Improving the Interface Between Hospital and Long-Term Care for the Elderly

Group Work 1 - Group 2

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Abstract

The increasing demands of an aging population in Portugal present significant challenges for the long-term care (LTC) system, particularly in ensuring effective coordination between hospitals and LTC facilities. This study evaluates the current challenges in elderly LTC in Portugal, including accessibility, workforce shortages, affordability, and the burden on informal caregivers. By exploring international best practices and evidence, we identify potential strategies and technologies that could enhance care delivery and integration in the Portuguese context. These include expanding multidisciplinary teams, increasing public funding, integrating home and monitoring technologies, promoting the workforce, and supporting informal caregivers. By addressing these issues, Portugal could improve the interface between hospitals and LTC, promoting equitable and sustainable care for its elderly population.

Keywords: Elderly LTC, Access, Informal Care, Workforce, Funding, RNCCI

1 Introduction

Long-term care (LTC) refers to a range of services designed to meet the needs of individuals who are dependent due to age, chronic illness, or disability, aiming to provide comprehensive, humanized, and qualified care tailored to individual circumstances. Within the context of elderly care, LTC is particularly significant as it seeks to support aging populations by ensuring their dignity, autonomy, and quality of life. Combining health and social services, elderly LTC plays a critical role in addressing the challenges associated with aging, offering solutions that range from personal assistance and rehabilitation to end-of-life care, both in community settings and institutional environments. [1]

The aging population is gradually changing the social and healthcare needs in Europe, including Portugal. In particular, the old-age dependency ratio, defined as the proportion of individuals aged 65 and older to those aged 15-64, is projected to grow significantly in Portugal, exceeding increases observed in many other European Union (EU) member states. This trend is driven by declining fertility rates, which in Portugal did not follow the slight increasing trend seen in most EU countries between 2000 and 2015, alongside rising life expectancy. Such changes contribute to an increasing economic dependency ratio (inactive versus employed population), expected to rise from 121.1% in 2016 to 143.3% by 2070 across the EU. [2] By 2023, Portugal already had one of the highest proportions of individuals aged over 65 in the EU, with nearly 25% of its population in that age group. By 2050, this share is expected to grow even further, reaching at least one-third of the population. These demographic shifts highlight the urgency of addressing the challenges associated with an aging population. [3]

The National Network for Integrated Continuous Care (RNCCI) was established in Portugal in 2006 as a joint initiative between the Ministry of Health (MS) and the Ministry of Labour and Social Solidarity (MTSSS). Its creation responded to the growing needs of individuals in situations of dependency, regardless of age. The RNCCI aims to deliver integrated and continuous health care and social support, promoting recovery, autonomy, and quality of life while preventing the progression of chronic conditions, and promoting autonomy and reintegration into family and community life. [1]

Elderly LTC is a key element in the RNCCI's approach as it addresses the complex needs of older adults who face prolonged dependency. The network provides care through a combination of state-funded public and private not-for-profit units, offering services in three main domains: institutional care, hospital-based support, and home care. [4]

Management of the RNCCI is structured at three levels to ensure comprehensive coverage and accessibility. At the national level, the RNCCI is supervised by the National Coordination Committee, which includes one coordinator appointed by the MTSSS and another by the MS, ensuring collaboration between the health and social sectors. Regionally, five multidisciplinary teams (Norte, Centro, Lisboa e Vale do Tejo, Alentejo, Algarve) are responsible for ensuring smooth operation across different areas. At the local level, coordination teams (ECL) based in primary care centers are

responsible for assessing and guiding patients through the system. These multidisciplinary teams are made up of professionals from both health and social care sectors, reflecting the network's integrative approach. [4]

Referrals to the RNCCI can be made by health professionals from hospitals or primary care units. For hospitalized patients, discharge management teams evaluate eligibility based on specific criteria, such as the level of dependency or the presence of severe illnesses. For individuals at home or in private institutions, the evaluation is conducted by local primary care professionals, such as doctors or social workers. Once approved, the referral is sent to the local coordination team, which validates the criteria and places the patient on a waiting list for admission into an appropriate unit or team within the RNCCI. [4]

Elderly LTC within the RNCCI is particularly focused on enabling older adults to remain in their communities whenever possible. Home care services, such as integrated continuous care teams and palliative support teams, play a vital role in this effort by delivering specialized care directly to patients' homes. This approach not only supports the elderly in maintaining their independence but also aligns with broader trends in LTC policy, which prioritize community-based care solutions. [5]

In Portugal, the aging population has led to a greater need for comprehensive elderly care services. Long-term care for older adults plays a critical role in assisting individuals with daily activities, health management, and maintaining social connections. However, as the demographic changes accelerate, the challenge of sustaining these care systems grows, underscoring the importance of adapting healthcare and social infrastructures to ensure they remain effective and financially sustainable.

With this study, we aim to assess the current challenges and issues associated with elderly long-term care in Portugal. By reviewing and discussing international practices and evidence, we seek to identify initiatives, strategies, and technologies that could be adapted to the Portuguese context. Ultimately, our goal is to understand how these various factors might contribute to improving the interface between hospitals and LTC, specifically in the context of elderly care.

