JAMDA 18 (2017) 489–494

JAMDA

journal homepage: www.jamda.com

Review Article

Integrated Care: Enhancing the Role of the Primary Health Care Professional in Preventing Functional Decline: A Systematic Review

John E. Morley MB, BCh [a,*], Hidenori Arai MD, PhD [b], Li Cao MD [c], Birong Dong MD [c], Reshma A. Merchant MD [d], Bruno Vellas MD, PhD [e], Renuka Visvanathan PhD, FRACP, MBBS [f], Jean Woo MD [g]

[a] Division of Geriatric Medicine, Saint Louis University School of Medicine, St Louis, MO
[b] National Center for Geriatrics and Gerontology, Obu, Japan
[c] Center of Gerontology and Geriatrics, West China Medical School/West China hospital, Sichuan University, Chengdu, China
[d] Division of Advanced Internal Medicine, Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore, Singapore
[e] Gérontopôle, CHU Toulouse, Toulouse, France
[f] Adelaide Geriatrics Training and Research with Aged Care Centre, School of Medicine, University of Adelaide and Aged & Extended Care Services, The Queen Elizabeth Hospital, Central Adelaide Local Health Network, Adelaide, South Australia
[g] Department of Medicine & Therapeutics, and the Jockey Club Institute of Aging, The Chinese University of Hong Kong, Hong Kong SAR, China

Keywords:
Integrated care
function
primary care
aging

A B S T R A C T

Background: Although the older population is increasing worldwide, there is a marked deficit in the number of persons trained in geriatrics. It is now recognized that early detection and treatment of geriatric syndromes (frailty, sarcopenia, anorexia of aging, and cognitive decline) will delay or avert the development of disability.
Objectives: To identify simple screening programs available for primary health professionals to identify geriatric syndromes.
Data sources: PubMed for the last 5 years and study authors.
Results: A number of screening programs for early detection of geriatric syndromes have been developed for use by primary care health providers, for example, EasyCare, Gérontopôle Frailty Screening Tool, the Rapid Geriatric Assessment, the Kihon Checklist, and others.
Limitations: This is an evolving area with limited information on the outcomes of intervention and possible harms.
Conclusion: Validated screening programs exist but more work is required to determine their utility in improving outcomes of older persons.

We are on the cusp of the aging tsunami, with the aging population about to triple from 2010 (524 million people) to 1.5 billion in 2050. Importantly, over this time period the aging population will increase by 250% in less developed countries, compared to 71% in developed countries. Persons older than 70 years are liable to spend 8 years (11.5% of their life span) living with disabilities. The cost of health care is 3 to 5 times greater in persons older than 65 years, and in persons with disability it is about 2 to 5 times higher than the cost for nondisabled older persons.

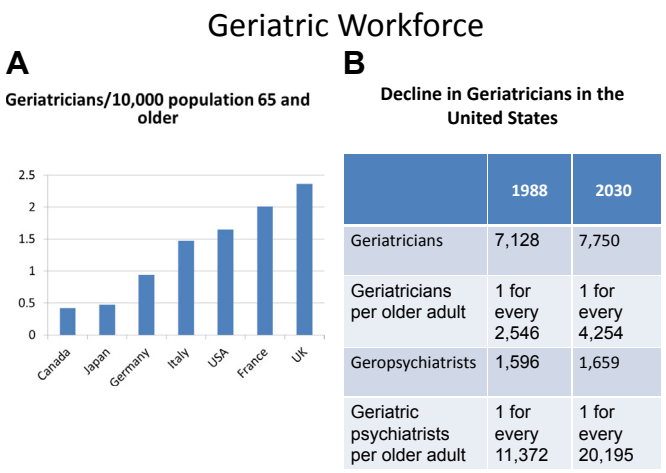
In 1984, the pioneering article by Rubenstein et al[1] showed that when hospitalized older persons received a comprehensive geriatric assessment coupled with interventions, both mortality and the likelihood of discharge to a nursing home was reduced. Subsequent meta-analyses have found that geriatric evaluation programs can lead to decreased functional decline, hospitalization, and death.[2,3] Comprehensive geriatric assessments are performed by geriatricians. In developed countries, there are between 0.4 and 2.4 geriatricians per 10,000 of the population 65 and older (Figure 1A). Further, in the United States the number of geriatricians is declining and this decline is expected to continue (Figure 1B). This decline is even more dramatic when placed in the context of the rapidly

The authors declare no conflicts of interest.

This review was funded in part by the Health Resources and Services Administration (HRSA) of the US Department of Health and Human Services (HHS) under grant number U1QHP28716 Geriatrics Workforce Enhancement Program for $843,079. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS, or the US Government.

