


The Looming Geriatrician Shortage: Ramifications and Solutions

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Paula E. Lester, MD, FACP, CMD^{1,2} ,
T. S. Dharmarajan, MD, MACP, AGSF, FRCP(E)^{3,4},
and Eleanor Weinstein, MD, FACP^{4,5}

Abstract

Objective: Geriatricians are skilled in the recognition of asymptomatic and atypical presentations that occur in the elderly and provide comprehensive medication management including recognizing adverse drug events, reducing polypharmacy, and de-prescribing. However, despite the increasing average age of the U.S. population, with the number of individuals above 65 years old predicted to increase 55% by 2030, the geriatric workforce capacity in the United States has actually decreased from 10,270 in 2000 to 8,502 in 2010. **Method:** We describe physiologic changes in older adults, historical trends in geriatric training, and propose solutions for this looming crisis. **Results:** Many factors are responsible for the shortage of skilled geriatric providers. **Discussion:** We discuss the historical context of the lack of geriatricians including changes to the training system, describe the impact of expert geriatric care on patient care and health system outcomes, and propose methods to improve recruitment and retention for geriatric medicine.

Keywords

geriatrics, policy, health services

Introduction

Geriatricians are trained experts in managing complex illnesses, multiple comorbidities, frailty, cognitive disorders, and syndromes in older adults. Geriatricians are skilled in the recognition of asymptomatic and atypical presentations that occur in the elderly and provide comprehensive medication management including recognizing adverse drug events, reducing polypharmacy, and de-prescribing. Geriatricians skillfully address complex end-of-life issues and provide care in multiple settings with a focus on effective transitions of care. Despite the increasing average age of the U.S. population, with the number of individuals above 65 years old predicted to increase 55% by 2030, the geriatric workforce capacity in the United States has actually decreased from 10,270 in 2000 to 8,502 in 2010 (“Geriatrics Workforce by the Numbers,” 2018; Lee & Sumaya, 2013). We discuss the physiologic changes of normal aging, historical context of the lack of geriatricians including changes to the training system, describe proven positive impact of expert geriatric care on patient care and health system outcomes, and propose methods to improve recruitment and retention for geriatric medicine.

Geriatricians utilize a comprehensive approach to balance risk versus benefits for testing and interventions such as surgery for complex geriatric patients, incorporating prognosis,

life expectancy, quality of life, and patient’s own values. Geriatrician-led interdisciplinary teams improve quality of care and acute care utilization (Soobiah et al., 2017; Sorbero, Saul, Liu, & Resnick, 2012). Geriatricians are experts in prognostication and assessing risk and benefits of various medical interventions such as use of feeding tubes, mechanical ventilation, and hospitalization. Furthermore, geriatricians are trained in communication skills and setting realistic expectations with patients and caregivers.

One way to describe the role of the geriatrician is a term called “Geriatric 5Ms,” which represents the target issues that geriatricians are experts in diagnosing and managing: Mind, Mobility, Medications, Multi-complexity, and Matters Most. Mind refers to maintaining mental activity, and managing and differentiating dementia, delirium, and depression. Mobility relates to fall prevention and optimizing gait and

¹NYU Winthrop Hospital, Mineola, USA

²State University of New York at Stony Brook, USA

³Montefiore Medical Center (Wakefield Campus), Bronx, NY, USA

⁴Albert Einstein College of Medicine, Bronx, NY, USA

⁵Jacobi Medical Center, Bronx, NY, USA

Corresponding Author:

Paula E. Lester, Division of Geriatric Medicine, NYU Winthrop Hospital, 222 Station Plaza North, Suite 518, Mineola, NY 11501, USA.

Email: Paula.Lester@nyulangone.org

balance, possibly with assistive devices and other resources. Medications include reducing polypharmacy, de-prescribing, and recognizing harmful side-effects of medications. Managing the care for individuals with a multi-complexity of illnesses and comorbidities as well as optimizing living environments related to health conditions and social concerns is another aspect of geriatric care. Discussing, recognizing, and prioritizing what matters most to patients is an integral part of geriatric care. Geriatricians coordinate advance care planning and focus on how to ensure that patient's personal goals and care preferences are honored and implemented in decision-making (Molnar, Huang, & Tinetti, 2018).

