Integrated Continuous Healthcare Team Computer System Architecture ⊗

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Abstract

A computer-based pattern recognition system architecture destined to collect and process geographically referenced data about integrated continuous healthcare teams (ECCI) is presented and discussed in the chapter. These teams are part of Portugal's National Network of Integrated Continuous Care (RNCCI). The system is designed to collect data about the displacement of each team during healthcare assistance. The pattern recognition system handles information about the costs related to the provided healthcare. The architecture is designed around open source software resources. Virtual machines and container-based technologies provide hardware independence. The Python programming language ecosystem is chosen for all the main components of the system.

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Introduction

The no. 101/2006 Decree-law of Portugal (Government, 2006), creates the National Integrated Continued Healthcare Network, constituted by continued healthcare teams and units, and/or social support, and/or palliative care and actions. ECCI's (Integrated Continued Healthcare Teams) are defined as multidisciplinary teams that provide domiciled primary healthcare and social services to people with functional dependencies, terminal illness or are undergoing a convalescence process. These people are in situation that doesn't require them to be admitted but are unable to move autonomously. The ECCI teams may be constituted by a set of medical doctors, nurses, social workers and psychologists. All over the country there in was in the year 2016 a set of 279 teams (Administração Central do Sistema de Saúde, 2017)þ, see Table 1. There are a number of factors that contribute to the heterogeneity in terms of these teams such as:

- **The Area Covered by Each Team:** There are regions that are very large and rural thus making the ECCI team displacement an important cost issue. This is the case with the Alentejo and Center regions.
- **The Population Density:** There are densely populated areas such as the North and Lisboa and Tejo Valley whereas other areas in the country are sparsely populated such as Alentejo and the Center.
- **The Constitution of Each Team:** Each team has a varying number of doctors, nurses and other staff.

Table 1. Distribution of ECCI teams for each region of continental Portugal

Region	Area (Km2)	Inhabitants	Number of ECCI teams
North	21 278	3 689 173	84
Center	28 462	2 327 026	66
Lisboa and Tejo Valley	11 930	3 447 173	60
Alentejo	31 551	758 739	37
Algarve	4 997	451 006	32
Total	92 218	10 673 117	279

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