

Is Geriatric Medicine Possible in a Middle-Income Country? The Case of Costa Rica

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This article outlines the current and future-projected demographic data, organization, networks for the care of older people, and perspectives in Costa Rica in relation to the challenges resulting from exponential growth of the older adult population, most notably those aged 80 and older. It includes consideration of the Norms of Integrated Care of the Older Adult of Costa Rica's national social security system and contributions from other public and private institutions. It also makes note of commentaries on the need for ever-increasing efforts to manage the care of Costa Rica's burgeoning older adult population. *J Am Geriatr Soc* 2017.

Key words: Costa Rica; geriatrics; gerontology; geriatric medicine; geriatric education

Costa Rica is located in Central America. With a total population in 2011 of 4,890,372, of whom 371,562 (7.6%) were aged 65 and older, the nation is experiencing a rapid surge in its older adult population. This poses unique challenges to the limited financial resources of this middle-income-economy country, making it essential to use the available resources effectively. Total healthcare expenditures in Costa Rica in 2014 were US\$4.74 billion (9.3% of gross domestic product).¹ The country has a universal coverage health system. It is in the process of developing its geriatric medical system along with targeted community services for older adults.

The Demographic Shift and Its Effect on the Country

Various factors have influenced the marked demographic change in Costa Rican society:

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- Decline in the birth rate from approximately 48 live births per 1,000 in 1960 to 15 per 1,000 in 2014²
- Decline in the fertility rate from 7.35 in 1960 to 1.8 in 2014
- Increase in life expectancy from 61 in 1960 to 79.7 in 2014
- Increase in life expectancy to a further 23 years at age 60 and a further 8 years at age 80³

The combination of increasing numbers of older adults and declining numbers of children younger than 15 is expected to continue. The population aged 65 and older will experience a steep increase as a percentage of the total population, from the present 7.6% to close to 15% by 2035,⁴ with projections of a continuing upward trend. Concurrently, the percentage of individuals younger than 25 has fallen from 50% in 1994 to 28% at present, and this decline is expected to continue.⁴

A notable effect of this demographic shift is seen in the changing dependency ratio, which in a period of demographic aging, reduces the economic pressure of the inactive population on citizens of working age. In Costa Rica today, the dependency ratio is less than 67.7%, offering the potential for development of the national infrastructure. The demographic bonus which refers to the relationship between the active economic population and the retired population, in Costa Rica is projected to peak in 2020 and thereafter begin to fall until it disappears in approximately 2050. The current ratio of more economically active to inactive citizens must be taken into account when planning and investing in infrastructure, such as developing and strengthening programs to ensure the full inclusion of older adults in the healthcare system.

An Overview of the Older Adult Population of Costa Rica

Life expectancy is 79.6 at birth, healthy life expectancy (free of disease) is 69, and life expectancy at 65 is 19.5 years (2007)⁵

Self-Perception of Health Status As Average or Poor

Approximately 50% of older people in Costa Rica consider that they have good health, which accords with the

Table 1. Frequency of Chronic Disease in Costa Rican and Mexican-American Older Adults and Citizens of Seven Latin American Cities

Location	Arthritis	Hypertension	Diabetes Mellitus	Cancer	Pulmonary Disease
Costa Rica	15.9	50.5	20.7	6.6	16.7
Buenos Aires, Argentina	52.5	49	12.5	4.9	8.5
Bridgetown, Barbados	47.1	47.9	22.2	3.5	4.2
Sao Paulo, Brazil	32.2	53.8	17.7	3.7	12.6
Santiago, Chile	29.5	52.3	13.3	4.5	12.7
La Habana, Cuba	56	44.1	15.2	3.5	12.6
Mexico D.F, Mexico	23.8	43.1	21.9	2	9.7
Mexican-American, United States	39.9	—	27.8	5.6	2.5
Montevideo, Uruguay	48.3	44.9	13	6	9.2

Source: Costa Rican University and National Council of the Elder Person. First Report of the current situation of the older adult in Costa Rica. San José, Costa Rica Costa Rica: National Press, 2008.

average self-perceived assessment of Latin Americans. In Costa Rica, Mexico, and Argentina, the self-perception of the remaining 50% of the population is that their health is average or poor (Table 1).⁵