2 Methods

Our study began with a literature review to identify the main challenges and issues associated with LTC for the elderly in Portugal. After identifying these challenges (specifically related to access and capacity, workforce shortages, informal care, and funding and affordability) we extended our review to international evidence. We looked for examples of best practices and innovative solutions from countries facing similar challenges, focusing on strategies to address these four areas. This study combines academic research, institutional reports, and insights from news and official documents, resulting in a final selection of 24 sources.

A significant portion of the research relied on reports published by international organizations, including the World Health Organization (WHO), the Organisation for Economic Co-operation and Development (OECD), and the European Union (EU). These reports provided information about the Portuguese context and international LTC systems.

For the financing section, we searched the keywords "Long term care financing" in the publications sections and filtered for results made in the last 12 months by the WHO, yielding a total of 182 results. From those 182 results, we focused on a bundle of 10 connected briefs whose topic was more relevant to our study and ended up choosing 4 of those briefs as references.

To obtain relevant perspectives on long-term care and informal carers, a search was performed in the OECD Library focusing on publications from the previous five years. Using the keyword "long term care", we refined the search by focusing on documents tagged under "Health", in particular "Health spending and financial sustainability" and "Ageing and long-term care". This search yielded 14 results, from which five reports that provided a comprehensive analysis of the topics were selected. In a separate search using the keyword "informal carers", the results were focused on documents tagged under "Health". This search returned seven results, from which one report was selected due to its detailed exploration of policies aimed at supporting informal carers.

In the Publications Office of the European Union, we conducted a specific search on the LTC workforce using the keywords "long-term care workforce." The results were filtered to include EU publications from the past five years, with a focus on the subject "care for the elderly." This search yielded 27 results, from which we selected one report that offered a comprehensive overview of the working conditions and challenges faced by the LTC workforce.

In particular, to better understand the structure and functioning of the RNCCI, we conducted a search in PUBMED using the keywords: "long-term care", "Portugal" and "RNCCI", filtering for publications from the last 10 years. This yielded two results, one of which was selected, given its relevance in providing a general understanding of the RNCCI.

Additionally, we consulted official documentation from the Instituto da Segurança Social to gather insights into the structure and management of the RNCCI, including the patient referral process.

News sources such as *Público*, *Portugal Resident*, and *Observador* were consulted to provide real-world perspectives on regional disparities and operational challenges in the Portuguese LTC system. Additional insights were gathered from the APAH (Portuguese Association of Hospital Administrators) website and official documentation from Portugal's Recovery and Resilience Plan (PRR), which offered insights into capacity challenges and strategic planning for LTC.

3 Results

3.1 Characterization of Problems/Challenges

The LTC system in Portugal faces persistent challenges that limit its accessibility, affordability, and overall quality. Legal coverage for LTC remains inadequate, with home-help services reaching less than 5% of the population aged 65 and older, far below the 15% coverage seen in Northern European countries. This disparity highlights a heavy reliance on informal care, often provided by family members, particularly women, which is more prevalent in rural areas. Without these informal carers, as many as 80% of dependent individuals would require institutionalization. However, informal carers often experience high levels of stress, financial strain, and isolation, while governmental programs to support them remain largely aspirational. [1]

The affordability of LTC is a pressing concern, with Portugal showing the highest reliance on out-of-pocket payments among OECD countries, accounting for 45% of all LTC funding. This heavy financial burden disproportionately affects lower-income families, creating barriers to equitable access. The shortage of qualified professionals further exacerbates the strain on the system. Many LTC workers—often underpaid, poorly trained, and working under precarious conditions—are women who have few alternative employment opportunities. These circumstances diminish the appeal of caregiving roles, perpetuating workforce shortages and reducing the quality of care. Additionally, women bear the responsibility of these systemic issues, with many leaving the workforce to provide unpaid care for family members. [6]

Access to formal services is also deeply unequal across regions. Waiting times for long-term care admissions can exceed 200 days, with Lisbon and Algarve facing particularly long delays, averaging 64 days in 2022. [7] Compounding this issue, nearly 30% of patients in RNCCI occupy beds despite having no pressing medical needs, which prevents those with urgent health conditions from receiving timely care. [8]

Underlying these challenges is the lack of integration between health and social care services, which leads to fragmented care delivery and inefficiencies. [6] Addressing these issues requires policy reforms to expand home-based care services, support informal carers, and improve the working conditions of LTC professionals. Tackling these systemic barriers is essential to ensure equitable access and improve the sustainability of LTC in Portugal.