Physiologic Changes Associated with Aging

Geriatric medicine is different than adult medicine because of changes that occur with aging. Aging is associated with several physiological changes in organ systems, and clinicians must distinguish these largely asymptomatic, normal age-related changes from disease processes, which are typically pathological and symptomatic (Dharmarajan, 2012). Although several theories attempt to explain the aging process, none offer a complete explanation (da Costa et al., 2016). Senescence is a progressive deterioration in bodily functions over time, involving physiological processes and anatomic structures (da Costa et al., 2016). It is likely that multiple processes are involved, interacting in variable ways at cellular, molecular, and tissue levels.

Theories of aging involve several processes such as genetic pre-programming to control cell proliferation and death; anti-aging genes; errors in protein synthesis and molecular cross-linking; telomere shortening; exogenous factors that damage the DNA or mitochondria; alterations in immunological function; accumulation of free radicals; hormonal changes; environmental factors such as radiation; and more (da Costa et al., 2016; Gurante, 2011). Mitochondrial communication in physiological or disease processes may be involved (Raimundo & Krisko, 2019).

Aging is associated with several alterations in organ systems. The skin, the largest organ in the body, is subjected to systemic and environmental insults throughout the life span. A decline occurs in sweat and sebaceous gland activity, immune response (Langerhan cells), melanocyte function, subcutaneous fat, elasticity, and dermal capacity for vitamin D synthesis (Dharmarajan, 2008; Norman & Mendez, 2008).

The body composition is altered gradually with a characteristic and relative increase in the fat stores along with a decline in the water compartment and muscle and bone mass (Beavers et al., 2013; Iannuzzi-Sucich, Prestwood, & Kenny, 2002). Changes in fat and water compartments are relatively more prominent in females compared with males. The implications for pharmacokinetics are profound with a smaller body compartment, where water-soluble drugs have higher levels. A decline in muscle mass, referred to as sarcopenia, is

associated with a decline in the serum creatinine levels; although there is typically a decline in the estimated glomerular filtration rate (eGFR) or renal function in the older adults, the serum creatinine does not rise as much as expected, due to the co-existing sarcopenia (Iannuzzi-Sucich et al., 2002). A frail old female may have a normal serum creatinine (based on the laboratory range), although her eGFR may be as low as 20% or 25%, essentially Stage 4 chronic kidney disease. Changes in body composition are also associated with a gait speed decline and loss of mobility with age (Beavers et al., 2013).

The kidneys become smaller in size with a decrease in functioning nephrons. Based on longitudinal studies, there is a decline in eGFR by about 0.8% to 1% annually, although this is not consistent in all individuals, with controversy as to whether there is an influence of disease. There is also a decline in tubular function with alterations in concentration and diluting abilities of the nephron along with impaired handling of sodium and potassium ions (Epstein, 1996; Glasscock, 2011).

Aging is associated with alterations in secretory patterns of hormones involving the hypothalamic-pituitary axis (van den Beld et al., 2018). Glucose homeostasis tends toward disequilibrium with age; there is a decline in insulin production coupled with the development of insulin resistance, resulting in a slight increase in fasting and post-prandial glucose levels. An increase in concentration of the serum thyroid-stimulating hormone commonly occurs, but with stable free thyroxine concentrations (van den Beld et al., 2018). A higher threshold in treating subclinical hypothyroidism is reasonable in the older adults (Barbesino, 2019).

Lung aging is associated with structural remodeling and a susceptibility to acute and chronic lung diseases. The older lung has more collagen and less elastin, rendering the lung more stiffer, with lower compliance (Brandenberger & Muhlfield, 2017; Sicard et al., 2018). There is a gradual decline in oxygenation (PaO_2) and vital capacity with age, while the PaCO_2 remains normal.

Aging is associated with declining cardioprotective mechanisms and a susceptibility to heart failure. Aging is associated with structural and functional changes in the myocardium, with loss of myocytes, fibrosis, alteration in calcium handling, and decline in sino-atrial node pacemaker cells. Sino-atrial and atrioventricular conduction blocks tend to occur. The maximum achievable heart rate is reduced in both males and females. Changes in the heart valves are noted in valve circumference, leaflet size and thickness, luminal area, and valve diameter. Structural and biochemical alterations are implicated in the progressive increase in mechanical burden and functional decline of the heart and vasculature with age (Gumpangseth, Mahakkanukrauh, & Das, 2019).