Prevalence of Chronic Disease

According to the Pan American Health Organization, the most-prevalent disease in Costa Rica is hypertension.⁶ The prevalences of other important chronic diseases are compared with those in several Latin American populations in Table 1.⁷

Approximately 34% of Costa Rican older adults are considered at risk of malnutrition according to the Mini Nutritional Assessment, compared with 15% in Canada and 20% in the United States in similar studies.⁸ Body mass index measurements indicate a prevalence of obesity in older people in Costa Rica of 26%. The prevalence is higher in women (33%) than in men (19%).⁹ A study of the home circumstances of older Costa Ricans published in 2015 reported that 13% live alone, 70% live with one to three other people, and 17% live in a household of four or more people.¹⁰ The same study indicated poverty levels of 23% in homes where older adults live, compared with the national average of 19%. One-quarter of these people live in extreme poverty, defined as an inability to afford the necessities of life.¹⁰ Studies in the early 1980s and 1997 reflected the same results—the two predominant concerns that older Costa Ricans identified were loneliness and poverty.⁷

A study comparing a group of older Costa Ricans with a similar group of older Taiwanese adults revealed that only a small proportion reported limitations in any of the five activities of daily living (ADLs) (11% in Costa Rica, 7% in Taiwan), suggesting low rates of severe disability, but performance-based tests captured subtle variations in physical capability. For example, even in those who reported no ADL or mobility limitations, there was a wide range in performance ability, such as grip strength ranges from 5 to 58 kg in Costa Rica and 4 to 68 kg in Taiwan.¹¹ A comparative study showed that the annual probability of disability onset doubles from age 65 to 85 in men and women in the United States, Costa Rica, and

Mexico, whereas it is 1.5 times as great in Puerto Rican men and women. Total life expectancy at the age of 65 is approximately 20 years for women and 18.5 years for men in each of the four countries, but Costa Rican women aged 65 to 75 can expect to live approximately 1.5 disability-free years fewer than their counterparts in the United States. There are no substantial differences between the four populations for men, although Costa Rican men can expect to live approximately 1 year longer than men aged 65 in the United States.¹²

Studies of the incidence of dementia and depression in older Costa Rican adults show severe cognitive impairment in 18% of older people.⁷ Depression was found in 18.1% of Costa Rican older adults, with women statistically significantly more likely to be depressed than men, similar to results of other international reports. Identified risk factors were lower socioeconomic status and lower literacy level. Spirituality was documented as a protective factor against depression. No relationship was found between age or comorbidity and depression.¹³

Geriatrization of the National Health Service

The public health system in Costa Rica has strong coverage nationwide. It is divided into 1,000 health sectors, each of which basic health teams consisting of a general practitioner, assistant nurse, and technical assistant in primary care who deliver health care at the local level serve. They can refer to specialists at clinics and peripheral hospitals in 100 health areas, who in turn can refer to larger regional and national hospitals for highly specialized care. This integrated health system has been able to deliver highly effective maternal and childhood care, for example, which has resulted in basic health indicators comparable with those of developed nations (infant mortality of 7.8 per 1,000 live births).¹⁴ This explains in part the rapidly aging population. The Index of Complexity and Performance indicates that the care given to hospitalized older adults tends to be far more complex and to require longer in-hospital management than for other age groups.⁵ Thus it is imperative that the social security system address the aging process effectively.¹⁵

Table 2. Outline of the Health Service Delivery System for Older Costa Rican Adults

Level of Care	Components	Notes
Primary	Basic integrated healthcare service teams consisting of a general practitioner, auxiliary nurse, and technical assistant serve clinics in towns and outlying areas, approximately 4,000 citizens each	Sectors dedicated to health care—including primary health care—instituted in the country in the 1970s are being developed.
Secondary	Hospitalization: required for such cases as treatment of an acute illness that has the potential of functional loss, treatment of reversible delirium and dementia (e.g., vitamin B12 deficiency), intoxication by prescribed medications (e.g., unintentional overdose or challenging side effects), treatment and care after disabling incident or disease (e.g., fracture, immobilization syndrome, cerebrovascular disease)	Evidence shows that hospitalizing older adults can pose a risk for the individual, so strong efforts are directed toward improving outpatient and community services while recognizing the need for efficient hospitalized care in cases such as those described here
Tertiary	Three large general hospitals offering specialized care in the emergency department, community care at a day hospital, and surgical and medical support services (e.g., orthopedics, oncology, urology), including the National Geriatrics and Gerontology Hospital	These services are currently being developed to supplement facilities within hospitals that already offer specialized care in geriatrics, rehabilitation, and psychiatry.

