



## Ageing in Senegal: Demographic, Epidemiological, Socio-Economic and Health Aspects

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### Abstract

Senegal, like the rest of Africa, is experiencing a rapid ageing of its population. Faced with the challenges associated with ageing, the World Health Organisation, the African Union and the Economic Community of West African States strongly recommend the establishment and implementation of national policies on healthy ageing in African countries. Senegal has a strategic plan for healthy ageing. The aim of this study was to analyse the health situation of older people in Senegal.

This work highlighted the significant progress made by Senegal in anticipating the ageing of its population and improving the state of health of the elderly. But there are still major challenges ahead.

**Keywords:** Children; Senegal; World Health Organisation

### Introduction

The demographic transition of the world's population towards ageing is now a well-established reality. It is characterised by a decrease in the proportion of children and young people, combined with an increase in the proportion of elderly people as a result of a decline in fertility and an increase in life expectancy [1]. Although their populations are still young, African countries are currently experiencing a rapid ageing of their populations [1]. This demographic transition is accompanied by a simultaneous change in the epidemiology of diseases, with the persistence of communicable diseases and the emergence of chronic diseases and geriatric syndromes [2]. This simultaneous dual transition will have serious consequences for African countries that are ill-prepared. Faced with the challenges of ageing, the World Health Organisation (WHO), the African Union and the Economic Community of West African States strongly recommend the

establishment and implementation of national policies on healthy ageing in African countries.

Senegal is no exception to this process of population ageing and to the health problems of this age group. The general aim of this study was to provide an overview of the ageing and health of the elderly in Senegal.

### Demographic transition

#### The demographic concept of «population ageing»

Population ageing is the process whereby the proportion of adults and elderly people in the population increases, while the proportion of children and adolescents decreases. This leads to an increase in the median age of the population. Ageing occurs when fertility rates decline while life expectancy remains constant or improves at older ages [3].

In demography, the definition of an ageing or ageing population still varies. As far back as 1955, V. Germaine proposed a definition of an ageing population [4]. Germaine claimed that simply taking into account the proportion of elderly people and the average age was insufficient to define an ageing region. The proportion of the population in the 0-40 age range and the net reproduction rate should also be taken into account. In her view, the 20-40 age group is responsible for procreation and a large proportion of economic activity, while the 0-20 age group will be the next generation. The former are responsible for the present and the latter for the near future. After analysing the demographic situation in a large number of countries, she proposed four criteria for defining an ageing population. A population can be considered aged [4] when its average age is 35 or over, the percentage of people aged 60 or over is over 12.5%, the percentage of people aged 0-40 is under 65% and the average net reproduction rate has been below one for the last 20 years.

V. Germaine [4] ranked these four criteria in the following order of importance: percentage of 0-40 year olds; percentage of APs aged 60 and over, net reproduction rate and average age [4].

The danger of ageing for a population appears for a percentage of 0-40 year olds between 62 and 65%, a percentage of people aged

60 and over between 11.5-12.5% and a net reproduction rate of less than one in the last 5 years [4].

Elsewhere, the glossary of demographic terms and concepts offers a simple definition. A population is said to be «ageing» when the proportion of people aged 65 and over reaches 7%, it is said to be «elderly» when the proportion reaches 14% and it is said to be «very elderly» when it reaches 20% [3]. However, traditionally, a proportion of people aged 60 and over of 10% is accepted to define an ageing population.

### Key data on the Senegalese population at the time of the population counts

Socio-demographic surveys in Senegal show that families are increasingly made up of older people. Since independence, Senegal has undergone five general population censuses (RGP), in 1976, 1988, 2002 and 2013, and the latest, in 2023, is currently underway. These censuses have shown a growing increase in the general population, but above all in the population of elderly people, as a result of a fall in fertility and mortality rates. The proportion of the population aged 60 or over rose from 5% in 1988 to 5.4% in 2002 and 5.6% in 2013 [5-7]. At the same time, life expectancy has increased considerably: in 1960 it was just 38 years, rising to 44 years in 1976, 56 years in 1988, 58 years in 2002 and 64.8 years in 2013 (table 1).

