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***Contributions to the development of a performance
measurement framework for Hospital Centres***

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ABSTRACT

The recent healthcare reforms of the health system, and in particular in the hospital sector, seek to increase cost effectiveness, accountability, sustainability and the quality of care. These reforms concern different stakeholders, including healthcare professionals, patients and the communities. Some of these reforms led to organizational changes in hospitals generating different organizational models. Following this trend, the Portuguese organizational model called Hospital Centre (HC) matches the horizontal integration model and involves the integration of two or more hospital units. The benefits of this integration have been presented in the literature. Nonetheless, performance measurement frameworks for HCs considering the internal stakeholders' value-based objectives and performance domains have, to the best of our knowledge, not yet been proposed. Although there has been a scarcity of literature relating to the performance of integrated health systems, the measurement of HC performance is a fundamental task for management decision-making, improving effectiveness and strategy formulation. Additionally, there is growing awareness to improve the scope of performance measurement in order to embrace the recent hospital reforms, namely horizontal and vertical integration. The leaders of the healthcare organizations need to develop performance measurement frameworks that align the organizational strategy with performance measurement (PM). In this research we intended to cope with several aspects related to hospital organizations, in particular HCs. Our aim is to deepen the knowledge regarding the horizontal integration processes in Portugal and thus to develop a PM framework design more adapted to this reality.

Therefore, in this research work a qualitative case study design was applied to address these challenges. A qualitative study was conducted to gain in-depth understanding of the Portuguese horizontal integration context. The aim of this study was also to identify intended or planned objectives and also the non-stated objectives, which are not defined in any official document. Instead they were expected benefits or those perceived by the different stakeholders. A detailed list of the most important objectives for key informants and internal stakeholders was developed and distributed according to three main dimensions: organizational, patient and professional. Additionally, a list containing the important external pre-conditions that can contribute to a successful HC organizational model is also presented. The results of this study revealed that a large portion of the mentioned objectives were in the organizational dimension. In this dimension, objectives related to resources rationalization and optimisation, with consequent cost reductions, were frequently mentioned. The objectives most frequently mentioned in the patient

dimension concerned reducing inequalities in care provision. In the professional dimension, the objectives related to professional conditions and the improvement of the work environment were referred. Regarding the second aim of this study, a very important external pre-condition that can contribute to successful integration is the support of the local and regional authorities.

In the second study, following the definition of the objectives, the most valued performance domains were identified and their relative importance to internal stakeholders. We conducted a survey study using a questionnaire based on Parsons' social system action theory, which embraces the four major models of organizational performance. An exploratory factor analysis was conducted for a final sample of 365 participants, through principal component analysis, with oblique rotation and the Kaiser criterion. Four factors were retained: "Human resources development and Internal Processes", "Attractiveness/Openness", "Public service mission" and "Interpersonal relationships". The means of the factor score only show statistical differences between the "Attractiveness/Openness" factor and the remaining three factors. A shared view was found in this study among the three groups of internal stakeholders: physicians, caregivers and administrative staff, since there were no statistical differences when factor score means were compared between groups. The results of this study suggest that the HC performance concept should be expanded and performance measurement frameworks with a broader scope should be used. The domains of interpersonal relationships, human resources development and public service are deemed important for consideration in the performance measurement of the HC. Moreover, a consensual view regarding the most valued performance domains and shared organizational values could contribute to a beneficial and healthy working environment and improvements to HC performance.

The third phase of this research, based on previous studies, consisted of designing a performance framework using structured design methodologies focused mainly on the design phase, and the conceptualization stage in particular. The proposed PM framework design for a HC includes objectives considered important by key informants and internal stakeholders and performance domains valued by internal HC stakeholders. Additionally, it reflects the needs and specificities of the different stakeholders involved in the development process. The alignment of the objectives of HC departments/services with the HC objectives, and these latter with national and regional hospital care objectives were also considered in the design. The proposed domains and sub-domains of the PM framework reflect the different operational strategy perspectives. It is possible to achieve

the organizational goals by developing the necessary resources and configuring the processes to acquire the required capabilities.

RESUMO

As recentes reformas no sistema dos cuidados de saúde, e em particular no sector hospitalar, visam melhorar a relação custo-benefício, responsabilidade, sustentabilidade e qualidade dos cuidados. Estas reformas envolvem as diferentes partes interessadas (*stakeholders*), incluindo profissionais de saúde, doentes e comunidades. Algumas destas reformas levaram a alterações nos hospitais dando origem a diferentes modelos organizacionais. Seguindo esta tendência, o modelo organizacional português, designado por Centro Hospitalar (CH), é um modelo de integração horizontal que envolve a integração de duas ou mais unidades hospitalares. Os benefícios deste tipo de integração têm sido apresentados na literatura. No entanto, e que tenhamos conhecimento, não foram ainda propostas ferramentas para a medição do desempenho dos centros hospitalares que considerem os objectivos e domínios de desempenho mais valorizados pelos parceiros internos (*internal stakeholders*). Apesar de ser escassa a literatura relacionada com o desempenho de sistemas de saúde integrados, a medição do desempenho dos CHs é uma tarefa fundamental para a tomada de decisões, para melhorar a eficácia e para a formulação de estratégias. Adicionalmente, existe uma crescente consciência no sentido de melhorar o âmbito da medição de desempenho para lidar com as recentes reformas hospitalares, nomeadamente a integração horizontal e vertical. Os líderes das organizações prestadoras de cuidados de saúde necessitam de desenvolver ferramentas que alinhem a estratégia organizacional com a medição de desempenho. Com esta investigação pretende-se fazer face aos vários aspectos relacionados com as organizações hospitalares, em particular os CHs. O nosso objectivo é aprofundar o conhecimento no que respeita ao processo de integração horizontal em Portugal e assim contribuir para a conceção de uma ferramenta de medição do desempenho mais adaptada a esta realidade.

Deste modo, foi aplicada nesta investigação um caso de estudo qualitativo para responder a estes desafios. Foi realizado um estudo qualitativo de modo a aprofundar o conhecimento do contexto de integração horizontal em Portugal. Um outro objectivo deste estudo foi identificar os objectivos estabelecidos ou planeados, e também os não estabelecidos, aqueles que não foram definidos em nenhum documento oficial. Estes últimos foram objectivos esperados ou benefícios percebidos pelas diferentes partes interessadas (*stakeholders*). Foi desenvolvida uma lista detalhada dos principais objectivos considerados pelos informadores-chave e pelos parceiros internos (*internal stakeholders*). Estes objectivos foram posteriormente distribuídos por três dimensões: organizacional, doente e profissional. Além disso foi também apresentada uma lista contendo pré-condições externas importantes as quais contribuem para um modelo

organizacional de CH bem sucedido. Os resultados deste estudo revelaram que uma grande parte dos objectivos mencionados se encontravam na dimensão organizacional. Nesta dimensão, foram mencionados frequentemente objectivos relacionados com a racionalização e optimização de recursos, com a conseqüente redução de custos. Objectivos relacionados com a redução de desigualdade na prestação de cuidados foram os mais frequentemente mencionados na dimensão do doente. Na dimensão profissional foram referidos objectivos relacionados com as condições profissionais e melhoria das condições de trabalho. Relativamente ao segundo objectivo deste estudo, uma pré-condição muito importante que pode contribuir para uma integração bem sucedida é o apoio das autoridades locais e regionais.

No segundo estudo, posterior à definição de objectivos, foi feita a identificação dos domínios de desempenho e avaliada a sua relativa importância entre os parceiros internos (*internal stakeholders*). Foi aplicado um estudo por questionário usando um questionário baseado na teoria de ação do sistema social de Parson, a qual combina os quatro modelos de desempenho organizacional dominantes. Foi conduzida uma análise factorial exploratória numa amostra final de 365 participantes, através da análise de componentes principais, com rotação oblíqua e critério de Kaiser. Foram retirados quatro factores: “Desenvolvimento dos recursos humanos e processos internos”, “Atratividade/Abertura”, “Missão de serviço público” e “Relações interpessoais”. A média da pontuação obtida em cada factor apenas revelou diferenças estatisticamente significativas entre o factor “Atratividade/Abertura” e os restantes três factores. Neste estudo contactou-se uma visão partilhada entre os três grupos profissionais: médicos, cuidadores e pessoal administrativo. Os resultados deste estudo sugerem que o conceito de desempenho do CH deve ser expandido e deverão ser usadas ferramentas de medição de desempenho com um maior âmbito. As relações interpessoais, o desenvolvimento dos recursos humanos e o serviço público são domínios importantes a considerar na medição de desempenho do CH. Mais ainda, uma visão partilhada relativamente aos domínios de desempenho mais valorizados pode contribuir para um ambiente de trabalho mais benéfico e saudável e para melhorias no desempenho do CH.

A terceira fase desta investigação, a qual foi baseada nos estudos anteriores, consistiu no desenvolvimento do projeto para uma ferramenta de desempenho utilizando metodologias de projeto estruturadas focadas fundamentalmente na fase de projeto, e em particular na fase de conceptualização. O desenho proposto para a ferramenta de medição do desempenho para CH inclui objectivos considerados importantes pelos informadores-chave e parceiros internos (*internal stakeholders*). Adicionalmente, este reflete as

necessidades e particularidades dos diferentes partes interessadas, (*stakeholders*) envolvidos no processo de desenvolvimento. O alinhamento dos objectivos dos departamentos/serviços do CH com os do CH, e destes com os objectivos regionais e nacionais ao nível dos cuidados hospitalares foram também considerados no desenho. Os domínios e subdomínios propostos da ferramenta de medição de desempenho refletem as diferentes visões da estratégia operacional. Desenvolvendo os recursos necessários e configurando os processos para adquirir as capacidades necessárias é possível alcançar os objectivos organizacionais.

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Chapter 1: Introduction

The research topic is introduced in this chapter. This chapter starts with an overview about the international and the Portuguese healthcare sectors. Then, the integration context in the Portuguese healthcare sector is presented. After that the research problem and purpose are defined. This is followed by the identification of the research objectives and the research questions are presented. Finally, there is a brief description of the dissertation chapters.

1.1. Context

Hospitals are a crucial part of the health system and their reform has a relevant impact on healthcare. Hospitals symbolize the healthcare system for most people. The role of hospitals in the healthcare system evolved from religious establishments (a place where patients could be supported and comforted until nature took its course) to establishments largely steered by technology and consumerism (Edwards, Wyatt, and McKee - 2004). Hospitals are rarely seen as an integrated part of the broader healthcare delivery system (Edwards, Wyatt, and McKee - 2004).

Hospitals can be seen as complex organizations¹. Indeed, they are complex in their structure and management since they have their own dynamics, especially in the market where they operate. They also have certain specific characteristics in their economic and management models such as an activity with multi-products due to the diversity of diagnostics and disease which can be treated in the hospital. This diversity in diseases and diagnostics can be improved by the degree of evolution of the disease (Costa and Lopes - 2007).

The healthcare sector is characterised by enormous differentiation. That differentiation has to be reduced or integration improved as a means of improving efficiency and effectiveness in care (van Wijngaarden, de Bont, and Huijsman - 2006). Minkman (- 2012) referred that over the past decade integrating care and services has become an important development to better serve patient needs and reduce fragmentation within several healthcare systems.

In some European countries there have been some experiences to stimulate and encourage providers to establish integrated care arrangements and to support their efforts. In some countries like Finland, Sweden, the Netherlands, and England there is legislation, financial incentives, and other kinds of initiatives that enable providers to implement integrated care initiatives and support their efforts (Mur-Veeman, Raak, and Paulus - 2008). In the United States, organizations called Health Maintenance Organisations have been founded to be able to deliver integrated care (van Wijngaarden, de Bont, and Huijsman - 2006).

In Portugal, there have been some initiatives to delivery more integrated care. One of the first initiatives leading to vertical integration of healthcare units was the creation of the

¹ Complexity science is useful for studying the evolution of complex organizations, which are entities with multiple, diverse and interconnected elements. Due to the diversity of organizational forms and interactions among organizations that are evolving, healthcare organizations are an ideal setting for the application of complexity science (Begun, Zimmerman, and Dooley - 2003).

Local Health Units (LHU). A LHU is the integration of primary care units with hospital care units and continuity healthcare. This is a means of vertical integration. One of the most important objectives of LHU creation is to improve healthcare delivery, creating conditions to improve articulation and management between National Health Service (NHS) organizations in the same geographical area. The first pilot experience, occurred in 1999, with the creation of the Matosinhos LHU (Assembleia da Republica - 1999a). Nevertheless, the vast majority of these vertical integrations took place in 2008.

At the same time that the first experience of vertical healthcare integration occurred in Portugal, in 1999, the creation of a new organizational model to deliver hospital care also occurred, named Hospital Centre (HC). The HC, as an organizational model to deliver hospital care, was created in 1999² by decree-law (Assembleia da Republica - 1999b). This legal document defines the main aims of an HC and establishes the general guidelines to create HCs. The main aims of an HC are, therefore, resources rationalization and value creation for NHS users. This model for the delivery of hospital care consists of the integration of two or more individual hospital units, creating a HC with one management board, which is responsible for managing the entire activities of the integrated units. Each HC created, according to this legal instrument, should be preceded by a proposal from the Regional Health Authority (*Administração Regional de Saúde*). This proposal must give the reasons for hospital unit integration, based on the public interest, namely optimisation of the delivery of healthcare services by the hospital units when integrated and the reinforcement of articulation and complementarity of hospital services.

22 HCs were created in Portugal following this decree-law approval, and up to 2012. All the HCs were created by decree-law, one per each HC. Some of the first HCs created were readjusted after a number of years to include more hospital units. HCs were created throughout the Portuguese territory, but with higher prevalence in the north of Portugal.

As previously referred, each HC created needed to give the reasons for that integration. In practice, for each HC to be created, i.e. for the integration of two or more hospital units, the definition of an integration plan was required. This plan discriminates the specific objectives to be achieved with the integration. Therefore, few HCs had a preliminary plan that supported their creation (Portuguese Health Regulation Authority - 2012). In the few cases where this integration plan is available, it had been made at high level inside the hospital units (the board) with the collaboration of the Regional Health Authority. Thus,

² Although the legal status of the Portuguese HCs had been created in 1999, there were very few specific previous experiences with integration of hospital units (Portuguese Health Regulation Authority - 2012).

very few people inside the hospital units, mainly the board and some services directors, participated in the establishment of objectives.

At the same time these hospital care integration initiatives emerged in Portugal, other sorts of reforms had been made regarding the management rules and the payment of services. The main element of these reforms was to provide hospitals with business-like statutes. The main objective of this reform was to provide autonomy and management accountability to hospital boards (Barros and Simões - 2007).

Hospitals are nowadays facing important challenges besides greater control by the State. The introduction of business models in hospital management are changing the hospital environments, where the barriers between hospital professionals are being knocked down to build more contingent relationships between the management and clinical areas (Doolin - 2002; Minvielle et al. - 2008). Management and clinical areas must collaborate more closely to better answer these new challenges with new management and performance review tasks (Llewellyn - 2001).

In conclusion, over the years the Portuguese Health Ministry has tried to improve hospital efficiency and management accountability with these abovementioned initiatives, in particular the creation of hospital centres.

1.2. Problem Statement and Objectives

The integration of hospital units is an important initiative regarding the main benefits expected. There are some examples of benefits reported in the literature: scale economies, efficiency, organization and coordination of care, improvement and development of human resources (Markham and Lomas - 1995; Snail and Robinson - 1998; Brousselle, Denis, and Langley - 1999; Lee and Alexander - 1999). However, there are also some expected disadvantages mentioned in the literature such as: increased financial costs to create the new entity, lack of easy access to certain services, insecurity of human resources, loss of managerial and organizational identity, and disruption of routines at the clinical and organizational level (Markham and Lomas - 1995; Lee and Alexander - 1999). Moreover, in the public system, horizontal integrations only produce benefits when it's possible to eliminate duplication and reduce capacity, when there are clinical reasons for greater scope and scale, there are pressures from medical and surgical associations to provide minimum levels of consultant staffing that are difficult to achieve in small hospitals, and capital and work flexibility are raised across multiple services (Garside - 1999; Posnett - 2002).

In a well-performed HC, the objectives should be established in a way to enhance the benefits and to minimise the disadvantages of horizontal integration. However, as previously mentioned, in the few cases in Portugal where the integration plans were available they focused mainly on an organizational perspective with the majority of objectives established in domains related to finances, access and quality.

The lack of a complete perspective of the integration objectives makes it difficult to evaluate if the proposed objectives were achieved and thus, to improve HC performance. Furthermore, the variety of healthcare performance models reflects different and fragmented aspects of performance (Neely et al. - 2000; Adair et al. - 2003). Consensus regarding the best model to assess performance is impossible to obtain. The traditional performance measurement (PM) systems in business and in healthcare focus mainly on accounting and financial measures (Tangen - 2004; Mauro et al. - 2014). However, each stakeholder group has different preferences, purposes and values (Sicotte et al. - 1998).

According to the multiple constituent model of organizational performance, the stakeholders' perspectives must be considered in an integrated way for the purposes of evaluation (Zammuto - 1984; Mauro et al. - 2014). Sicotte et al. (- 1998) developed a comprehensive theoretical grounded framework that overcomes the fragmented approach to assess the healthcare organization's performance. This framework is based on Pearson's social system action theory (Parsons - 2005) which combines the four dominant models for the evaluation of organizational performance. Therefore, a multidimensional framework of performance measurement is appropriate for HCs.

Although there are 24 HCs in Portugal, no PM framework is specifically designed for them, as horizontally-integrated organizations, and which not only considers the traditional measures and stated objectives but also the non-stated objectives. This fact makes HC performance difficult to measure from a holistic perspective (Was there a performance improvement? Were the integration objectives achieved?) and makes it difficult to make decisions regarding performance improvements. Although HCs are organizations that deliver hospital care, they have their own specificities because they are larger in dimension and thus have to deal with more resources (human and physical) when compared with non-integrated hospitals. Additionally, other challenges they face are multi-site infrastructures that have a strong impact on HC performance.

We want to take advantage, from a holistic overview of the context of the Portuguese HC, capturing the understanding, expectations, experiences and inner opinions of the key informants and HC internal stakeholders that have a deep understanding and awareness.

In this research project we aim to contribute to the development of a PM framework for HCs.

This research was guided by two main objectives. The first was the definition of the most important objectives and also the performance domains that should be included in the design of the PM framework. In relation to the objectives we would like to identify the most important, related to the reality of the HC. The second objective is to develop the design of a PM framework for the HC.

Some of the intended or planned objectives were defined when the hospitals centres were created by decree-law and were also indicated in the findings of the literature review. Other planned or intended objectives were not defined in any plan or in any official document. Instead they were expected benefits and objectives or experienced by the different stakeholders. Thus, with the first objective we intend to involve the most important stakeholders in the development of the framework, giving them the opportunity to express their feelings and expectations about the benefits of horizontal integration, which resulted in the creation of the HC.

In the development of this PM framework design it is essential to define the HC performance domains. The HC internal stakeholders' opinion regarding the most important performance domains will be an important contribution to their definition.

Finally, the conceptual design of the PM framework for the HC will be developed and its operational implementation will be described. This framework will help the HC managers to align the operational and strategic objectives throughout the integrated units.

1.3. Research Questions and Research Development

To achieve the final proposed objective we established the following research question:

Research question: *How to develop a PM framework for a HC?*

With this research question we intend to address several aspects related to hospital organizations, in particular HCs. Our intention is to expand on the knowledge regarding horizontal integration processes and thus to develop a PM framework more adapted to this reality.

Since the HCs are integrated organizations, its development is a dynamic process with a lot of room for improvement. The number of elements to be implemented, the number of healthcare professionals and number of hospital services involved are extensive. The most important dynamics involved during the integration process are processes integration,

structures integration and resources integration. This dynamic process also involves aspects related to organizational and professional cultures, decision-making power, social relations and many others interests. These dynamics have evolved over time, making them a challenge for the process. Thus, the integration process never ends; it never seems to be complete. Although the benefits and the rationale for integrated care are mostly evident, the development process to enable organizations to reach higher levels of integration, and consequently performance, over time is less clear (Minkman - 2012).

Some of the intended or planned objectives were defined when the hospitals centres were created by decree-law and also indicated in the findings of the literature review. Other non-stated objectives were not defined in any official document. Instead they were expected benefits or those perceived by the different stakeholders.

Therefore, this main research question is unfolded into four sub-questions:

Sub-RQ1: What are the HC objectives most valued by the main stakeholders?

Sub-RQ2: What are the external pre-conditions that influence a successful HC implementation (that achieves the proposed objectives) according to key informants and internal HC stakeholders?

Sub-RQ3: What are the most important performance domains in the Portuguese HC context?

Sub-RQ4: Are these performance domain preferences different among internal stakeholder groups?

To answer the first research sub-question we intend to involve all the most important stakeholders, giving them the opportunity to express their expectations and knowledge about the benefits of horizontal integration, which resulted in the creation of the HC.

The knowledge of what goes well, and not so well, in the HC Portuguese experience, led to the definition of second research sub-question.

The answers to these two research sub-questions (Sub-RQ1 and Sub-RQ2) correspond to the first part of this research, presented in Paper #1 (here included in section 3.1. of chapter 3). In this paper we presented the results of research focused on the identification of objectives and pre-conditions that are most valued by key informants and internal stakeholders regarding the HC. Qualitative case study research design was applied. Semi-structured interviews were conducted with two groups of interviewees: external key informants and HC internal stakeholders. Documentary information was also used as a source of evidence.

The third and fourth research sub-questions (Sub-RQ3 and Sub-RQ4) arise following the definition of performance domains to consider in the performance measurement (PM) framework.

In Portugal, there is little official information that enables a complete definition of PM domains for a HC. In this study we suggest finding these domains considering the understanding and experience of the different stakeholders.

In the few studies published regarding HC performance measurement they only consider a limited number of domains. In this research we intended to better understand the HC reality, exploring the expectations, experiences and knowledge of the different stakeholders. This background allowed us to define the most important performance domains and objectives to consider in the PM framework design.

It was also important to know if the performance domain preferences varied among stakeholders. Thus the fourth sub-question arose naturally.

The answers to these two questions constitute the second part of this research (paper #2). In this paper, internal stakeholders defined the most valued HC performance domains, and we indicate how these preferences varied among them. We conducted a survey to achieve this goal using a questionnaire based on Parsons' social system action theory, which embraces the four major models of organizational performance.

The results of this research showed some fields that will enable HCs to improve their performance (as an integrated structure) by developing a PM framework that aligns the strategic and operational strategies. It allowed us to conclude that there is a multiplicity of aspects and concerns to consider in the design of the PM framework. The core idea was to generate guidelines for a PM framework that considers the performance domains and objectives that are most valued by the different stakeholders.

1.4. Document Structure

The rationale for this document structure was to firstly present the answers to the first two unfolded research sub-questions, Sub-RQ1 and Sub-RQ2, and then to the other two, Sub-RQ3 and Sub-RQ4. The PM framework design resulted from the answers to these four research sub-questions, and is thus presented at the end.

This document is therefore organized into six chapters and six appendices. Chapter one introduces the research, presenting the problem context, the research purpose, the

research objectives and research questions. Finally, it presents an overview of the research study.

In chapter two, the general research design was presented. In this chapter the research phases are explained as presented in figure 1.

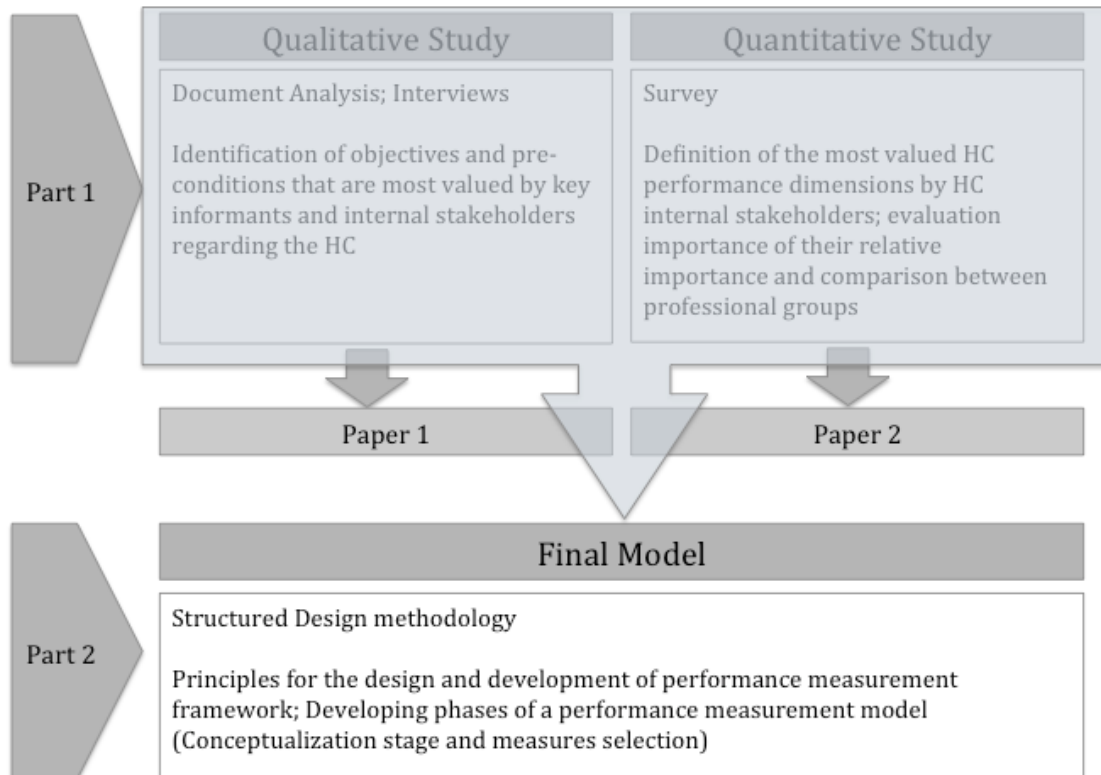


Figure 1: Process used in the research

Chapter 3 corresponds to the first part of the research and is divided in two sections. Section 1 is related to the qualitative study (paper #1). The objective of this paper was to identify the objectives and pre-conditions most valued by key informants and internal stakeholders. Section 2 refers to the quantitative study (paper #2). The objective of this paper was the definition of the most important HC performance domains and their relative importance among the internal stakeholders.

The second part of the research is presented in chapter 4, where the final PM framework design is presented.

Chapter 5 discusses the research results and its contributions, with a link to the research questions. In this chapter the managerial implications of the results and the research limitations are also discussed.

Finally, in chapter 6 the main research conclusions and future research opportunities are presented.

The six appendices present additional information for specific sections of this document.

Chapter 2: Research Design

Since the research methodology is central to the collection and analysis of the evidence in an empirical study, this chapter describes an overview of the research strategy. Case study methodology was selected as the research design. The criteria to select the case study used in this research are presented. Finally, since the case study was based on data collected from qualitative and quantitative methods, a brief overview of each data collection and analysis method is made.