Both hearing and visual impairments occur as one ages. Typical hearing impairment associated with aging is a bilateral, symmetrical, high-frequency deafness. Although there

are currently no guidelines for screening, hearing impairment affects the quality of life and endangers safety, and it may erroneously lead to diagnoses of cognitive impairment (Yamasoba et al., 2013). Presbyopia is an invariable age-related alteration in refraction. Eye disorders are extremely common and justify regular examinations by an ophthalmologist. Older adults must be evaluated for glaucoma (especially in blacks and in those with diabetes, hypertension, myopia, or on steroids), while macular degeneration is predominantly encountered in whites (Gheorghe, Mahdi, & Musat, 2015).

Olfaction becomes slowly impaired with aging. A study suggests that poor olfaction is associated with higher mortality in community older adults (Liu et al., 2019). Impaired olfaction negatively influences quality of life and may be one basis for poor taste and appetite, leading to a failure to adequately enjoy food.

Aging is associated with a lowering of immune function with greater susceptibility to infectious pathogens. Innate and adaptive immunity decline with age. Essentially, there is a decline in primary and secondary responses, T-cell function, and naïve cells with an increase in memory T cells. An increase in auto-immune antibodies occurs, such as anti-nuclear antibody and rheumatoid factor, but in low titers. Responses to vaccines are poorer in the older adults compared with that in the younger adults (Muller, Di Benedetto, & Pawelec, 2019).

Disorders of gait and balance are commonly encountered with age. Gait speed declines in men and women with age as noted in the Health, Aging, and Body Composition study, explained by a high and increasing thigh inter-muscular fat or fat infiltration, although several arthritic and neuromuscular disorders may be contributory (Beavers et al., 2013). Age-related changes occur, as substantiated during throwing and jumping events, along with sex differences (Kundert, Nikolaidis, Di Gangi, Rosemann, & Knechtle, 2019). Older women take shorter steps and adapt walking in a manner that predisposes them to tripping and falling (Raffegau et al., 2019). Sedentary habits compound the development of osteoporosis and sarcopenia, increasing the likelihood of frailty syndrome in the older adults (Greco, Pietschmann, & Migliaccio, 2019). Geriatricians recognize the impact of aging on the body and endeavor to adapt interventions to address these challenges.

Innovative Geriatric Care Models

The geriatrics specialty has developed a variety of successful programs to improve care for older adults. Geriatricians created and manage hospital programs such as Acute Care for the Elderly (ACE) units (Landefeld, Palmer, Kresevic, Fortinsky, & Kowal, 1995), Delirium Intensive Care Units (Flaherty et al., 2010), and Orthogeriatric Units (Prestmo et al., 2015). After hospitalization, a Geriatric Evaluation and Management (GEM) unit provides geriatric specialist care in

the post-acute care setting (Bachmann et al., 2010; Wieland, Rubenstein, Hedrick, Reuben, & Buchner, 1994).

As a result of specialized training and experience, geriatricians possess the skills needed to lead health care teams designed to improve outcomes for complex elderly patients. Indeed, to collaborate and work effectively as a leader or member of an interdisciplinary health care team is a core competency of those trained in geriatric medicine (Leipzig et al., 2014). Complex patients require well-coordinated care provided by interdisciplinary teams that communicate seamlessly and effectively with their members as well as with the patient and caregivers.

The *Journal of the American Geriatrics Society* recently published a position paper titled “Partnership for Health in Aging Workgroup on Interdisciplinary Team Training in Geriatrics” (2014), which cited effective interdisciplinary care as a vital component of quality care in geriatric medicine. This article highlights the evidence in the literature which confirms that the use of an interdisciplinary team in the care of older adults can lead to better continuity and quality of care, better health outcomes, and lower costs (Famadas et al., 2008; Hirth, Baskins, & Dever-Bumba, 2009; Jencks, William, & Coleman, 2009). Other benefits of team care include improvements in communication among health care providers, improved care of common chronic illnesses, improvements in medication adherence, fewer adverse drug reactions, preservation of function, and fewer hospital readmissions (Mion, Odegard, Resnick, & Segal-Galan, 2006). In the hospital setting, several clinical trials support comprehensive geriatric assessment (CGA) with an interdisciplinary team as an important tool for assessing the needs of frail elderly (Rubenstein, 2004). In addition, the overall level of interdisciplinary discharge planning coordination occurring in a hospital setting was associated with improvement in several post-discharge outcomes in elderly veterans (Corser, 2004).