| Years of census | General population | Population aged ≥ 60 years | Weight of elderly aged ≥ 60 years | Total fertility rate | Mortality rate/1000hbts | Life expectancy at birth |
|-----------------|--------------------|----------------------------|-----------------------------------|----------------------|-------------------------|--------------------------|
| 1960            | 3 393 085          | -                          | -                                 | -                    | 26,2                    | 38,22                    |
| 1 976           | 4 997 885          | 304 337                    | 6.1 %                             | 7,1                  | 20.1                    | 44,64                    |
| 1 988           | 6 896 808          | 346 749                    | 5 %                               | 6,4                  | 11,95                   | 56,28                    |
| 2 002           | 9 858 482          | 531 718                    | 5,40 %                            | 5,3                  | 10,21                   | 58,68                    |
| 2 013           | 13 508 715         | 746 187                    | 5,60 %                            | 5,16                 | 7,7                     | 64,8                     |

**Table 1:** Changes in the general population and the elderly population on census dates (Source: National Statistics and Demography Agency (ANSD) Censuses and population projections reports) [5-7].

Comparative analysis of the average annual intercensal growth rates (table 2) between the general population and the elderly population during these surveys has shown that, with the exception of the period 1976-1988, the population aged 60 and over has grown faster than the general population [5-7]. According to ANSD reports, between 1988 and 2002 the intercensal growth rate of the

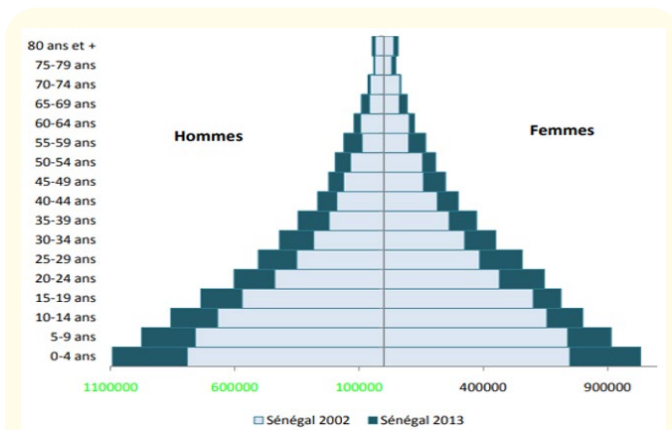
elderly population was 2.9% per year, compared with 2.5% for the general population. Between 2002 and 2013, it was 3.2% per year for the elderly population, compared with 2.5% for the general population. The higher rate of increase among the elderly can be explained by an increase in life expectancy, a fall in mortality at advanced ages and a fall in the fertility rate.

|           | Average annual intercensal growth rate general population | Rate Average annual intercensal increase persons aged ≥ 60 years |
|-----------|---|--|
| 1976-1988 | 2,70%   | 1,22%  |
| 1988-2002 | 2,50%   | 2,90%  |
| 2002-2013 | 3,00%   | 3,20%  |

**Table 2:** Intercensal growth rates of the general population and the elderly population between 1976 and 2013 [5-7]. (Source : National Statistics and Demography Agency Censuses and population projections reports).

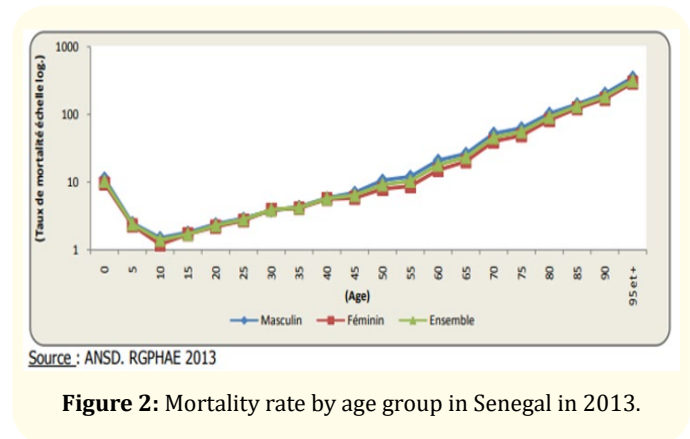
A comparison of the shape of the age pyramid between 2002 and 2013 in Senegal is rich in meaning (Figure 1) [6,7]. Based on the inertia of demographic phenomena, it tells us about equivalences and imbalances in the current and future elderly population. Between 2002 and 2013, the top of the pyramid, for people aged 60 and over, widened, reflecting the current increase in their population, while at the same time the base of the pyramid widened further. Given the rate of change in life expectancy and mortality, a much greater increase in the elderly population is to be expected in the coming years. This is a standard representation to be taken into account.