2.1. Introduction

This chapter aims to explain how to answer the research questions. These questions are in nature exploratory and thus explore issues in a contextually rich environment. The procedures for data collection and data analysis will be explained, in order to guide the research process.

The theoretical perspectives, or epistemological positions, condition the choice of the research methodology (Gray - 2009). According to this author, the most influential theoretical perspectives are positivism and the various strands of interpretivism. These theoretical perspectives will influence the choice of research methodology. The choice of an epistemological perspective is important to clarify issues in the research design and to acknowledge which methods will work (Easterby-Smith, Thorpe, and Jackson - 2012). The choice of the best method to apply will depend on the nature of the research questions. All methods have their strengths and weaknesses.

2.2. Theoretical perspectives

Epistemology is a general set of assumptions about ways of inquiring into the nature of the world (Easterby-Smith, Thorpe, and Jackson - 2012). It provides a philosophical background for deciding what kinds of knowledge are legitimate and adequate. As referred to above, there are two main epistemological perspectives: positivism and the interpretivism.

The key idea of positivism “is that the social world exists externally, and that its properties should be measured through objective methods rather than being inferred subjectively through sensation, reflection or intuition.” (Easterby-Smith, Thorpe, and Jackson - 2012, 22). According to this perspective, reality is external and objective and knowledge is only of significance if it is based on observations of this external reality (Easterby-Smith, Thorpe, and Jackson - 2012). This perspective also states that knowledge of the world is obtained through applying the scientific method to experiences. Positivist research involves following methodological rules that are independent of the content and context of the inquiry. The observer is independent, which reduces researcher bias. Collecting quantifiable data that lends itself to statistical analysis such as hypothesis testing or causal explanations is typical of a positivist study. The objective of the positivist approach is to formulate and test hypothesis to present objective facts and established truths (Patton - 2002; Gray - 2009; Easterby-Smith, Thorpe, and Jackson - 2012). Researchers with different points of view criticize this perspective. They see it as inflexible and artificial, as

it simplifies the real world and ignore some of the more interesting and complex factors in a human or social situation. It is not very effective in understanding processes or the significance that people attach to actions (Easterby-Smith, Thorpe, and Jackson - 2012).

The constructivism or social constructionism epistemology holds that the truth and meaning do not exist in some external world, and so meaning is constructed not discovered. "Subjects construct their own meaning in different ways, even in relation to the same phenomenon." (Gray - 2009, 18). It focuses on the ways that people make sense of the world especially through sharing their experiences with others. The role of the researcher is "to appreciate the different constructions and meanings that people place upon their experience." (Easterby-Smith, Thorpe, and Jackson - 2012, 23).

The major strengths of this perspective is its "ability to look at changes to processes over time, to understand people's meanings, to adjust to new issues and ideas as they emerge, and to contribute to the evolution of new theories. It also provides a way of gathering data, which is seen as natural rather than artificial " (Easterby-Smith, Thorpe, and Jackson - 2012, 28).

In this research work we want to gain a deep, intense and "holistic" overview of the context under study, which involves interacting with people and organizations. In this research work we want to understand the phenomena within their own specific context and settings through detailed descriptions, which shall be sought by answering questions such as "what?", and "how?" We intend to collect data on the opinions, experiences and expectations of actors in the field of the study. Therefore, constructivism was the predominant philosophical position in this research study.

2.3. Research strategy

In this research, as referred to above, we will adopt an interpretivism perspective where the dominant approach is inductive. The methods for collecting evidence will be presented, based on these aspects.

This is cross-sectional research, although there are some parts where a longitudinal approach was applied. According to the research purpose, this research work can be classified as exploratory. A qualitative design was applied for this research and the selected method was case study. The research methodology is presented in the next section.

2.4. Research Methodology

The research methodology is presented in Figure 2. The case study was based on data collected from three sources: HC internal documentation, decree-laws and newspaper clippings, semi-structured interviews and survey. The evidence collected by semi-structured interviews involved developing two interview guides; identifying informants; conducting interviews and transcribing the interview material. These were the methods used to answer Sub-RQ1 and Sub-RQ2. This is described in paper #1.

Evidence collected in the surveys involved the adaptation, validation and fine-tuning of the survey, the pilot survey and actually conducting the survey. This was the method used to answer Sub-RQ3 and Sub-RQ4.

Evidence collected from these sources was later analysed. More detailed information regarding the stages involved is discussed in chapter 3.

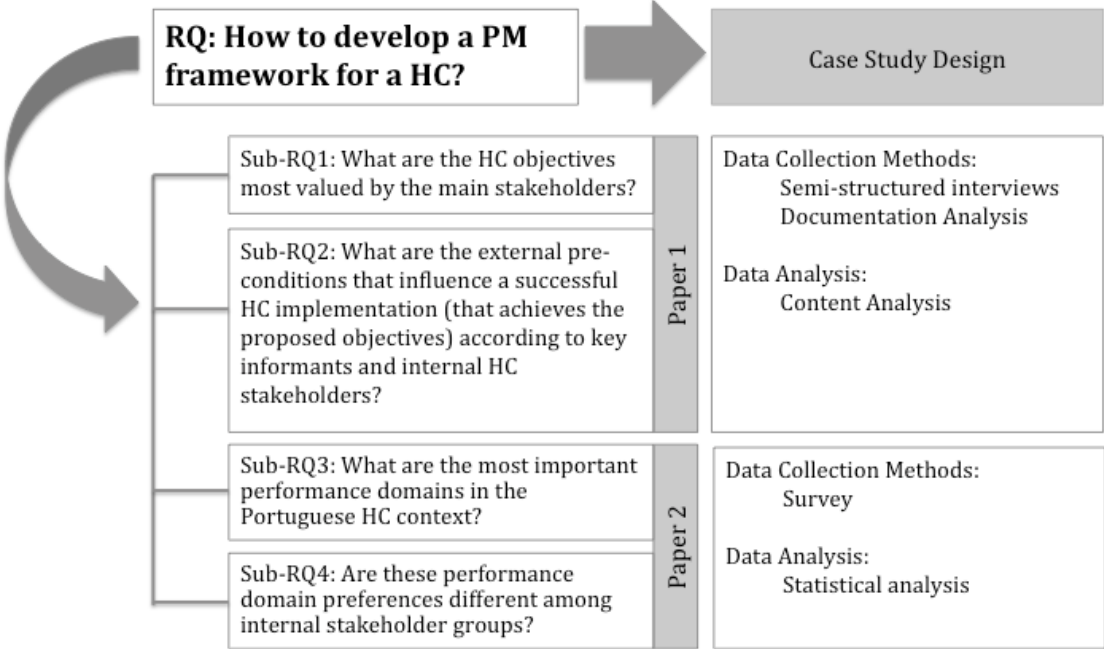


Figure 2: Research methodology

2.5. Qualitative Research Methods

In this research we are interested in contributing to the development of a PM framework for HCs. To do that, we needed to know the process of planning and implementing a HC. A valuable input was also work experience in a HC. We want to understand the expectations and experiences of HC internal stakeholders and external key informants. In this process

we want to drill down further, we want to collect good evidence (Thomas - 2011) We want to gain new perspectives on issues related to the research purpose. Therefore, a qualitative approach was used in this research.

There are some characteristics of the qualitative research that fit in with the research objectives and purpose, such as that conducted through intense contact within the field (Miles and Huberman - 1994); that giving precise and substantial descriptions (Gray - 2009); that which must take account of the views of those involved (Flick, von Kardoff, and Steinke - 2004).

According to Mason (- 2002), conducting qualitative research requires considerable reflection on the researcher's role, and the ability to make a critical assessment of informants' comments. This author provided some guidelines for the qualitative researcher:

- The research should be conducted systematically and rigorously;
- It should be strategic, flexible and contextual;
- The researcher is accountable for the quality and claims;
- He/She should engage in critical scrutiny or active reflexivity;
- He/She should produce convincing arguments

Qualitative data collection approaches include, for example, participant observation, observation, documentary analysis, discourse analysis, conversation analysis, biographical methods, case studies, interviews and focus group discussions (Gray - 2009). The choice of method is influenced by the nature of the research problem, the researcher's theoretical lens or philosophical assumptions (Easterby-Smith, Thorpe, and Jackson - 2012).

2.5.1 Case Study

An exploratory case study was conducted in this research. The case study was used as design method because it was important to have a meaningful and holistic view of the entire context, trying to capture the important characteristics of real-life events (Meredith - 1998; Yin - 2009). It was essential to understand the integration process, ranging from the planning phase up to its implementation and operational implementation in its natural setting (Meredith - 1998). It was important to know what were the expectations of the people inside the HC and outside the HC regarding the integration, to assess the multiple impacts of the integration (Keen and Packwood - 1995). We were interested in the case in itself, its uniqueness as a whole (Thomas - 2011).

Moreover, conducting the research in the field and being exposed to real problems of research of the case enriches the researchers themselves. The researchers benefit from this process by listening to creative insights from people at all levels of the HC in a variety of contexts (Voss, Tsikriktsis, and Frohlich - 2002).

Moreover, the form of the research question (“how”) and the fact that HC creation is a recent event makes case study the best option as a research strategy.

In this study we want to contribute to the development of a PM framework design for HCs based on the stated and non-stated objectives of the HC and on the most valued performance domains. It would probably be possible to do that with a research survey, but doing so wouldn’t allow us to understand the problem context, such as the integration process and the integration context.

According to Kitchenham (- 2010, 562), mixed methods research fits well in the case of study research “as it allows the researcher to take the rich empirical data yielded from case studies and apply either quantitative or qualitative methods or quantitative and qualitative methods to the data. In this manner, qualitative data can be quantized or quantitative data can be qualitized to extract meaning from the data sets that might otherwise be hidden.”

The combination of quantitative and qualitative approaches used by researchers has become increasingly common (Bryman - 2006). The rationale for this combination lies in the different strengths and weaknesses of both approaches (Adamson - 2005; Kitchenham - 2010). Qualitative and quantitative methods should be viewed as complementing each other rather than being in rival camps, so combining them allows the researcher to offset their weaknesses and draw on the strengths of both in order to collaborate findings and thus to increase confidence to reach the final conclusions (Adamson - 2005; Punch - 2005; Johnson and Onwuegbuzie - 2004). Another benefit is the ability to generate greater understanding about complex phenomena (Johnson and Onwuegbuzie - 2004).

Qualitative methods and quantitative methods were combined in this case study to answer the research sub-questions. The main reason/purpose to combine these two approaches in this case study was to obtain complementarity. The aim was to have a general picture, since all the aspects of the PM framework couldn’t solely be open to a qualitative approach. Therefore, a quantitative approach was employed to fill the gaps of the qualitative approach. The results from one method are used to elaborate, enhance and illustrate the results of the other method (Greene, Caracelli, and Graham - 1989; Punch - 2005). Another reason was that the quantitative approach established the relationships

between variables, but the qualitative approach allowed the reasons for those relationships to be better explained/explored (i.e. the factors underlying the broad relationships that were established). The qualitative approach facilitated the interpretation of the relationships between some variables in the quantitative approach. (Punch - 2005).

In conclusion, using a case study, which combined quantitative and qualitative methods, allowed the positive aspects to be strengthened and the weaknesses of each method to be minimised, thus generating greater understanding about this research problem.

2.5.2 Case Selection

To answer the research question the design for the case study had to be defined.

According to Yin (- 2009, 40), there are four main types of design for case studies. In a two-by-two matrix approach presented by this author, it's possible to identify: a) single-case (holistic) designs; b) single-case (embedded) designs; c) multiple-case (holistic) designs and d) multiple-case (embedded) designs.

A single case study was considered appropriate for three main reasons. Firstly, the opportunity that was given by the HC board to study that HC, with the provision of privileged conditions to conduct the study (Yin - 2009). This helps to overcome one of the vulnerabilities of single-case study research: *"...single-case designs [...] require careful investigation of the potential case to minimize the chances of misrepresentation and to maximize the access needed to collect the case study evidence"* (Yin - 2009, 42). Other HC had already refused the invitation to participate in this research work.

The second reason was related to the typical HC (Miles and Huberman - 1994; Yin - 2009). The average HC creation consisted of the integration of one big hospital unit with a smaller one, and none of these units were specialised. Considering the number of hospital units integrated, number of beds, number of years after integration, and number of inhabitants in the attraction area, we found the selected HC to be a typical case. In the following figure (Figure 3) we present these data for HCs in the North Portugal region.

Hospital Center	Nr. Units (acute)	Beds (Nr.)	Integration year	years integrated	caption area (hab.)
CHA	2	143	2000	12	143 000
CHB	3	700	2007	5	452 000
CHC	2	281	2007	5	244 000
CHD	2	539	2007	5	337 000
CHE	2	540	2007	5	344 000
CHF*	3	867	2011	1	304 027
CHG	2	491	2007	5	527 271
CHH	3	409	2009	3	350 000
CHI*	2	1133	2011	1	
MEDIAN	2	450		5	340 500

Sources: HC websites, HC management reports, ERS Report)

* Teaching hospital

Figure 3: Characterization of the HCs in the North of Portugal

The third reason was related to resource constraints and the time available. The resources and time necessary for conducting multiple-case studies would compromise the depth of the observations. One of the great advantages of a single case was the opportunity for greater depth observation and the opportunity to study several contexts within the case.

However, a single case has some limitations. The first is the generalizability of the conclusions, models or theory developed from one case study. Another risk is biases, such as misjudging the representativeness of a single event and exaggerating easily available data (Voss, Tsiriktsis, and Frohlich - 2002).

Another relevant aspect for the selection of this HC for the case study is that the HC board and its staff were very motivated to participate in the research. Thus the selection of HCTS for the case study was opportunistic.

HCTS is a multisite hospital that resulted from the integration of two hospital units, Penafiel and Amarante, in 2007. They were both acute hospitals. The distance between these two hospital units is about 30 Km, 20 minutes by motorway and 40 minutes on national roads.

HCTS is part of the Portuguese public hospitals network and serves a population from Vale do Sousa and Baixo Tâmega of over 500,000 inhabitants (Centro Hospitalar Tâmega e Sousa - 2013). It is a typical acute hospital, not a mainstream hospital, with 480 inpatient beds (416 at the Penafiel hospital unit and 64 at the Amarante hospital unit), seven central operating rooms (one for emergencies and 6 for selective surgery), four operating rooms for out-patient surgery and 25 specialisations for the day-hospital. 1597 professionals

work in the HC, 327 of them are physicians. For more complicated situations the HC refers those situations to the Porto HC.

These aspects make this HC an interesting case to study because many HC in Portugal face similar challenges.

Appendix 1 provides more detailed information about the HC.

2.5.3 Collecting case evidence and data analysis

As referred to above, this single case study is based on qualitative and quantitative methods to collect evidence on the case. The case study was based on data collected from semi-structured interviews, documentation analysis and surveys. A brief description of the methods used to collect and analyse data is detailed in the following sections.

2.5.3.1. The qualitative study (paper #1)

To answer the first and second research sub-questions a qualitative study was conducted. Evidence was collected in semi-structured interviews and documentation analysis. The interviews involved the development of two interview guides - one for Key informants and the other for HC internal stakeholders, the identification of Key informants, carrying out the interviews and the interviews' transcriptions.

The interview process is described and the techniques for analysing and interpreting the qualitative evidence are presented in the first part of this research, corresponding to Paper #1, "*What lies beyond the stated objectives of hospital horizontal integration? - The results of a qualitative study*" This study is presented in section 3.1. (Chapter 3).

2.5.3.2. The quantitative study (paper #2)

A quantitative study was conducted to answer the third and fourth research sub-questions. The evidence collected in surveys involved survey development (adaptation to Portuguese context), the content validity of the survey, the pilot test and consequent survey fine-tuning, and finally conducting the survey.

The aspects involved in the quantitative study, describing the survey used to gather information related to the performance domains valued by internal stakeholders in an integration context, are stated in the first part of this research work and correspond to Paper #2, "*Hospital Centre performance dimensions: what are those most valued by internal stakeholders? - The results of a case study*". An exploratory factor analysis was conducted

for a final sample of 365 participants, through principal component analysis, with oblique rotation and the Kaiser criterion. This study is presented in section 3.2. (Chapter 3).

2.6. Research Evaluation

The concepts of validity and reliability have their roots in a quantitative tradition and were originally developed in a positivist paradigm (Bryman and Burgess - 2002; Gray - 2009). Moreover, some authors resist the temptation to address such matters in qualitative research (Gray - 2009).

Therefore, in this section we will discuss the techniques and approaches to ensure the trustworthiness of the data gathering procedures, data analysis and research findings. As mentioned by Westbrook (- 1994, 250) *“As with the positivist paradigm, there are no absolute guarantees of results that are both meaningful and unbiased.”*

There is no universal agreement on the terminology used when assessing the quality of a qualitative study (Zhang and Wildemuth - 2009). Qualitative researchers have struggled for decades to search for ways to decide whether their research is complete and credible in developing some criteria and strategies (Marshall and Rossman - 2010). In the conventional positivistic research paradigm, the criteria for evaluating the quality of the research are: validity, reliability and objectivity. However, qualitative content analysis is an interpretative method and these criteria are unsuitable for judging the quality of the research (Zhang and Wildemuth - 2009). In this research we shall use the four criteria proposed by Guba and Lincoln (- 1982) to evaluate interpretive research work: credibility (in preference to internal validity), transferability (in preference to external validity/generalizability), dependability (in preference to reliability), and confirmability (in preference to objectivity).

The researchers must try to address credibility, according to Shenton (- 2004), by presenting a true picture of the phenomenon being studied. In relation to transferability, the context of the fieldwork must be described in detail so that it may be compared with future situations. The reader must know if the environment is similar to another situation, so they may know if the findings can be applied. The most difficult criterion to achieve is dependability. The researcher must endorse efforts to ensure that a future investigator can repeat the study. The fourth criterion is confirmability. Here, the researcher must take steps to demonstrate that the findings come from the data and not from their own perspective.

Credibility

We carried out, based on the recommended activities of Shenton (- 2004) to improve the credibility of our research results, the triangulation of data sources using interviews and documentation analysis and we used another form of triangulation that involves the use of a wide range of informants. The different perspectives, expectations and experiences were verified against each other and, as a result, a broad and rich picture was obtained based on a variety of people. We obtained similar results using key informants with different perspectives of planning and implementation of HCs and internal stakeholders within different clinical and support areas. Thus, the credibility of our results improved. The credibility of the research findings was verified since most objectives were mentioned by more than one interviewee and in different contexts.

Another activity carried out to improve the credibility of our results was to invite people to participate in the interviews (Shenton - 2004). No one was forced to participate. This approach helped to ensure that the data collected was as truthful as possible.

Transferability

According to Shenton (- 2004), the findings of qualitative research are specifically related with a particular context and individuals. Hence, it is impossible to demonstrate that the results of a specific qualitative element are applicable to other contexts and populations

As referred to previously, the qualitative results achieve the transferability criteria if the researcher's working hypothesis can be applied to another context (Zhang and Wildemuth - 2009). To improve the transferability of the research findings, the researcher must provide enough contextual information about the fieldwork sites "*so that other researchers are able to make judgments about the findings' transferability to different settings or contexts.*" (Zhang and Wildemuth - 2009, 6).

In this research work we tried to improve transferability by making a rich description of the context (HC and interviewees) and a detailed description of the research process. In the coding scheme we present the codes created, their description and we include some examples. We tried to make it easy with this documentation for future researchers to make transferability judgements.

Dependability

Shenton (- 2004, 71) mentioned that the processes within the study should be described in detail in order to address the dependability criteria, "*thereby enabling a future researcher to repeat the work, if not necessarily to gain the same results.*" Lincoln and Guba,

cited by Shenton (- 2004, 71), argued that credibility and dependability are closely related, since *“a demonstration of the former goes some distance in ensuring the latter.”* A transparent coding process in this study established the dependability of the research findings.

Confirmability

The concept of confirmability is related to the efforts taken to ensure that the study findings are, as far as possible, the result of experiences and ideas of the interviewees, rather than the opinions and preferences of the researcher (Shenton - 2004). These criteria are related with the researcher’s biases included in the research findings.

Shenton (- 2004) stated that triangulation plays an important role in reducing the effect of researcher bias. This author also recommended other approaches to improve confirmability: recognition of shortcomings in the study’s methods and their potential effects; and an in-depth methodological description to allow the integrity of the research results. Miles and Huberman (- 1994) presented a key criterion for conformability that is the extent to which the researcher admits his/her own predispositions.

The significant overlap of the objectives identified in this research with those identified in the literature indicates that other researchers have confirmed the research findings. The same significant overlap of the identified objectives also occurred between interviewees. In addition, the detailed documentation of data handling and analysis also provides means for confirmability checking (Zhang and Wildemuth - 2009).

In this section we focused on aspects of the research assessment mainly relating to qualitative research, because the case study was classified as having a qualitative research design. However, more specific and detailed aspects related to quality in research analysis are mentioned in each individual study, which are presented in the two sections of chapter 3, paper #1 and paper #2.

2.7. Ethical issues

Research that involves contact with humans in the data gathering processes involves ethical considerations. In general terms, the ethical issues concern: how will the research abide by ethical principles; are respondents giving their views voluntarily; will respondents privacy be safeguarded; will the information respondents provide be treated confidentially; and also aspects related to how the data are going to be stored securely so that anonymity can be protected.

Gray (- 2009) identified ethical principles in four main areas:

- Avoid harming participants
- Ensure the informed consent of participants
- Respect the privacy of participants
- Avoid the use of deception

The word “harm” can be applied to physical, mental and emotional harm. For example, if research causes a participant to be embarrassed, ridiculed, produces anxiety, or stress or produces negative emotional reaction, it will be considered harmful (Gray - 2009). Confidentiality, and sometimes anonymity of the participant should be requested by the researcher to avoid these effects. Confidentiality refers to avoiding the attribution of comments to research participants in written reports and other published elements. This is associated with anonymity, which requires that the participants’ identity is not known outside of the research team.

This author argues that researchers need “to go beyond avoiding harm to participants and should aim, instead, for positive benefits. One potential benefit from the research is adding to the stock of human knowledge” (-, 74). This can be accomplished by providing the participant with a summary of the results of the study.

The principle of informed consent means that the participants are provided with sufficient and accessible information about the project so that they can make an informed decision regarding their participation. Informed consent involves outlining to potential informants the research purpose, the risks and benefits of participation, the use and possible publication of results, and obtaining their agreement to participate.

By respect the privacy of participants we mean that the researchers do not have the right to intrude into a respondent’s personal affairs (Gray - 2009). The respondents have the right to withdraw from an interview at any time, or refuse to answer any particular question they find intrusive. Researchers must inform the participants that their participation is voluntary and they have the right to withdraw at any time during the interview. Another aspect to consider in this principle is related to the databases used to store the data from the interviews and the surveys. Thus, it is advisable to weaken the link between the raw data and the information stored in the database, assigning an identifying code number instead of the complete identification of the participant.

The last principle is to avoid the use of deception, where deception means “researchers presenting their research as something which it is not” (Gray - 2009, 80). This author gave a typical and common example as being the fact the researcher did not tell participants

that an interview they have agreed to participate in will take more than one hour to complete. Acting against deception avoids building a negative reputation that might reduce levels of participant cooperation in the long term.

In this research work the abovementioned principles were followed to ensure the researcher's ethical integrity. Access to the HC was approved by the HC board and informed consent was obtained from all participants. The purpose of evidence collection and data management procedures was clearly outlined. The anonymity and confidentiality of information collected during the interviews was also respected.

Chapter 3: Stated and non-stated objectives and performance domains

This chapter is structured in two parts. The first part presents the qualitative study, corresponding to Paper #1. The quantitative study is presented in the second part, which corresponds to Paper #2. Each part follows the paper structure, with an introductory section, followed by a methodological section, then a results and analysis section is presented. Finally, a discussion and conclusions section is provided.

3.1. Paper #1

What lies beyond the stated objectives of hospital horizontal integration? - The results of a qualitative study³

Abstract

Organizational changes in hospitals have been made over the years in many countries generating different organizational models. Following this trend, the Portuguese organizational model called Hospital Centre (HC), matches the horizontal integration model and involves the integration of two or more hospital units.

In this paper we present the results of a research focused on the identification of objectives and pre-conditions that are most valued by key informants and internal stakeholders regarding the HC. A qualitative case study research design was applied. Semi-structured interviews were conducted with two groups of interviewees: external key informants and HC internal stakeholders. Documentary information was also used as a source of evidence. The objectives emerged from the data were divided into three dimensions: Organizational dimension (related to improvement or optimisation of resource utilization and increase the specialization of hospital units); Patient dimension (focusing in the patient access and reduce inequalities), and finally, Professional dimension addressing the improvement of work conditions and work environment. The findings of this study make it possible to complement and enrich the official objectives of the HCs, giving a comprehensive idea of the perspectives of key informants and internal stakeholders. Moreover, it was possible to obtain a more complete and adjusted perspective of the reality.

Keywords: Hospital horizontal integration, non-stated objectives, internal stakeholders, key informants, qualitative case study.

³ This is an extended version of the paper submitted in the Health Policy. Simões, A., Azevedo, A., Gonçalves, S. "What lies beyond the stated objectives of hospital horizontal integration? The results of a qualitative study".

1. Introduction

Organizational changes in hospitals have been made over the years in many countries (Aiken and Sloane - 2002). Health care management systems have encouraged hospitals to be more autonomous from the management perspective towards achieving higher levels of performance and efficiency (Edwards, Wyatt, and McKee - 2004; London - 2013). Although this autonomy generated some benefits, it also has some potential negative effects (Edwards, Wyatt, and McKee - 2004). In particular, this autonomy can lead to hospital isolation, working isolated from each other, instead of being a part of a wider network and working closely with other hospitals. Because it is impossible for each hospital to offer a complete range of services, they need to join forces to make better use of scarce expertise (Edwards, Wyatt, and McKee - 2004; Minkman - 2012; Andersson and Karlberg - 2001). In this context hospital organizational reforms falls into two broad categories: vertical and horizontal integrations (Aiken and Sloane - 2002). Horizontal integration refers to the coordination of functions, activities or operating units that are at the same level of health care services. Vertical integration refers to the coordination of activities that are at the different level (Devers et al. - 1994; Gillies et al. - 1993; Shortell, Gillies, and Anderson - 1994).