3.2 International Evidence on Best Practices and Technologies

3.2.1 Access and Capacity Issues

Access to LTC continues to be a major challenge for older adults in many OECD countries, with both accessibility and affordability presenting significant barriers. Many elderly individuals prefer to stay in their homes for as long as possible, but the expense of care provided in facilities often makes it challenging for them to access essential services. [3] Affordability is a particular issue for those with severe care needs, as out-of-pocket expenses can be overwhelming. In six OECD countries, including Portugal, the cost of institutional care often exceeds the median income for individuals with high LTC needs, further exacerbating the financial burden. [9] This is especially true for older adults with lower incomes, particularly those living alone or in rural areas, who often lack the resources to afford professional care services. [5;10]

In terms of accessibility, while many older adults prefer home-based care, there remain substantial gaps in service provision. Despite a slight increase in the proportion of LTC recipients receiving home care between 2011 and 2021, many older Europeans still report a lack of formal or informal support for daily living activities. [3] For instance, in Portugal, only 6.4% of older adults utilized home care services in 2019, despite improvements in the system. [5] The overall system in Portugal, however, faces financial constraints, long waiting lists, and high demand, which significantly limit access to services. [5;9]

In 2016, nearly a third of households in need of LTC services in Portugal could not afford professional home care due to high out-of-pocket costs. [5] As a result, many elderly individuals are left without adequate care, leading to higher hospital admission rates and prolonged hospital stays for those unable to afford LTC services. [9] These challenges highlight the urgent need for systemic improvements in the availability and affordability of LTC services. Portugal also faces some of the lowest levels of public financing for LTC compared to other OECD countries. While countries like Denmark, Sweden, the Netherlands, and Norway allocate a high proportion of public funds (92-94%) to LTC spending, Portugal covers only about 60% of its LTC expenditures through public funding. [11] This makes Portugal one of the countries with the lowest public investment in LTC. Additionally, many OECD countries, such as Lithuania, Austria, Ireland, and Germany, offer policies to finance informal care at home, allowing family members or friends to care for LTC-dependent individuals while receiving a care allowance [11]. In contrast, Portugal lacks such policies, further limiting options for elderly individuals in need of care.

The capacity of hospitals to provide LTC is a growing concern, as many are unable to accommodate the increasing demand for beds from elderly individuals requiring specialized care. This shortage of acute care beds has led to the rise of hospital-at-home services, an innovative solution that allows hospital-level care to be delivered in patients' homes. These services offer a range of treatments, from short-term medical interventions to ongoing care for chronic conditions, palliative care, and rehabilitation. By replicating the quality and scope of care traditionally provided in hospitals, hospital-at-home services help reduce strain on hospital capacity, particularly when acute care beds are in short supply. [12]

In Australia, hospital-at-home services have gained con-

siderable political support, with legislative changes ensuring that elderly individuals with private insurance can access these services, demonstrating a growing commitment to expanding care outside traditional hospital environments. In addition to these services, social technologies are playing a crucial role in empowering older adults to actively manage their own health and care. For example, Australia's "Health Care Home Model" demonstrates how telehealth services can be used to create personalized care plans and assist seniors in managing chronic illnesses. Similarly, Sweden's "Giraff" platform allows caregivers to connect remotely with patients, fostering safe interactions and creating a support network that involves family, friends, and professional caregivers. Together, these innovations help promote independent living and provide more flexible, accessible care, improving the quality of life for elderly individuals while easing the pressure on healthcare systems. [12]

Innovative technologies, such as assistive tools, remote monitoring systems, and self-management platforms, are transforming LTC by enhancing efficiency, reducing emergency visits, and minimizing hospitalizations, as demonstrated in countries like Norway, the Netherlands, Estonia, and Israel. These smart devices not only promote self-care but also help address workforce shortages, particularly in rural areas. Japan and Germany, for instance, are actively investing in these technological advancements through grants and pilot projects, like Germany's Nursing Practice Centre. Norway has also implemented a national strategy aimed at improving digital skills among care workers. More specifically, assistive technologies are enabling caregivers to perform tasks more effectively while increasing patient safety and comfort. In Estonia, for example, government-funded personal alarm systems offer older adults immediate access to professional help. Tablets and smartphones are also being used by caregivers to remotely monitor patients' health, track medical data, and enhance overall caregiving efficiency. Despite these advancements, integrating technology into caregiver training remains a significant challenge. [12]

3.2.2 LTC Workforce Shortages

The long-term care workforce encompasses professionals who provide assistance to individuals with chronic illnesses, disabilities, or other conditions requiring sustained care. This workforce includes both residential care workers, who deliver services in facilities such as nursing homes (not hospitals), and non-residential care workers, who provide support in community settings or directly in people's homes. [13]

As the population ages, the demand for elderly LTC in EU countries, including Portugal, increases, and many countries face staff shortages. [14] According to an OECD Report [13], for OECD countries to effectively meet LTC demands, in the next decade, the total number of workers will have to increase by about 30%. Addressing these workforce gaps is critical, as resolving many of the unmet needs in LTC, including access issues, often depends on having an adequately staffed workforce. [14]

The shortage of workers is driven by several factors, including an aging workforce, regional disparities, and the low attractiveness of careers in the sector. A significant proportion of LTC workers in Europe are over the age of 50, which raises concerns about the continuity of the workforce as these individuals approach retirement. Recruitment of new workers can be difficult due to low wages, limited career progression opportunities, and the demanding nature of caregiving roles, both physically and emotionally. [13;14]