In 2013, the population mortality curve had a «J» shape (Figure 2) [7]. Normally, when the level of mortality is high in a given population, the curve of variation in mortality rates according to age presents an approximate «U» shape. When mortality is low, the curve loses its U-shape and takes on a J-shape. The J-shape of this curve indicates that mortality is low and varies enormously with age. It starts from a high level in children under one year of age, decreases rapidly, reaches a minimum in the 10-14 age group and then rises continuously until the age of 95 and over (high mortality in the elderly). It has the normal shape of a mortality curve for a low-mortality population.



**Figure 1:** Age pyramid for the Senegalese population in 2002 and 2013 [6,7].

Despite the beginning of a demographic transition in favour of the elderly during these periods, Senegal’s population is still extremely young. In 1988, nearly 58% of the population was aged under 20; in 2002, 54.7% was under 20; and in 2013, 42.1% of the population was under 15, with a median age of 18 and an average age of 22.7 [5-7].



**Figure 2:** Mortality rate by age group in Senegal in 2013.

**Population trends according to demographic projections**

According to the 'National Agency for Statistics and Demography (NSD), Senegal still has a very young population in 2020, with 16,705,608 inhabitants [8]. The average age is 19, with people aged 60 and over representing 5.55% of the general population [8], which is well below the thresholds for defining an elderly population described in the literature [3,4], and life expectancy at birth is 67.8 years [8]. The ANSD’s most distant projections for Senegal’s

elderly population do not end until 2035. These projections show that the Senegalese population will remain young until 2035, with an average age of 19 or 20 [8]. However, the proportion of the population aged 60 and over will continue to increase as a result of a continuing fall in the crude mortality rate and an increase in life expectancy at birth. In 2020, the population aged 60 and over will represent almost 5.55% of the general population, rising to 5.66% in 2035. At the same time, life expectancy will rise from 67.8 years to 74.6 years.

According to other, more optimistic, United Nations projections [9], Senegal's elderly population is set to reach a milestone very quickly. In 2020, the proportion of people aged 60 and over was estimated at 4.81%, rising rapidly to 5.76% in 2035, 7.99% from 2050, 10.68% in 2065 and 19.20% by 2100. It should be noted that the ageing of the population is also accelerated by the significant immigration of young people.

### Epidemiological transition

This rapid demographic transition in Senegal, as in low- and middle-income countries, is accompanied by a simultaneous change in disease epidemiology [2]. The persistence of communicable diseases such as malaria, tuberculosis and HIV infection [10,11], which continue to pose a public health problem, and the emergence of chronic non-communicable diseases and geriatric syndromes linked to longer life expectancy have been noted in Africa.

A number of studies have shown the persistence of transmissible diseases. A retrospective study over a period of 8 years (2005-2013) of 697 HIV-infected people followed up in the internal medicine and dermatology departments of the Aristide-Le-Dantec university hospital in Dakar showed that HIV infection in older people is still a reality in our regions. In this cohort, 8% of people aged 55 and over were infected with HIV [10].

In another study carried out at the pneumology clinic of the FANN CHNU in Dakar (April 2005-March 2006), the prevalence of pulmonary tuberculosis was estimated at 12.8% in people aged 55 and over [11].

With regard to chronic diseases in the elderly, in 2018 the WHO regional office conducted a survey of countries on the continent that had carried out a national study to determine the state of

health and social and health needs of the elderly. Senegal was one of the few countries in West Africa to have carried out such a study, out of the 32 countries that responded. In 2000, Senegal conducted a national survey to identify the epidemiological profile of the elderly and their social and health needs [12]. This survey was carried out on a national sample of 1,100 elderly people from all regions of Senegal, using a questionnaire drawn up by a multidisciplinary team (geriatrician, public health specialist, demographic statistician and economist). In order of frequency, the following diseases were identified [12]: cardiovascular diseases; eye diseases, with glaucoma and cataracts accounting for almost 1/3 of patients; degenerative osteoarticular and rheumatic diseases, dominated by rheumatoid arthritis; diabetes; cognitive impairment; and urogenital diseases, dominated by urinary tract infections, adenoma and prostate cancer.

This trend was confirmed by a study investigating the epidemiological and clinical profile of elderly patients in an internal medicine department at the Pikine university hospital in 2012. Among the most common comorbidities were cardiovascular pathologies (64.4%), including arterial hypertension (53.2%), diabetes (30.1%) and chronic lung disease (4%) [13].