1.1. Integration in health care

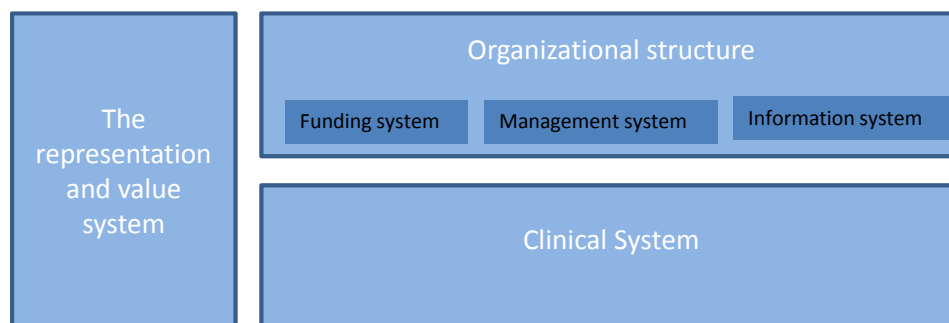
Many healthcare systems considered the integration a solution for the challengeable environment of healthcare systems world around. This challengeable environment is the result of some main demand-side factors (demographic changes; epidemiological transitions, rising expectations and patient's rights), but also some main supply-side factors (medical technologies and telemedicine, information systems and economic pressures). The demand-side factors push us to an integration process and the supply-side factors facilitate this process. (Grone and Garcia-Barbero - 2001).

Integrated healthcare systems aim to improve clinical and administrative efficiency and fewer unneeded services; increased market power, negotiation power and environmental acceptance; better meets the needs of the population served; enhanced relationships with customers (patient centred focus); and improved quality of care. These are commonly cited benefits of integrated care (Murray and Frenk - 1999; Wan, Lin, and Ma - 2002; Dias and Queirós - 2010; Armitage et al. - 2009; Sobczak - 2002). One of the expectations of the healthcare organizations in creating integrated delivery systems is to add value to their organizations, to the community and to the patient by providing better quality care at

lower cost while improving (or maintaining) patient satisfaction and thus improving the performance of the system (Gillies et al. - 1993; Lukas et al. - 2002)

The increasing and important role of integrated healthcare delivery in healthcare reforms is a result of the supply and demand forces plus a holistic paradigm focused on the optimisation of population health. Hence, healthcare decision-makers, politicians and healthcare planners have implemented, in their countries, initiatives that accommodate delivery of integrated (or coordinated) care services. However, there is no single model of integrated care that fits all contexts, settings and circumstances (Shaw, Rosen, and Rumbold - 2011). The dissemination of evidence-based knowledge in this area becomes difficult by the lack of measurement methods in integrated healthcare delivery (Strandberg-Larsen and Krasnik - 2009).

According to Contandriopoulos et al. (- 2003) integration “involves organizing sustainable consistency over time between a value system, an organizational structure and a clinical system” (see figure 1). The environment created by the integration must be meaningful and beneficial to stakeholders to coordinate their actions.



(Adapted from Contandriopoulos et al. (- 2003))

Figure 1: Components of Integration

The representation and value system refers to beliefs, values and interpretative schemes that allow stakeholders to articulate and coordinate their actions working as a team, in a cooperative way. The organizational structure includes a funding system, a management system (scheme of rules and responsibilities for each element of the integrated system) and information system (data and operating systems). The clinical system includes case management methods and rules for proper practice (Contandriopoulos et al. - 2003).

1.2. Integration concept

The first developments of integrated care concept was particularly linked with chronically and elderly people (Kodner - 2009), since they require the efforts of multiple healthcare professionals and multiple healthcare organizations. This concept focuses on the total

patient needs and it's critical when the services of separate and individual healthcare professionals don't cover all the patient needs (Kodner - 2009; Minkman - 2012).

In the literature integrated care appears in a variety of forms and there is no uniform and accepted definition (Armitage et al. - 2009; Minkman - 2012). This concept don't have also clear boundaries (Minkman - 2012). Armitage et al. (- 2009) in their literature review found 175 definitions and concepts related to integration. According to these authors this fact is not surprising given the diversity of disciplines and fields related to integration. This diversity in definition and application of this concept can be influenced by the authors background and their healthcare systems, or by the lack of understanding or clarity of integration (Armitage et al. - 2009; Minkman - 2012). Therefore, the integrated care term is often used by different people to mean different things (World Health Organization - 2008) and reflects what Kodner mention as "an imprecise hodgepodge of integrated care" (- 2009, 12).

In table 1 is presented some key definitions of integrated care presented by Kodner (- 2009) and complemented with other information.

Table 1: Integrated Care - key definitions

Concept	Definition	Author
Integrated care	The methods and type of organization that will provide the most cost-effective preventive and caring services to those with greatest health needs and that will ensure continuity of care and coordination between different services	Ovretveit, 1998 cited by (Kodner - 2009)
Integration	The search to connect the healthcare system with other human service systems to improve outcomes	(Leutz - 1999)
Integration	The extent to which functions and activities are appropriately coordinated across operating units	(Gillies et al. - 1993)
Integrated care	A concept bringing together inputs, delivery, management and organization of services related to diagnosis, treatment, care, rehabilitation and health promotion... (as) a means to improve the services in relation to access, quality, user satisfaction and efficiency.	(Grone and Garcia-Barbero - 2001)
Integrated care	A coherent set of methods and models on the funding, administrative, organizational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors...(to) enhance quality of care and quality of life, consumer satisfaction and system efficiency for patients with complex problems cutting across multiple services, providers and settings.	(Kodner and Spreeuwenberg - 2002)
Integrated delivery Systems	A network of organizations that provides or arranges to provide a coordinated continuum of services to a defined population and is willing to be held clinically and fiscally accountable for the outcomes and the health status of the population served	(Shortell, Gillies, and Anderson - 1994)
Integrated service delivery	The organization and management of health services so that people get the care they need, when they need it, in ways that are user-friendly, achieve the desired results and provide value for money.	(World Health Organization - 2008)

Adapted from (Kodner - 2009)

1.3. Integration Dimensions

The integration process in healthcare follows different paths and thus different configurations of healthcare integration are common. Integration can be distinguished in different dimensions, but the taxonomic logic isn't consensual in the international literature (Armitage et al. - 2009; Santana et al. - 2009; Strandberg-Larsen and Krasnik - 2009). However, the most common taxonomies differentiate the type, breadth, degree and process of integration (Minkman - 2012).

Type of integration

In the literature we can find four types of integration: functional integration (the extent to which support functions are coordinated across all units), organizational integration (relationships between integrated units), professional integration (provider relationships within and between organizations), service or clinical integration (coordination of services and the integration of care in a single process across time, place and discipline) (Gillies et al. - 1993; Kodner - 2009; Minkman - 2012). Kodner (- 2009) added two more types: normative integration (shared mission, work values and organizational/professional culture) and systemic integration (alignment of policies and incentives at the organizational level). Normative integration is concerned with interaction between stakeholders in a situation of interdependence based in a collective goal. The systemic integration concerns the relationship of the local system of interdependent stakeholders and the general environment (Contandriopoulos et al. - 2003). Gillies et al. (- 1993), referred that clinical integration is the most important type of integration, because it focuses on the ultimate customer, and is thought to be the key to meeting the integrated delivery systems objectives.

Bread of integration

The bread of integration is related with the range of services provided. Vertical integration refers to the coordination of functions, activities or operating units that are at different levels in the process of delivering care. In practice, vertical integration consist in a mechanism were an entity is responsible for all elements of care continuum during the different stages of care (primary, differentiated and long-term care) (Gillies et al. - 1993; Devers et al. - 1994; Grone and Garcia-Barbero - 2001; Santana et al. - 2009; Shaw, Rosen, and Rumbold - 2011). Horizontal integration refers to the coordination of functions, activities or operating units that are at the same level in the process of delivering services. There is a unique entity responsible for the management of all organizations that provide the same level of healthcare for a certain population. The main examples of horizontal integration are those hospitals that have consolidated, shared services or merged. The specific objectives of this type of integration are economies of scale gains and market power (Gillies et al. - 1993; Devers et al. - 1994; Conrad and Shortell - 1996; Grone and Garcia-Barbero - 2001; Santana et al. - 2009). During the 1970's and beginning of 1980's the horizontal integration dominated the United State market, and during the 1990's it has become popular again. During this same period vertical integration strategies were also being promoted (Santana et al. - 2009; Leibert - 2010). In Portugal, the HCs consist in the

integration/merger of two or more hospitals units that produce the same or related services. It is a way of horizontal integration. Historically, horizontal integration proceeds vertical integration, since horizontal integration creates the market conditions (enlarge the market power, the domain of distributed channels) to obtain efficiency gains (Barros and Simões - 2007; Santana et al. - 2009; Azevedo and Mateus - 2013).

Degree of integration

Regarding the degree of integration, Leutz (- 2005) defines three levels: linkage, coordination and integration. The needs of service users define which degree of integration is needed (Minkman - 2012). The degree ranges from a more intense full integration (for users with long-term, severe, unstable conditions) to only linkage of different systems (for users with mild to moderate stable conditions, a high capacity for self-direction, few routine care) ((Leutz - 2005)

Integration process

Finally, the integration process requires the integration of processes, structures, cultures, interests and social relationships. It's a challenging process that never ended requiring a continuous adjustment in the objectives, resources and interests of the people involved (Fabbricotti - 2007; Minkman - 2012).

According to Minkman (- 2012), the integration process in practice can be characterized by different degrees in the relationships between the partnerships (sometimes described as integration levels) as they are at a individual level, organizational level integration of care services and integration of healthcare system.

- i) At the individual level, the care is adjusted to the individual needs of the patient with the information about that patient be shared with healthcare professionals
- ii) At organizational level, the organization is responsible to develop the work and administrative processes and the necessary resources to provide the care. Is often the entity to which belong formally the healthcare professionals.
- iii) At the care chain, or integrated care services, the care is developed and defined for a certain groups of patients with comparable needs. The health system includes, for example, the financing systems, professional education programmes, the legislation, etc.

To address the complexity and costly health needs, integrated care becomes essential to sustaining the health systems. Integrated care is a patient centred strategy to achieve better coordination of services across the entire continuum of care. An successful integrated care strategy is the one that demands a culture of its own, one that spans

differing organizational and professional mind-sets, eliminates boundaries and biases, and creates a shared space to facilitate much-needed inter collaboration and interdisciplinary teamwork on behalf of the patient (Suter et al. - 2007; Kodner - 2009)

1.4. Integration and mergers aims

During the literature review it was found that the hospital merger concept was sometimes encompass the hospital integration concept. Merger is a form of horizontal integration (Snail and Robinson - 1998). Even in the Portuguese context the merger word was used to describe the hospital centre creation (Barros and Simões - 2007; Azevedo - 2011; Azevedo and Mateus - 2013). Thus, it was decided to include a section related to mergers since this concept was used in the same way as integration. The literature in hospital merger field is vast compared with hospital integration and it is dominated by the American and English experience.

Alexander, Halpern, and Lee (- 1996) defined hospital merger as a combination of previously independent hospitals formed by either dissolution of one hospital and its absorption by another, or the creation of a new hospital from the dissolution of all participating hospitals. As we can see this definition can also be applied to the case of the Portuguese hospital centres.

There are two general causes for mergers: i) to obtain the critical mass necessary to acquire costly health technology, increase market share, support desired clinical services or attract increasingly specialised staff. ii) mergers occur by the desire to consolidate services, achieve efficiency and reduce over bedding and staffing in highly restricted market (Alexander, Halpern, and Lee - 1996; Cereste, Doherty, and Travers - 2003).

Scale economies, efficiency, organization and coordination of care improvement and development of human resources are some of the main benefits expected from a merger (Markham and Lomas - 1995; Snail and Robinson - 1998; Brousselle, Denis, and Langley - 1999; Lee and Alexander - 1999). There are also some expected disadvantages in a merger process such as increased financial costs to create the new entity, lack of easy access to certain services, insecurity of human resources, loss of managerial and organizational identity, and disruption of routines at the clinical and organizational level (Markham and Lomas - 1995; Lee and Alexander - 1999). The expected advantages and disadvantages of mergers are quite similar to those mentioned in horizontal integration.

Regarding the public system, mergers only produces benefits when it's possible to eliminate duplications and reduce capacity, when there are clinical reasons for greater

scope and scale, pressures from medical and surgical associations to a minimum levels of consultant staffing that is difficult to achieve in small hospitals and to raise capital and work flexibility across multiple services. (Garside - 1999; Posnett - 2002). In the Portuguese context the main reason for the creation of HC was to achieve more efficiency in the resources utilization (Assembleia da Republica - 1999b; Barros and Simões - 2007).

The healthcare integration has been multiple developments in the European healthcare systems and all around. These developments are related with the demographic changing, increasing number of elderly people and those with chronic illnesses, and the rising number of number of people who suffer from co- and multiple morbidities. This development shifts the focus from acute to chronic care, requiring a great involvement among healthcare providers. Another development is related with client-driven perspective. Traditionally many countries had its health systems designed in a supply-oriented perspective, but nowadays the patient had a central role in the decision-making process. This development illustrated the client-driven focus. Collaboration in a diversity of networks, and the development of network organizations is changing the traditional healthcare organizations for integrated care (Minkman - 2012). Horizontal and vertical integrations are some examples of this new development.

Complementing the general integration aims referred previously, these developments, result in a need for a more integrated care to reduce the existence duplication, discontinuity, or absence of responsibility for the whole continuum of care (Minkman - 2012)

There are two critical elements in a successful merger: the quantification of the expected benefits, goals and costs, and the process communication how it will be managed and communicated to all staff. It's necessary to clarify the methodologies that support the benefits of merging (Brousselle, Denis, and Langley - 1999; Garside - 1999; Posnett - 2002). The community only will be convinced if the service benefits (health outcomes) were bigger than the costs (organizational and human). Here the leaders (national policy-makers and organizational board members) have important role assembling evidence on the benefits of the merger of health care organizations and also in developing a plan to manage the transition period. As a conclusion, the stakeholder have a great importance in the process, since it's active involvement is critical to a successful merger (successful outcomes) (Cereste, Doherty, and Travers - 2003).

Regarding the impacts of mergers, short-term efficiency gains in merged hospitals are possible (Alexander, Halpern, and Lee - 1996). However, they are more likely to produce economic benefits when they involve smaller hospitals (Dranove - 1998; Given - 1996)

or/and in the same geographic market (Brousselle, Denis, and Langley - 1999). Cost savings were more likely to occur in low-occupancy hospitals, non-teaching hospitals, and not-for-profit hospitals (Connor et al. - 1997). Although corporation executives, stockholders and healthcare consultants benefit from mergers, physicians often lose income, jobs and autonomy (Kassirer - 1996). This loss of autonomy can undermine the patient-physician relationship (Magel - 1998). There are also negative impacts on employee environment and productivity and on relations with technical personal (physicians) and the community (Lee and Alexander - 1999).

Moreover, according to Cereste, Doherty, and Travers (- 2003) some of the anticipated outcomes have rarely been the results. They argued that long-term evidence suggests that mergers are often associated with lower productivity, worse strike records, higher absenteeism and poorer accident rates. They also explained that the main causes for failed mergers are often related to the neglecting of cultural and human issues, which are a critical factor for merger's success. Again the process adopted to implement the merger seems to be an important aspect of the balance between advantages and disadvantages (Markham and Lomas - 1995).

Mergers rarely resulted in hospital closure, but were as likely to result in acute care consolidation and restructuring as in conversion to non-acute inpatient uses (Snail and Robinson - 1998)

There's no evidence how horizontal mergers will evolve and how they will coordinate their activities with other levels of health care. Even when economic conditions are promising, mergers are not well successful in solving organizational problems such as governance problems and difficulties in mobilizing physicians (Brousselle, Denis, and Langley - 1999).

In the hospital merger process there are some successful conditions such as clinical leadership, hospital size, local conditions, reconciling physicians' interests with those of the new institution, integration of assets (Brousselle, Denis, and Langley - 1999). Limited resources, diffuse power and divergent cultures were largely responsible for the difficulties experienced (Denis, Lamoth, and Langley - 1999). Micro-mergers at the clinical level (Brousselle, Denis, and Langley - 1999; Lynk - 1995) and the challenges of change recognition can contribute to a successful merger (Denis, Lamoth, and Langley - 1999)

There is a conviction/belief that integrated care improves healthcare results. There is growing evidence that integrated care improves clinical and organizational outcomes, but

evidence on costs is more mixed (Minkman - 2012; Kodner - 2009; Nolte and McKee - 2008b; Suter et al. - 2007).

1.5. Merger and integration experiences

In the literature we can find several experiences on integrated care most of them in collaborative networks of local health and social care providers or addressed for specific patient groups (Nolte and McKee - 2008a; Minkman - 2012).

However, there are some merger and horizontal integration experiences referred in the literature. Regarding the European context, the National Health Service (NHS) in United Kingdom experience is frequently the most mentioned. Since 1990 the National Health Service (NHS), is changing preparing itself to meeting the demand for health care services that continues to rise more rapidly than the resources available. The UK government has pursued an active policy of hospital merger between 1997 and 2006. According to Cereste, Doherty, and Travers (- 2003), the main justification for merging was the believe that it will facilitate the reconfiguration of services and the patient care improvement. The main driver for merger activity was the cost reduction, improve patient care and service reconfiguration (Cereste, Doherty, and Travers - 2003). Some authors had studied the results of these mergers and found little evidence on the gain. Gaynor, Laudicella, and Propper (- 2012) examined the impact of mergers on a large set of outcomes including financial performance, productivity, waiting times and clinical quality. The study aim was to estimate the causal effect of mergers on performance in UK hospitals. They use an event study design with matching as a methodological framework. They found little evidence that mergers achieved gains in financial performance, productivity, waiting times and clinical quality. Additionally, they concluded that mergers reduce the scope for competition between hospitals.

Regarding the impact of mergers on management costs, Fulop et al. (- 2002) studied the process of merger in a cross sectional study involving nine trust mergers and reconfigurations in London. They also conducted longitudinal case studies of four of these mergers. The cross sectional study involved documentary analysis of the public consultation documents for the nine trust mergers and semi structured interviews with 14 managers in seven health authorities. The objective was to identify the stated and unstated (not publicly stated) objectives of each merger to explore the process of merger in depth, to assess how well mergers' objectives had been met, and to determine the intended and unintended consequences of the mergers. The interviews (22-26 people per case) were made to stakeholders inside the trust (at least six board members), and outside

the trust. As a result the authors pointed out that there were some important aspects that were not publicly stated; There was a loss of managerial focus on services which implied a negative impact on service delivery; There wasn't reported improvement in recruitment and retention of clinical and managerial staff. The perceived differences in organizational cultures were an important barrier to "merge" (bring together) the integrated units. They also conclude that two years after the merger, the established objective of saving managerial costs had not been achieved.

Later, in another study made by Fulop et al. (- 2005) revealed some persisting problems in the third year post-merger: loss of management control and focus led to delays in service development. The difficulties in the merger process included perceived differences in organizational culture and perceptions of "takeover" which limited sharing of "good practices" across newly merged organizations.

The Danish hospital sector was also facing a concentrate programme. The programme consisted in concentrating the activity in fewer and larger hospitals. The number of somatic hospitals has decreased from 117 in 1980 to 52 in 2004 (Kristensen et al. - 2008). In 2008 several Danish hospitals at different locations were merged, and these new entities, consisting of several production units, are called management entities or conglomerate hospitals. This rebuilding programme in the hospital sector includes green field investments at new sites, significant extension and reconstruction of several existing hospitals and mergers or closures of several small hospitals (Kristensen et al. - 2008). However, the subsequent Kristensen, Bogetoft, and Pedersen (- 2010) study concluded that many hospitals are technically inefficient, the expected "best practice" hospitals are quite efficient, and some mergers do not seem to lower costs.

In Norway, specialised healthcare have been recentralized. In 2002 it was started a centralization reform along with regionalization and financial reforms (Magnussen, Hagen, and Kaarboe - 2007). In this reform hospitals and clinics were merged into enterprises. However, this recentralized programme failed to address the issues of cost containment and reductions in budget deficits (Magnussen, Hagen, and Kaarboe - 2007).

The Swedish hospital system was also be subjected to a process of merging. This process was driven by the policy-makers conviction that bigger hospitals lead to lower average costs and improved clinical outcomes (Ahgren - 2008). The merger process was conducted with a variety of arrangements and logic such us, small general hospitals have united with each other, or county hospitals and university hospitals have merged with general hospitals. These mergers aimed to rationalise hospital activities and improve the quality of care (Ahgren - 2008). Some Swedish hospitals have been closed, and an increasing

number have gone through downsizing and fusions with other hospitals. The number of hospital beds in Sweden decreased 45% during the 1990s. The Ahgren (- 2008) study refereed that the employees believe that merger has neither generated economy of scale advantages nor substantial quality improvement. However, it seems to promote cross-functional collaboration together with clinical specialisation.

In France it was developed a plan for change. In this plan closures were often preceded by mergers of independent hospitals. Since its difficult close an autonomous hospital, the solution was close a site within a large hospital grouping, because it is easier than to close what was previously an entire hospital (Healy and McKee - 2002).

In Melbourne (Australia), in 1995, 32 individual public-sector hospitals were grouped into seven networks, resulting in the closure of nine hospitals and further mergers and reconfigurations across the network (Healy and McKee - 2002).

In the 1990s, in Canada, a restructuring reform was conducted. Several hospitals merged, resulting in hospital closures, vertical integration and rationalization of services. As a consequence length of stay in hospitals decreased and outpatient care became increasingly important as the number of in-patient beds decreased (Brousselle, Denis, and Langley - 1999).

1.6. The Portuguese Context

In Portugal, the decree-law nr.284/99 (Assembleia da Republica - 1999b) defines the main guidelines for the creation of hospital centres and the hospital groups. These two organizational structures arose in the scope of the objectives and strategies for health. The objective of the creation of these functional units was to enable the effective linkage between healthcare services and healthcare organizations (or services or organizations which have activities with any connection with health, namely in the social sector), within the same geographical area. According to this decree-law, the identification of situations where it is possible to reinforce the articulation and the complementarity of NHS hospitals, through better capacity utilization, is a priority (Assembleia da Republica - 1999b). Moreover, the Government believes that the role played by the National Health Service (NHS) in the provision of hospital care will be reinforced if some hospitals, depending on their geographical location, their medical and surgical specialties, and technological differentiation, were restructured through their integration into hospital centres, or hospital groups (Assembleia da Republica - 1999b). According to these legislators this will allow greater profitability and efficiency in the delivery of health care services that citizens need.

According to this legal document, a HC is a public corporation, with administrative and financial autonomy, own assets, and with a type of organization legally established for public hospitals, that integrates several hospital units without legal personality. The creation of HC, or the integration of hospital units, is made by proposal of the territorial competent Regional Health Administration. These proposals must be reasoned by principles of public interest, namely by healthcare services optimisation of the two or more units evolved in the centre, and by the reinforcement of the complementarity and articulation (in terms of technique and healthcare). Finally, in HCs there is a unique staff and a unique board (Assembleia da Republica - 1999b).

During the last decade two or more hospital units were integrated in a unique entity, a HC. At the beginning the original aim was to create HCs integrating hospital units with complementary services, such as an acute hospital unit with a maternity hospital or with a paediatric hospital (Portuguese Health Regulation Authority - 2012). However, nowadays, HCs are created in both situations: with or without any complementarity.

Over the past decade the number of hospitals decrease from approximately 90 to less than 50, but the number of physical structures remained almost unchanged. Thus, the merger process didn't led to hospital closures. It was mainly a restructuring solution for the hospital specialities problems.

As said before, the Portuguese Ministry of Health saw in HC creation the possibility to improve efficiency and to integrate healthcare delivery (human resources and equipment). The Portuguese society is divided with arguments in favour and against the HC creation (Azevedo and Mateus - 2013). The HC was a political decision and there's no support from evidence of the results of this experience (Azevedo and Mateus - 2013).

There have been very few studies of HC experience in Portugal and the broad one was made in a practical approach. Recently it was published the results of the Study of Hospital Centres Evaluation (Portuguese Health Regulation Authority - 2012). The aim of this study was to assess the achievement of the management objectives improvement, and the effective complementarity in healthcare delivery (primary care, hospital care, and eventually continuity care) by the different integrated units. Accordingly to this study this complementarity should be reflected in the patient access, mainly patients of the catchment area of the HC, compared with the other NHS patients. Since the aim of this study focused on HC legislative objectives, the other objectives, in literature review and the expected objectives by different stakeholders, weren't considered. Other studies focused in the financial perspective mainly the economic effects (Azevedo - 2011; Azevedo and Mateus - 2013).

The Portuguese Health Regulation Authority (- 2012) report enumerated the main intended objectives defined in the several Decree-Laws that created the 25 HC: to obtain synergies between the integrated hospital units in the same geographical area; Intention to optimise the existent human, technical and financial resources and the services provided to the patient; The necessity to reinforce the technical and care articulation and complementarity, between integrated hospital units in HC and between these units and primary care units; The need to rationalize the technical levels; and To guarantee the professional and patient mobility between the different integrated hospital units (aim).

The conclusions of this study were negatively influenced by the inexistence of previous defined indicators and comparison parameters that would enable an evaluation of efficiency and operations of HC. Indeed, in some cases there wasn't available a formal proposal with foundations and objectives of each HC creation, which was mandatory by law. This made the HC evaluation more difficult. The analysis made in this study consisted in the comparison between three groups of entities: HC; Local Health Units (LHU) and others hospitals. The analysis in this study focused. The main conclusions of this study are presented below and they are distributed in three evaluation areas: on access, production costs, and a financial analysis. Regarding the access analysis they concluded that: i) the Contract-Programme were not reflecting the socio-economic characteristics of the served population, neither the production undertaken (effective production); ii) there was an inadequate distribution of the health professionals on the national territory (physicians and nurses); iii) the average on the travel time (to each integrated unit) is inferior to 90 minutes; iv) there are difficulties in the access to the first attendance to medical specialties, decreasing on attendances out of guaranteed maximum response time (TMRG) on HC when compared to other hospitals; v) the average time for surgery, regarding the year of 2009 and 2010, is lower in the HC group when compared to the other group of hospitals. Regarding the product costs variation analysis (unit direct costs and unit total costs), made between ex-ante and ex-post HC creation, the analysis pointed out: i) a decrease in inpatient activity and the attendances costs in almost hospital all specialties; ii) increase on number of patient treated in general emergence activity but with the costs remaining unchanged. Finally, the results of financial analysis showed that: i) between 2008 and 2009 there was increase of 4% on the total income in HC group; ii) the employee costs also increase 5%; iii) the consumptions increased 7%; general Supplies and Services increased 14%; and to other costs decreased 3%.

This study relied only on stated objectives, defined in the decree-law. It would be important to include some organizational aspects such as organizational culture, staff

integration, working practices, and clinical quality. Thus, to develop a model to evaluate HC, as an integrated complex structure, it's important to find out not only the legislative objective of HC creation, but also the perceived objectives and benefits of HCs.

The economic effects of the hospital integration process is presented in the study made by Azevedo and Mateus (- 2013). In this study they estimated a translog cost function to examine economies of scale in the years preceding restructuring. They also used difference-in-differences approach to evaluate HC that occurred between 2004 and 2007, comparing the years after and before mergers. Their findings suggested that economies of scale are present in the premerger configuration with an optimum hospital size of around 230 beds. They also concluded that mergers led to statistically significant post-merger cost increases (of about 8%). The results of this study suggested also that as HC becomes too large there are some difficulties to explore economies of scale, and thus to increase efficiency through combining operations and service specialization.

