline (58-61), and have shown that multidomain intervention can reduce decline (61-64). Although geriatricians are in short supply in most nations, the Task Force posited that principles from these clinical trials could be taught to community-based aging specialists for dissemination to NHs interested in focusing on prevention both within the NH and potentially serving as a resource to community-dwelling elders in their community.

Can Nursing Homes Implement a Multidomain Intervention for Frail Older People Living in the Community?

Recognizing the many challenges in NHs with staff turnover and maintaining quality of care, NHs have many important assets. NHs provide a wide range of geriatrics experts depending on the country (geriatrician, general practitioner, pharmacist, psychologist, nurses, dietician, physiotherapist, and occupational therapist) dedicated to care of older patients. The Task Force speculated that in some countries, frail community-dwelling older people could have access to these specialists to obtain individual recommendations. It suggested that the "Walk with a Doc" program be adapted to create a program "Function at the Facility" in which community-dwelling elders are invited to a "function" at the nursing facility once a month to meet the staff and ask questions about staying active.

Another important asset is that NHs are located in communities where community-dwelling older adults are also located. In some locations, NHs also have space, equipment, and organization that could be used to arrange specific interventions such as physical, social, or cognitive activities.

Finally, in some countries, NHs could be adapted to implement multifactorial approaches to reduce functional decline. An important characteristic of efficient intervention for frail elderly living in the community is the involvement of the primary care physician (65). Primary care professionals in certain countries such as France are very involved in NHs, and general practitioners have strong collaborations with these facilities. With his or her weekly visits and the insight on patients' health and functional and psychological status, the general practitioner establishes close relationships with NH staff, thus allowing personally designed care. This on-site organization is adapted to NH residents and could easily be extended to the frail elderly people living in the community. Beyond this strategy, the staff's mission will promote a favorable new image of the NH.

In summary, the Task Force group proposes that NHs serve as models of care focused on maintenance of function and slowing of decline among both NH and community-dwelling frail elders. NH staff could ideally provide comprehensive geriatric assessment and invite frail elders to the NH followed by creation of a multidomain intervention tailored to local

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technical and human resources (Table 1).

Conclusions and Perspectives

Geriatric medicine and NHs must evolve to a paradigm of proactive prevention rather than remain in a paradigm of reactive repair. New strategies are needed to tackle disability upstream. Evidence suggests that rehabilitative efforts in NHs are inadequate and residents would benefit from active preventive measures to avoid functional decline. In an ideal state, NH facilities would tap into current assets of geriatric expertise and capital within the community to focus on prevention of functional decline. Clearly, this reframing would require fundamental changes to the existing structure, but the demographic imperative will likely demand such transformation.

This article is a co-publication of JAMDA – The Journal of Post-Acute and Long-Term Care Medicine and the Journal of Nursing Home Research.

This article was published in JAMDA – The Journal of Post-Acute and Long-Term Care Medicine. Laffon de Mazières C, Morley JE, Levy C, et al. Prevention of Functional Decline by Reframing the Role of Nursing Homes? J Am Med Dir Assoc 2016;18:105–110. © 2016 AMDA – The Society for Post-Acute and Long-Term Care Medicine.

Acknowledgments: We thank Constance de Seynes for her valuable work.

Funding: This work was supported by an educational grant from the Office for Science and Technology of the Consulate General of France in Los Angeles, USA.

Conflict of interest: The authors declare no conflicts of interest.

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