Other prevalence studies have demonstrated the reality of geriatric syndromes in Senegal. As far back as 2009, Touré, *et al.* laid the foundations for dementia research by establishing a reliable and internationally valid diagnostic test for dementia adapted to the African context [14]. This test made it possible to assess cognitive disorders even in an illiterate population. The prevalence of dementia in people aged 65 and over was found to be 8.8% [14]. In 2011, Coumé, *et al.* found a prevalence of undernutrition of 6.6% in patients aged 60 and over living at home [15]. The prevalence of depression was estimated at 47.7% in 2011 by Thiam, *et al.* [16]. A more recent retrospective study (2015-2018) found a prevalence of 5.23% among patients aged 60 and over seen as outpatients in the FANN geriatrics department [17]. The risk of falling was also highlighted in a study at the Ouakam geriatric centre in 2013, where the prevalence found was 4.16% in patients with good nutritional status and 30.3% in malnourished patients [18].

A recent study in the country's leading university hospital geriatrics department found that 20% of hospitalised patients had

polypathology with at least 3 comorbidities. The most common were arterial hypertension (57%), diabetes (22%) and osteoarticular diseases (17%). Patients had an average of 2 geriatric syndromes, dominated by malnutrition (68%), loss of functional autonomy (53%), frailty (33%), immobilisation syndrome (20%) and major neurocognitive disorders (16%) [19].

## Economic and social environment

### Economic environment

On a macro-economic level, when the demographic growth of older people in a population is greater than that of the general population, a new equilibrium is created with a decrease in the active population and an increase in the inactive population [20]. The consequence is a fall in productivity and an increase in public health expenditure in favour of the inactive population. National pension funds, particularly those with contributory schemes, may then run a deficit, with an increase in the financial windfall for pensioners and a decrease in contributions. To offset this deficit, the retirement age has been raised to 60 or over in several developing countries. With the demographic growth of the elderly outstripping that of the general population since 1988 (table 2) and significant immigration of young people, Senegal is in danger of moving towards an imbalance in its macro-economic system in the medium term. This imbalance due to the ageing of the population was reflected in the increase in the legal retirement age from 55 to 60 in December 2014, while at the same time opening up a path that stipulates that this age could be postponed to a later age in order to ensure the financial equilibrium of the scheme when the employment market allows and when the increase in longevity so requires with a view to maintaining and improving the value of benefits [21]. Recently, in June 2020, this age was raised again to 65 for some occupations. All this reflects a certain need to maintain this macro-economic balance.

At the microeconomic level, ageing in Africa is accompanied by an increase in poverty among the population, partly linked to a lack of financial resources [22]. In Senegal, only 30% of elderly people receive a retirement pension. These are divided between the Institution de Prévoyance Retraite du Sénégal (21%) and the Fond National de Retraite (9%) [23]. The remaining 70% have no pension and often represent the most deprived population, as they are mostly farmers, stockbreeders or fishermen, often living in rural or semi-urban areas [22,23].

According to a survey by the Agence Nationale de la Statistique et de la Démographie, 50% of elderly people in Senegal are the sole providers for their families [22]. As a result, they are forced to extend their working lives in order to provide for their families, due to the economic crisis and youth unemployment. She also points out that the poverty index increases with the age of the head of household. It is 37.7% if the head of household is aged between 15 and 29, compared with 56.1% if he or she is over 65 [22]. Women are more affected by poverty because of their lower participation in the labour market, lower incomes and high levels of widowhood [22,24].

### Socio-cultural aspects

In Africa, the elderly held a central place in the family and in society. They played a number of roles, holding knowledge, passing on skills and acting as social mediators [25]. In Senegal, a non-governmental organisation called «Grand-Mother Project 'Change through culture has taken advantage of the cultural status of older people by including them in the promotion of individual and community well-being [26]. Using an inclusive, intergenerational approach, the project has encouraged success at school and the abandonment of negative traditions such as early marriage, teenage pregnancy and female genital mutilation. Evaluations clearly show that the inclusion of grandmothers in development programmes has made it easier for communities to recognise and put into practice norms that support the well-being of young girls [26].