Although in 2012 there were 23 HC (Portuguese Health Regulation Authority - 2012), there are few knowledge regarding the process of planning, implementing and functioning of this organizational way of delivery hospital care.

Therefore, with this study we intend to better understand the integration process: planning, implementing and functioning, in different perspectives (internal and external) to better define the objectives regarding the HC creation.

The definition of such objectives will contribute to the development of PM framework for HCs that include the stated and non-stated objectives as well as other motivational factors bound to the different stakeholders identified in that domain.

Additionally, the purpose of this study is also to define the pre-conditions for a successful HC (i.e. that achieve the planned integration objectives) most valued by key informants and internal stakeholders.

Therefore, the research questions addressed in this study are:

1. What are the HC objectives most valued by the main stakeholders?
2. What are the external pre-conditions that influence a successful HC implementation (that achieves the proposed objectives) according to key informants and internal HC stakeholders?

To explore and to develop an in-depth understanding of the expectations and professional experiences of HC internal stakeholders and key informants a qualitative case study research was conducted.

The analysis of the results enabled us to propose a set of objectives divided into three dimensions: organizational, patient and health care professionals. A list containing important external pre-conditions that can contribute to successful HCs organizational model is also presented.

The findings of this study make it possible to complement and enrich the official legal objectives of the HCs, giving a comprehensive idea of the perspectives of key informants and internal stakeholders.

2. Material and Methods

2.1. Research method

Given the exploratory nature of the research questions and the complex phenomena involved in this study we conducted a qualitative case research (Yin - 2009). This method was used because it allows us to study the phenomenon in its natural setting (Meredith - 1998). The rich data resulting from this qualitative case study made it possible to gather new insights regarding the expectations and experience of Portuguese HCs bounded to key informants (external perspective) and internal HC stakeholders (internal perspective). It was possible to take advantage from a broader view of the Portuguese HC context.

It was considered appropriate to conduct a single case study for three main reasons:

- i. The opportunity given by the board of the selected HC to conduct the study with privileged conditions (Yin - 2009);
- ii. Regarding the number of hospital units integrated, number of beds (dimension), number of years after integration, and number of inhabitants in the caption area, the selected HC is a typical Portuguese HC (Miles and Huberman - 1994; Yin - 2009).
- iii. The resources constraints and time available.

Thus, in conclusion, the selection of this HC for the case study was opportunistic.

The methods used to collect data were semi-structured interviews and documentation analysis. We conducted 28 interviews, supported by an interview guide, in order to collect information on the interviewees' expectations, experience and context descriptions (Punch - 2005; Mason - 2002; Patton - 2002). In section 2.3 will be given a detailed description of the interviews.

2.2. Case selection

The HC considered in this case is a multisite hospital that resulted from the integration of two hospital units, which we will call A and B, in 2007. They were both acute hospitals. The distance between these two hospital units is about 30 Km (20 minutes by car when using the highway or 40 minutes when using national roads). This HC is part of the Portuguese network of public hospital and serves a population of over 500,000 inhabitants. It is an acute hospital with 480 inpatient beds (416 in hospital unit A and 64 in hospital unit B). The HC has 1597 professionals for its activity.

2.3. Interviews: sampling and analysis

Two different interview guides were devised:

- a) For key informants, where the goal was to find the drivers, objectives, benefits and disadvantages expected and experienced by key informants regarding the Portuguese HCs;
- b) For internal stakeholders in the clinical and support areas. These interviews' goal was to have an in-depth understanding of the professional experience and expectations of internal stakeholders regarding the HC.

Both interview guides were developed using the findings from the literature and professional experience of the research team and from recognized experts in the field. In appendices 2 and 3 are presented the interview guides.

Twenty-eight interviews were conducted between July and November 2013, and had duration between 26 and 100 minutes. All the interviews were tape-recorded, with the exception of three interviews (two with key informants and one with an internal stakeholder) that were given in written form.

Key informants and Internal stakeholders

According to Yin (- 2009), key informants are people who have a valuable insights on the subject and are best informed about data under study (Voss, Tsikriktsis, and Frohlich - 2002). The selection of key informants for this study was based on the professional experience of the research team. All team members have an in-depth knowledge of the Portuguese health care system and have worked previously with health care managers in the area of health care system planning. The key informants were selected based not only on their direct and indirect participation in the planning and implementation of HCs, but also on their positions as Portuguese health care managers and decision-makers, and their

past (and present) political and management responsibilities in health care over the last ten years.

The sample was composed of eleven key informants: one former Secretary of State for the Ministry of Health, one former board member of the Central Administration of the Health System (ACSS), two former board members of the Regional Administration of the Health System, four former and current board members of HCs, and three academics with expertise in healthcare planning.

The HC internal stakeholders were selected based on their hierarchical position (person responsible for service/department), function (one physician and one nurse were selected from the clinical services, while the person in charge of the service/department was selected from the clinical support and administrative staff) and the services/departments where he/she works (at least one person at each service/department). The internal stakeholders selected have worked in one of the hospital units prior to the integration, and are still working at the HC.

At least one internal stakeholder was selected in all services/departments of the HC. One physician and one nurse were chosen from the clinical services, while the person in charge of the service/department was the one selected from the support services.

Informant sampling was used in order to locate information-rich informants (Punch - 2005).

The composition of the sample is presented in table 2.

Table 2: Interviewees characterization

Interviewees	Nr.	Function
Key informants	1	Former Secretary of State for the Ministry of Health
	1	Former board member of the Central Administration of the Health System (ACSS)
	2	Former board members of the Regional Administration of the Health
	4	Former and current board members of HCs
	3	Academics with expertise in health care planning
Internal stakeholders	2	Physician
	5	Nurse
	7	Administrative staff
	2	Clinical Support
	1	Volunteer

2.4. Documentation analysis

Documents were used in this study as a source of evidence. According to Yin (- 2009), documents play a valuable role in data collection for case studies, and are particularly useful to corroborate and improve evidence from other sources (Yin - 2009).

The legal documents used as sources of data were: Decree-law 284/99: Guidelines for the creation and operation of Hospital Centres and Hospital Groups; Decree-law which created the case study HC; and Business Plan 2007-2010 of the same HC.

2.5 Coding and data analysis

The audio files were transcribed. The NVIVO (version 10.0) qualitative analysis software was used to analyse the interviews and the documents.

Each interview was coded using an attribute code, which was used to code and record descriptive information pertaining to each interviewee. The objective was to have a brief description of each interviewee regarding his/her demographic and professional characteristics (Hutchison, Johnston, and Breckon - 2010). The coding process continued with a structural coding, where large amounts of data regarding the main themes of the interviews have been coded. Large amounts of data regarding the main topics of the interviews have been coded: drivers, benefits (expected/real), disadvantages (expected/real), internal and external factors that (could) contribute to successful (or unsuccessful) HCs, challenges, difficulties and suggested performance dimensions to evaluate HCs (Saldaña - 2009). Finally, axial coding was applied: the themes that appeared frequently were refined and subthemes were identified, for which sub-codes were created to provide a more detailed analysis (Charmaz - 2006).

This study assesses the frequency of the themes related to the study's purpose, namely drivers, benefits (expected and real), expected objectives, disadvantages (expected and real), positive and negative impacts, difficulties, challenges, factors for (un-) successful HCs. These themes provided the base for the stated and non-stated objectives related to HCs. The frequencies based on the number of individual participants who mention a particular theme were determined, rather than the total number of times a theme appears in the text (Namey et al. - 2008). This method made it possible to identify which themes or ideas were common and most cited, and which themes occurred rarely (Namey et al. - 2008). Incorporating the context into the analysis is also useful (Namey et al. - 2008). The codes (themes) that appeared frequently were refined and subthemes were identified, for which sub-codes were created to provide a more detailed analysis.

The objectives and sub-objectives were defined based on frequency themes: objectives, benefits and disadvantages (analysed as a negative benefit). The themes related to HC experiences and the reasons provided by the interviewees to classify the HC as successful or unsuccessful were used in order to define the external pre-conditions that contribute to a (un-) successful horizontal integration. Themes related to external pre-conditions that contribute to successful or unsuccessful HC experiences were also used.

The other themes were used to better understand the Portuguese HC context.

3. Results

The data gathered with this qualitative case study provided the information necessary to establish the most valued and the most frequently mentioned objectives by the HC's internal stakeholders and external key informants regarding Portuguese HCs. These results made it possible not only to improve the stated objectives, but also to establish new ones.

As previously mentioned, three dimensions were used to present the objectives defined: Organizational, Patient and Professional.

3.1. Organizational dimension

During the data analysis it was decided to divide the objectives into two areas: management and clinical. Regarding the management area, the most mentioned objective was to improve or optimise resource utilization, which is a stated objective. This objective was also mentioned as resource reorganization.

"You clearly have to optimise resources to provide the service... It means providing the same service or even a better service more efficiently, more productively, a service that is naturally cheaper. This, for me, is the most important aspect."

(Interviewee Key informant A)

This objective and the second most mentioned objective, improving scale effect, are very closely related. An operational cost reduction and an improvement on the negotiation capacity is expected when two (or more) hospital units are integrated, due to an increase in production and in purchasing units, respectively.

"In a way, it was easier to buy in quantities that allow better prices. Moreover, in many non-clinical backoffice areas the integration issue would allow economies of scale, namely in terms of the number of people required to perform a set of tasks, and in terms of the computerization of the entire system."

(Interviewee Key informant B)

In terms of the scale effect, it is important to stress that the number of hospitals integrated in a HC is defined by a set of official rules related to geographical location, hospital specialities and technological differentiation.

The synergies that should be created and boosted between the integrated units and, as a consequence, between the hospital departments, were also outlined.

“Obtaining synergies in pursuing common projects.”

(Internal Document 3)

A large part of the interviewees considered that the leadership process is essential for the success of a HC. Thus, an important objective is to improve leadership processes and participatory management at high and middle decision levels, not only at top management, but also in intermediate positions.

“To co-responsible the services, directors and middle management, through internal contracting of objectives and annual targets.”

(Internal Document 3)

Since the number of human resources increased as a consequence of integration (in the past they were managed by two or more hospital units, and today they are managed by only one HC), managing this resource is a more demanding task. The same thing happens with information systems: an increase in the number of patients leads to an increase in the volume of information, and for that reason a more efficient system is required in order to manage information. Related to the same consequence of integration, as previously mentioned, with the increase in the catchment area (and patients), other three improvement objectives emerged from the analysis: the articulation with other care levels; the attraction capacity, both in terms of resources and patients; and the building conditions (that deteriorate more with an increasing natural wear, as a result of more patients).

“A HC ends up having more visibility than a hospital per se... This is also a factor that may attract more doctors.”

(Interviewee - Internal A)

Regarding the clinical area, four objectives emerged from the data. The number and the variety of cases/patients increase considerably with the integration (resulting from the sum of the cases in the previous single hospital units). The number of health care professionals in teams also increases, giving them the opportunity to discuss cases and to

promote changes. These two factors contribute to an improvement in the quality and safety of hospital care. There is a need to define guidelines for care procedures (care protocols) in order to standardize the hospital's care provision between integrated units. This way it is possible to improve the performance of the internal processes.

As previously mentioned, the increase in hospital cases allows hospital units to specialise their care in some clinical areas. This is related to a Portuguese problem, which has to do with an unbalanced distribution of health professionals throughout the country. When a HC is created, the number and diversity of cases increase for each health care professional, and there is an opportunity to create critical experience/reputation, and to specialise in some clinical areas.

“Moreover, the scarcity of human resources also leads to the need to invest in more integrated responses. These integrated responses emerge from the need for efficiency. They also emerge from another need, which is the need to have care planning and the resources to provide such care, which allows us to have an optimum design in terms of what good practices are.”

(Interviewee Key informant C)

Table 3 presents a more complete version of the objectives in this dimension.

Table 3: Objectives in the Organizational dimension

Organizational
Management
Improve/optimize resource utilization (reorganization of resources) Improve Scale Effect Operational (marginal) cost reduction Improve operational results Improve negotiation capacity Creation of synergies between the integrated units and hospital departments Improve Clinical governance Reduce duplication: infrastructures/equipment/technologies Improve leadership processes and participatory management Improve Human Resources management Improve information system management Improve articulation with other care levels (vertical integration) Improve capacity to attract resources and patients Improve conditions of the buildings
Clinical
Improve HC image credibility Improve clinical safety Improve quality of care Improve performance of the internal processes Increase hospital unit specialisation Increase and improve outpatient care

3.2. Patient dimension

Regarding the patient dimension, the analysis of the results enabled us to define the objectives according to the following areas: access and quality.

In terms of the access sub-dimension, with the creation of the HC and the redistribution of hospital services (medical and surgical) between hospital units, some of these units become farther away from populations. One objective to be defined is to improve physical access to HC services. This objective is directly connected to another one, which is the reduction of health care inequalities.

“For the patient, those from more distant areas, the distance was the greatest disadvantage because the response services in the A unit (smaller unit) would be slower. The response we would give in this unit (P, bigger unit) would be greater, and the waiting time would be lower. However, it would force them (patients) to travel, which would bring costs, ...”

(Interviewee Internal B)

Since HC services are usually distributed in more than one building, the transfer of patients between hospital units is one aspect that concerns the interviewees. For that reason, it is necessary to optimise patient flows in order to make life easier for patients. Reducing the waiting list/time for the first appointment/surgery as a way to improve access to hospital care was another objective mentioned.

“...the patient was simply used to go to a (single) hospital, (where) the services were all available, and suddenly (after integration), due to an organizational logic, a service is on one side (building) and the other service is on the other side (building)... The patient may start on one side and ending up on the other.

(Interviewee Key informant D)

Regarding the quality sub-dimension, the improvement of the perceived quality of care was one of the most frequently mentioned objectives. Another important objective is the need to better adapt the HC response to the needs of the community. HC services should be defined according to the evolution of the population’s needs (epidemiologically and demographically). Thus, the proximity to the patient should also be improved.

The objective of improving the health care service provided to the community is related to a greater proximity between the HC and the community through a more efficient communication channel. This channel should be able to manage the expectations of the community, disseminate information regarding the provision of the HC’s services, and other initiatives that directly influence the community.

Table 4 summarizes the main objectives in the patient dimension.

Table 4: Objectives in the Patient dimension

Patient
Access
Reduce inequalities in care
Improve physical access to hospital care
Facilitate the flow of patients inside and between hospital units
Reduce the waiting time and waiting lists for outpatient care
Reduce the waiting time and waiting lists for surgery
Quality
Improve healthcare quality (perceived)
Improve healthcare safety
Improve healthcare service provided to the community
Improve patient satisfaction
Better response to community needs
Improve proximity to patient (humanization of healthcare delivery)

3.3. Health care Professional dimension

In this dimension, the interviewees were concerned with objectives related to the work conditions and environment of health care professionals. Of these, five sub-objectives are related to the conditions of health care professionals: develop training/development programs adapted to organizational goals, improve work conditions, encourage the sharing of know-how and best practices between professionals, promote team work among professional categories, and boost research and teaching.

With integration, the number of health care professionals increases and, as a consequence, they have the opportunity to share good practices, to increase security practices and to discuss the cases with more colleagues. If the integration occurs between hospital units of different sizes, health care professionals that come from smaller organizations have the opportunity to learn more (more variety of cases) and to specialise in specific areas.

Objectives related to the integration of health care professionals in the “new” organization and the different organizational cultures must be considered.

“Ultimately, professionals prefer to work as a team, because they feel more useful and can share opinions. Some colleagues came and it was very good to have them all together – we improved our discussions and treatments over the last years.”

(Interviewee Internal C)

Table 5 presents a summary of these objectives.

Table 5: Objectives in the Professional dimension

Professional
Professional work conditions
Develop training/development programs adapted to organizational goals
Improve work conditions
Improve work space/Physical space
Access to better resources (equipment)
Increase number/diversity of cases
Encourage the sharing of know-how and best practices between professionals
Promote team work between professional categories
Boost research and teaching
Work environment
Increasingly engage healthcare professionals in management goals
Promote actions on Professional motivation
Implement actions that minimise the impact of reallocating jobs
Improve the management of expectations, mainly during integration processes

3.4. External pre-conditions that contribute to a successful integration

In response to the second research question, the analysis focused on the external pre-conditions that can compromise the success of a HC, and on information related to successful and unsuccessful Portuguese HCs. By a successful integration we mean an integration that achieves the proposed objectives. Thus, the list presented in table 6 identifies the most frequently mentioned ex-ante conditions that facilitate the success of the HC and the number of times they were mentioned (sources) by the interviewees.

One of the most frequently mentioned pre-condition was the “Local and regional government support” during the planning and implementation phases of HC. This aspect is related to the third pre-condition mentioned, “Involvement/Communication/ Information of local population”. Almost all interviewees who referred the first pre-condition stated that one of the functions of the local and regional government is giving information, providing clarifications, and explaining the advantages of creating the HC to the community. The local and regional governments can be the communication channel between the HC and the community. After the implementation, the support of these governments is still important because they can help the community by providing the external logistics.

According to the interviewees, it is easier to integrate hospital units with different dimensions, and this pre-condition contributes to a successful integration. For the health care professionals, integrating five or six health care professionals in a team of twenty is easier than integrating five or six health care professionals in teams with the same number of professionals.

Two other pre-conditions, which are viewed as being extremely relevant to the success of the integration, was the existence of a strategic plan where medium and long-term objectives and goals are defined. The existence of a public transportation network that links the different communities of HC catchment area to all hospital units of the HC is critical in rural areas, where the distance between the communities and the hospital units is greater. The proximity between hospital units that are integrated is a pre-condition that facilitates the integration.

Table 6: External pre-conditions that contribute to a successful integration

Pre-conditions	
External Factors	Sources
Local and regional government support	22
Small distance between hospital units/Geographical dispersion	19
Involvement/Communication/Information of local population	19
Existence of a public transportation network	15
Existence of strategic planning	14
Hospital units with different sizes	13

4. Discussion and Conclusions

This study aimed at defining objectives and pre-conditions that are most valued by HC internal stakeholders and key informants regarding the Portuguese HCs.

The qualitative analysis revealed that a large portion of the objectives mentioned were in the organizational dimension. In this dimension, objectives related to resource rationalization and optimisation, with the consequent cost reduction, were mentioned frequently. These objectives were in line with recent health care reforms regarding resource rationalization and the need to deal with financial and economic limitations caused by the Portuguese economic climate. Objectives related to the clinical area also emerged frequently in the data. The need to improve internal processes becomes even more important after an integration process. To bring together patients and hospital care

it is necessary to articulate hospital care with other levels of care, namely primary and continuing care.

Objectives related to reducing inequalities in care provision in the patient dimension were the most frequently mentioned. Sometimes, as a consequence of the integration and subsequent service reorganization, some people in the HC catchment areas, mainly in rural areas, have become farther from the previous hospital services. One of the most cited objectives was improving physical access to hospital care. Improving access to hospital care, for instance, by reducing waiting times and waiting lists to surgery and outpatient care, was also mentioned. Improvements in the perceived quality and patient satisfaction were also mentioned in this dimension.

In the professional dimension, objectives related to professional conditions (for instance, developing training programs adapted to organizational goals, initiatives that promote know-how and best-practice sharing between professionals) were pointed out. Objectives related to the improvement of the work environment were also referred. After integration, the different organizational cultures of professionals can become a serious problem. Objectives such as increasing the involvement of health care professionals in management goals, and improving the management of expectations, mainly during integration processes, can reduce the impacts of that kind of problem.

Regarding the second research question, a very important external pre-condition that can contribute to a successful integration is the support of the local and regional authorities. They can be used as a communication channel between the HC board and the local population. This communication should state the benefits of having a HC instead a small/individual hospital, involving the HC board and local governments in the development of local initiatives to bring care provision closer to the patient. To overcome the obstacles of implementing HC and to strengthen the success of the HC, it is necessary to take into consideration external pre-conditions during the planning and implementation phases. For each case, the larger the number of conditions on the list, the easier the process will be.

The main contribution of this study was that the richness of qualitative data that made it possible to have a broader perspective of the expectations and experiences of Portuguese HCs. It would not have been possible to obtain the objectives that arose while analysing the qualitative data by using a different research approach. However, some limitations should be kept in mind. Firstly, the answers provided by the respondents may have been the answers expected from a person in that professional position, instead of their own opinions. Social desirability is a source of biased responses in some of the topics studied

(Paulhus - 1991). Secondly, using a single case presents some limitations. The first is the generalization of the conclusions resulting from one single case. The selection of the key informants by the research team could bias the results since their views wouldn't be as broad as it was expected. Another limitation is related to biases, such as misjudging the representativeness of a single event (Voss, Tsikriktsis, and Frohlich - 2002). On the other hand, by asking the same question to a number of people the reliability of data increases (Voss, Tsikriktsis, and Frohlich - 2002).

In this study we defined not only the stated objectives of HCs, but also the objectives that have not been defined in any official document, and yet were valued by these two groups of interviewees. The list of external pre-conditions, when considered, will help to ensure a successful HCs implementation.

As a future research steps we intend to generate develop a framework to evaluate HCs. The framework, covering different perspectives such as organizational, integration and performance, can be viewed as a way to improve the processes and structures integration, in order to improve efficiency, coordination and performance. This framework can support the decision-makers in the definition of policies in that domain and namely can support the improvement of the current way of organizing hospital care and thus, have a more efficient, cost-saving and rational hospital health care system. The results obtained so far will provide a valuable input for that framework, making it more complete and adjusted to reality.

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3.2. Paper #2

Hospital Centre performance dimensions: which are those most valued by internal stakeholders? – The results of a case study⁴

Abstract

Purpose: Hospital centres (HCs) are the result of a horizontal integration of two or more hospital units. The benefits of this integration have been presented in the literature. Nevertheless, performance measurement frameworks for HCs considering the domains valued by internal stakeholders have, to the best of our knowledge, not yet been proposed. This study aims to define the hospital performance domains most valued by HC internal stakeholders, and to evaluate if the importance given to each domain is different when comparing professional groups.

Design/methodology/approach: We conducted an in-depth case study using a quantitative survey. The survey uses a questionnaire based on Parsons' social system action theory, which embraces the four major models of organizational performance. In the final version of the survey, 37 items were retained for analysis. An exploratory factor analysis was conducted for a final sample of 365 participants, through principal component analysis, with oblique rotation and the Kaiser criterion.

Findings: Four factors were retained: “Human resources development and Internal Processes”, “Attractiveness/Openness”, “Public service mission” and “Interpersonal relationships”. The mean factor scores only reveal statistical differences between the Attractiveness/Openness factor and the remaining three factors. A shared view was found in this study among the three groups of internal stakeholders: physicians, caregivers and administrative staff, since there were no statistical differences when mean factor scores were compared between groups.

Originality/value: The results of this study suggest that the HC performance concept should be expanded and performance measurement frameworks with greater scope should be used. Interpersonal relationships, human resources development and the public service are considered important domains to consider in the performance measurement of the HC. Additionally, a consensual view regarding the most valued performance domains and shared organizational values could contribute to a beneficial and healthy working environment and improvements in HC performance.

⁴ This is an extended version of the paper submitted in the International Journal of Productivity and Performance Management. Simões, A., Azevedo, A., Gonçalves, S. "Hospital Centre performance dimensions: which are most valued by internal stakeholders? – The results of a case study".

1. Introduction

A network of public and private organizations characterises the Portuguese health system. All of these organizations are connected through the Ministry of Health. The Ministry of Health coordinates all healthcare provision and finances the public healthcare organizations. The Portuguese healthcare organizations in general, and the public hospitals in particular, have been undergoing structural reform since 1990 with the introduction of alternative management models and the implementation of a prospective financing scheme.

The guidelines for Hospital Centres (HC) were established by decree-law in that year (Assembleia da Republica - 1999b). These are horizontal integration models. In 2011 there were 25 HCs in Portugal (Portuguese Health Regulation Authority - 2012). Therefore, we have seen in Portugal a reduction in the number of hospitals, as individual organizations, over the last two decades as a result of this horizontal integration process. This process consists of the integration of two, or more, single hospital units into one independent hospital with only one board and management team. Each HC creation should be preceded by a proposal made to the Regional Health Authority (Administração Regional de Saúde). This proposal must give the reasons for integrating the hospital units, based on the public interest, namely optimisation of the delivery of healthcare services by the hospital units when integrated and the reinforcement of articulation and the complementarity of hospital services. In practice, an integration plan had to be defined for each HC to be created. This plan should set out the specific objectives to be achieved with the integration. This process has been interpreted as a restructuring of services, with the consolidation of clinical services (Azevedo and Mateus - 2013). The reduction of the number of hospitals didn't mean that this process resulted in hospital units' closure. The integrated hospital units (corresponding to an HC) are actually geographically separated production units managed as a single organization. The aim of this centralisation process was to bring all activities under the full control of the integrated entity in order to benefit from economies of scale by reducing costs and resource sharing (physical and human) (Azevedo and Mateus - 2013). This centralisation trend can be found also in England, Denmark, Norway and Sweden (Kristensen et al. - 2008).

Few studies on the Portuguese HC experience have been published, and no study was been published regarding the performance domains of hospital care, and HCs in particular. Thus, this study aims to define the most important performance domains for HC internal stakeholders in the Portuguese context.

The research questions addressed in this study are:

1. What are the most important performance domains in the Portuguese HC context?
2. Are the performance domain preferences different between stakeholder groups?

A survey was conducted to answer these research questions, to identify the performance domains in the selected HC using an adapted version of the Minvielle et al. (- 2008) questionnaire.

The results of this study strongly contribute to the development of a subsequent performance measurement framework for the HC. Furthermore, they provide important insights for the political decision-making process regarding organizational changes in hospital care.

The structure of the paper is as follows. We first introduced the problem and presented the research questions. In section 2 we reviewed performance measurement in healthcare as a critical aspect for both managerial and research purposes. We introduced the Sicotte et al. (- 1998) framework which is based on the Pearson's social system action theory and we presented the previous papers that applied the survey based on this analytical framework. Our methodology is described in the third section. The analysis and results are presented in section 4 and our discussion and conclusions appear in section 5.

2. Literature Review

The definition and measurement of organizational performance have long intrigued scholars and management practitioners. This has led to the conclusion that performance means different things to different people (Robbins - 1983; Adair et al. - 2003; Yavas and Romanova - 2005). Three main domains are commonly included in the debate on healthcare management: quality of healthcare delivery, effectiveness in healthcare delivery and financing and accountability of health organizations (Adair et al. - 2003; Adair et al. - 2006; Costa and Lopes - 2007)). These themes are strictly related with the definition and measuring of hospital production and the measurement of hospital performance (Costa and Lopes - 2007).

Performance measurement is crucial from a management perspective, since without a performance benchmark, managers cannot objectively or consistently assess the quality of their strategic decisions (van der Geer, van Tuijl, and Rutte - 2009) . From a research perspective, performance is often a variable that depends on a desire to understand why some organizations are more successful than others (Yavas and Romanova - 2005).

Consequently, valid and reliable performance measurements are critical for both managerial and research purposes.