Numerous examples are available in the literature of improved outcomes when patients who are at high risk for poor outcome or who are in high risk situations are cared for by well-functioning teams. As a salient example, older patients presenting with hip fracture are categorized as high risk due to frequent complications post-operatively, functional decline, and high mortality at 1 year (Haentjens et al., 2010). Consequently, innovative programs have been implemented to improve outcomes for this group both in the United States and internationally. One such intervention focuses primarily on a model of care where geriatrician and orthopedist co-manage the patient through the hospital stay with other members of the health care team including nurses, social workers, rehabilitation medicine providers, and pharmacists. Several studies in the literature have shown improved outcomes for patients with hip fracture with this model of care (Friedman, Mendelson, Kates, & McCann, 2008; Khasraghi, Christmas, Lee, Means, & Wenz, 2005; Piolo, Bendini, Pignedoli, Gusti, & Marsh, 2018).

Initiation of hemodialysis is another high-risk situation for elderly patients. Introduction of an integrated dialysis rehabilitation service was found to help older dialysis patients with new onset functional decline return to their home. This service relied on multidisciplinary care by experts in rehabilitation, geriatric medicine, and nephrology, as well as continued medical education between disciplines (Li, Porter, Lam, & Jassal, 2007).

Multiple studies have shown improved outcomes in the ambulatory management of chronic conditions such as congestive heart failure, dementia, and depression with a multidisciplinary collaborative care team approach (Callahan et al., 2006; Dham et al., 2017; Kasper et al., 2002). Systematic reviews demonstrate that CGAs improve patient outcomes. A Cochrane review of CGAs identified 22 randomized trials and found that patients who received a CGA in acute care settings were more likely to return to their home, have improved cognitive functioning, and at a lower risk of mortality compared with usual care (Soobiah et al., 2017). Similarly, in outpatient care, CGAs reduced functional decline and admissions to nursing homes (Soobiah et al., 2017). Geriatrician-led CGAs in rehabilitation settings had similar benefits (Soobiah et al., 2017).

Evidence suggests that subspecialty geriatric physicians render more efficient care to complex elderly patients. In a study of patients of 65 years and older, geriatricians had lower costs per admission and a shorter length of stay compared with internists, without compromising outcomes (Sorbero et al., 2012). Another study in emergency department (ED) use when care prior to admission was provided by a geriatrician in the community or nursing home showed high-quality care and substantial cost savings with care provided by a geriatrician physician resulting in an estimated 11.3% lower ED use (D'Arcy, Stearns, Domino, Hanson, & Weinberger, 2013). The data are remarkable, confirming high-quality care and substantial cost savings.

Geriatric Approach to Clinical Care

Geriatricians are also specially trained in the skilled nursing home environment including providing care to both long-term residents and post-acute care patients, as well as in the wide-ranging regulations under which the nursing facilities operate. A study on the geriatric workforce capacity indicates a pending crisis pertinent to the care of nursing home residents; the study demonstrates that the geriatric physician workforce in the United States has actually decreased from 10,270 in 2000 to 8,502 in 2010 ("Geriatrics Workforce by the Numbers," 2018; Lee & Sumaya, 2013). This has caused a decline of the already insufficient supply of geriatricians for this extremely vulnerable nursing home population.

Geriatricians are experts in recognizing, diagnosing, and managing cognitive decline including distinguishing types of dementia. Early recognition of cognitive decline is vital to identify reversible causes and to enable patients and their

caregivers to plan appropriately for financial and care plan needs. Furthermore, it is essential for physicians to diagnose cognitive impairment since it can impact whether patients remember and follow health care instructions.

The Medicare Annual Wellness Visit requires evaluation of ADLs, fall risk, hearing impairment, home safety, as well as "Assessment of Cognition" with a brief structured cognitive assessment tool based on initial screening (MLN Booklet: Annual Wellness Visit, 2018). For geriatricians who naturally incorporate cognitive screening, ADLs, safety, and other key geriatric principles into their evaluations, this visit code provides a reimbursement venue for care already being provided. For non-geriatricians, who normally would not address these issues, this serves as a useful catalyst. Although Centers for Medicare & Medicaid Services (CMS) should be commended for recognizing the importance of these issues for older adults, perhaps, having more geriatric-trained providers would enable such appropriate care to be more routinely performed on a broader scale by experts who could manage the abnormal findings.