Furthermore, gender inequality remains a persistent challenge in the sector, which is predominantly female-dominated. This imbalance limits the pool of potential workers and reinforces stereotypes that discourage male professionals from entering the field. [13]

As a result of these factors, many European countries struggle to recruit and retain enough qualified staff to meet the growing demand for long-term care services. [13;14] Additionally, LTC workers represent a small fraction of the overall workforce in many European countries, including Portugal, where the sector accounted for less than 4% of total employment in 2019. [14] In some countries, this limited representation of LTC workers is compensated by informal caregivers, who often fill gaps in formal care despite lacking the support or training necessary for their demanding roles. [14]

To address these challenges, several countries have implemented policies to strengthen the LTC workforce. Figure 2 contains a representation of the different types of measures taken to improve the recognition of LTC workers in OECD countries.

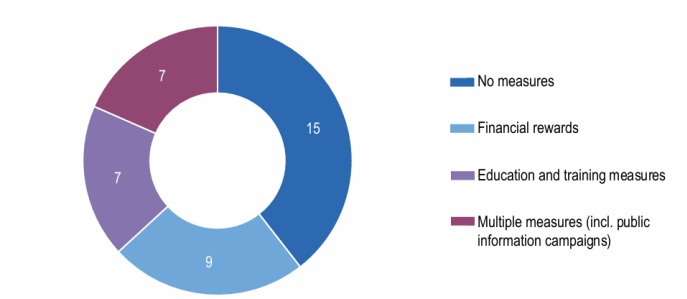

Figure 1: Distribution of OECD countries by type of measures taken to improve social recognition of LTC workers. Source: OECD [13].

Several promotion and information campaigns have been developed in different countries to improve the image of LTC and attract more workers to the sector. [14] These initiatives aim to address negative perceptions and highlight the rewarding aspects of careers in LTC. For example, in England, the 'I Care' initiative has sought to increase interest in social care by sharing ambassadors' personal experiences. Similarly, France has implemented strategies to mitigate negative stereotypes surrounding elderly care, focusing on presenting the sector as a viable career choice. [14] Despite several efforts, however, information on the actual impact of most of these social and public campaigns remains limited. [13]

Additionally, efforts to reduce gender inequality in LTC have emerged, with some campaigns specifically targeting male professionals to diversify a predominantly female workforce. Norway's "Menn i helse" (Men in Health) program successfully integrated over 400 unemployed men aged 26-55 into the LTC workforce by providing targeted training.[13]

Certain policies aim to enhance training and education by improving existing programs or introducing new initiatives. These programs not only increase the number of qualified professionals but also enhance the sector's reputation and create opportunities for career advancement. For instance, in Malta, collaborations with universities have expanded course offerings, and restrictions on nursing student admissions have been removed. Financial incentives, such as increased scholarships and grants, have also been introduced to encourage participation in health and social care education.[14]

Portugal, in particular, faces challenges stemming from the low education levels of LTC workers, which impact the quality and efficiency of care delivery. One measure already implemented in Portugal to address this issue is the recognition of prior experience. This approach helps incorporate workers with practical caregiving expertise into the formal system.[14]

More broadly, effective training programs are crucial for improving the skills and working conditions of LTC workers, particularly those providing personal and home care. For instance, Australia recently introduced thousands of fee-free vocational training placements in LTC to enhance the skills of personal care workers. Continuous training tailored to the specific needs of care recipients, such as courses focused on dementia care or ergonomic techniques for lifting, has also proven effective in reducing the physical and mental strain on carers. Programs preparing LTC workers for home care settings are especially important, given the challenges of working alone and adapting to environments not designed for caregiving.[13]

In Sweden, new nurse training programs have been designed specifically to integrate immigrants and refugees into the workforce. Similarly, Austria has also relied on migrant labor to address staffing shortages, offering pathways for foreign citizens to work in LTC. In contrast, Portugal has less than 1% of migrants working in its LTC sector.[14]

In order to improve working conditions, Germany, for instance, has increased wages and introduced collective agreements to improve job stability and attractiveness. In Portugal, while approximately 40% of LTC workers continue to earn the economy-wide minimum wage, there have been notable improvements over the past decade. Between 2011 and 2021, the minimum wage increased from 36% to 47% of the average wage.[14]

Finally, the integration of new technologies in LTC has the potential to address workforce shortages by improving productivity, reducing worker burdens, and enhancing care quality. Assistive technologies, such as robotic lifts and mobility aids, can alleviate the physical demands of caregiving tasks, while remote care tools, including telehealth and monitoring systems, enable oversight of patients from a distance. Self-management technologies, such as medication reminders and smart home devices, allow older individuals to maintain independence, potentially reducing the need for formal care. Social technologies, like virtual reality and digital communication platforms, promote social connections and improve mental well-being among older adults.[13]

Although these advancements show promise, barriers such as low IT investment in the LTC sector, concerns over privacy, and the need for digital skills among workers and care recipients persist. Currently, IT-related investments in the LTC sector average just 1% of gross value added (GVA) in OECD countries, significantly below the 3.2% across all sectors. Successful adoption requires targeted training programs for LTC workers, efforts to boost digital literacy among older adults, and financial support to make these innovations accessible. Countries such as Denmark and Japan have demonstrated the potential of these technologies, with examples like cost-effective digital rehabilitation platforms and night-time monitoring systems that reduce caregiver workloads while enhancing care.[13]

3.2.3 Reliance on Informal Care

Informal care is a vital part of elderly LTC systems, with millions of people providing unpaid support to older family members or friends.