* Address correspondence to John E. Morley, MB, BCh, Division of Geriatric Medicine, Saint Louis University School of Medicine, 1402 S Grand Blvd, M238, St Louis, MO 63104.
E-mail address: morley@slu.edu (J.E. Morley).

http://dx.doi.org/10.1016/j.jamda.2017.03.015
1525-8610/



	1988	2030
Geriatricians	7,128	7,750
Geriatricians per older adult	1 for every 2,546	1 for every 4,254
Geropsychiatrists	1,596	1,659
Geriatric psychiatrists per older adult	1 for every 11,372	1 for every 20,195

Fig. 1. Geriatric workforce.

developing older population. In India, for example, the number of older people aged 60 years and older will increase from 100 million to 198 million in 2030, with 80% of this population residing in rural areas and 30% living below the poverty line.[4] Many practicing physicians have had minimal or no geriatric education during their medical school and residency. For all these reasons, it is important to provide appropriate tools for and to educate primary care health professionals, including advanced practice nurses and physician's assistants, in identifying and managing geriatric syndromes earlier in their communities.

It is now recognized that early recognition of geriatric syndromes ("the geriatric giants") and appropriate intervention will reduce functional decline and decrease hospitalization and institutionalization. These geriatric giants are frailty, sarcopenia, anorexia of aging, falls, depression, and cognitive dysfunction. Interventions including exercise and nutrition have been shown to reverse the physical frailty phenotype and sarcopenia.[5–8] Similarly, exercise can reduce falls.[9] Vision impairment from cataracts, entirely treatable, can contribute to falls with or without fractures. There are a number of treatable causes of anorexia of aging and weight loss that coupled with nutritional supplementation can prevent the deleterious effects of weight loss.[10,11] A number of treatments for depression are available. Physicians need to know if their patients have cognitive impairment as this limits their ability to follow instructions and also is the appropriate time to develop advance directives.[12] There are reversible causes of mild cognitive impairment such as sleep apnea, depression, anticholinergic drugs, hypothyroidism, and vitamin B_{12} deficiency. Hearing impairment, a common disorder of aging, could result in carers reporting that the older person cannot remember instruction when the real issue is that the conversation was never heard in the first place. The FINGER study showed that in older persons a 2-year multidomain intervention (Mediterranean diet, cognitive training, exercise, and vascular risk monitoring) can delay cognitive decline.[13]

The rationale for this article is to identify short validated approaches to geriatric assessment. This article will review different successful approaches that have been developed to enhance the recognition of geriatric syndromes among primary care health providers (primary care physicians, nurses, social workers, occupational therapists, and/or physical therapists). Although most of these approaches come from developed countries, in 3 different continents (North America, Asia, and Europe), we will provide insight to how they can be applied in less developed countries.

Methods

The review protocol is described below. We used PRISMA guidelines (www.prisma-statement.org/) searching PubMed with the terms "geriatric assessment" AND "primary care" AND "general practitioner" over the last 5 years. The first combination yielded 1159, of which 59 titles were appropriate and the second 144 with 19 appropriate titles (last searched December 31, 2016). An additional 78 articles were identified by other sources. These articles were read specifically looking for simple geriatric assessment tools used by primary care practitioners. In addition, our international group of authors added other articles and agreed on the health care models chosen (Figure 2). Criteria for inclusion were models that covered multiple geriatric syndromes presently being used successfully by primary care professionals in the community. Requirement for tool evaluation was that they had been validated as being strongly prognostic of future disability. All tools were required to be able to be rapidly carried out in a practice setting. Each tool identifies geriatric syndromes that can be managed by a primary health care team to decrease the likelihood of future disability or to reverse existing disabilities. Forty-eight articles were included in this review.

The World Health Organization Disability Assessment Screening (WHO DAS 2.0)

This is a general disability assessment that can be used across all cultures. It takes 5 to 10 minutes to administer. It covers 6 domains of functioning, namely, cognition, mobility, self-care, interacting with other persons, life activities (domestic, leisure, and work), and participation in community activities. It is available in both a 12- and 36-item version (www.who.int/classifications/icf/whodasii/en/). The WHO DAS 2.0 has been embraced by the European Innovative Partnership for their operational definition of active and healthy aging.[14] They added a second domain of health-related quality of life to the WHO DAS 2.0 and created a spider net report to allow comparisons across individuals.

EASYCare

EASYCare was originally developed in 1994 as "EASY" and refined on 3 occasions.[15] It was developed as a tool by which community practitioners can identify problems in old age that are potentially treatable. It evaluates the physical, mental, and social function of older persons. It has been considered an instrument to identify frailty. It consists of 49 items. It has been used successfully in multiple different cultures and in persons of all socioeconomic groups.[16] It is predominantly administered by nurses.

A systematic review has found that it has acceptability for primary health care providers and may be cost-effective.[17] As yet its reliability remains not proven. It has been found difficult for many primary care providers to incorporate into daily practice. For this reason, a Two-step Older persons Screening (EASYCare TOS) has been developed.[18] In the first step, the general practitioner determines which patients appear to need the evaluation, and only in these patients is the full evaluation completed. Using this approach, they found in 520 older persons that the EASYCare TOS is predictive of negative outcomes and appears to perform nearly as well as a Comprehensive Geriatric Assessment done by a specialist.[19] EASYCare has been reported to be reliable, valid, and acceptable in many countries by both older persons and primary care health professionals.[17]

Kihon Checklist

In 2006, the Japanese Ministry of Health, Labor and Welfare introduced the "Kihon Checklist" (KCL) to identify older adults at risk for developing dependence in activities of daily living.[20] It consists of