Costa Rican Social Security System, 2017.

USE OF HOSPITAL SERVICES

The results of the demographic shift are already beginning to effect the national healthcare system. In 2002, hospital admissions of children younger than 15 accounted for 20% of the total, decreasing to 17% by 2012. Conversely, hospital admissions of older adults (≥ 65) accounted for 12% of the total in 2002, rising to 15% by 2012. Inpatient treatment and care has grown 10% in the same decade, and this growth is estimated to have increased the cost to the health system by nearly 250%.⁴

According to records from 2010 and population projections provided by the Central American Population Center and the National Statistics and Census Institute, by 2020, it is expected that Costa Rican hospitals will provide treatment and care in approximately 2.2 million consultations for older adults, a figure that will rise to 5.9 million in 2050. Emergency services for the same cohort is estimated at 740,000 in 2020 and 2 million in 2050.¹⁶

Hospital discharge figures for older adults are similar to those of emergency departments and outpatient facilities. By 2020, it is estimated that approximately 70,000 older adults in Costa Rica will be discharged from hospitals, rising to 190,000 in 2050. This growth is projected to be sustained until 2070, with a slight decline at the beginning of the 2080 decade.⁴

Geriatric Health Services for Older Adults

There are several tiers of health service delivery for older adults in Costa Rica. Together, they provide customized strategies and programs for this cohort, designed in a considered manner with the objective of offering older adults optimal care that encompasses treatment, prevention, health promotion, rehabilitation, and cure. There are three main levels of care: primary, secondary, and tertiary (Table 2), each with specific activities and developmental objectives.

A process of reform and modernization of the Costa Rican health sector began in 1994, seeking to adapt the

existing models of service delivery to meet the changing needs of the population.¹⁷ The Norms of Integrated Service Delivery to the General Population were revised in 1995 to include Norms of Integrated Care of the Older Adult for the first time. These regulations are based on the holistic geriatric care principle of considering not only physical illness, but also associated psychological health, activity, and social well-being, using a primary preventive approach. This integrated, holistic approach permits detection of relevant factors to decrease or avoid deterioration in the quality of life of older adults,¹⁸ but many of the regional and peripheral hospitals involved in the delivery of care to sick older adults do not have their own specialist geriatricians, which creates a gap in targeted healthcare delivery. As discussed in the ensuing section on education and training in the field of geriatrics, Costa Rica has an urgent need for more specialists in the field of geriatrics and gerontology to enable a future in which all hospitals and health services employ at least one consultant geriatrician with formal training.

National Geriatrics and Gerontology Hospital

The National Geriatrics and Gerontology Hospital is part of the tertiary level of care. Originally an antituberculosis facility, it has been functioning as a geriatric hospital for the past 40 years, with outpatient and inpatient services. Services for outpatients consist of an external consultation unit, emergency department, day hospital, and community geriatric care unit. Inpatient care is delivered through an acute care unit, a rehabilitation unit, and a diagnostics and treatment unit. The last of these three units records approximately 2,400 discharges per year.¹⁹

Once treatment has achieved its goal, discharge planning is performed under the auspices of the Geriatric Discharge Consultation Service. The individual and family members are connected to appropriate home care supports, including community support and medical follow-up. If home care is not possible, geriatric follow-up continues through outpatient consultation at the day hospital. Alternatively, the individual may be transferred to the

Community Geriatric Care Unit temporarily until their existing health problem has resolved. The main objectives of the Community Geriatric Care Unit are to organize and coordinate geriatric assistance and social services at the primary level of care, which includes delivery of care through associations, clubs, day centers, and nursing homes for older adults,^{20,21} and to provide direct health care at home for high-risk cases discharged from the National Geriatrics and Gerontology Hospital.

Teams employed by the Community Geriatric Care Unit consist of a multidisciplinary group of professionals who visit older adults at home or in nursing homes in the metropolitan area. The hospital has 140 inpatient beds and currently provides domiciliary care to approximately 700 outpatients annually.