However, we are increasingly witnessing profound socio-cultural changes which are leading to the loss of the power of older people and their isolation, encouraged by the break-up of the family unit and solidarity networks [24,27]. In Senegal, this phenomenon is much more marked in urban areas, where the elderly suffer more from stress factors linked to isolation and reduced family support [22]. The work of women who used to look after the home and grandparents, and the immigration of young people, are upsetting the balance and foundations of the family unit. Added to this is urbanisation, with the construction of large buildings that are not encouraging the generations to live together, and which is gradually leading to the dismantling of long-established community support networks.

There are generational conflicts between the elderly and the young, and in some regions the elderly are victims of abuse, as in



the case of the « old women's town » of Kabrousse in the south of Senegal, or the persecution of « soul-eating witches » in Burkina Faso [28]. A study carried out in Togo on the «Perception of old people» shows that: «Seventy-nine per cent (79%) believe that the elderly are wasteful. They are boring (47%), cumbersome (45%), time-consuming (42%), too plaintive (41%), dictatorial and reluctant to change (40%)» [29].

In rural areas, older people continue to enjoy the moral support and solidarity of their extended community. However, the feminisation of old age (polygamy and widowhood) and the rural exodus of young people are beginning to disrupt the family and community structure and the balance of the working population [22,24].

## Health aspects

### Geriatric care

The elderly are particularly vulnerable due to physiological ageing, socio-environmental factors and pathologies [30]. Care must be comprehensive and integrated, taking all dimensions into account. According to the WHO, geriatrics is poorly integrated into the health system in Africa, health services for the elderly are inadequate and unsuitable, and there is a shortage of qualified staff [31]. Health information on the elderly is scarce, and routine health statistics do not distinguish between diseases caused by old age and other diseases. Health facilities in young developing countries are for the most part organ-based specialties, with the exception of certain cross-disciplinary specialties such as internal medicine and paediatrics. They are not prepared to provide comprehensive care for the elderly. There is also a significant lack of expertise in geriatrics, with staff who are often untrained lacking the necessary geriatric knowledge and know-how. The result is an increase in morbidity and mortality among the elderly due to the double burden of communicable and non-communicable diseases.

Although Senegal has not been spared these problems, a considerable effort has been made in the health field. The first geriatric centres were an initiative of the Senegalese pension institution (IPRES), which manages the pension system for non-civil servants in the state and private sectors. Over the years, IPRES has developed a model of medical and social geriatric centres in various regions of Senegal, offering free care. Although this model

has its shortcomings, it has played an important role in the care of the elderly and the development of geriatrics in Senegal. The second geriatric centre to be set up is in Ouakam. It was set up by the local community authorities with the support of a financial partner, the Société Nationale de Téléphonie Foundation, which is very supportive of initiatives to help the elderly. In 2015, the first university hospital geriatrics department was set up, with a capacity of 20 beds for short-stay geriatrics by 2023. With the support of the Ministry of Health and Social Action, the Geriatrics Department is set to expand in 2024, with new premises and the renovation of its central building, which will bring the department's capacity up to 70 beds. This new environment will enable geriatrics to flourish, with the opening of follow-up and rehabilitation care and palliative care units in addition to the multi-purpose geriatric short-stay unit.

More recently, in 2023, a new geriatric centre was set up in the Thiès region, again with the help of the 'Foundation of the National Telephone Company. Elsewhere, there are private initiatives for geriatric care in clinics and at home [32].

Despite these efforts, geriatric facilities remain inadequate. Other non-geriatric facilities receive a larger proportion of elderly patients. This is the case of specialised national hospital services, which receive a large proportion of the elderly population.

### Social protection system

In Africa, poverty, reduced family support and inadequate geriatric facilities are all factors that make it difficult for the elderly to access care [31]. The elderly are a non-priority target for governments and development funding partners. National health protection policies are geared more towards women and children [33].

For the elderly, with the increase in disabilities and chronic illnesses requiring costly care, the introduction of a social protection system is more than necessary to help with care. In Senegal, 70% of elderly people do not receive a pension [23], so they or their families used to pay for their own medical care. However, since September 2006, the Senegalese government, in its desire to combat the exclusion of disadvantaged groups, has launched the «SESAME» plan to provide free care for people aged 60 and over.

This plan was taken up again in January 2015 as part of a broader policy called «Universal Medical Coverage» [34,35]. Although these initiatives have made it possible to guarantee free care for people aged 60 and over; they do have their limitations. Home care and palliative care are not covered by the traditional healthcare system, and their sustainability is jeopardised by the lack of funding and management supervision.