Healthcare organizations are different from other organizations and these particularities must be taken into account when a performance measurement framework is developed for healthcare organizations. One of these particularities of Portuguese healthcare organizations is that they are public service organizations. Their social purpose is to preserve and improve the health status of the individuals they serve. However, the definition and measurement of outcomes in this kind of organization is still difficult (Leggat et al. - 1998; Sicotte et al. - 1998; Adair et al. - 2003). The political, legal and financial hospital environments, with greater State control, are very complex, requiring the development and maintenance of complicated intra and inter-linked systems. However, the introduction of some business management models helps to bring professionals of different areas of action closer creating more contingent relationships in work organization and management (Doolin - 2002; Mauro et al. - 2014).

Healthcare organizations also have some unique human resources-related characteristics. Souliotis et al. (- 2014) refer to healthcare organizations as social systems where human resources are the most important factors affecting the quality of care, and effectiveness and efficiency of the organization. The organization's orientation and operations are strongly influenced by the activities of the professional groups, who are those uniquely qualified to determine how the operations should be carried out (Sicotte et al. - 1998). Thus, the workforce is large, diverse and comprises separate occupations, often represented by powerful professional associations or trade unions. Some have sector-specific skills, while others can readily move from the health sector to employment in other sectors. The avowed first loyalty of those with sector-specific skills and qualifications (physicians, nurses, etc.) tends to be to their profession and their patients rather than their employer (Buchan - 2004). Physicians having autonomous clinical decisions and nurses acting as an organized group with a professional agenda influence what the hospital does. Another important professional group with influence in what the hospital does are the managers, especially in the financial dimensions. According to WHO (Edwards, Wyatt, and McKee - 2004), the major challenge in human resources policy for this century is to break down the traditional barriers between the different professional groups. According to that organization, these barriers are more often related with history than logic and, as a result, there is an inappropriate use of health professionals and the fragmentation of patient care.

2.1. Stakeholders

The variety of healthcare performance models reflects different and fragmented aspects of performance (Neely et al. - 2000; Adair et al. - 2003). Consensus regarding the best model to assess performance is impossible to obtain. Individuals' values and preferences within a certain organization are the main contributions to performance judgments. These values and preferences vary between and are often contradictory among the different stakeholders (Cameron - 1986). Some authors have developed models where they have tried to integrate the different performance domains (Cameron and Whetten - 1983; Quinn and Rohrbaugh - 1983; Sicotte et al. - 1998). Nonetheless, these domains are of different value among the stakeholder groups, because they each have their own values and preferences (Connolly, Conlon, and Deutsch - 1980; Groene, Skau, and Frølich - 2008).

According to (Adair et al. - 2003) performance measurement activities are more advanced in the United States and United Kingdom, with a growing presence in other countries. The origins in health are rooted in a more generic context, where the emphasis was on accountability in public sector policy and service delivery. In the 1990s, more specific and direct performance measurement initiatives were undertaken. An emphasis on quality of care was added in the late 1990s in the United States, but was also visible in other countries such as the UK and Canada (Adair et al. - 2003). Many view quality as the overall objective, which must be addressed by performance measurement, while others still present quality as one among several domains of hospital services' performance to be addressed. Other domains include cost, access and satisfaction (Lied and Kazandjian - 1999; McIntyre, Rogers, and Heier - 2001; Brand et al. - 2012). The emphasis on quality was followed by safety, as a component of quality of care within the continuing context of broader performance measurement (Adair et al. - 2003).

The traditional performance measurement systems in business and in healthcare focus mainly on accounting and financial measurements (Tangen - 2004; Mauro et al. - 2014). However, each stakeholder group has different preferences, purposes and values (Sicotte et al. - 1998). A multidimensional system of performance measurement is appropriate for HCs.

However, few researchers have investigated performance measurement frameworks in the context of organization theory, in which organizations are battlegrounds for stakeholders who seek to influence the criteria for effectiveness to advance their own differing interests (Guisset et al. - 2002; Mauro et al. - 2014).

According to the multiple constituent model of organizational performance, the stakeholders' perspectives must be considered in an integrated way for the purposes of evaluation (Zammuto - 1984; Mauro et al. - 2014).

2.2. The Portuguese healthcare reforms

This section is intended to give some important contextual facts to enable a better understanding of the healthcare reforms, particularly in hospitals, that have been undertaken in Portugal.

The Portuguese health system is described, in general terms, as a network of public and private organizations. All of these organizations are connected to the Ministry of Health. The Ministry of Health coordinates all healthcare provision and finances the public healthcare organizations.

Since 1990, the Portuguese healthcare organizations in general, and the public hospitals in particular, have been undergoing structural reform with the introduction of alternative management models and the implementation of a prospective financing scheme.

The first Local Health System was created in 1999 by decree-law, which is a model to articulate and integrate the healthcare services (Assembleia da Republica - 1999a). The guidelines for Hospital Centres (HC) and the creation of hospital groups were also established during this year, by decree-law (Assembleia da Republica - 1999b).

The implementation of the first management experiences with an alternative legal status occurred in Portuguese hospitals at the end of the 1990's. These experiences began the Portuguese hospital system reform with the delegation of responsibility down the line of management. The creation of responsibility centres⁵ was one of these reforms. It enabled the lower-level managers to use resources more efficiently. The aims of these responsibility centres (created under criteria of homogeneity of production and complementarity of objectives) were: better coordination of medical specialisations, cost control and greater competitive strength. However, there are very few responsibility centres in practice nowadays. The more general reforms of hospital management led to these types of centres being neglected (Barros and Simões - 2007). The EPE Hospitals (*Hospitais EPE*) were created in 2005. These move hospitals towards more business-like statutes and aim for a high level of responsibility at the institutional level (Barros and Simões - 2007).

⁵ Translation of the Portuguese concept "*Centros de Responsabilidade*"

Costa, Costa, and Lopes (- 2010) in their literature review on performance evaluation in Portuguese hospitals highlighted some practical studies in performance assessment: Assessment of Garcia da Orta and Fernando da Fonseca hospitals; and the Project of Health Units assessment. These studies were made by the National Institute of Administration in 1999 and 2001, respectively. These authors also reported several studies done by the Institute of Informatics and Financial Management of Health, as well as the assessment of hospitals with public limited company status. According to these authors, the Health Services Contracting Agencies and the General Directorate of Health also have some experience regarding hospital activity assessments. Some of these experiences are the Indicators project and Performance comparison of the NHS Health Units.

The new legal scheme for Hospital Management, published in 2002 (Assembleia da Republica - 2002), means that the performance evaluation of healthcare organizations was focused on more. Important aspects relating to hospital management principles were defined in this law. Some examples are: performance assessment, dissemination of information related to performance, efficiency and effectiveness, and quality of care assurance.

However, there is recognised difficulty assessing performance in healthcare organizations related to, among others, the different performance domains, the interests of the stakeholders and the specificities related to healthcare delivery (Leggat et al. - 1998; Sicotte et al. - 1998).

2.3. Sicotte et al. (- 1998) framework

According to Marchal et al. (- 2014) the framework developed by Sicotte et al. (- 1998) is one of the most important in the healthcare sector. Based on the literature review done by Leggat et al. (- 1998), Sicotte et al. (- 1998) developed a comprehensive framework for the assessment of the performance of healthcare organizations.

They developed a comprehensive theoretical-based framework that overcomes the fragmented approach to assess healthcare organizations' performance. This framework is based on the Pearson's social system action theory (Parsons - 2005) which combines the four dominant models for the assessment of organizational performance:

- i) The rational model: This model is based on the accomplishment of objectives; an effective organization is the one that achieves its objectives. Or in other words the organization exists to accomplish its objectives. These

organizational objectives could be defined in terms of production volume, quality level, or services delivered. According to Sicotte et al. (- 1998), performance assessment for this kind of organization consists of the strength of the relationship between organization means-ends chain. The focus is on the outputs of an organization – the closer the organization’s outputs come to meeting its goals, the more effective it is (Cameron - 1980). The major difficulties of this performance model are the identification and measuring of outputs and outcomes and the evolution of the organization concept.

- ii) The open system model: This model was introduced by Yuchtman and Seashore (- 1967). Its emphasis is on the interaction between the organization and its environment. The organization is viewed as dependent on its environment (customers, employees, providers). The organization must comply with the laws and regulations. According to this model, one of the organizational key processes is an adequate supply of resources, both human and technical. Good performance is measured by great flexibility and the adaptability needed to acquire the scarce and valued resources for growth (Cameron - 1978; Sicotte et al. - 1998; Guisset et al. - 2002; Minvielle et al. - 2008).
- iii) The internal process model: In this model the internal processes (information management, communication and optimised decision-making) and operations of the organization are the main points of interest. The stability, predictability and control are valued. Thus, the emphasis is on the internal production process. It’s not only the amount and quality of the product/services that is important but also the products/services management production process (Cameron - 1978; Sicotte et al. - 1998; Guisset et al. - 2002; Minvielle et al. - 2008).
- iv) The human relations model: In this model, performance is viewed as the organization’s internal health using fields such as morale, climate, cohesion, conflict, human development, and survival (Sicotte et al. - 1998). An organization performs well if it responds to the demands and expectations of its stakeholders, or achieves a balance between them (Cameron - 1978; Quinn and Rohrbaugh - 1983; Sicotte et al. - 1998). The emphasis is placed on the stakeholders becoming committed to the success of the organization (Connolly, Conlon, and Deutsch - 1980; Adler and Borys - 1996)

This framework makes it possible to comprehensively consider performance domains in order to express the values used by stakeholders in their choices. This framework includes

the four functions an organization needs to balance in order to perform well: (i) goal attainment, (ii) production, (iii) adaptation to the environment, and (iv) culture and value maintenance (Sicotte et al. - 1998; Mauro et al. - 2014).

The Sicotte et al. (- 1998) framework has been widely used in OECD countries for instance, inspired on the WHO-Europe's framework for assessment of hospitals, to assess accreditation, to analyse how the actors and stakeholders of healthcare organizations define performance and to explore how healthcare organizations learn (Marchal et al. - 2014).

A survey was developed by Guisset et al. (- 2002) to define hospital performance among key stakeholders in hospitals, based on the Sicotte et al. (- 1998) analytical framework. This tool was applied to Belgian hospital leaders focusing on their conceptualization of hospital performance (Guisset et al. - 2002). More recently, Minvielle et al. (- 2008) applied an adapted version of this survey to a teaching hospital in France. The aim of this study was to find emerging views on hospital performance. Subsequently, the adapted version of the Minvielle et al. (- 2008) survey was used by Bravi et al. (- 2013) to examine and compare the views on the performance of internal stakeholders in an Italian oncological care network. Yet more recently, Mauro et al. (- 2014) applied the adapted version of the Minvielle et al. (- 2008) survey to an Italian teaching hospital located in the Calabria region. These studies are briefly described below.

Guisset et al. (- 2002) developed a survey among Belgian hospital leaders about their conceptualization of hospital performance. The questionnaire was developed based on the Sicotte et al. (- 1998) conceptual framework. These authors used factorial analysis to confirm that performance was viewed as a multidimensional construct. They also concluded that empirical factors were consistent with theoretical domains. According to their study there were divergent views among professional groups about the characteristics of hospitals with very good performance.

Minvielle et al. (- 2008) did research to find out what are the emerging domains of hospital performance. They also want to find out if these domains were consistent among the professional groups. They developed a case study with interviews and questionnaires addressed to different professional groups in a French teaching hospital. The study results showed that the human relations and quality of working life domains were assigned greatest importance. There was large consensus among the group of professionals related to hospital performance.

The Lamontagne et al. (- 2010) study objectives were to document the perceptions of a trauma brain injury network among participants regarding the performance domains and to explore whether these perceptions vary according to organization types. Their study results referred that network organizations reported domains related to goal attainment to be more important than those related to process. Differences existed between the perceptions of various types of network organizations for some but not all domains and dimensions of performance.

The Bravi et al. (- 2013) study aimed to examine and compare the views of professional groups on hospital performance. They adapted the competing values framework of organizational framework to conduct a survey in five hospitals of an Italian network for oncological care. The study results showed that professional groups assigned greatest importance to the relational and healthcare domains. Broadly shared views among professional groups on hospital network performance were revealed.

Mauro et al. (- 2014) explored the performance domains of Italian teaching hospitals by considering the multiple constituent model approach, using measurements that are subjective and based on individual ideals and preferences. In their study they intended to identify emerging views on the performance of teaching hospitals and to analyse how these views vary among hospital stakeholders. The study results revealed that hospital performance includes the domains of efficiency, effectiveness, quality of care, and organizational and human features. Moreover, the results also confirmed a high degree of consensus among all observed stakeholder groups regarding their value.

The following studies were also conducted with the purpose of defining healthcare performance domains, but with slightly different aims. They were based on different frameworks.

Tregunno et al. (- 2004) aimed to describe the performance interests of the different stakeholders related to the management and delivery of emergency department (ED) care. They also wanted to develop a performance framework and a set of indicators that describe those interests. They adapted the Quinn and Rohrbaugh (- 1983) competing values framework of organizational effectiveness to describe the performance interests. They found key differences among stakeholder perspectives of important domains of ED performance, i.e. among hospital (physicians, nurses, managers) and community stakeholders (homecare providers and paramedics). In particular, physicians assigned lower ratings to the importance of performance measurements compared to other stakeholders.

Mandell and Keast (- 2008) proposed a combined framework that incorporates multiple perspectives on effectiveness. This framework is based on the different types, levels of analysis and stages of development of networks. This framework aims to overcome the traditional methods to assess network performance and incorporate the complex and unique characteristics of networks.

Dobrow et al. (- 2009) proposed to develop a measurement of cancer services integration that can inform decision-makers (clinical and administrative) of their efforts to monitor and improve cancer systems performance. Based on the Gillies et al. (- 1993) framework they carried out a survey of different professional groups to identify the key-elements underlying cancer services integration in Ontario. The results showed that four of twelve factors identified in the analysis reflect integration dimensions (clinical, functional and vertical system).

3. Methodology

We conducted an in-depth HC case study using a quantitative survey to identify the most important performance domains in the Portuguese HC context and to evaluate how these views vary among the HC internal stakeholders. The survey uses a questionnaire based on Parsons' social system action theory, which includes the four major models of organizational performance mentioned above.

3.1. Case selection

The HC considered in this case is a multisite hospital that resulted from the integration of two hospital units, which we will call A and B, in 2007. They were both acute hospitals. The distance between these two hospital units is about 30 Km (20 minutes by car when using the highway or 40 minutes when using national roads). This HC is part of the Portuguese network of public hospital and serves a population of over 500,000 inhabitants. It is an acute hospital with 480 inpatient beds (416 in hospital unit A and 64 in hospital unit B). The HC has 1597 professionals for its activity.

3.2. Survey

Minvielle et al. (- 2008) developed a questionnaire to find emerging views on hospital performance. They applied this questionnaire, which was an adaption of a previous one (Guisset et al. - 2002), to a French hospital. The survey used in this study was an adaptation of the Minvielle et al. (- 2008), Guisset et al. (- 2002) and Bravi et al. (- 2013) surveys. However, we had to adapt it to validate the contents of each performance domain.

Prior to content validity, the first step was to translate the survey items. The items used were those found in the surveys by Guisset et al. (- 2002), Minvielle et al. (- 2008) and Bravi et al. (- 2013). The expert group described below validated the translation. After translating the items, they were organized according to theoretical performance domains. To adapt the questionnaire to the Portuguese context some items were eliminated because they did not apply to a Portuguese environment, mainly due to legal rules and professional requirements, while other items were aggregated/merged when they related to the same subject.

An expert group of seven people in the academic and healthcare management area participated in the validation of the contents in the survey:

- Four academic/researchers with experience in management and performance measurement.
- Two experts in health management.
- One academic expert in research surveys.

For the content validity, a document was prepared to send to these persons, based on the above-mentioned list. The evaluator had three options for validating each item in the survey: Applicable, Not applicable at all, or Applicable with modifications. A space for improvement suggestions was also available for each item.

After the content validation document was filled out, each evaluator sent it back to the researcher. This feedback made it possible to make improvements to the survey. As a result, a final set of 67-items to measure hospital performance was defined.

The scale used in this study was the same as that used in the previous studies, as suggested by Hair et al. (- 2006). Therefore, to measure the answers we used an interval scale from 0 to 10, where “0” was not important at all and “10” was extremely important (Guisset et al. - 2002; Minvielle et al. - 2008; Bravi et al. - 2013).

The final version of the survey was divided into three parts: the first part comprised general information about the respondent, such as gender, age and educational level; The second part was composed of questions related to professional information, such as the hospital unit where the respondent worked prior to integration, number of years he/she worked in that hospital unit, hospital unit where he/she works today, year he/she started working in the HC, service where he/she works today, and professional group; The third part includes an assessment of the respondent’s answers to the previously developed 67-item measurement of hospital performance.

Some small adjustments were made to the questionnaire after it was pre-tested. This pre-test was conducted in two phases: a pre-test with cognitive methods and a pilot test.

3.3. Pre-testing

The greatest challenge the researcher faces in survey-based research is to develop a questionnaire with the right questions (that allow the research questions to be answered) and at the same time that facilitate and motivate the respondents to participate (Forza - 2010).

These aspects were taken into account during the content validation phase. Thus, a questionnaire was developed with language consistent with the respondents' level of understanding. However, it was necessary to test the survey in the real field, doing a pre-test before its roll-out to all HC professionals.

During the pre-testing phase the designed questionnaire and survey protocol were tested to detect problems and to solve them before the administration of the surveys to all respondents.

The questionnaire pre-test was made up of two phases. First a pre-test with cognitive methods followed by a pilot test.

3.4. Pre-testing – cognitive methods

Survey researchers have been concerned with data collection methods and procedures to ensure valid and reliable results. Therefore, these aspects imply assumptions that the respondents are able to understand the questions that are being asked, that the questions are well understood in the same way by all respondents and that respondents are willing and able to answer such questions. The cognitive question testing methods test these assumptions (Collins - 2003). These methods identify where and how the questions fail to achieve their measurement purpose. These procedures enable some of the limitations of “traditional” piloting to be overcome, though not providing evidence of the causes that disrupt the response elicitation process. Thus, these methods enable looking at the question-and-answer process (Collins - 2003).

The question-and-answer model is a useful representation of how respondents answer survey questions. According to Collins (- 2003) this simple model, derived from cognitive psychology, suggests there are four actions that respondents have to perform in order to answer a question: 1) they must comprehend the question (the respondent must understand the question in the same way as the researcher intended), 2) retrieve the

necessary information from long-term memory; 3) make a judgement about the information needed to answer the question. The same author refers that in the case of attitude or opinion questions, the questions being asked of the respondent to express a view or opinion on something that they may not have thought about or in that context. And finally 4) Answer the question.

Cognitive interviewing was selected as a cognitive method for testing the survey. The interviews were conducted with four HC professionals selected in clinical and support areas⁶: one nurse, one technical assistant, one operational assistant, and one senior technician. These selected personnel were invited to participate on a voluntary basis. An individual session was made with each selected staff member and they took place in a HC private room. All the sessions except for one were taped recorded, with the consent of the HC professional.

Each session mainly focused on the mental process the respondents use to answer the survey questions. This method is qualitative and flexible in its nature and was used as to complement traditional field pre-testing. There were two main cognitive techniques in this method: think aloud interviewing and probing. In the think-aloud approach the respondent is asked to “think-aloud” as he or she is answering or completing the questionnaire. In the probing method the interviewer asks specific designed questions to understand how the respondent went about answering the question. In these sessions both methods were combined.

The results of these sessions were analysed and systematized. Improvements to previous survey versions were made.

3.5. Pilot test

The traditional pilot test was made after the above referred pre-test with cognitive methods. This test was made with two different groups of people. The first group was made with six of the potential respondents, i.e. with the HC professionals. The aim was to have feedback on all aspects related to answering the questionnaire. The test aims were to know if the instructions and questions were clear; if there were any problems in understanding the questionnaire purpose, and the kind of answers expected; and, finally, the time to fill in the survey. Another supplementary aim was to test if the planned procedure to carry out the survey would be effective.

This test was made with 6 staff members of the HC within clinical and support areas.

⁶ These staff members were selected with support of the HC human resources department.

A pre-test was also made with a second group, composed of researcher colleagues. According to Forza (- 2010), this procedure is particularly suited to testing if the questionnaire accomplishes the study objectives.

The results of this pilot test led to small adjustments in the survey.

The Portuguese version of the questionnaire is in Appendix 4.

The research methodology was based on the survey of a population composed of three internal stakeholder groups (physicians, caregivers and administrative staff) at one Portuguese HC. The identification of these three groups was justified by previous studies that identified them as the core groups that affect the process of care (Garman, Leach, and Spector - 2006; Blake et al. - 2010). Using the same internal stakeholders groups used in the previous studies enables comparisons and consistency with the previous studies that used the Minvielle et al. (- 2008) survey.

After the validation and adaptation process previously described, a cover letter was sent by e-mail to all HC professionals, with the exception of Operational Assistants (OAs), inviting them to participate in the study. For the OAs professional group the cover letter was sent by internal mail. In this letter we presented the research project, the research team, and the research objectives, guaranteeing total confidentiality and anonymity for the answers and respondents. The cover letter sent by e-mail had a link to a website where the questionnaire could be filled out and returned electronically. For OAs, the paper survey was attached to the cover letter. In this case, the people in charge of the OAs distributed the cover letter and the survey.

3.6. Response rate monitoring

In order to monitor and increase the response rate, a monitoring of response rate protocol was prepared. This protocol defined: the contacts timing, the person responsible for making these contacts, guidelines for the text to be sent, and the type of contact.

Therefore, in order to accomplish the objective, i.e. to increase the response rate two weeks after the survey had been rolled out, a first e-mail was sent to all HC professionals. The text of this e-mail intended to thank the responses received and also to remind the professionals who hadn't yet answered, to do so.

By the end of the first month (the initial period defined for collecting the data) a second e-mail was sent to all HC professionals. Again, the text of this e-mail was intended to thank the participation of the professionals that had answered the questionnaire. This text drew attention to the low response rate, encouraging the professionals to participate in the

project by responding to the questionnaire. At this time, the professionals were also informed of the period extension (15 more days) for the collection of survey data. The research team sent a third e-mail at the end of the extension period (the middle of the second month). The text stated the same aspects previously described, and also informed of a second period extension (until the end of the second month, i.e. 15 more days). At the end of the second extension period, a fourth e-mail was sent by the HC board. The message sent to all professionals, reinforced the importance of the project and encouraged the HC professionals who hadn't yet answered the questionnaire to participate in it. Another extension period was defined, until the end of the third month. In the first week of the fourth month a fifth e-mail was sent to all HC professionals. In the message the research team thanked the professionals who participated in the project and also informed them of the close of the data collection period.

3.7. Survey distribution

A census survey was conducted between January and March 2015. Using a census survey the possibility of a sampling error arising is minimised. The delivery method used in this study minimised the possibility of non-targeted individuals responding (Braunsberger, Gates, and Ortinau - 2005). The option to use a census survey instead of a sample survey was to achieve as great a number of responses as possible. Table 1 presents the total staff in each professional category and the number of responses collected in each category. The overall response rate was 23%. The response rate of the physicians was 14.1%, 23.4% for caregivers and 30.4% for administrative staff. This response rate is relatively low compared to similar studies, 46.6% in the Minvielle et al. (- 2008) study and 68.2% in the Bravi et al. (- 2013) study and 72% in the (Mauro et al. - 2014) study. However, the Guisset et al. (- 2002) study had a lower response rate of 34%, compared to the mentioned studies.

Although two main actions were conducted to improve the response rate: five reminder e-mails and mixed data collection modes were used (on-line and paper) the response rate was low. Whether the low response rate reflects low priority for HC professionals' opinion on performance, lack of time or survey overload is unknown. The number of responses obtained was nevertheless sufficient to conduct a valid statistics analysis.

Table 1: Total staff in each professional category and the number of responses collected in each category

	Eligible population		Respondents	Analysable	Response rate
	n	%			
Caregivers (except physicians)	1014	63.5%	240	237	23.4%
Physicians	327	20.5%	46	46	14.1%
Administrative staff	256	16.0%	78	78	30.5%
Missing professional category			4	4	
TOTAL	1597		368	365	23.0%

Questionnaires with more than 25% of missing values were not included in the sample. The remaining but scarce missing values were estimated according to the options provided by the estimation procedures. In the Principal Component Analysis (PCA), the values were estimated by the procedure of replacement with the mean (Hair et al. - 2006; Pestana and Gageiro - 2008).

A PCA was conducted to identify the empirical structure of the questionnaire. Since the correlation between factors was taken into account, a direct oblique rotation was used. The Kaiser criterion was used to establish the number of factors extracted (factors extracted with an eigenvalue > 1).

All items with loadings below 0.4 or cross-loadings above 0.4 were excluded from the final model to ensure factor convergence and discrimination.

To compare the relative importance of the four domains (factors), we conducted the paired sample T test for each pair of domains (factors) with a significance level of 0.05.

Additionally, we performed an analysis to compare the results regarding the internal stakeholder groups, using a one-way analysis of variance for the equality of means with a significance level of 0.05. The statistical analyses were performed using the IBM SPSS software v.22.

4. Analysis and Results

An Exploratory Factor Analysis (EFA) was performed on the final sample, using the principal component analysis, with oblique rotation and the Kaiser criterion (eigenvalues>1), to determine the number of factors to retain. A valid EFA required a

minimum of 5 participants per variable (a minimum sample size of 335 participants for the 67 items). Our sample had 365 valid questionnaires, which proved to be adequate. This first EFA identified eight factors that explained 73.52% of the total variance. This factor structure contained many items with loadings below 0.4 and also many items with high cross-loadings.

Subsequent PCAs, with oblique rotation and Kaiser criterion, were performed eliminating all the items with loadings < 0.4. We reached a factor structure with 37 items. The overall explained variance was still satisfactory 67.79%. For this model the KMO test was 0.964 denoting a very good correlation between variables.

Table 2 contains EFA item loadings higher than 0.40 and the communalities of each item. Despite the presence of some cross-loadings, all items had the conditions to be retained (Hair et al. - 2006) as (1) they all loaded 0.40 on more than one factor, or (2) no item loaded more than 0.40 on two or more factor.