Other Significant Challenges Affecting Older Cost Rican Adults

Palliative Care

Terminally ill older adults are supported at home through palliative care programs. In cases of exceptional need, they may be admitted to a general, regional, or peripheral hospital or to the National Geriatrics and Gerontology Hospital. A significant challenge remains: the stigma of terminal illness in many families, leading to rejection of the terminally ill person. There is an urgent need to overcome this barrier, because help is widely available through well-organized support and assistance programs for older adults and their family members delivered by palliative care units around the country.

Elder Abuse

In 1996, the National Geriatrics and Gerontology Hospital established the Committee for Integrated Study of Assaulted and Abandoned Older Adults to manage and study cases of abuse of older adults. The committee has protocols that allow intervention in detected cases of abuse and refers to the health services of the National Geriatrics and Gerontology Hospital. Given that this social pathology is on the increase,⁷ the service urgently requires wider application throughout the nation. In 2008, the committee presided over 680 cases of abuse of elderly adults. The most common causes were abandonment (27.4%), neglect (26.8%), and psychological abuse (22.9%).

Development of a Community Support Network

As noted earlier, Costa Rica is making important strides in the care of older adults. Much good work has been done in the past 3 decades through community, day care, and club programs; nursing homes; and sheltered housing. Education for older adults and their caregivers and family members has improved over time through self-care and caregiver courses offered in hospitals and clinics and education at home of caregivers and families receiving home care.²²

Costa Rica has developed care networks for high-risk older adults in 50 communities, benefiting more than 10,000 older citizens with severe comorbidity and

significant degrees of physical and cognitive dependence and extreme poverty.²²

More investment must be made in such networks to reach all communities in the country; this can be achieved through collaboration of healthcare institutions, community services, and public and nonprofit organizations. The distribution of community services in Costa Rica is shown in Figure 1.

Long-Term Care

The most recent data available for nursing homes and day care centers, from December 2015, record 1,813 men and 1,566 women living in 92 nursing homes across the country and 69 day care centers serving 573 men and 1,209 women. Community-based nonprofit organizations run most of these institutions with public funding support that predominantly comes from the Junta de Protección Social (Social Protection Board) and private donors. A few are privately run and paid for directly by the beneficiaries. According to these figures, the institutionalized older adult population in the country is slightly less than 1%, but owing to social dynamics that fall outside the scope of this discussion, this percentage is set to rise as families gradually become less willing or able to care for their dependent older relatives. Other factors include the increasingly complex healthcare needs of institutionalized older people and the fact that the majority are unable to pay for the service themselves. This situation is already imposing heavy financial demands on the national budget, which the country is unlikely to be able to meet in the near future.