Preventive Health Care in Older Adults

Health care prevention in the elderly is an important issue. Poor oral health is an under-recognized and poorly addressed matter in the older adults; it is a modifiable determinant of malnutrition, in conjunction with xerostomia (dry mouth), poor hygiene, dental caries, and edentulous states (Kiesswetter, Hengeveld, Keijser, Volkert, & Visser, 2019). Oral health should be addressed in community, hospital, and institutional settings. Unfortunately, access to adequate amounts of healthy food can be an issue for older adults and food insecurity must be identified and addressed.

Regular aerobic exercise is an evidence-based strategy to reduce the higher cardiovascular disease risk with age in men and women (Fletcher et al., 2018). The 2018 Physical Activity Guidelines suggest that physically active individuals feel, sleep, and function better. The recommendation is that adults (including the old) spend at least 150 to 300 minutes a week on moderate intensity aerobic exercise or 75 to 150 minutes of vigorous exercise; benefits are noted even at modest activity (Ehrlich, Hassan, & Stagg, 2019). Walking is a safe activity, although exercise may be best individualized to a patient's preference. Providers are expected to offer counseling and strongly endorse physical activity, with referral to specialists for evaluation and exercise prescriptions if warranted (Fletcher et al., 2018).

Falls are a major concern in the geriatric population, especially in the frail older adults. Falls largely result from a variable combination of environmental factors, medication-related adverse effects, and inherent disease in the individual. The prevalence of falls, fear of falling, and activity limitation is high in those with visual impairment (Ehrlich et al., 2019). Peer educators-led prevention strategies may help older adults be more receptive to take up fall-prevention strategies.

Long-term exercise is associated with a reduction in falls and probably fractures in those with cardiometabolic and neurologic diseases (de Souto Barreto, Rolland, Vellas, & Maltais, 2019).

Cancer screening in older adults is complex as factors such as comorbidities, ability to tolerate work-up and treatment if cancer were found, and life expectancy must be considered in the decision to pursue cancer screening. The U.S. Preventive Services Task Force Recommendation Statement in 2018 states that prostate-specific antigen-based screening for prostate cancer remains an individual one for men aged 55 to 69 years, following a discussion of benefits and harms of screening; screening is not recommended after the age of 70 years (Grossman et al., 2018). JAMA Clinical Guidelines Synopsis in 2019 recommends that colorectal cancer screening begins at the age of 50 years in average risk persons (strong recommendation), except in African Americans in whom screening may begin at the age of 45 years (weak recommendation) (Gupta, Kupfer, & Davis, 2019). Cervical cancer screening guidelines have been revised for age groups up to 65 years (Sawaya, Smith-McCune, & Kuppermann, 2019); in older adults, three consecutive negative cytology results or two consecutive negative human papillomavirus (HPV) testing within 10 years prior to cessation of screening, with the most recent within 5 years, is considered adequate. Clinicians should offer screening for breast cancer in average risk women aged 50 to 74 years with biennial mammography; screening may be discontinued in average risk women aged 75 years or older with a life expectancy of 10 years or less (Qaseem et al., 2019).

Geriatric Workforce Shortage

Currently, there are approximately 7,300 board-certified geriatricians in the United States—approximately 1.07 geriatricians per 10,000 elderly patients (“Geriatrics Workforce by the Numbers,” 2018). The American Geriatrics Society (AGS) estimates that one geriatrician can serve approximately 700 patients. The AGS estimates that high-quality patient-centered care for the most vulnerable elderly will require about 30,000 geriatricians nationally by 2030 (“Projected Future Need for Geriatricians”). In fact, the first of 78 million baby boomers are already above age 65, and it is estimated that approximately 30% of this group will require geriatric specialty care (“Projected Future Need for Geriatricians”).

Nonetheless, geriatrics is the fourth lowest paid specialty in medicine, despite the specialty being labor and time intensive. In fact, salaries are generally US\$20,000 less per year than internal medicine colleagues who did not complete an additional year of subspecialty fellowship training. Geriatricians, like other specialists, have a significant debt burden from medical school, and costs associated with obtaining additional board certification and maintenance of certification.

In 1988, specialization in geriatric medicine was granted in the form of a “certificate of added qualifications” and was available through fellowship or the “practice experience pathway.” In 1994, the “practice pathway” was phased out and a 2-year fellowship program was required. In 1998, upon recognition that fewer physicians chose geriatrics as a career path, the fellowship was shortened to 1 year. In 2006, the American Board of Internal Medicine (ABIM) formally recognized geriatrics as a subspecialty of internal medicine, rather than a “certificate of added qualifications,” hoping to improve prestige. Unfortunately, these strategies have been unsuccessful and fellowships in geriatric medicine continue to fail to attract sufficient applicants.