Table 2: EFA item loadings and communalities of each item

	Mean	Std. dev.	Comm-unity	HR development and Internal Processes	Attracti-veness/ Open-ness	Public service mission	Interper-sonal relations
Staff's stress levels and exhaustion are taken into account	8.55	2.33	0.81	0.94			
Supports the development of training programs and encourages the participation of the HC staff	8.53	2.10	0.84	0.89			
Encourages/promotes team work	8.52	1.98	0.82	0.84			
There is a strong cohesion and solidarity among team members	8.60	1.94	0.84	0.83			
Ensures the best work condition and methods for their staff	8.64	1.95	0.85	0.83			
Encourages staff involvement in finding the best solution to their problems	8.67	2.03	0.86	0.81			
Each staff member recognises and respects the competencies and the work of peers	8.73	1.82	0.77	0.69			
Recognises and rewards innovation and learning	8.21	2.23	0.72	0.60			
Seeks to optimise the internal processes to improve management (for instance, reducing the internal bureaucracy for staff)	8.38	1.83	0.76	0.59			
Internal communication is a usual practice	8.41	1.91	0.79	0.57			
Management provides information regarding the HC performance	7.79	2.18	0.60	0.56	0.38		
Has the necessary means to deliver healthcare to patients under the best physical conditions (for instance, patient transportation between hospital units)	8.45	1.92	0.66	0.52			
Engages with the local government to improve patient access to and utilization of the HC (for example by improving the public transportation network in order to serve the HC catchment area with connection to hospital units)	8.22	2.06	0.62	0.49			
Tries not to exceed the budget estimates	7.59	1.83	0.56		0.73		
Interns and other healthcare professionals in training compete for internships in clinical departments	6.97	2.31	0.55		0.71		
Is concerned with its relations with private healthcare providers outside the HC	7.13	2.15	0.64		0.65		
Develops strong ties with the community (for instance, local government, associations, cultural centres)	7.57	1.97	0.67	0.35	0.60		
Care unit managers are widely renowned	7.80	1.85	0.54		0.59		
Seeks to implement institutional projects successfully (accreditation, for example)	7.77	1.96	0.53		0.55		
Aims at improving the population's health	8.83	1.61	0.71			-0.82	
Provides appropriate information to patients on their health and care	8.44	1.90	0.73			-0.80	
Minimises its costs without impairing the quality and safety of care	8.33	1.97	0.60			-0.80	
Assesses the impact of the services/care provided	8.63	1.73	0.74			-0.79	
Strives to improve both curative and preventive care	8.57	1.84	0.66			-0.75	
Produces the best possible health outcomes given the resources available	8.19	1.84	0.52			-0.68	
Takes into account the patients' points of view on organizational changes	8.08	1.95	0.60			-0.65	
Patients recommend the HC to other patients	8.25	1.86	0.61			-0.62	
Avoids waste of all kinds (such as unnecessary auxiliary diagnostic and therapeutic means)	8.06	1.96	0.58			-0.60	
Strives to manage labour by reorganizing projects efficiently (for instance, by implementing better operational practices)	8.55	1.69	0.68			-0.50	
Does not sacrifice the relational dimension of care for a larger volume of service	8.51	1.84	0.78				0.89
Staff gives priority to collective over personal interest	8.07	1.95	0.58				0.69
Increases its volume of services provided if the activity is justified and relevant	7.90	1.87	0.66				0.63
Continuously tries to improve the quality and safety of care, even though the volume of service is high	8.34	1.86	0.76				0.61
Staff preserves patient dignity	9.09	1.48	0.70				0.57
Offers services not available elsewhere (highly specialised)	7.88	1.93	0.58				0.53
Staff is proud to belong to an organization such as the HC	8.39	1.97	0.48				0.49
Staff is aware of the importance and usefulness of their work	8.85	1.59	0.70				0.48
<i>Variance Explained (before rotation)</i>				52.7	6.43	5.21	3.51
<i>Alpha de Cronbach</i>				0.97	0.85	0.93	0.91

Note: Loadings below 0.35 are not shown in the table

A split random sample analysis and a Confirmatory Factor Analysis were used to validate this factor structure.

The first factor, called Human resources development and Internal Processes, includes 13 items related to professional well-being and work conditions, and coordination among HC services. The second factor, Attractiveness/Openness contains six items. This factor explores the capacity of the HC to attract resources and to adapt to environmental conditions. The third factor is Public service mission (10 items) and includes items exploring the quality of hospital care services and the ability of the HC to use its resources to serve the patient. Finally, the fourth factor, Interpersonal relations (8 items), includes items related to staff expertise to deal with the patients and their peers.

The correlations among the four factors ranged between 0.326 and 0.584, which justified an oblique rotation.

The Cronbach alphas estimated values, presented in Table 2, ranged between 0.85 and 0.97, suggesting excellent internal consistency in each domain (Hair et al. - 2006; Pestana and Gageiro - 2008). Additionally, alphas were computed in each domain for every possible version with a single item removed. Coefficient alpha values were well above the minimum acceptable value of 0.70 (Hair et al. - 2006). No item increased its sub-scale alpha when removed. Item-to-total correlations always exceeded the recommended minimum of 0.40 (Hair et al. - 2006).

The fourth factor, Interpersonal relations, contains the items with the highest mean scores: "Staff preserves patient dignity" (\pm SD) (9.09 ± 1.48) and "Staff is aware of the importance and usefulness of their work" (8.85 ± 1.59). This factor, along with the first and third factors, obtained the highest mean scores, respectively 8.46 ± 1.39 , 8.44 ± 1.74 and 8.41 ± 1.39 .

The mean score of the second factor, Attractiveness/Openness, was significantly different from the means of the three other factors (7.47 ± 1.54) at $p < 0.001$. This factor contained the two items with the lowest mean scores: "Interns and other healthcare professionals in training compete for internships in clinical departments" (6.97 ± 2.31) and "Is concerned with its relations with private healthcare providers outside the HC" (7.13 ± 2.5). The mean score between the other three factors was not significantly different ($p < 0.001$).

Additionally, the analysis of the responses by internal stakeholder groups (physicians, caregivers and administrative staff) did not show any difference between the mean factor scores, confirming that these three groups share views on HC performance (Test F: $p = 0,158$ (HRD&IP); $p = 0,836$ (A&O); $p = 0,639$ (PSM); $p = 0,405$ (IR)). Brown-Forsythe tests

were conducted to confirm these results. The comparison of the mean scores among internal stakeholder groups is showed in figure 1.

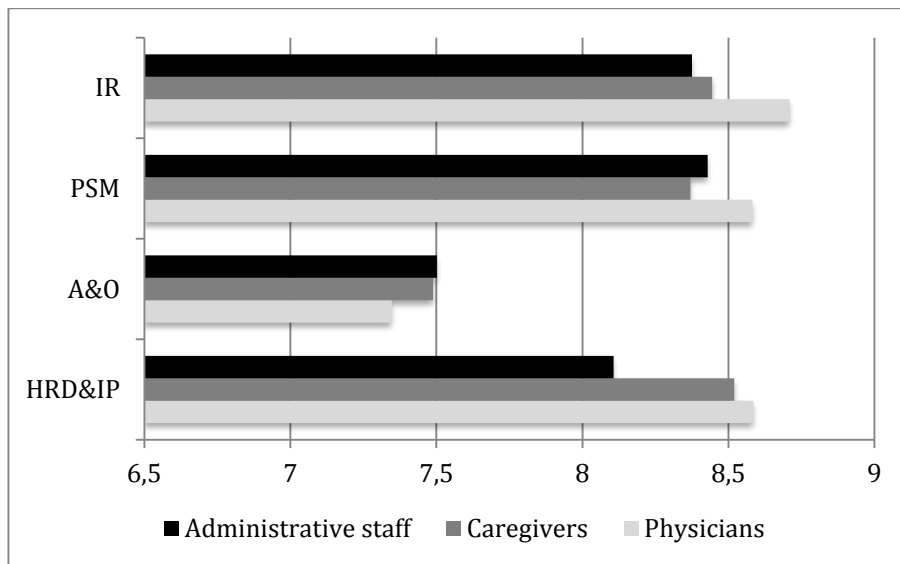


Figure 1: Mean factor scores by internal stakeholder group

5. Discussion and Conclusions

This study's aims were to define the most important performance domains in the Portuguese HC context and to evaluate if these performance domains preferences were different between the three groups of hospital stakeholders.

The results/performance domains obtained in this study were conceptually different from the hospital performance model of the original Belgian study (Guisset et al. - 2002), the French study (Minvielle et al. - 2008) and the subsequent studies (Bravi et al. - 2013; Mauro et al. - 2014). Actually, the comparison between the factor structure obtained in our results and the one proposed by Minvielle et al. (- 2008) only agree in part for our "Attractiveness/Openness" domain and the original "Open system" domain. However, there are more points of congruence between our domains and the ones obtained by the Bravi et al. (- 2013) study. There is an agreement between our "Attractiveness" domain and their "Attractiveness/reputation factor" and between our "Interpersonal relationships" and their "Centrality of relations" domain. The other two domains, "Human resources development and Internal Processes" and "Public service mission" are apparently not related with any study.

Therefore, the PCA analysis extracted four empirical components to describe the HC performance. The first factor, "Human resources development and Internal Processes", was of greatest importance jointly with the third factor, "Public service mission" and the

fourth factor “Interpersonal relationships”. The first domain, Human resources development and Internal Processes, referred to aspects related to HC internal conditions that enable the development of the Human resources and the organization of internal processes of the HC. These are very important aspects for achieving better performance levels, according to internal stakeholders. The involvement of the human resources in finding solutions to HC performance problems and a good and healthy work environment are considered important aspects for excellent HC performance.

These results could be consequence of an HC context, where human resources management and the management of the remaining resources are more demanding in this integration context. Giving these resources the best conditions and using them in the best way could contribute to improved HC performance.

“Attractiveness/Openness” is the factor ranking in second in terms of variance explained, but the one with the lowest mean score. The study revealed that the HC’s capacity to attract resources (human and financial) and its adaptation to the external environment is not viewed as very important in influencing the performance of the HC. Internal stakeholders also considered that internal professional competition, the HC’s reputation, and the need to keep the budget on track are less important to HC performance compared with other performance aspects. This could reveal even less concern (a kind of saturation) with aspects related to the austerity environment experienced by the Portuguese NHS over the last few years. The HC internal stakeholders are more concerned with better use of HC resources than with keeping to the budget, which reveals greater flexibility in resource utilization and greater concern for community needs.

The “Public service mission” domain is also one of the most valued by internal stakeholders. This domain is mainly patient orientated and reflects the concerns of the internal stakeholders with the HC mission and its impact on HC performance. Aspects related to responding to the real needs of patients and guaranteeing the medical specialties that the community needs have, according to stakeholders, a great influence on HC performance. The evaluation of the quality of care provided and its continuous improvement are also viewed as important aspects for an HC to have an excellent performance. Additionally, many stakeholders were sensitive to relations between them and their patients and the community, considering this an important aspect to achieve high performance levels.

The fourth factor, “Interpersonal relationships”, that is also one of the most valued, refers to the relationships among the HC professional, and between them and the patient and their families. Relationships among staff based on cordiality, teamwork, recognition and

collaboration would have a positive impact on HC performance. This finding is consistent with recent studies on the impact of human resources satisfaction in the healthcare sector (Souliotis et al. - 2014). This finding is also supported in two studies about the influence of human resources competences in their relations with patients and the impact on health system performance (Buchan - 2004; Lega and DePietro - 2005).

Our findings suggest that HC performance concept should be expanded and performance measurement frameworks with a great scope should be used. Thus, the HC comprises the internal units (services, departments) that add value to patients as they progress through an integrated organization. Like other organizations, the success of a HC depends on the integration, coordination, communication and cooperation between healthcare professionals in different departments/services and the appropriate performance measurement and management is essential if the HC is to attain a better use of resources, better care delivery, satisfied patients, better quality and access to patient and community and motivated staff. These results challenge the traditional performance measurement frameworks.

These results confirmed that the performance domains for the HC include other fields besides the traditional domains of quality and effectiveness in healthcare delivery and financing and accountability of healthcare organizations (Minvielle et al. - 2008; Bravi et al. - 2013; Mauro et al. - 2014). Interpersonal relationships, human resources development and the public service are considered important domains to consider in the performance measurement of the HC by stakeholders.

The three professional groups shared a common opinion regarding the four performance domains. This shared view was also found in the French and Italian studies (Minvielle et al. - 2008; Bravi et al. - 2013). None of the three professional groups revealed statistical differences when rating the four domains, showing a consensus view on the importance that each domain has on HC performance. It seems that the austerity environment, with big financial constraints, which can induce competitive views between administrative staff and physicians, causes in this case major consensus among them. This fact may have contributed to this shared view. These results are in consonance with Lega and DePietro (-2005) that recent hospital restructuring has led to the adoption of a competency-based model for the human resources, based on competence integration principles and consequently on shared values.

Therefore, we concluded that a consensual view regarding the most valued performance domain and shared organizational values could contribute to a beneficial and healthy work environment and HC performance.

Another aspect worth mentioning is that the difference found in the factor structure between this study and the studies by Minvielle et al. (- 2008) and Bravi et al. (- 2013) could be related to the application context. This happens because this study was applied to a HC (multisite hospital), whereas the Minvielle study was applied to a single teaching hospital and the Bravi study to a specialised network of hospitals. Because this survey was applied to a multisite hospital, that could have consequences on the results. It could show that issues such as work environment, resources utilization, value creation and quality of care are considered extremely important to achieve high performance levels.

Finally, the small number of items in the final model was used to define the most valued performance domains in the HC. The original model (67 variables) had a larger number of items related to more than one domain (cross-loadings) and variables with low loadings. Using this original model could lead to collinearity problems, making it more difficult to interpret the factors. The final smaller model structure used was advantageous because it eliminated redundant items without loss of information.

The results of this study face some limitations. The first is the risk of social desirability bias when high ratings are given to survey items. The internal stakeholder respondents may not always feel able to answer questions openly and honestly, and instead give the answers they think the research team want to hear (Roberts - 2007). The current Portuguese economic-financial environment, characterized by strong external pressures, especially in terms of cost limitations, had a strong influence on the healthcare environment in Portugal, which has become more unstable and demanding to manage. This environment could influence the respondents' opinion. However, this risk is minimised and the answers will be more honest when respondents feel assured that they will remain anonymous and their answers will be confidential (Roberts - 2007).

The lower response rate is also another limitation of this study (23%). The motivation to participate in this study could be low for two reasons: i) the time when data were collected (between January and February) was a period where the rate of the influenza virus was abnormally high. As a consequence, the number of inpatient and emergency admissions increased tremendously, and the healthcare professionals were very busy; ii) workers do not feel professionally motivated because of the Portuguese economic and financial austerity environment, which led to the reduction of incomes of almost all professionals in the HC. The relatively long questionnaire might have discouraged many of the respondents, but a small questionnaire would have limited the information collected and comparability to data from other surveys. Finally, the generalizability of the study's results may be limited due to the low response rate to the survey. Non-respondents may

have had different perceptions of the issues examined. The use of alternative data collection procedures, such as a telephone survey or face-to-face interviews, in combination with the online survey, or the use of a smaller sample with incentives for completion may have yielded a better response rate and should be considered in future research.

Additionally, the distribution of individuals by professional category was not similar in the sample and in the population. In fact, the proportion of physicians is lower when compared with the population's proportion. Moreover, the lower response rate for the physicians professional group was expected, since it was been observed in other similar studies (Dobrow et al. - 2009; Bravi et al. - 2013). On the other hand, the administrative staff's proportion is higher than the one found in the population. Once again this is also observed in similar studies (Bravi et al. - 2013). Therefore, there was a limitation on the interpretation of the results regarding these professional groups.

The four domains resulting from factorial analyses are highly correlated, which reveals that these domains are greatly dependent on each other (Pestana and Gageiro - 2008). We had to interpret the comparison of results between domains with caution.

Most of the answers were collected in this study using self-administered questionnaires (SAQs), in which respondents – internal stakeholders – are invited to fill out a questionnaire on the Internet (sometimes referred to as web-based, computer-assisted self-interviewing or web-CASI). A specific sub-professional group was given a paper questionnaire. The goal with these two ways of collecting data was to increase access to the questionnaire (access to the Internet) and to reduce the coverage error (all members of a target population have an equal chance of being selected in the survey sample), and therefore improve the response rate (Roberts - 2007). The goal was also to reduce the costs and non-sampling errors. This method can have some effects on measurement errors. However, since both the questionnaires are self-administrated, these errors are minimised.

Another limitation to this study is the fact that the results cannot be generalized beyond the original sample. Since only one HC was selected in Portugal due to time, costs and resource constraints, it would be impossible to generalize the study results to cover all HCs in Portugal. However, that is not the purpose of this study because we only want to know what are the internal stakeholders' most important performance domains of an HC. We wanted to develop a framework based on that information to assess the performance of a HC as an integrated structure.

In addition to the abovementioned contributions and limitations of this study, it's important to highlight one of the strong aspects of the study. The development of a simplified factorial model to define the most valued domains by internal stakeholders in a Portuguese HC context. This study involves all professional groups inside the HC, thus making it possible to explore a broad internal perspective of the performance domains most valued by the HC's internal stakeholders. Some domains found in this study are not usually available in hospital care units. Another great advantage of this study is the voluntary participation of internal stakeholders, since no compensation was given to participants, nor was participation mandatory. In fact, participation in the survey was only intrinsically linked to the survey's topic and the level of interest in the topic among the HC internal stakeholders.

In the future, we intended to develop a framework to measure HC performance. These findings enable us to develop a performance measure framework for the HC that considers performance domains beyond the traditional ones. Internal stakeholders view interpersonal relationships, human resources development and the public service mission as important domains to consider in the HC performance measurement. Although these performance domains traditionally had different preferences among healthcare professionals, this study concluded that these domains and values are shared among HC professionals. The performance measurement framework, covering different but consensual performance domains, can be viewed as a way of enhancing the integration of the resources, processes and structures, in order to improve efficiency, coordination and performance. In the future, this framework can help decision-makers to define major objectives in each domain in order to achieve better performance levels.

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Chapter 4: Proposal of a performance measurement framework for the HC

This chapter presents the contributions to the development of a performance measurement (PM) framework for HCs. The first part of this chapter, based on literature review, is given to the performance measurement contextualization regarding its different uses, particularities when applied to the public healthcare sector and the criteria for design of a PM system. It also presents the methods used to measure organizational performance and finally the frameworks for performance measurement are presented. The second part of this chapter presents the development methodology, which is based on structured design methodologies. This section also presents the guidelines for the design and development of the PM framework that will be a reference for the proposed design of the PM framework. A detailed presentation of this design proposal is presented in section 4 and the methodology for its operational implementation is developed in section 5. Finally, a list of considerations is presented in the last section of this chapter.

4.1. Background

Around the world and in particular in Portugal, health services are being restructured with the aim of delivering more efficient and effective healthcare. In Portugal, the most important reforms included:

- Creation of family health units in primary care
- Horizontal integration through the creation of hospital centres
- Vertical integration creating the local health units, involving primary, hospital and continuity care
- The continuous development of the continuity care network

Hospital care restructuring is still ongoing. It includes changing the role of some hospitals, such as converting some acute hospitals into continuity healthcare centres or into outpatient hospitals, or even into proximity hospitals, and some hospital closures. These restructurings aim to rationalize healthcare resources and offer a better service to NHS users, as well as to increase returns and efficiency in healthcare (Assembleia da Republica - 1999b). The final aim of health services integration is to have health services more responsive to patients' needs, giving the right service/care, at the right place, and at the right time (Dias and Queirós - 2010).

Some of these restructuring initiatives (e.g. some hospital unit integrations) were, and still are, mandatory by law. Many studies have shown that managerial reforms that are mandatory by law, without due consideration being given to the peculiarities of public administration, are bound to be unsuccessful (Van Thiel and Leeuw - 2002).

Therefore, the integration of healthcare services should be understood as a means for improving the access to healthcare services, to improve the quality of care, to improve resources utilization, to increase patient and healthcare professionals' satisfaction and to obtain efficiency gains (Dias and Queirós - 2010).

There are many organizational models for building an integrated system (Lukas et al. - 2002). In Portugal there would appear to be consensus relating to the design of the NHS. The focus should be on complementarity and reinforcing the articulation of mechanisms between the different levels of healthcare delivery, and also inside the healthcare organizations. This focus should also be on the patient, their family, their communities, the patients' social sector and other areas with impact in the populations' health (Dias and Queirós - 2010).

As healthcare institutions evolve into integrated health sub-systems comprising hospitals, outpatient clinics and surgery centres, nursing homes, and home health services, the task of measuring performance increases in complexity. Leaders of these institutions need to develop a methodology and systems that align organizational strategies and core principles with performance measurement and management indicators (Curtright, Stolp-Smith, and Edell - 2000).

Although there has been a scarcity of literature relating to performance of integrated health systems (Leatt, Pink, and Guerriere - 2000), the measurement and evaluation of organizational performance is a fundamental task for management decision-making, to improve effectiveness and strategy formulation (Leggat et al. - 1998).

New managerial reform initiatives over the past two decades have broadened public managers' responsibility by increasingly emphasizing efficiency, effectiveness and long-term economic performance.

According to Leggat et al. (- 1998, 4) an organizational performance assessment model is "an integrated framework used to establish a set of performance indicators relevant to the assessment of performance of an organization.". This model should be organization-specific, but the model can also have some aspects that allow comparisons with other organizations.

The performance information collected from the Portuguese hospital sector is largely based on financial indicators (e.g. total expenses, costs per unit) and clinical activity (number of outpatient visits, number of inpatients). There is increasing awareness that the scope of performance measurement needs to be improved to deal with the recent hospital reforms, namely horizontal and vertical integration. The leaders of healthcare organizations need to develop a methodology that aligns the organizational strategy and core principles with performance measurement.

According to Kollberg (- 2007, 5-6), research on performance measurement systems may be derived from two different views on measurement:

- i. "assumes that performance measures are objectively given, i.e. they are equivalent to truth because they comprise objective facts about reality" (traditional research on performance measurement)
- ii. "assumes that performance measurements are socially constructed by members of a specific group. Performance measures are seen as incomplete and constructed as they are being implemented and used in practice. People design performance

measurements for various purposes, assign them different roles and implement them differently in their specific context.”

Many researchers have demonstrated that the involvement and the advocacy of both professionals and decision-makers matter for the performance management of healthcare delivery (Garman et al. - 2011; McAlearney et al. - 2011). Therefore we decided that the process of development of a PM framework makes a difference and that stakeholders' participation is a valuable variable for the initial design stage. Thus, the results showed in the previous chapter, the stated and non-stated objectives and definition of the performance domains are crucial inputs to the development of the PM framework. Therefore, the resulting design framework presented in this chapter was preceded by the following stages:

- In-depth analysis of the academic literature helped us to identify:
 - The critical factors in effective healthcare performance assessment systems
 - The main principles in the design of performance assessment systems in the health sector.
- An investigation of relevant topics in the literature, such as integration models in healthcare, hospital mergers, performance assessment and assessment models, was made. These findings constituted the contextual background to a qualitative study.
- Semi-structured interviews (qualitative study) were conducted with key informants and internal HC stakeholders to explore and to develop an in-depth understanding of the expectations and professional experiences. A set of objectives was defined as a result, divided into three dimensions: Organizational dimension (related to improvement or optimisation of resource utilization and increasing the specialisation of hospital units); Patient dimension (focusing on patient access and reducing inequalities), and finally, Professional dimension (addressing the improvement of work conditions and the work environment). The findings of this qualitative study make it possible to complement and enrich the official objectives of the HCs, giving a comprehensive idea of the perspectives of key informants and internal stakeholders. These results were presented in chapter 3, section 3.1.
- A survey was conducted to define the most valued hospital performance domains by HC internal stakeholders and to evaluate if the importance given to each

performance domain is different when compared among the professional groups. These results were presented in chapter 3, section 3.2.

Figure 4 represents the preliminary stages of the PM framework design.

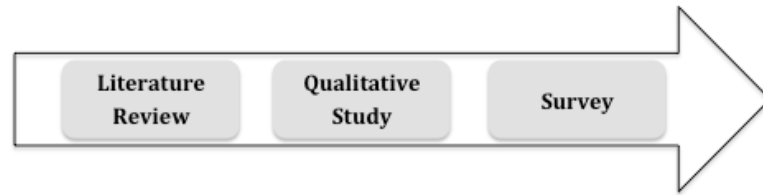


Figure 4: Stages preceding the design of the PM framework

The contextualization of performance measurement in organizations and the public sector in particular, namely the hospital public sector, will be made before presenting the development methodology. The findings resulting from the literature review, as previously mentioned, were very important for the definition of the PM framework design. The development methodology is then presented, which was based on the structured approach. The design proposal for the PM framework is then presented. Subsequently the operational implementation methodology is presented. Finally, there are some remarks on this chapter.

4.2. Performance measurement

4.2.1. Purpose and uses of performance measurement

Performance measurement (PM) “is the process of quantifying action, where measurement is the process of quantification and action leads to performance.” (Neely, Gregory, and Platts - 2005, 1228). According to the same authors the performance measurement system (PMS) can be defined as the set of metrics used to quantify both the efficiency (a measure of how economically the firm’s resources are utilized when providing a given level of customer satisfaction) and effectiveness (refers to the extent to which customer requirements are met) of actions. Organizations achieve their goals from a marketing perspective by satisfying their customers with greater efficiency and effectiveness than their competitors (Neely et al. - 1996).

According to Lohman, Fortuin, and Wouters (- 2004) the development of a PMS may conceptually be divided into three phases:

- Design: identification of key objectives and designing measures

- Implementation: systems and procedures are put in place to collect and process the data that enable the measurements to be regularly made.
- Use: managers review the measurement results to assess whether operations are efficient and effective, and the strategy is successfully implemented.

In the first phase, we identified the objectives most valued by key informants and external stakeholders. The identification of the most important performance domains by the internal stakeholders was the second phase, and it made an important contribution to the design of the PM framework. The PM framework we developed in this research also considers the alignment needed for the definition of objectives regarding the strategic and operational levels.

One of the main difficulties in developing performance measurement frameworks is that the organizational performance is a multidimensional construct (Cameron - 1980; Leggat et al. - 1998; Sicotte et al. - 1998). In particular, the assessment of performance in the healthcare sector is more specific because healthcare delivery results in social outcomes that are very hard to evaluate (Leggat et al. - 1998).

Meena and Thakkar (- 2014) characterises the problems related with performance of the healthcare sector by long waiting times, inefficiency, low productivity, stressed medical staff and dissatisfied patients. Thus, according to them, performance measurement provides hospital management with evidence about existing practices, values, beliefs and assumptions. This enables the management to develop a systematic means of identifying shortfalls and improving its future performance (Meena and Thakkar - 2014)

The two principal uses of performance information were as summative mechanisms to provide information for purchasers, for benchmarking among organizations, and for external accountability and verification, and as formative mechanisms for internal quality improvement (Freeman - 2002; Leggat et al. - 1998).

According to Leggat et al. (- 1998) performance information is used by different stakeholders in varying ways, and the design of the performance framework should reflect these needs. Performance evaluations were developed primarily as sources of information for purchasers or consumers (Leggat et al. - 1998), and nowadays to strengthen accountability, and to enable providers to identify areas for improvement (Wholey - 2001; Mauro et al. - 2014; Adair et al. - 2003)

Some empirical studies showed that by integrating multiple stakeholder interests the performance framework recognizes the interrelationships between the organization and its internal and external environment, contributing to the understanding on how

organizational performance is related with performance at other levels in the system (Tregunno et al. - 2004). According to empirical research (Zinn, Zalokowski, and Hunter - 2001), these interests, or performance priorities, of hospital stakeholders come to a consensus. These interests diverge more between internal and external stakeholders (Tregunno et al. - 2004) than among internal stakeholders (Minvielle et al. - 2008; Bravi et al. - 2013), suggesting a shared view between internal stakeholders on hospital performance.

