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POSTER ABSTRACT

Integrated care network for long term care in Portugal: cost estimation and patient's characteristics.

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Background: Portugal began the implementation of an integrated care network for Long Term Care (LTCIN) in 2006. Its main objective is to deliver services of health and social support including post-acute and long term care. There are four different types of inpatient LTC units: Palliative Care Units (PCU), Convalescent Care Units (CCU), Medium Stay and Rehabilitation Care Units (MSRCU) and Long-Stay and Maintenance Care Units (LSMCU) (1). These units are financed both by the Ministry of Health and the Ministry of Social Affairs.

In 2014 LTC represented roughly 0.1% of Portuguese GDP. Despite the rapid growth verified (in 2014 the available beds were ten times higher than in 2006), LTC resource allocation was still far from 1% of GDP verified in developed countries such as Australia, UK or Germany (2, 3, 4).

The growing demand for LTC, the increase need of public funding, budget constraints and fourth age demographic pressure triggered the need for rethinking the structure of care provision (5). The knowledge of analytical costs per episode and the specific factors that influence cost variation is a relevant issue to the development of alternative ways for resource allocation.

Purpose: The main objective of this study was to estimate LTC episode costs and assess their association to patient characteristics and inpatient unit types.

Methods: A cross sectional retrospective study was conducted. Data was collected from LTCIN information system including administrative inpatient data (gender and age), physical autonomy and cognitive status of patients from 2010 to 2012. Cost Information (Balance Sheets and Profit and Loss Statement) was provided voluntarily by seventeen LTC providers. To meet the purpose of the analysis we included inpatient episodes only and excluded palliative care units due to organizational issues.

Submitted financial data allowed the estimation of costs of 1.856 distinct episodes, roughly 4.1% of all inpatient LTC episodes reported within the timeframe.

A top-down cost accounting method was adopted and average per diem cost was estimated for each provider. Each episode cost was achieved multiplying the per diem cost by the LOS of the specific episode.

In order to assess the association between costs and patient characteristic and provider type a Multiple Linear Regression (MLR) analysis with stepwise variable adoption approach was performed and the following formula was adopted:

Model 1: Cost i=β_0+β_1 〖Gender〗_i+β_2 〖Age〗_i+β_3 〖PhisicalAutonomy〗_i+β_4 〖CognitiveStatus〗_i+ 〖β_5 〖ProviderType〗_i+u〗_i

To isolate the effect of patient characteristic per se the same method was used in Model 2 excluding the variable provider type.

Results: Per diem average cost of each inpatient episode was 84.28€. Costs differ according to type of unit considered; CCU (96,85€); (MSRCU) (84,84€); LSMCU (67,85€).

Results from Model 1 shows that provider type is relevant for explaining cost variation. MSRCU has average per diem costs more than two times higher than CCU. Cognitive status is not relevant for explaining cost variation except for patients with poor cognitive status which have smaller average per diem costs. Results from Model 2 show that even when we exclude provider type patients' characteristics remain not relevant for explaining cost variation.

Discussion: Provider type is the most relevant variable for explaining cost variation. This suggests that supply characteristics are more relevant than considered demand characteristics to define resource allocation and costs. The referral to specific type of provider according to treatment plan seems to drive the cost and, according to it, patients with similar characteristics may represent different per diem LTC costs.

During the study we found some limitations. The most relevant is the absence of detailed cost information and complete diagnosis data. We used the best information available (Balance Sheet and Profit & Loss Statement), which are the legal economic documents imposed by the fiscal system. We recognize that the adoption of standardized minimum dataset of financial elements for LTC providers or bottom-up patient costing method (recommended solution), would allow us a better cleaner picture on what is relevant for explaining cost variation.

Despite limitations and recognizing that different results could be found if different methods were adopted, we believe in our study's relevance. As far as we know It is the first study in Portugal that aims explaining LTC cost variation at episode level, , reinforces the need for the adoption of a robust cost accounting method and concludes that further research is required.

Conclusion: The subject LTC is receiving increasing attention because of demographic trends and the pressures on public finances. Identifying the factors that may influence costs is a relevant issue to inform decision makers on resource allocation planning and ultimately to ensure that healthcare system organization does not promote negative externalities such as access barriers, moral hazard behaviours or resource allocation inequity.

Keywords: long-tem care; cost estimation