The Association of Directors of Geriatric Academic Programs (ADGAP) was founded in 1990 to stimulate and expand interest in geriatric education and research. In 2013, geriatric medicine joined the National Resident Matching Program (NRMP) Specialties Matching Service, ending the open and often cut-throat application process of rolling interviews and acceptance. An open match program levels the field for applicants and programs by allowing candidates to interview at all programs they are interested in and then ranking by preference. However, although the ADGAP/AGS have been working toward 100% participation in the match, there is not full participation by fellowship programs nationwide. In 2017, 15 programs did not participate in the match at all, and six programs placed only a portion of their spots in the match (“ADGAP Survey Results”).

In the match year for fellowship starting in July 2017, there were 141 geriatric fellowship programs participating in the NRMP match with 401 positions available through the match. The results were dismal with only 34 programs (24%) filling all of their positions through the match; 222 geriatric fellowship positions remain unmatched, essentially over half the available fellowship spots. This trend is seen with a range of 0.4 to 0.6 applicants per position from 2014 to 2017 unlike gastroenterology with 1.5 applicants per position (“ADGAP Survey Results”). In the NRMP’s 2015 subspecialty match, 198 (56%) of 353 geriatric medicine fellowship positions remained unfilled, and only 68 (19%) of the available positions were filled by graduates of U.S. medical schools (NRMP, 2015). Equally concerning is the loss of the Accreditation Council for Graduate Medical Education (ACGME)-accredited geriatric medicine fellowship spots from 509 in 2013-2014 to 478 in 2016-2017 (“ADGAP Survey Results”). As teaching hospitals continue to have vacant geriatric fellowship spots, they may close the geriatrics training spots and transfer them to more lucrative and competitive fields.

Many non-geriatricians lack the expertise, training, support staff, and time to conduct these necessary and valuable assessments. Training in geriatric fellowship is a busy 1-year program including rotations in acute care hospital, skilled nursing facility, and ambulatory care including home visits. Fellows receive training in geriatric psychiatry, hospice and

palliative care, geriatric rehabilitation, and neurology. In addition, medical knowledge content areas include the science of aging, preventive medicine, geriatric assessment, administration and regulation of long-term care institutions, the pivotal role of family and community resources in caring for the elderly, geriatric syndromes, atypical characteristics of disease in the elderly, pharmacologic problems associated with aging, psychosocial aspects of aging, economic and ethical issues related to geriatric medicine, iatrogenic disorders, and cultural aspects of aging. Geriatric fellows are trained on communication skills including delivering bad news and advance care planning (“ACGME Program Requirements for Graduate Medical Education in Geriatric Medicine”).

Surveys have consistently shown that geriatricians have the highest career satisfaction rate among U.S. physicians (Leigh, Kravitz, Schembri, Samuels, & Mobley, 2002). Participants cited non-erratic work hours, encounters with inspirational seniors, and enduring relationships with their patients as reasons why geriatrics is so rewarding (Leigh et al., 2002). Despite the rewarding and fulfilling experience of geriatric medicine physicians, there remains a disconnect with recruitment into the field.

Lack of exposure to geriatrics and the scarcity of positive role models contribute to lack of interest in geriatrics for medical students. Data suggest that medical students are overwhelmed by observations of poor health, comorbidity, atypical presentations, and polypharmacy in the elderly (Meiboom, de Vries, Hertogh, & Scheele, 2015). Students also report assessing and managing a geriatric patient is “too time-consuming” (Meiboom et al., 2015). These students were not exposed to elderly patients under the tutelage of a geriatrician or specific geriatrics clerkship experience, but cared for older adults through other rotations. As such, they lacked the potentially rewarding experience of learning to manage complex elderly patient under the guidance of experts. Research confirms that when students and residents learned how to manage complicated elderly patients, they found it “rewarding” (Meiboom et al., 2015). Students report that relatively low financial rewards of geriatrics and the low status of the field contribute to lack of interest in geriatrics as well (Meiboom et al., 2015).

In addition to substantially declining recruitment of trainees to geriatric medicine, experts expect a future shortage of academic geriatricians. Academic geriatricians provide educational training to all levels of medical education and conduct geriatrics-related research. Academic geriatricians are the trailblazers in creating initiatives and programs to promote high-quality care for older adults.