The existence of multiple dimensions and stakeholders requires multiple measures of performance (Griffith and King - 2000). Performance frameworks that focus on measures that are easy to measure are not complete and contribute to a not-true image of organizational performance (Leggat et al. - 1998).

According to Talbot (- 2008), depending on the different jurisdictions and sectors and the different times, performance over the last 20 years has been focused on a variety of elements, including: process and procedures (including sometimes equity, equality, and ethics issues); outputs; efficiency; outcomes; and in many cases a mixture of several different elements at the same time. In some places, a largely top-down, command-and-control-style has been used, and in others a more bottom-up or participative style of policy-making (Talbot - 2008).

In Portugal, the strategy is evolving to an integrated system and the successful integrated healthcare systems must collect information on at least three dimensions: quality, cost, and patient satisfaction, but they must also satisfy their internal stakeholders. Information collected on internal stakeholders and customer satisfaction is very important (Griffith and King - 2000).

However, system integration is demanding, stressful, and time-consuming. Inevitably, many operational issues urgently need to be addressed (Davies - 2002). In this integrated context the designing and implementing of meaningful performance measurement frameworks is crucial, including the establishment of baseline measures against which future performance can be measured (Davies - 2002).

The balanced scorecards (BSC) will allow integrated health systems and their accountable work groups to track performance in several dimensions and establish integrated goals and targets (Zelman, Pink, and Matthias - 2003).

4.2.2. Measuring performance in the public healthcare sector

Portuguese citizens' healthcare needs are guaranteed by the Portuguese Constitution as a fundamental right to be provided by the State. Therefore, in Portugal we have a public healthcare sector.

According to Giovanelli et al. (- 2015) when designing a performance evaluation system in the public sector it's necessary to identify critical factors, such as the importance of considering the external context and the sector characteristics as well as integrating qualitative investigation.

The public healthcare organizations operate in three main domains: the political, the administrative and the medical-professional spheres of the healthcare organization; and they have different goals, success-factors and work methods (Aidemark and Funck - 2009)

When designing performance assessment systems for public healthcare it's very complex to achieve an equilibrium between the outcomes of services and efficiency in their delivery (Giovanelli et al. - 2015). The relationship between efficiency and quality seems to be weak (Navarro-Espigares and Torres - 2011). However, better understanding of performance measures will promote productivity in the healthcare sector by encouraging managerial focus on performance outcomes that lead to better managed healthcare systems (Love, Revere, and Black - 2008).

According to Giovanelli et al. (- 2015), in order to reach the balance between outcomes and efficiency, services and their delivery have to be planned taking into account the economic constraints and following the strategic goals set by higher levels of government. Performance measurement must incorporate central and regional performance objectives and should be linked with public policy (Giovanelli et al. - 2015).

The success of a full integration of performance evaluation in the public sector is related to the commitment of top management and involvement of the whole organization, creating consensus among the internal stakeholders and encouraging their participation in the development and implementation of such a performance assessment system (Giovanelli et al. - 2015).

Many studies have focused in particular in the healthcare sector on performance assessment with the aim of developing conceptual frameworks or to provide the tools needed to support public management at central, regional or organizational level (Arah et al. - 2003; Arah et al. - 2006). The importance of including multiple measures of performance in order to reflect tangible and intangible aspects of services and policies, as well as the interests of all the stakeholders is highlighted in the Smith (- 2005) study.

However, since the Portuguese HCs belongs to the public sector, it is important to consider some perverse behaviour, difficulties of interpretation and simplistic measures that can occur with performance assessment within the NHS. These types of deviant behaviour and their causes are enumerated in the Fryer, Antony, and Ogden (- 2009, 486) study. Some of the factors they enumerate are:

- i. A divergence between the organizational objectives and the measurement scheme, that can lead to Tunnel vision: choosing to concentrate on the easiest indicators and ignoring the harder ones; Sub-optimisation of individual departments or units to the detriment of the total system; Myopia: focusing on short term targets at the expense of the longer term objectives;
- ii. An inability to measure complex organizations accurately, which can result in measure fixation: focusing on the indicator rather than the desired outcome; Misrepresentation: either misreporting or distorting the data to create a good impression;
- iii. An inability to process performance data correctly, that can lead to misinterpretation as indicators are frequently imprecise in terms of statistical measures which means when they are collated in a league table there is actually no difference between them, although this might not be apparent from the single-point estimates used; Gaming: deliberately under achieving in order to obtain a lower target next time;
- iv. An inability to respond to changing circumstances that can lead to ossification, so that when an indicator is no longer relevant it is not revised or removed.

These authors referred that in the past the public sector had been led by healthcare professionals, making decisions based on professional criteria, but the new managers threaten their autonomy and power base. They believed that “Each organization needs to appraise its own performance management system, identify the problem areas and select the solution that best fits. Unfortunately, many organizations do not have the time to objectively review the situation or else have to make do with a standard solution that does not address their individual problems.” (Fryer, Antony, and Ogden - 2009, 491).

4.2.3. Criteria for performance measurement system design

In the previous sections we contextualized the uses of a performance measurement system and explained the particularities of such systems in the public sector.

Since our objective is to provide guidelines for the development of an HC performance measurement framework, in this section we will describe the critical criteria that should assist in the development of such framework.

The criteria that we propose to develop the HC performance measurement framework are based on the information collected in the Globerson (1985) and Maskell (1989) works that Neely et al. (- 2000) categorised as the desirable characteristics of a performance measurement system design process.

Thus, according to these authors the desirable characteristics of a performance measurement system design process are:

- Performance measures should be derived from the company's strategy
- The purpose of each performance measure must be made explicit
- Data collection and methods of calculating the level of performance must be made clear
- Everyone (customers, employees and managers) should be involved in the selection of the measures
- The performance measures that are selected should take account of the organization
- The process should be easily adaptable
- Measures should change as circumstances change.

These authors also enumerated the desirable characteristics of the performance measures (output of the process) that are the following: (Neely et al. - 2000, 1131)

- Performance measures should enable/facilitate benchmarking
- Ratio based performance measures are preferable to absolute numbers
- Performance criteria should be directly under the control of the evaluated organizational unit.
- Objective performance criteria are preferable to subjective ones
- Non-financial measures should be adopted
- Performance measures should be simple and easy to use.
- Performance measures should provide fast feedback.

- Performance measures should stimulate continuous improvement rather than just monitor.

Therefore the above-listed characteristics should be considered in the designing of the HC performance measurement framework.

4.2.4. Structured and procedural design methodologies

According to Folan and Browne (- 2005) the term framework “refers to the active employment of particular sets of recommendations: for example, a set of measurement recommendations may suggest the development of a structural framework (e.g. balanced scorecard) or they may give rise to a procedural framework.” These authors also explain that the performance measurement framework “assists in the process of performance measurement system building, by clarifying performance measurement boundaries, specifying performance measurement dimensions or views and may also provide initial intuitions into relationships among the performance measurement dimensions” (-, 665)

According to these authors (- 2005) there are two types of performance measurement frameworks:

- the structural framework (i.e. a framework specifying a typology for performance measurement management) and
- the procedural framework (i.e. a step-by-step process for developing performance measurements from strategy).

These authors also concluded that the main emphasis of a performance measurement framework has been on *structural framework development*. They appointed the subjective difficulties and vagueness associated with the development of procedures in performance measurement as the reason for this.

When designing measurement systems, Neely et al. (- 1996) defined the following main issues that managers need to consider: conflicts between performance measures; the appropriate balance of internal and external measures; the linking of measures and strategy; etc. Therefore, according to these authors, to overcome complexity in the designing of a performance measurement system it is preferable to employ structured design methodologies.

Neely, Gregory, and Platts (- 2005) referred that the performance measurement system (PMS) can be examined at three different levels: the individual measures, the performance

measurement system as an entity and the relationship between the performance measurement system and the environment within which it operates.

Designing a performance measurement system is a complex task, “*which not only involves the selection and definition of an appropriate and practical set of measures, but also their integration both with one another and the wider environment, constituting the rest of the organization and indeed the market place itself*” (Neely et al. - 1996, 425). However, a main benefit of using a *structured approach to performance measurement system design* is the possibility to manage the complexity of the performance measurement system design process (Neely et al. - 1996).

4.2.5. Approaches used to measure organizational/system performance

In healthcare a variety of approaches to measuring system performance have been proposed, either as frameworks or as guiding principles to assist in the development of performance frameworks (Davies - 2002). The study that has been conducted by this author includes reviews of six models for measuring health system performance in Canada, New Zealand, some examples from the United States and the World Health Organization. She concluded that countries such as the United Kingdom and New Zealand have developed comprehensive approaches to measuring the performance of their health systems at the national and health district level; in Canada the provinces and health districts have adopted performance measurement models that vary considerably in comprehensiveness and focus; in the United States, managed care organizations use performance tracking as a marketing tool to gain competitive advantage. Many American health systems participate in benchmarking initiatives that measure quality of care and compare results among peer providers.

According to Adair et al. (- 2003) performance measurement activities are more advanced in the United States and United Kingdom, with increasing presence in other countries. Its origins in health are rooted in a more generic context, where the emphasis is on accountability in public sector policy and service delivery. In the 1990s more specific and direct performance measurement initiatives were undertaken. The measurement focus remained quite broad across many domains of performance. A quality of care emphasis was raised in the late 1990s. These initiatives had their emphasis on the United States, but were also visible in other countries such as the UK and Canada. This quality emphasis was followed by safety as a component of quality of care within the continuing context of broader performance measurement (Adair et al. - 2003).

As referred to in chapter 3, there are some practical studies in performance assessment in Portuguese hospitals, such as: the assessment of Garcia da Orta and Fernando da Fonseca hospitals; and the Project of Health Units assessment; studies conducted by the Institute of Informatics and Financial Management of Health; the assessment of hospitals holding public limited company status, the assessment of hospital activity conducted by Health Services Contracting Agencies and the General Direction of Health (Costa, Costa, and Lopes - 2010).

The new legal scheme for Hospital Management, published in 2002 (Assembleia da Republica - 2002) gave the performance assessment of healthcare organizations more public prominence.

Some of the recognised difficulties for measuring performance in healthcare organizations are: the different performance domains to consider, the different stakeholders interests and the specificities related to healthcare delivery (Leggat et al. - 1998; Sicotte et al. - 1998).

Therefore, even considering the difficulties in measuring performance in the healthcare sector, there is a growing need to develop frameworks for this proposes. This is highlighted by the different stakeholders, from their different perspectives (Costa, Costa, and Lopes - 2010):

- For the users, by making credible and scientific information on performance available this enables consumers to make choices and know about the healthcare organizations' activities;
- For the owners, it is only possible to optimise their utility function with valid and universal performance models;
- For the managers and healthcare professionals, the existence of an evaluation performance model for healthcare organizations enables their extension to individual performance evaluation, indicating mechanisms for expertise evaluation and the possibility of providing incentives.

The definition of such models will enable the existence (or not) of the differences in the access of healthcare delivery to be evaluated, and to better define the healthcare organizations' financing and the creation of accountability mechanisms for managers and healthcare professionals.

Nowadays in Portugal, and of note as regards hospital care, the performance measurement frameworks are distributed at three levels:

- At a national level, performance data is collected by ACSS
- At a regional level, performance data is collected by the Regional Health Offices
- At a local level, performance data is collected by the healthcare organizations.⁷

In Portugal, reporting based on external demands is a central part of the use of performance measurement. Much of the work involves sending information to other actors for processing and presentation. Comparisons between individual organizations are a common form of publication of the data from these outside entities.

4.2.6. Frameworks for performance measurement /quality improvement in health

In the literature we can find several PM frameworks and PM systems (Adair et al. - 2003). The extreme complexity of selecting measures and indicators to effectively manage performance have been widely discussed (Smith - 2005).

Donabedian framework is one of the most influential and frequently cited conceptual approaches to health services improvement/quality. It classifies healthcare delivery and its measurement in terms of structure, process and outcomes (Donabedian - 2005).

Many health organizations have long recognized the need to look beyond financial measures when evaluating their performance, many still struggle with what measures to select and how to use the results of those measurements. This led to the proliferation of performance frameworks based on the Balanced Scorecard (BSC). The balanced scorecard is a popular tool for the strategic management of healthcare organizations (Arah et al. - 2006). The popularity of this tool is related to the fact that it allows not only financial but also non-financial dimensions (including the views of managers and physicians) to be taken into account (Aidemark - 2001). According to Kaplan and Norton (- 1996) the BSC should include a wide range of performance measures in order to represent all dimensions of the organization. The BSC in health care incorporates patients, healthcare processes and professional staff learning (Aidemark - 2001) As referred by Kollberg and Elg (- 2011), it is essential in healthcare to measure and follow-up on medical activities (e.g. number of diagnoses, operations and treatments, time for care and the patient's physical status) as well as administrative activities (e.g. efficiency, rationality, productivity, conformity, waiting times and care times, economic measures). However, according to Giovanelli et al. (- 2015) the main difficulty is implementing this tool linking the organization's objectives and operations.

⁷ For example, the HC developed an internal framework, the Global Performance Index, that is also a management control tool.

Thus, in conclusion, the goals, purposes and strategies for performance measurement initiatives are very diverse and each organization/system develops different projects and strategies sometimes for similar objectives. These strategies are established based on different philosophies, ranging from facilitating the internal assessments of institutions to publishing organizational performance information to inform the public (Hilarion et al. - 2009).

4.3. Development Methodology

The design of the PM framework presented is based on the employment of structured design methodologies (Neely et al. - 1996; Neely et al. - 1997; Bourne et al. - 2000). The phases of this methodology are explained in the next sections. Additionally, guidelines were established based on the literature review of performance measurement, to support the development of the framework.

This framework will be of assistance to HCs in Portugal in their establishment or fine-tuning of performance measurement frameworks. Recommendations for performance measures for integrated hospital units will contribute to the dialogue regarding what we hope to achieve by creating hospital centres. The recommendations should assist hospital care organizations interested in establishing common measures that enable meaningful comparisons between the same and contribute to performance improvement.

4.3.1. Structured design methodologies

Neely et al. (- 1996) proposed a methodology for the design of the performance measurement system that was followed by Bourne et al. (- 2000) in their study. This methodology is based on the employment of structured design methodologies. The organizations that used these methodologies for performance measurement system design, according to the results of Neely et al. (- 1996) find it significantly easier to: (a) decide what they should be measuring; (b) decide how they are going to measure it; (c) collect the appropriate data and (d) eliminate conflicts in their measurement system.

The development of a PMS may conceptually be divided into three main phases (Adair et al. - 2006; Bourne et al. - 2000; Lohman, Fortuin, and Wouters - 2004; Neely et al. - 2000): i) Design; ii) Implementation; and iii) Reporting and using results. Although we present these phases in a sequence the process is more dynamic and less linear. It requires developing and reviewing at a number of different levels as the situation changes (Bourne et al. - 2000; Adair et al. - 2006). From Bourne et al. (- 2000, 758) experience "*the phases*

can overlap as different individual measures are implemented at different rates. Thus, some measures can be implemented before all the measures have been completely designed.” It is often the case that there is an overlap between implementation and use.

The Waggoner, Neely, and Kennerley (- 1999) study identified four generic categories of forces that can be said to shape the evolution and change of organizational performance measurement systems:

- Internal influences (e.g. power relationships and dominant coalition interests);
- External influences (e.g. legislation and market volatility);
- Process issues (e.g. manner of implementation and management of political processes);
- Transformational issues (e.g. degree of top-level support and risk of gain or loss from change).

The design phase can be subdivided into i) identification of key objectives to be measured; and ii) designing measures (Bourne et al. - 2000). Adair et al. (- 2006) call the first sub-phase conceptualization. The design of measures consists of the selection and/or development of what is to be measured.

In the implementation phase, the systems and procedures are put in place to collect and process the data that enable the measurements to be regularly made (Bourne et al. - 2000). The “Use” phase consists of the managers task to review the measurement results and to assess whether operations are efficient and effective, and the strategy is successfully implemented (Bourne et al. - 2000). These phases are graphically represented in figure 5.

The performance measurement system requires developing and reviewing (dashed arrows) at different levels as the situations changes. Bourne et al. (- 2000, 758) cited some examples:

- The performance measurement system should include an effective mechanism for reviewing and revising targets and standards;
- The performance measurement system should include a process for developing individual measures as performance and circumstances change;
- The performance measurement system should include a process for periodically reviewing and revising the complete set of measures in use. This should be done to coincide with changes in either the competitive environment or strategic direction;

- The performance measurement system should be used to challenge the strategic assumptions.

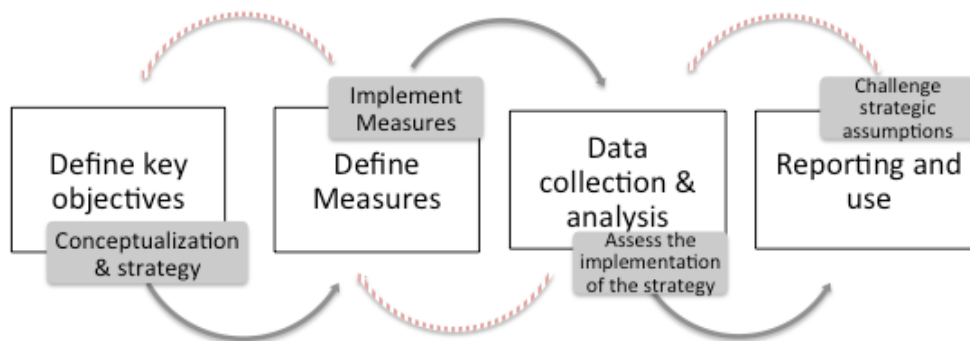


Figure 5: Development phases of the PM framework

4.3.1.1. Design - Conceptualization and strategy

The first phase, the design phase, as we referred to above, includes a conceptualization part. This conceptualization involves two major issues: the alignment of the PMS with the strategic direction, considering key stakeholder perspectives, and the definition of the appropriate scope for the system (Adair et al. - 2006; Adair et al. - 2003). In this phase the question is “what should we measure?” and the answer must support the organization strategy (Bourne et al. - 2000).

It is necessary to maintain strategic focus in this phase. However, Adair et al. (- 2006) say this is not an easy task mainly due to:

- The difficulty in the operational implementation of the organizational goals associated with:
 - The complexity of treatments, settings and patient groups;
 - The broader goals (including corporate goals) if it is a public service organization;
 - The dual management model (professional and administrative);
 - The interrelationships among multiple internal and external stakeholders with particular interests in the performance framework.
- The difficulty in specifying links between service and health outcomes for medical and public health interventions *because of the limits of evidence in medicine and the reality that healthcare is only one of several predictors of health status;*
- The nature of a “customer” in the healthcare system. Customer seeks care for reasons of necessity and not to satisfy a desire. In the case of the Portuguese NHS,

there is a reference care network for certain diseases that limits the individuals' capacity of free choice and comparisons in order to make performance-based judgments. This nature is also reflected in the customer's vulnerable status and in their capacity to judge the quality of the medical service that is being provided due to their lower (and sometimes completely lacking) knowledge of the service content. All these aspects limit patient satisfaction and the perceived quality of healthcare of a PM.

The importance of the strategic conceptualization of a PM framework is related to the fact that the leaders of integrated healthcare organizations have to develop and implement management systems that can integrate diverse stakeholders and focus them on organizational strategies (Voelker, Rakich, and French - 2001; Adair et al. - 2006).

The other issue in the conceptualization of the PM system is determining the appropriate system scope. Adair et al. (- 2006, 60) in their literature revision define and explain their reflections related to the decision-making scope in three dimensions:

- Vertical: defined as the level of the healthcare organization or system. Since healthcare PM activities are highly fragmented, each manager tends to define measures and targets for their service (territory). This fragmentation creates problems when they seek to improve performance. To overcome this problem greater consolidation through overarching goals and greater consensus and coordination are necessary. The conceptualization of a multi-level PM system could be the solution for this problem. A top to bottom approach in designing the PM system is also important. Finally, it's important to refer that the PM for high-level management and accountability differs from that needed for daily operations.
- Horizontal: these decisions concerned the establishment of measures that capture relevant information across healthcare organization boundaries. Hospital-based approaches dominate the literature, but it's impossible to find systems spanning acute and community care. However, since the healthcare systems aim to have integrated health systems, broader PM systems will start to emerge.
- Longitudinal (temporal): *PM systems need to address and measure the process of care over time for an individual*

4.3.1.2. Design – Measurements selection

The second part of the design phase consists of designing the performance measures, or the selection and/or development of measures. Ideally a PM framework ensures balance

across strategic improvement areas and guides the measurement process. It describes domains (measure groupings) and dimensions (e.g. organizational levels) (Adair et al. - 2006). A more complete framework includes several dimensions (levels of healthcare system) and stakeholders' perspectives. However, these aspects increase the complexity of the framework. According to the Adair et al. (- 2003) literature revision, thousands of individual performance measurements or indicators have been developed over the years, but unfortunately not all of them have been validated. There is increasing concern about the consequences of using invalid or misleading measurements. This fact led to the strong consensus that measurements must be evidence-based (Adair et al. - 2003).

In the research literature it is possible to find specific key characteristics of the PM measurement frameworks that enable the identification of the appropriate set of measures to appropriately assess organizational performance (Kennerley and Neely - 2002). For example, performance measures should be derived from strategy (Neely et al. - 1997), have a "balanced" picture of the organization (Kaplan and Norton - 1992), be multi-dimensional (Epstein and Manzoni - 1998; Sicotte et al. - 1998), and encourage the congruence of goals and actions (Bititci, Carrie, and McDevitt - 1997),

Eddy (- 1998) defined five factors in his paper that influence the design of a performance measurement, and therefore define how good it is: the purpose of the measurement, the entity whose quality is being measured, the dimension of the quality being measured, the type of measurement, and who will use the measurement. According to this author, it is important to identify these, because a measurement that is good for one purpose, entity, dimension, or audience might be bad for another.

It's also very important during this phase to institutionalize the performance measurement framework, i.e. to introduce and train the staff regarding the new measurement framework. This could be done by regular audits to establish whether there is an informal and conflicting performance measurement framework in operation (Neely et al. - 2000). Finally, the ongoing maintenance procedure is also important to ensure that redundant measures are deleted and new ones introduced as appropriate (Neely et al. - 2000).

4.3.1.3. Data collection and analysis

The Adair et al. (- 2003) study conclusions referred that many organizations have lacked the capacity and resources (human and technical) to implement an effective PM framework. According to them the processes for data collection and analysis are much

more complex and costly than anticipated. Other aspects to include in this phase are the data sources and data quality.

There are four main aspects to consider in the data collection process: complexity, cost, type of data and data quality (Adair et al. - 2003).

In their literature review Adair et al. (- 2003, 58-59) identified: i) some barriers to PM implementation such as data quality (consequences of creditability problems), lack of clinical relevance, insufficient time and resources, and lack of physician acceptance; and ii) implementation problems: probabilistic nature of outcomes in health, low frequencies for many outcomes, long delays to outcome, lack of control over outcomes, the level of clinical detail possible, incomprehensibility, inadequate information systems, too many measurers and measures, health plan complexity and lack of funding. Problems related to internal capacity were also identified: lack of research expertise in practice settings; health organizations tend to invest in information systems rather than the analytic capability of staff; tensions are reported between the purists and the pragmatists; the time to establish the basic data collection process (at least six months to a year); uncoordinated purposes, within one organization, some were unable to access the data needed while others generated large volumes that went unused.

Regarding the costs component, in their literature review Adair et al. (- 2003) referred that systems require a major investment of resources in infrastructure, expertise, management time, and staff training.

The most meaningful and informative measures should be chosen to best serve the PM. Thus the data type and data collection methods should be chosen based on greatest efficiency for serving the performance measurement agenda. They must be strategically selected rather than favouring any one data source or method in an *a priori* manner (Adair et al. - 2003)

Finally, problems with quality of data are related to: “lack of completeness, lack of reliability (stability under repeated measurement), validity (ability to measure what is intended) accuracy (absence of error), precision (proximity to the true value), and whether or not data are statistically sound, clinically significant and timely.” (Adair et al. - 2003, 61).

Regarding the methods for analysis, the Adair et al. (- 2003) study enumerated four statistical analysis methods that were found to be applied or recommended for risk adjustment of performance data: Stratification; Multiple linear regression and other general linear models; Hierarchical Regression Models and Data Envelope Analysis. They

concluded that advancements have been made in techniques. However, according to them consensus is lacking about the best methods for a given analytic problem. There is little empirical information on how to manage implementation of performance measurement frameworks in the field. The data analysis problems are not so much the mathematics or mechanics of the methods but the lack of understanding of their limitations.

Neely, Gregory, and Platts (- 2005) and Neely et al. (- 1997) in their literature review studies presented some guidelines/recommendations to be used during the data collection phase in performance measurement system design. According to them, more than collect data as specific numeric standards it's necessary to improve trends. Additionally, they suggest measuring performance in ways that are easily understood by those whose performance is being evaluated. Finally, they referred that performance data should be collected, where possible, by those whose performance is being evaluated.

4.3.1.4. Reporting and use

There are a lot of challenges in interpreting reported performance measures and using them to improve care. In the literature it is possible to find a variety of benefits of performance measurement but there is also some unintended effects in this process (Adair et al. - 2003; Leggat et al. - 1998).

Neely, Gregory, and Platts (- 2005) and Neely et al. (- 1997) in their literature review studies referred that visual images, like graphs, should be the primary method of reporting performance data. They mentioned that performance data should be available for constant review and should be reported daily or weekly. They also recommend that the reporting system should not replace frequently held performance review meetings.

PM information on healthcare organizations:

- Can be used to take actions as a result of performance information; actions should also be taken by providers and consumers;
- Can be used to make positive changes, but also for unintended uses;
- Can be influenced by the organization's culture.

Performance measurement when well conducted is an important function of the organization contributing to its good functioning. However, the results of the performance measurement should have consequences on performance improvement. This means performance management, the management actions taken as a consequence of the performance measurement. For the organizations it's important to link the performance

measurement results to actions that lead to performance improvements. The system must inform the decision-making process but also leads to changes with beneficial impact on patient care and outcomes (Adair et al. - 2003). The process that leads to change is not easy to implement (Neely et al. - 2000). Although these internal changes occur frequently at a local level (for example departmental level, or hospital level), they are more difficult to attain at a broader level (Adair et al. - 2003).

Another aspect considered relevant in PM use is its effect on provider behaviour. Adair et al. (- 2003, 74) in their study concluded that there is very little examination in the literature on this topic, *“unlike the effect of clinical practice guidelines and other direct continuing medical education interventions on provider behavior.”* The evidence they collected in this topic leads them to conclude that provider behavioural effects on the PM are unknown or that the PM information is not used.