In the European Union, while 6.3 million people work in the formal LTC sector, an estimated 44 million individuals provide informal care to loved ones.[14] Across OECD countries, approximately 60% of older individuals receiving care rely on informal support.[15]

This heavy dependence on informal caregiving raises significant challenges, including caregiver burnout, workforce loss, and gender inequality, as the majority of informal caregivers, similar to formal LTC workers, are women.[13;15]

In Portugal, informal caregiving is regulated by the 2019 Statute of the Informal Caregiver, which defines two types of caregivers: principal and non-principal.[16] Principal caregivers are family members who live with the dependent person and provide full-time, unpaid care. They are eligible for various types of support, such as respite care, but may not always qualify for financial allowances. Non-principal caregivers, who assist regularly without the need for cohabitation, are not eligible for allowances but can access other forms of support. For example, they have access to respite care, which refers to temporary care services provided to the dependent person, either at home or in a facility, to give informal caregivers a break from their responsibilities.[15]

However, the Portuguese system is restrictive, as it limits its support to family members, excluding other potential caregivers such as friends or neighbors. Nordic European countries (except Finland), for example, focus mostly on the time and type of care provided, without emphasizing the relationship between caregiver and care receiver.[15] Furthermore, strict eligibility criteria often make it challenging

for caregivers to access financial assistance and respite care. [5]

About two-thirds of 33 OECD countries with accessible data have cash benefits to informal caregivers, either directly or indirectly, and consist mostly of European countries. Some countries, such as Japan, have no cash benefits but support carers through care leave policies. In fact, about two-thirds of the OECD countries provide paid or unpaid leave for carers. Half of these countries provide paid leave for carers of elderly people, which usually consists of leave options supplemented with partial income. The duration of paid leave varies greatly across countries, and in some, it can be restricted to cases of caring for terminally ill people. Germany, for instance, allows employees to take up to 10 days of paid leave for emergencies and up to six months of unpaid leave. [15]

Various countries have aimed to support access to information and training of informal caregivers, not only to guarantee quality in the care they provide, but also to help them manage responsibilities and improve their own well-being. However, a large portion of the training services available is reliant on the voluntary sector and NGOs. [13]

Although it is still relatively uncommon, several countries have policies that allow for flexibility in the working hours of carers of older people. In France, workers recognized as caregivers can benefit from reduced working hours and can legally refuse night shifts. Some countries also provide support by relieving caregivers of taxes, though this is generally considered a measure of low importance across OECD countries. [15]

Furthermore, several previously mentioned technologies that support the LTC workforce may also alleviate the burden on informal caregivers. For example, Denmark has implemented digital solutions such as DigiRehab, a platform that offers personalized rehabilitation programs for care recipients. These programs can improve the physical abilities of elderly individuals. In fact, 70% of DigiRehab users experienced a reduced need for home care, demonstrating its potential to alleviate caregiver workloads by enabling elderly care recipients to manage daily activities more independently. [13]

Another example is the use of smart home technologies to support informal caregiving. Devices such as fall detectors, medication reminders, and voice-activated systems can help elderly individuals safely manage their daily routines. For instance, smart home solutions in Japan include environmental sensors that monitor temperature, lighting, and movement, alerting caregivers to potential risks like heat stroke or inactivity. These technologies not only enhance the safety and well-being of care recipients but also provide caregivers with peace of mind, reducing stress and enabling them to manage their responsibilities more effectively. [13]

3.2.4 Affordability and Financial Challenges

The financing system of the RNCCI:

Portuguese long-term care expenditures have been on a constant rise, with the shared investment in the Ministry of Health and the Ministry of Labour and Social Security growing from 17.03 million euros to 172.44 between 2007 and 2016. As a percentage of gross domestic product and of current healthcare expenditures, long-term care expenditures have risen from 0.69% and 7.6%, respectively, in 2007 to 0.96% and 10.7% in 2015. RNCCI's funding mainly comes from profits retrieved from social gambling/betting, public funding ensured by the state budget, and means tested co-payments. [17]