### SESAME plan or free care plan for the elderly [35]

The plan has two main aims: to support old-age insurance institutions (the Institution de Prévoyance Retraite du Sénégal and the Fond National de Retraite), to support local authorities and to introduce a system of free care for anyone aged 60 or over without social security cover throughout the country.

Support for retirees from the 'Retirement Provident Institution from Senegal (IPRES) has resulted in the signing of a framework agreement between IPRES and the Ministry of Health and Medical Prevention. This agreement grants IPRES reduced rates under the Sésame assistance plan. The agreement also sees IPRES join the Senegalese pyramid to become a National Reference Centre for Gerontology. As for support for pensioners from the National Retirement Fund (FNR), Sesame's mission will be to make up the shortfall in care by paying the 1/5 that was payable by the pensioner and the full cost of medicines.

The only condition for free treatment is the presentation of a reliable civil status document providing proof of age (60 or over). Health care is free at all levels, including health posts, health centres and hospitals. Essential medicines are also provided free of charge. According to the report on the Sesame plan, there has been total anarchy in practice, exacerbated by a major lack of communication and the absence of specialists in geriatrics and gerontology. As a result, the plan has been plagued by malfunctions linked to inadequate funding and management supervision.

### Universal health coverage [35]

Since January 2015, the Sésame plan has been included in the Universal Health Coverage and is under the technical supervision of the Ministry of Health and the financial supervision of the Ministry of Economy and Finance. Its principles are to ensure that financial barriers do not deprive households of the financial resources they need to meet other basic needs.

This CMU is based on four strategic axes: the development of mutual health insurance schemes, the reform of health insurance institutions, the reinforcement of existing free healthcare policies, including the Sesame plan, and the implementation of the new free healthcare initiative for children aged 0-5. A major innovation in this approach is the subsidy of 50% of health insurance contributions for those with the ability to pay, and 100% for those in need. Free care is also provided at all levels of the health pyramid, with a reimbursement rate of 80%. Speciality drugs are covered at a rate of 50%.

Like the Sesame plan, the CMU is experiencing the same dysfunctions linked to a negative financial impact.

### Training in geriatrics and gerontology

Senegal is a model for geriatrics and gerontology training in sub-Saharan Africa. Geriatrics and gerontology has been recognised as a speciality by the African and Malagasy Council for Higher Education (CAMES) since 2010.

Geriatrics is taught as part of the second cycle of medical studies at various public and private universities in Senegal.. Geriatrics is also taught in paramedical training schools. A diploma specialising in geriatrics has been available at Cheikh Anta Diop University in Dakar since 2019, with around forty students of different African nationalities in training. There is also a degree in gerontology aimed at paramedical staff and a University Diploma in Gerontology aimed at doctors who have never had any training in the field.

Despite all these efforts, there is a shortage of professionals responsible for the health of the elderly, and by 2023 the country will only have ten senior specialists in geriatrics and gerontology. However, every year the Ministry of Health and Social Action and the National Telephone Company Foundation offer specialisation grants to train young doctors. As a result, from 2025 and over a 10-year programme, at least five Senegalese specialists will graduate each year to improve geriatric care. Elsewhere, the training of paramedical staff remains more problematic, and efforts will have to be made in this area. In fact, gerontological nurses, neuropsychologists, dieticians, physiotherapists and occupational therapists are still essential professions in geriatric care, and the training of trainers in these fields will improve the quality of care.

## Conclusion

With a population that is still young, but in the process of demographic transition to an ageing population, Senegal is expected to reach 10% of its population aged 60 and over very rapidly by 2050. The epidemiological profile continues to be dominated by cardiovascular pathologies, with arterial hypertension, diabetes and ocular pathologies. Geriatric syndromes, meanwhile, are becoming increasingly evident, with malnutrition, loss of autonomy and major neurocognitive disorders.

From a socio-economic point of view, ageing is accompanied by precariousness linked to low financial resources and a loss of social power for the elderly. On the health level, a great effort is being made in the medium and long term, FANN's Hospital and University Geriatrics Service should be a major reference service in the image of major geriatric hospitals in developed countries. The focus for the training of nursing staff, although well underway for the training of geriatric specialists (5 Senegalese geriatricians per year over a 10-year period), should be more on the training of paramedical staff.

Senegal has already put in place the foundations of a good social protection system, but this system cannot function efficiently without sufficient and sustainable funding. The focus should be on finding this funding through financial partners.

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