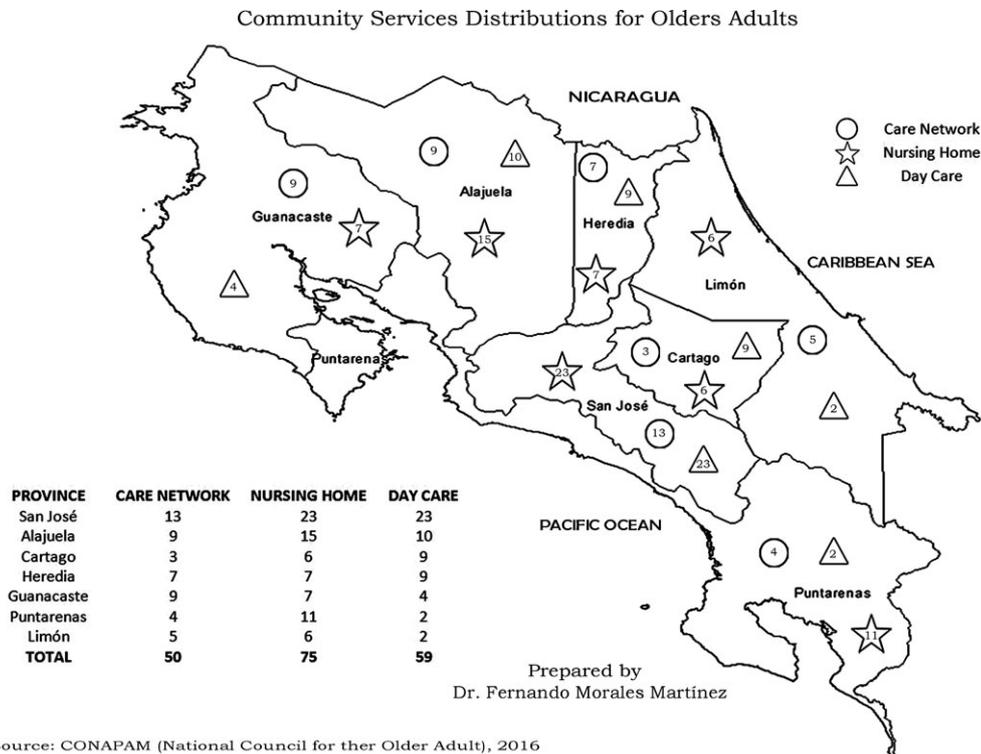
Geriatrics Education and Training

The postgraduate residency program in the medical specialty of Geriatrics and Gerontology at the University of Costa Rica and at the Center of Strategic Development and Information in Health and Social Security (CENDEISS) was introduced in 1991. This evolved from a collaboration that commenced in 1988 between these institutions and the Family and Community Medicine Program, as well as on-going medical education programs supported by CENDEISS since 1984.^{23–25}

Geriatric medicine training at the undergraduate level, although improving, is still largely neglected in Costa Rican medical schools. The University of Costa Rica did not make a course in geriatrics compulsory until 2014, and only two of the seven medical schools in private universities have a compulsory course in geriatrics. Correcting this deficiency is a pressing need.

In 2008, the National Geriatrics and Gerontology Hospital was designated a Collaborative Center of the World Health Organization in the Latin American region in recognition of its focus on research and training in the field. Since then, health professionals from Chile, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, and Dominican Republic have visited the hospital to take up internships and to gain experience in a holistic model of effective health care and education for older adults at all levels of service delivery.

Since 1991, 123 geriatric medicine and gerontology specialists have graduated from the 5-year postgraduate Geriatrics Program, and 45 are currently enrolled in the



Source: CONAPAM (National Council for the Older Adult), 2016

Figure 1. Community service distribution for older adults.

program. One hundred fifty-four family and community medicine residents have undertaken a 4-month geriatric medicine rotation since 1987, and under the auspices of the National Geriatrics and Gerontology Hospital, 4,400 physicians have participated in practical courses in geriatrics, 110 Latin American physicians held internship in the World Health Organization/Pan American Health Organization Collaborative Center, and 1,959 undergraduate medical program students have undertaken courses in physiopathology, internal medicine, and geriatric medicine.

Challenges

Although significant advances have been achieved with demonstrably positive results, several challenges remain, notably, increasing numbers of retired older adults who depend on the social security system, the effect on the public budget of the rising costs of retirement and health care, how to promote and support preventive healthcare programs for older adults effectively to enhance awareness of self-care, and how to motivate and increase volunteering throughout the country.

CONCLUSION

Costa Rica’s health system was established 75 years ago. In the past 40 years, through the national Geriatrics and Gerontology Hospital, there has been a growing necessity to prepare for the future needs of a rapidly growing older population. As a nation, it is working on improvements in infrastructure, training of human resources, logistics, policies, and planning to develop a health system capable of delivering targeted services to older adults.

It is essential that community-based health promotion, prevention, and rehabilitation gain a higher profile in a system traditionally based on the treatment of disease and injury. It is also necessary for the community to become more involved in the care of older adults—such as through volunteering—as a way to achieve financial sustainability in a country with limited resources.

Despite stringent of financial and infrastructure type the progress made to date allows for optimism about Costa Rica’s ability to meet these challenges in the future.

Recommendations

It is recommended that the following be considered as priorities.

- Universalization of integrated care services for older adults based on a proven model of interdisciplinary team work in geriatrics and gerontology. This would require improvement in interdisciplinary human resources.
- Development of retirement programs to promote better health maintenance, care services and support programs for older adults.
- Development of a network of advanced information technology (geronto-technology) programs to enhance the country’s care of older adults.
- Construction of a new geriatric and gerontology specialty hospital—or expansion of the existing one—with a visionary plan for multidisciplinary, nationwide networks of health care for older adults.
- A new and vigorous political commitment to interinstitutional cohesion and sustainability of care networks for

older adults throughout the nation as part of an active response to epidemiological and demographic changes.

- More investment in research in the field of geriatrics and gerontology.

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