The main beneficiaries of this system are dependent people, mainly the elderly and despite the fact that Portugal spends a significant amount of funds on these resources, 93% had poor access to institutionalized care in 2014 due to the lack of hospital beds, in fact, the number of hospital beds per 1000 inhabitants over 65 years of age is around 4.3% which is strikingly low when compared to other countries such as Spain, France and Germany that all have over 40 in this metric. Moreover, even though the RNCCI possesses multiple sources of funding, which is a strength, its financing model is based on the number of care days provided and it is not based on dependence levels; those factors combined with the financial restrictions imposed by Troika between 2011 and 2014 as well as the insufficient revenue from social gambling and a lack of signed-protocols between the state and third sector entities are partially responsible by the RNCCI's short-comings and stunted growth. Portugal, like Brazil, Finland, Lithuania, Luxembourg, and Slovenia relies on private contributions (private insurance and out-of-pocket payments) for more than 50% of its LTC expenditures. This factor also impacts the elderly population since in European countries with higher public expenditures on LTC, elderly people possess lower levels of unmet needs for basic daily activities as seen in the picture below. [17;18;19]

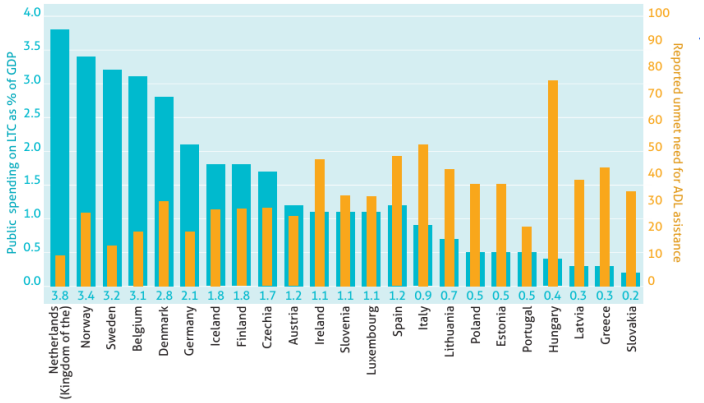

Figure 2: Public spending in LTC related to elderly unmet needs. Source: OECD [18]

Some possible improvements that might improve the current state of the RNCCI would be to implement dependence and risk-adjusted models, remove existing incentives to unnecessary care/bed occupancy, and decrease populational isolation whilst focusing on the role of the community in the NHS through integration programs as

well as boosting health literacy for both the patients and the informal/formal caregivers. Shifting towards a more tax-dependent model such as the present in Australia, Canada, Denmark, Iceland, and Sweden would reduce out-of-pocket expenditures and provide more equitable and accessible care, especially if taxes are levied nationally and fairly distributed to mitigate regional discrepancies. Public intervention is also needed to address the market failures of private long-term care insurance since that field is not only almost non-existent but faces several problems such as moral hazard (insured individuals act in a way that increase their health expenditures) and adverse selection (low-risk individuals shy-away from insurance, leaving a small, high-risk pool of insurees). Another option would be to keep the focus on public contribution while maintaining a mix of universal and selective approaches, which will be discussed in further detail below.[17;18;19]

The economic dynamics of the informal caregiver:

Informal caregivers make up about 80% of all caregivers in the EU and they compose about 2.4 to 2.7% of the EU's GDP, the vast majority of these informal caregivers tend to be women. In high-income settings, an increase in LTC expenditure is correlated to a bigger female workforce, a more robust formal LTC interface, and increased gender equality in the informal caregiving sector, all constituting a net gain for the economy. A lack of formal LTC care makes patients rely on these informal caregivers (mostly women) which detracts from their value in the workforce. In the lack of these caregivers, patients often rely on acute care health and hospital systems, constituting a large burden. This phenomenon is more prevalent in lower to mid-income countries and is a great obstacle to their development since formal LTC care is essential to provide needed services and financial protection for older adults, reducing pressure in hospital systems and reaping the benefits of a more diverse workforce.[18;19;21]

Sources of finance, financial protection and provision of care in LTC:

There are several possible sources of funding for LTC, each with its strengths and flaws. Private and out-of-pocket models increase choice, but boost inequities, catastrophic spending, and shift costs toward families and patients; general taxation is a broad funding base that does not leave out unemployed or informally employed individuals; however, this system may be prone to budget cuts during financial hardships. Mandatory LTC insurance is earmarked towards LTC, providing a bigger incentive to contribute and enabling LTC-specific policies with ease; nevertheless, they are unfeasible in low to middle-income countries and incur bigger coordinating and administrative costs. In addition, adopting a multi-level approach that juxtaposes multiple payers and financial sources where patients may be shifted accordingly is a great strategy to minimize costs. A successful example of said model is implemented in the Kingdom of the Netherlands where most home care relies on social health insurance and home-based assistance and social care in the community are tax-funded and administered by municipalities and social LTC insurance pays for care in nursing homes and personal care provided at home. A simple scheme of public funds allocation may be seen below.[19]