Impact of Shortage of Geriatricians on Health Care Systems

As has been previously discussed in this manuscript, the “graying of America” has resulted in an increasing number

of older adults with complex medical conditions needing comprehensive outpatient care. This demographic change and its impact on our health care system must also be viewed in the context of overall workforce needs for primary care in future years. At present, older adults are competing for primary care access with previously uninsured adults who are gaining health care coverage under the Patient Protection and Affordable Care Act of 2010. Unfortunately, the ability of our health care system to meet the expanding need for geriatric primary care will be limited by shortages of both primary care physicians and geriatricians (Institute of Medicine [IOM], 2008).

How can our health care system respond to these looming shortages and increasing complexities of care? Clearly, a multipronged effort is needed, incorporating legislative efforts on the national level to support innovation, modifications to education and certification programs for health care workers at every level with the aging population at top of mind, as well as more formal support for caregivers.

The Eldercare Workforce Alliance is a group of 31 national organizations, including the AGS as a co-convening organization, that joined together to address the immediate and future workforce crisis in caring for an aging America. This alliance represents consumers, family caregivers, the direct-care workforce, and health care professions with its mission to propose practical solutions to strengthen our eldercare workforce and improve the quality of care (“Advancing a Well-Trained Workforce to Care for Us As We Age”).

High-quality care for older adults, many of whom have multiple complex chronic conditions, requires a provider team with a diverse range of skills for addressing this population’s physical, behavioral, cognitive, and social needs. The Eldercare Workforce Alliance, recognizing these special needs, strongly supports programs which promote specific education in geriatric principles and practices for all health care providers.

Innovative national programs like the Geriatrics Workforce Enhancement Program and the Geriatrics Academic Career Awards Program were developed in an attempt to enhance the workforce. These two programs, administered by the Health Resources and Services Administration, are the only federal program that train in geriatric medicine and have four main goals:

- To foster education and engagement with family caregivers by training providers who can assess and address their care needs and preferences;
- To promote inter-professional team-based care by transforming clinical training environments to integrate geriatrics and primary care delivery;
- To improve the quality of care delivered to older adults by providing education to families and caregivers on critical care challenges like Alzheimer’s disease and related dementias;

- To reach underserved and rural communities by ensuring clinician educators are prepared to train the geriatrics workforce of today and tomorrow.

At the time of this writing, the future of these programs that address these critical workforce issues is at risk. The Educating Medical Professionals and Optimizing Workforce Efficiency and Readiness (EMPOWER) for Health Act of 2019 (H.R.2781), proposed in the U.S. House of Representatives to ensure that communities across the United States have access to health professional and other critical supports improving care for us all as we age, is a pending approval. This important legislation will authorize continued funding of the Geriatric Workforce Enhancement Program and the Geriatric Career Awards Program with US\$51 million annually through 2024.

Proposals to Address Geriatrics Workforce Shortages

The need for more expertly trained and passionate geriatric physicians is clear. Enhanced undergraduate, medical school, and residency exposure to geriatrics will increase interest in geriatric medicine. Strategies to promote the growth of geriatrics must include better reimbursement for clinicians with geriatrics training and certification. Young physicians who are often completing residency training with large school debt cannot choose a specialty field that is poorly reimbursed. Recent salary surveys have shown a national median income of geriatric physicians over US\$20,000 less per year than for general internists who have not invested a year of fellowship training to gain subspecialty expertise (Drecker, 2019). It is hard to convince residents to spend an additional year of training in geriatric medicine at a fellow's salary to subsequently earn less every year thereafter compared with their peers who directly enter practice as general internists. Innovative programs such as loan forgiveness and practice start-up assistance should be implemented. In addition, geriatrics as a field, and geriatricians individually, should more actively promote their expertise and value. We are challenged to demonstrate the non-financial rewarding aspects of practicing the specialty while efforts are made to improve reimbursement in the field.