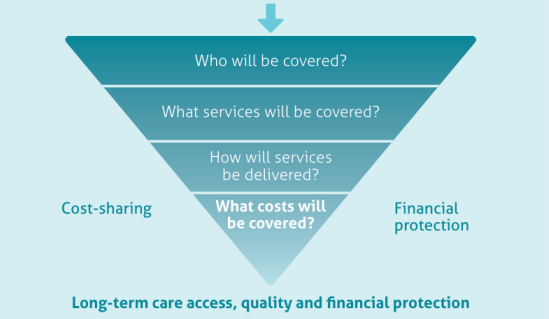

Figure 3: Simple scheme of the process of public fund coverage selection. Source: OECD[21]

Another recent positive paradigm is decentralization where, for example, home care may be managed at the municipal level to adapt care to the requirements of the population. Through decentralization one can adapt the care to better suit geographic necessities, whilst unburdening central institutions. Despite the benefits, this paradigm may raise costs due to bigger necessities in quality assessment and coordination, but seems to be worthwhile as shown in the Nordic countries of Sweden, Denmark, and Finland. Finally, the addition of cost caps such as the lifetime health expenditure cap of 108 000 (US) in the UK provides financial protection, especially to lower-income individuals while mitigating catastrophic spending and financial bankruptcy of individuals with rare diseases.[19;20;21]

4 Discussion

As highlighted in the results section, several international initiatives and practices aim to improve LTC systems. Effective integration between hospitals and long-term care systems is crucial for reducing hospital burdens, ensuring timely discharges, and providing continuous support for individuals transitioning into long-term care. By addressing challenges such as access issues, workforce shortages, support for informal caregivers, and limited LTC resources, these initiatives can potentially improve the interface between hospitals and LTC.

LTC Access and Capacity:

Affordability of LTC represents one of the biggest barriers faced by older people in Portugal, putting additional pressure on the healthcare system. Many older people, especially those with low incomes, struggle to afford the costs of LTC, which is particularly challenging for those who live alone or in rural areas, where specialized and affordable care

options are limited. This reality reflects a growing challenge for the LTC system in Portugal, which is struggling to meet the increasing demand while ensuring that services remain accessible to all elderly individuals, regardless of their financial condition.

Another challenge is the capacity of the system to meet increasing demand, as reflected in the significant rise in inappropriate hospital admissions. In 2024, there was a significant increase in the number of inappropriate hospital admissions in the National Health Service (SNS) hospitals in Portugal, with approximately 76% of these cases corresponding to the elderly. This increase is largely attributed to delays in admission to RNCCI and the delay in providing places in Residential Structures for the Elderly (ERPI). According to data collected in March 2024, around 11.1% of all admissions to public hospitals in Portugal are considered inappropriate, representing 2,164 cases. The 8th edition of the Health Indicators Bulletin (BIS) reveals that the lack of response from the RNCCI is the main reason for this high rate of inappropriate admissions across all regions of the country, with the Central region particularly affected, where this problem affects 74% of admissions. On the other hand, the lack of places in ERPI has a greater impact in the Lisbon and Tagus Valley regions.[22]

Portugal's Recovery and Resilience Plan (PRR), presented in 2021, outlined important measures to address these challenges and improve access to and capacity for long-term care. Among the planned initiatives is the increase in RNCCI capacity with the creation of 5,500 new beds, along with the implementation of 50 integrated continuity care teams for home-based care, capable of serving 1,000 patients.[23] However, recent information indicates that these measures have not yet been implemented and remain under development.[24] The lack of concrete actions to date highlights the urgency of initiatives that can mitigate the impacts of inappropriate admissions and ensure adequate responses to the needs of the elderly population.

Another aspect that could improve long-term care is the integration of multidisciplinary teams. These teams play a key role in promoting autonomy and helping patients remain at home longer. By integrating professionals from diverse fields, such as nurses, care workers, and therapists, alongside part-time specialists like doctors and social workers, these teams collaboratively design and implement care plans. Studies indicate their effectiveness in enhancing daily activities, boosting confidence, minimizing health risks, and reducing hospitalizations, all while improving patient satisfaction in long-term care.[12]

Moreover, emerging technologies offer great promise for improving the accessibility and efficiency of long-term care. Models such as "hospital at home" are being implemented in several countries and have shown effectiveness in managing elderly patients with chronic conditions or those in recovery, reducing demand for hospital beds and improving patient comfort. In addition, digital platforms such as Sweden's "Giraff" and Australia's "Health Care Home" model are facilitating remote monitoring of patients, allowing caregivers and family members to actively participate in managing the health of the elderly. Such innovations are vital for relieving pressure on hospital systems and providing more personalized and accessible care.[12]

Similarly, the use of technology in LTC also has the potential to greatly improve communication, data processing, and networking, ultimately enhancing care efficiency. A significant issue in LTC is the labor-intensive process of data recording, often done manually, which consumes valuable time for nurses and care workers. The Netherlands' new legislation on electronic health records aims to simplify the work of LTC professionals by enabling them to record medication and care plans electronically, reducing administrative tasks and streamlining billing and communication with healthcare providers. Germany's Concerted Action, launched in 2018, also emphasizes the integration of digital solutions, such as telenursing and home assistance systems, to alleviate administrative burdens, enhance nursing care, and improve coordination at critical interfaces like hospital discharge.[12]

LTC Workforce and Informal Care:

Furthermore, LTC workforce shortages are a pressing concern in countries with aging populations, including Portugal. Addressing these shortages is crucial not only for enhancing the quality of LTC services but also for improving access to care.[14] Effective workforce policies can help connect hospital care and LTC, ensuring smoother transitions and reducing unnecessary hospitalizations. Strengthening the LTC workforce could also facilitate the integration of multidisciplinary teams and "hospital at home" models.

Among the international solutions discussed, programs incentivizing the integration of male workers, such as Norway's "Menn i helse," could be relevant for Portugal. To our knowledge, there are currently no concrete initiatives targeting this demographic, despite its potential for addressing staff shortages and combating gender inequalities in the sector.

Social and public campaigns implemented in other countries have aimed to improve LTC's image, though their impact remains unclear. More definitive measures, such as education and targeted recruitment programs, seem particularly relevant for Portugal, especially in the context of elderly care. For instance, introducing fee-free vocational training opportunities and continuous education tailored to caregiving needs, as seen in Australia, could enhance skills and improve retention rates among LTC workers.

Additionally, Portugal has a notably low percentage of foreign workers in the LTC sector. While it is relatively easy to recruit foreign workers due to exemptions from labour market tests for sectors with shortages, this approach risks exacerbating the existing issue of low education levels among LTC workers.[5] To address this, adopting targeted training programs, such as Sweden's initiative to integrate immigrant workers, could help ensure their effective integration into

the workforce. This strategy could contribute to addressing staff shortages while maintaining quality care standards.[13] However, systemic issues such as low wages and limited career prospects must continue to be addressed through policy reforms to improve worker retention and attract new professionals to the sector.[13]

Informal care is also essential in reducing unnecessary hospitalizations and institutionalizations, alleviating pressures on both hospitals and formal LTC services.[5] However, as seen in the results section, Portugal's recognition and support for informal caregivers remain limited. The Statute of the Informal Caregiver is restrictive, as it only recognizes family members as caregivers. Adopting eligibility criteria based on the type and duration of care provided, rather than limiting it to family ties, could align Portugal with practices observed in other countries. Additionally, Portugal lacks comprehensive leave policies for informal caregivers, whereas nearly two-thirds of OECD countries provide such leave to care for older individuals, offering job security and financial stability to carers.

Technologies offer promising solutions to challenges faced by both the workforce and informal caregivers. For example, smart home technologies and telehealth can support informal care by enabling older individuals to live independently for longer. Assistive technologies, such as robotic lifts and mobility aids, can address workforce shortages by easing physical tasks and improving productivity. Globally, however, the adoption of new technologies in LTC is often limited to inexpensive products due to financial constraints[13], and this trend is likely to apply to Portugal as well. Programs like DigiRehab in Denmark and Japan's night-time monitoring systems are good examples of relatively affordable yet useful technologies that could inspire similar initiatives in Portugal.

In addition to financial constraints, the widespread adoption of digital solutions is also hindered by limited digital literacy among both workers and care recipients.[13] Developing essential digital skills, such as navigating telehealth systems and managing electronic records, is a critical step toward improving integration and care quality, and applies to Portugal as well.

LTC Funding Sources:

Finally, another common theme we encounter in several briefs is that deinstitutionalization, obtained by relieving pressure from psychiatric facilities and hospitals and redirecting patients towards community-based residences that support different levels of dependency on ADL (activities of daily living) on a municipal/parish-level proves to be an effective challenge if the budget for sorting and quality inspection is properly provided. This model is mostly adopted in Nordic countries, with special emphasis to the Kingdom of the Netherlands and proves to be effective. It should also be noted that a transition to this model should be implemented gradually and only with appropriate levels of funding otherwise the effects may be non-beneficial.[21]

5 Conclusions

In conclusion, the Portuguese healthcare system faces significant challenges in ensuring effective coordination between hospitals and LTC facilities, particularly for elderly care. The excessive reliance on private and out-of-pocket funding mechanisms, combined with an underdeveloped LTC insurance market, increases inequities and places financial burdens on families. These issues are further complicated by workforce shortages, inadequate public investment, reliance on informal care, and limited regional accessibility to care services.

Based on international best practices, there is a clear need for Portugal to adopt a more public-funded model to enhance financial protection and equitable access. Innovations such as the integration of multidisciplinary care teams, the use of assistive, telehealth and smart home technologies, "hospital at home" models, and the expansion of community-based care programs could alleviate the strain on hospital systems and improve care quality. Additionally, further support for informal caregivers, along with initiatives in digital skill development, workforce expansion, and education, is important for ensuring long-term sustainability.

Elderly care is a complex and broad area, and while our study focused on specific aspects, we took a general approach to highlight significant challenges and potential solutions. More concrete recommendations would require a more targeted and in-depth analysis of the individual components of the system.

Ultimately, by promoting a more cohesive and well-supported LTC system, Portugal can better address the growing needs of its aging population while promoting quality of life for the elderly.

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