Given the challenges facing our health care system and aging demographics, it is apparent that clinicians trained in the principles of effective team care will be most prepared to provide effective care for the complex elderly patient. All concerned about the quality of care of our growing elderly population should be aware of the benefits and should advocate for specific geriatrics education and training for clinicians providing care to this special population. Providing educational opportunities and certification in geriatric care for physician extenders such as advanced care nurses and physician assistants (PAs) as well as for others on the care team (e.g., pharmacists and social workers) is another example of an innovation hoping to address the health care needs of this population. Evidence in the literature reveals good

outcomes and patient satisfaction for patients with complex medical needs being cared for by nurse practitioners (NPs) and PAs. These providers are already playing a vital role in the provision of care in primary care as well as specialty care for older adults (IOM, 2008). The composition of the U.S. provider workforce for adults with cancer older than 65 years was recently analyzed to determine whether there were differences in patients who received care from different types of providers (e.g., NPs, PAs, and specialty physicians). Medicare claims from 2013 were reviewed finding a total of 2.5 million malignancy claims for 201,237 patients, with 15,227 providers linked to claims. NPs comprised the largest group (31.5%). Patients in rural setting and in the southern United States were most likely to be cared for by an NP in this analysis (Coombs, Max, Kolevska, Tonner, & Stephens, 2019).

Perhaps advanced care nurses and PAs as critical members of the eldercare workforce can be the solution to the workforce concerns. The Institute of Medicine and the National Governors Association have called for expanding NPs' scope of practice as primary care providers to address the primary care deficit (Coombs et al., 2019; IOM, 2011). The NP training model, as compared with the physician training model, may indeed lend itself to filling the gap. NP program leadership has taken an active role in the regulation of training, certification, and evaluation of trainees with the future state of our health care delivery system in mind. Nurses choose a specialty track on application to graduate programs for advanced training. One option is the combined adult-gerontology primary care NP certification which launched in 2013 by the American Academy of Nurse Practitioners (AANP) Certification Program and the American Nurses Credentialing Center (ANCC) to replace the gerontological NP certification. This track provides certification in the delivery of primary care across the continuum from young adults to elderly. On graduation, the NPs may perform many of the same primary care duties as geriatricians, through a different model of education and certification that is shorter in duration and is less intense when compared with the physician career path. Nurses generally may complete this program in 2 years if attending full time (Golden, Silverman, & Issenberg, 2015).

As mentioned previously, there is a growing literature on the effectiveness of NPs and other physician extenders working with complex patients and in particular, the elderly. Indeed, academic nursing leadership is using the current state of our health care system and our population trends to inform changes in nursing career paths and options. Nursing educators' success developing more flexible programs for the training of adult gerontologic primary care NPs shines a spotlight on the current usual path for the training of geriatricians. By choosing a specialty before the start of the graduate program, NPs are able to obtain the knowledge and skills they will require for their chosen work, with a shorter and more flexible time commitment. Perhaps, leaders in medical education can learn from this success. Innovations in

medical education that reduce the duration of training for physicians interested in geriatric medicine could promote interest. For example, innovative programs that allow geriatric medicine fellowship training to begin during a 3-year residency would enable trainees to shorten their training time and reduce financial losses associated with prolonged training. Child psychiatry fellowship uses this model by allowing psychiatry residents to skip their fourth year of residency to start their 2-year child psychiatry fellowship early.

Educating non-geriatricians on key geriatric principles through continuing medical education (CME) courses can expand awareness of concepts in geriatric care more broadly and help guide when referrals to expert geriatricians is appropriate. A recent study found an inter-professional intervention by a geriatrician attending multidisciplinary discharge rounds twice weekly and advising when geriatrics consultation would be beneficial resulted in increased use of appropriate geriatric consultation and reduced time to consultation (Puelle et al., 2018). This is a creative mechanism to maximize the use of scarce geriatric resources. Other tools, such as the Kihon Checklist for frailty used in Japan, can be implemented to help identify which patients are most in need of a geriatrics consult (Sewo Sampaio, Sampaio, Yamada, & Arai, 2016). An additional method to expand opportunities for patients to be evaluated by expert geriatricians is to provide telemedicine geriatric consultative services. However, the current quantity of geriatricians in the work force is insufficient to meet these needs.

Geriatricians in skilled nursing facilities provide cost savings through reduced hospitalizations, decreased polypharmacy, improved communication with families, and provision of onsite end-of-life care which should be recognized and rewarded. Similarly, geriatric hospitalists provide a valuable, specialized, and unique approach to inpatient care, a role that needs to be recognized and appropriately compensated.

Patients, caregivers, health care providers, and geriatric-focused advocacy groups must advocate restructuring of reimbursement to rectify the financial disadvantage of geriatricians, to improve care for our nation's older adults.

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ORCID iD

Paula E. Lester  <https://orcid.org/0000-0001-9602-0249>

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