Consistent research findings regarding consumers use of performance information suggests that in reality consumers rarely seek out or act on this type of information (Mannion and Davies - 2002). However, these authors mentioned the considerable amount of interest among the general public in the notion of obtaining information on the comparative performance of healthcare providers. Another aspect mentioned by these authors, is that the consumers are not familiar with quantitative statistics and may be more interested in access- and process type data rather than health outcomes. In practice, performance information is often not of much use to consumers as they often do not have an alternative provider within a reasonable travelling distance (Mannion and Davies - 2002).

Although performance measurement can contribute to performance improvement, delivering benefits to health services and patients (contributing to the reduction in waiting times) it also can induce a range of unintended and dysfunctional consequences (Mannion and Braithwaite - 2012; Powell et al. - 2012). These authors conducted a study, which identify twenty dysfunctional consequences of English performance measurement systems in the NHS. These dysfunctional consequences were distributed in four headings:

- Poor measurement (measurement fixation, tunnel vision, myopia, ossification, anachronism and quantification privileging),
- Misplaced incentives and sanctions (complacency, silo-creation, overcompensation, under compensation, insensitivity and increased inequality),
- Breach of trust (misrepresentation, gaming, misinterpretation, bullying, erosion of trust and reduced staff morale),

- Politicization of performance systems (political grandstanding and creating a diversion).

Regarding the alignment of the performance results with financial incentives at the organizational level, Adair et al. (- 2003) in their literature review concluded there were many reported instances of alignment in the U.S. system, and to some degree, in the U.K. system. With respect to alignment of financial incentives, a straightforward incentive system provides high performers with extra funds and penalizes low performers. However, this system has been criticized because it induces some negative effects, as having the potential to flow funds to services serving regions with less health needs, rather than actual differences in care (Adair et al. - 2003). Other fairly innovative concepts for incentive alignment are being developed to deal with these negative effects.

Finally, organizational contextual issues are very important in PM. In health literature, organizational issues are the organizational culture, stakeholders perceptions and drivers (Adair et al. - 2003).

4.3.2. Guidelines for the design and development of a performance measurement framework

In addition to the structure design, an in-depth analysis of the academic literature helped us to identify the main principles that should drive the design of a performance measurement framework in the health sector

The work developed by Leggat et al. (- 1998) was considered crucial since it was based on a comprehensive review of the literature and examination of approaches regarding organizational performance assessment in five countries. A list with the main papers used to develop these guidelines is presented in appendix 5.

- i. Meeting the HC mission (e.g. Improving population's health, or driven by customer needs and satisfaction) should be the ultimate objective of the PM framework*

Clearly define the organization mission. It's necessary to develop a tool that explains the links and relationships between outcome indicators and underlying processes, measured by efficiency indicators, of the healthcare authorities' activity.

- ii. Link the performance measurement framework with the organizational strategy
Performance measures should be derived from the objectives*

The PM framework should be aligned with the organizational strategy and the organizational strategy should be aligned with the regional strategy and this with the

national strategy. This alignment is fundamental to synchronized objectives achievement. Thus, the objectives alignment ensures that the organizational PM provides feedback on strategic goals achievement.

It's important to list the most important PM frameworks in each level (national, regional and organizational). For each framework it's necessary to evaluate:

- If there is strategic alignment;
- Which perspectives they include
- Which are the performance measures included
- If it is developed for all levels

The fragmented nature of some performance frameworks, which aim to achieve specific and non-strategic related goals, could fall short in achieving the organizational strategic goals.

Kollberg (- 2007) highlighted that when applied to a health care context there seems to be a risk that the performance measurement system lacks in goal congruence, i.e. alignment between strategic objectives and operational objectives, since each clinical department develops its own framework of measures without using the unified strategy or vision of the hospital as a starting point. Without this alignment so-called "islands of measures" are developed and thus are not aligned with the organization's strategy.

iii. Evolve all different internal stakeholders in the definition of HC objectives

Ensuring that the objectives in the PMS were developed and had the participation of a wide range of internal stakeholders gives the PMS diversified perspectives. This diversity of perspectives eliminates a PMS focused only on financial measures that do not provide a holistic view of the organization. A balance on the different performance domains is needed to maximise the result. A PMS with a variety (but limited) of performance measures allows managers to evaluate interactions between performance domains and organizational values. A diversified set of performance measures that offers a range of perspectives can help organization managers engage *in fact-based discussions when important performance objectives and values conflict*.

This involvement creates an environment where staff members are empowered.

However, it's necessary to develop mechanisms to assist in the selection/identification of the performance measures that should be included from each perspective. Beside the fact

that performance measures should be derived from the objectives, a cost-benefit analysis should be beneficial to identify the performance measures in each performance domain.

iv. Limit the number of indicators in the framework

Including different perspectives in the PM framework can lead to a confounding set of measures that may result in excessive information. The number of measures to include in the PM framework must balance the need of multiple measures (perspectives) with the selection of the only those that are critical to measure the organizational performance. The PM framework must focus on what is really important to improve performance and to achieve the strategic goals.

The design of a performance measure depends on several factors: purpose, entity, dimension, or audience. It's necessary to answer to the following questions: The purpose of the measure; The entity whose measure is being measured; The performance domain being measured; The type of measure; and Who will use the measure.

The development of performance measures can be costly. The number of measures included in the PM framework must reflect the performance domains selected but it is also limited by the resources available.

v. Develop multiple measures for comprehensiveness and balance

Multiple dimensions of performance should be addressed and "balanced measures" should be developed to identify situations in which the improvement of one measure (e.g. lowered lengths of stay) generates unanticipated problems in other areas (e.g. increased readmission rates) (Rosenheck and Cicchetti - 1998). PM framework should include both financial and non-financial measures, and they must reflect external and internal measures in terms of a patient perspective and an internal process perspective (Kollberg - 2007).

vi. Ensure the quality of the data and measures

The quality of the data collected to measure the performance must be assured. Only in this way will we have valid, reliable and relevant information to make decisions. Another aim of the PM framework is to make comparisons: internal between services, and external between organizations. Thus, only with reliable data is it possible to make feasible comparisons. Another important aspect related to the data collected is to ensure that it is done timely and it's feasible to get.

vii. Ensure stakeholder input in the development of the framework

It is recommended to involve stakeholders in the development of the PM framework. The PM framework must incorporate the values, attitudes and information needs of the users of the PM framework. The PM that is internally developed is more likely to be used with success (contribute to decision-making) than those developed externally. The PM framework development should involve the organizational stakeholders and be communicated during its development process among the entire organization.

Therefore, the different performance perspectives of the stakeholders must be considered in the development of the PM framework

viii. Apply the PM framework throughout the organization

The PM framework must be developed by the organizational stakeholders and applied to all organizational areas. Linking individual performance with organizational performance will increase the sense of ownership, accountability and motivation. Applying a pyramid of detailed performance information (starting in the lower organization levels and ending at the upper levels), reversing the usual direction of the traditional reporting system will enable the lower level staff (frontline staff) to have access to their own detailed performance data and motivate them to make improvements in their work processes. Another advantage of disseminating performance information, since lower levels receive detailed performance data, is that the upper levels will only receive performance data in summarized reports and they are not overloaded with detailed information.

Thus, in order to apply this principle it's critical to design a performance information system that considers these aspects, with the capacity to meet the real and specific needs of the reporting system.

ix. Ensure a common language and have the necessary tools to support measurement

It's necessary to develop methodological devices to collect and analyse the performance data. A contact person should be selected inside the organization to coordinate data collection. The data should be entered in a database to enable analysis and comparisons. This database should have a supporting guide containing information for each indicator: brief description, the detailed calculation formula, together with information about how and where data could be found.

Finally, regarding the design of the healthcare PM frameworks there are five critical factors enumerated by Giovanelli et al. (- 2015) that must be considered: multidimensionality, information completeness, ease of use, benchmarking approach and adaptability to other contexts.

4.4. Proposal design of performance measurement framework

The proposal design of the performance measurement framework presented focused mainly on the design phase, and in particular the conceptualization stage. Since the resources needed for a full and exhaustive development of a PM framework for the HC exceed the available resources, the decision was made to focus on the first phase.

Figure 6 presents the focus of this research in the context of development phases of the PM framework.

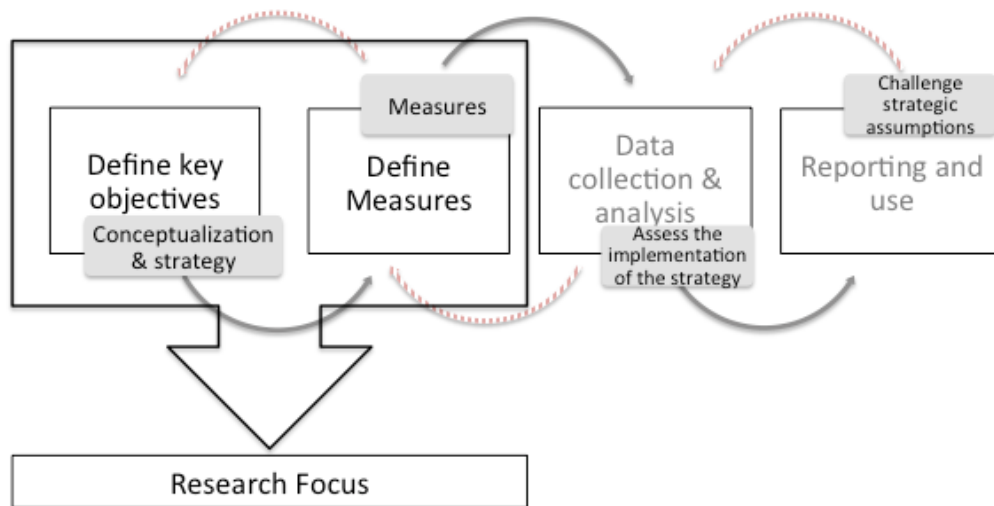


Figure 6: Research Focus

Therefore the proposed design presented in this section is divided in two parts:

- i) The conceptualization stage, where a detailed description of its development is presented, and;
- ii) The measures selection stage, where some recommendations and guidelines are presented for future work.

As previously mentioned, the resulting design framework presented in this section was preceded by the following stages, the results for which were presented in chapter 3 and in the previous sections:

- i) In-depth analysis of the literature in the relevant themes;
- ii) Semi-structured interviews (qualitative study) with key informants and internal HC stakeholders to explore and to develop an in-depth understanding of the expectations and professional experiences. A set of objectives divided into three dimensions was defined as a result: Organizational dimension (related to improvement or optimisation of resource utilization and increasing the specialisation of hospital units); Patient dimension (focusing on patient access and

reducing inequalities), and finally, Professional dimension (addressing the improvement of work conditions and the work environment). These results were presented in chapter 3, section 3.1.

- iii) A survey was conducted to define the hospital performance areas most valued by HC internal stakeholders and to evaluate if the importance given to each performance area is different when compared between professional groups. These results were presented in chapter 3, section 3.2.

In the context of PM frameworks, the terms domain and dimension appear interchangeably. However, for the purposes of these results, in the interest of clarity, these terms were used as defined by Adair et al. (- 2003, 12):

- Domain is defined as ‘a realm for grouping or classifying measures’ (e.g. customer satisfaction, effectiveness);
- Dimension is defined as a parameter that extends in another direction, across which the domains might range (e.g. level of organization)

Figure 7 illustrates some of the possible dimensions to consider in the development of a PM framework. For the purpose of this research only the organizational dimension was considered.

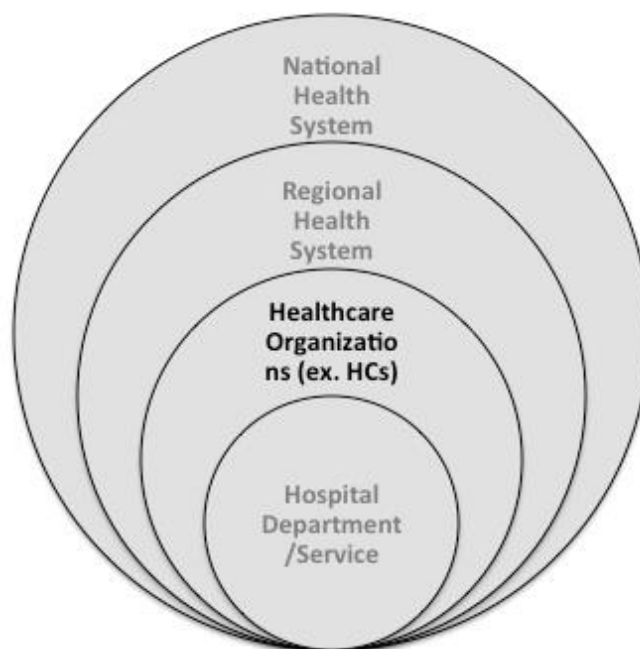


Figure 7: Dimensions for PM

In the next sections we will describe the different design stages of the PM framework: the conceptualization stage and the measures selection stage. They are presented in figure 8.

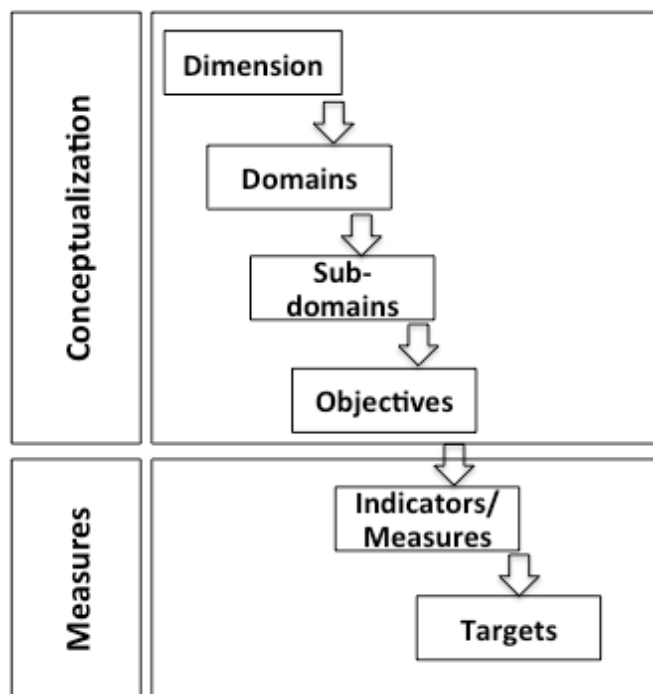


Figure 8: Design phases

4.4.1. Conceptualization stage

In this conceptualization stage the purpose is to clearly articulate the reasons for performance measurement and the strategic selection of measures. As referred before this conceptualization stage is very challengeable for the abovementioned reasons.

In the Portuguese HC context, clear corporate goals (corporate value perspective) need to be established. The starting point should always be the HC mission. However, the definition of organizational goals needs to be made in a way that enables their operational implementation.

It was possible to define, based on the qualitative study, several objectives related to the Portuguese HC. Some of these objectives were also mentioned in the HC report that was the basis of the HC creation (Centro Hospitalar Tâmega e Sousa - 2007). However, there are others that reflect the knowledge and the experience of healthcare managers, experts, academics and HC professionals relating to HC that were not explicitly stated. Internal stakeholder participation in the objectives' definition increased their motivation and accountability.

Additionally, the strategic objectives need to be periodically updated since the internal and mainly the HC external environment is continuously evolving.

The domains considered for the development of the PM framework were previously presented in the results of the survey study, they were: "Public service mission",

“Attractiveness/Openness”, “Human resources development and Internal Processes”, and “Interpersonal relationships”.

Therefore, figure 9 shows the main domains presented in the organizational dimension considered in this framework.

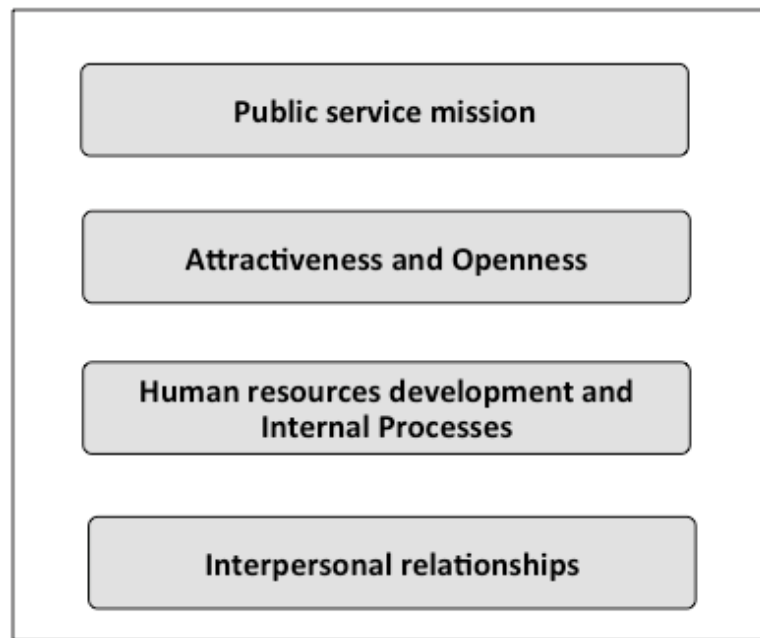


Figure 9: Main domains presented in the Organizational dimension

The next step was to define the sub-domains for each domain based on the major domains presented in the literature (Figure 10). The Adair et al. (- 2003) study listed several healthcare domains based on a literature revision of health performance frameworks. The definition of the PM framework sub-domains was based on this list.

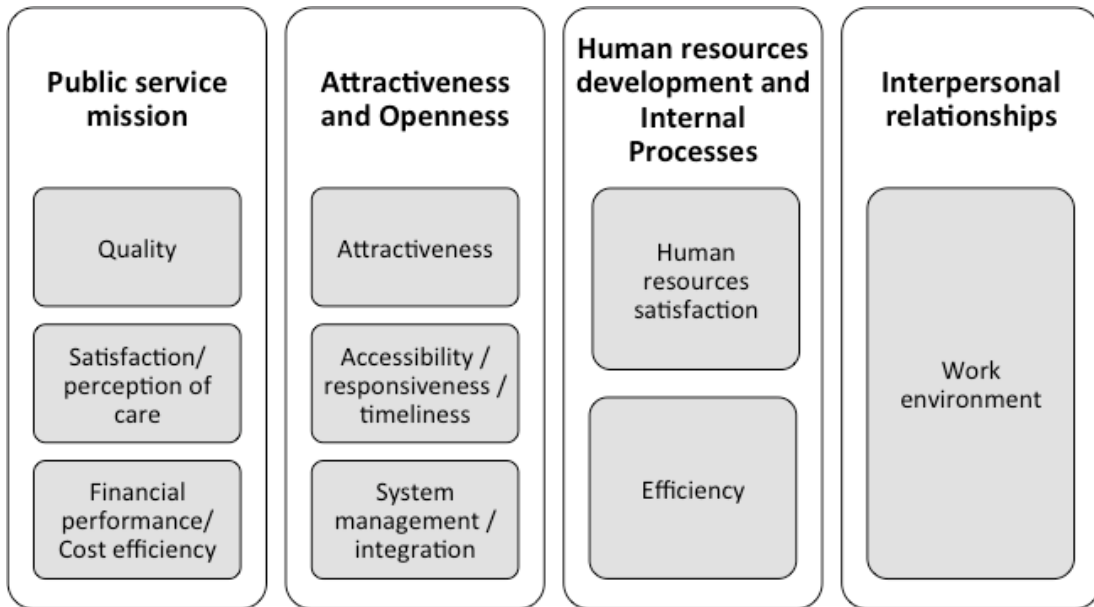


Figure 10: List of domains and sub-domains used in the PM framework design

Finally, the objectives defined in the qualitative study and presented in chapter 3, section 1 (paper #1), were distributed into these sub-domains as displayed in the following figures (figure 11 to figure 19)

4.4.1.1. *Public service mission*

The Public service mission is mainly patient oriented, as previously mentioned. This performance domain reflects the concerns of internal stakeholders with HC mission and its impact on HC performance. This domain considers aspects related to: the quality (and safety) of the service delivered, the response to the real needs of patients and community, the evaluation of the quality of care provided and its continuous improvement, and the relationship between HC professionals and their patients and the community. Finally, the third sub-domain is related to the HC financial situation as a critical factor for HC performance and its sustainability. Therefore, three sub-domains were created: Quality, Satisfaction/Perception of care and Financial performance /cost efficiency, (figures 11 to 13). Nine objectives were identified in this domain equally distributed between them.

Public service mission
Quality
Objectives:
Improve conditions of the buildings
Improve clinical safety
Improve quality of care

Figure 11: Quality sub-domain

Public service mission
Satisfaction/perception of care
Objectives:
Improve healthcare quality (perceived)
Improve patient satisfaction
Improve proximity to patient (humanization of healthcare delivery)

Figure 12: Satisfaction/perception of care sub-domain

Public service mission
Financial performance/Cost efficiency
Objectives:
Operational (marginal) cost reduction
Improve operational results
Improve negotiation capacity

Figure 13: Financial performance sub-domain

4.4.1.2. Attractiveness and Openness

The “Attractiveness/Openness” domain is related to the HC’s capacity to attract resources, both human and financial, offering the medical specialities that the community needs, which can lead to an increase in outpatient care. HC adaptation to the external environment is also valued in this domain. This can be achieved through a timely response and accessibility to the patient and community needs and improvements in system integration. Three sub-domains were defined in this domain: Attractiveness, Accessibility/responsiveness /timeliness and System management/integration (figures 14 to 16).

This is the domain with most objectives, 20 objectives. These objectives were distributed between the four sub-domains listed above. This distribution was balanced, with the exception of the System management/integration sub-domain that only has two objectives.

Attractiveness and Openness
Attractiveness
Objectives:
Creation of synergies between the integrated units and hospital departments
Improve capacity to attract resources and patients
Increase hospital unit specialisation
Increase and improve outpatient care

Figure 14: Attractiveness sub-domain

Attractiveness and Openness
Accessibility /responsiveness /timeliness
Objectives:
Better response to community needs
Reduce inequalities in care
Improve physical access to hospital care
Facilitate the flow of patients inside and between hospital units
Reduce the waiting time and waiting lists for outpatient care
Reduce the waiting time and waiting lists for surgery
Improve Clinical governance

Figure 15: Accessibility/responsiveness/timeliness sub-domain

Attractiveness and Openness
System management / integration
Objectives:
Improve articulation with other care levels (vertical integration)
Improve healthcare service provided to the community

Figure 16: System management/integration sub-domain

4.4.1.3. Human resources development and internal processes

For this domain, Human resources development and internal processes, two sub-domains were created: Staff satisfaction/Work Conditions and Efficiency. The quantitative study results confirmed that internal stakeholders are extremely concerned with HC resources, namely human resources, and their importance to good HC performance. The conditions given to HC professionals for their professional development and a good and healthy work environment were considered an important aspect to improve HC performance. HC internal stakeholders also considered that their involvement in finding solutions to HC performance problems is an important aspect. On the other hand, the performance aspects related to the efficiency of the internal processes were considered in the “Efficiency” sub-domain. In a context of integration the resources and processes management are more demanding with consequences in the performance levels.

Thirteen objectives were defined in this domain, almost equally distributed between the two sub-domains (figures 17 and 18).

Human resources development and internal processes
Staff satisfaction/Work Conditions
Objectives:
Develop training/development programs adapted to organizational goals
Improve work space/Physical space
Access to better resources (equipment)
Increase number/diversity of cases
Encourage the sharing of know-how and best practices between professionals
Promote team work between professional categories
Boost research and teaching

Figure 17: Staff satisfaction/work conditions sub-domain

Human resources development and internal processes
Efficiency
Objectives:
Improve Human Resources management
Improve information system management
Creation of synergies between the integrated units and hospital departments
Reduce duplication: infrastructures/equipment/technologies
Improve/optimize resource utilization (Reorganization of resources)
Improve performance of the internal processes

Figure 18: Efficiency sub-domain

4.4.1.4. Interpersonal relationships

This *Interpersonal relationships* domain was one of the most valued in the quantitative study. This domain refers to the relationships among the HC professional, between these and their organization and between them and the patient and their families. Relationships among staff based on participation, cordiality, teamwork, recognition and collaboration

would have a positive impact on HC performance. A healthy work environment would have a positive impact on HC performance. This domain has one sub-domain, Work environment, and includes five objectives related to the competences of the human resources to deal with their peers and with patients and their families (Figure 19).

Interpersonal relationships
Work environment
Objectives:
Increasingly engage healthcare professionals in management goals
Promote actions on Professional motivation
Implement actions that minimise the impact of reallocating jobs
Improve the management of expectations, mainly during integration processes
Improve leadership processes and participatory management

Figure 19: Work environment sub-domain

4.4.1.5. Conceptual Model

Organizations prosper when they create more value for their stakeholders (employees, costumers, owners and communities) than their competitors do (Van Mieghem - 2008). However, since the HC is a non-profit organization, the aim is to maximise the value it provides to its patients given its budget constraints. Therefore, the value created by the HC must be centred on its mission.

The existence of a strategic plan, guided by the HC mission, and aligned with the national and regional objectives, is crucial for the success of the HC. The national objectives should be established at a macro level, regarding the population’s health status and the health determinants. These objectives should be detailed for a regional level, considering the specific health status (social, economic, political and technological context) and even more detailed for each healthcare unit. Legal rules and professional requirements also influence the definition of strategic objectives.

Therefore, following the strategic objectives definition is it necessary to develop an understanding of each functional area’s role in achieving the various strategic objectives. The development of performance measures for each department/service, capable of

achieving the strategic objectives, is the next step. Then the communication of the strategic objectives and performance goals within the HC (to lower levels) will lead to the establishment of more specific performance criteria at each functional level. The involvement and commitment of HC staff at all levels will be made operational in their contributions to achieve the goals defined for their departments.

The HC can be viewed as having different decision-making levels corresponding to its functional areas (departments/services). Thus, the proposed framework should reflect these differences, having aligned objectives and different measures for organizational (top-level) and operational units (lower-level). The performance measurement framework will enable the viewing of an organization from different perspectives, adopting a balance of different forms of measuring. The model we proposed assumes the existence of two hierarchical levels in the HC. One at top-level, where strategic objectives are defined, and a second level, the lower level, where the strategic objectives are converted to more operational objectives and activities. These lower levels are the departments and services that constitute the HC. The top-level objectives are driven by the HC mission, but are influenced by the national and regional guidelines, the legal rules and professional requirements. Figure 20 represents these two levels in the HC and the sources that can influence the HC objectives.

Another very important aspect to consider that needs the involvement of all departments/services (or functional units) of the HC is relations between the objectives and, consequently, between measures. The cause-effect relations between measures must be considered later on in the PM framework design. Therefore, ensuring harmony with strategic objectives among the performance criteria used at each level and the compatibility of performance measures used in all functional areas, without creating inconsistencies in policy or excessive interdepartmental conflict, are very important aspects to be considered during this design phase. It's important to have a management consensus concerning the organization's objectives and the means at its disposal for attaining them.

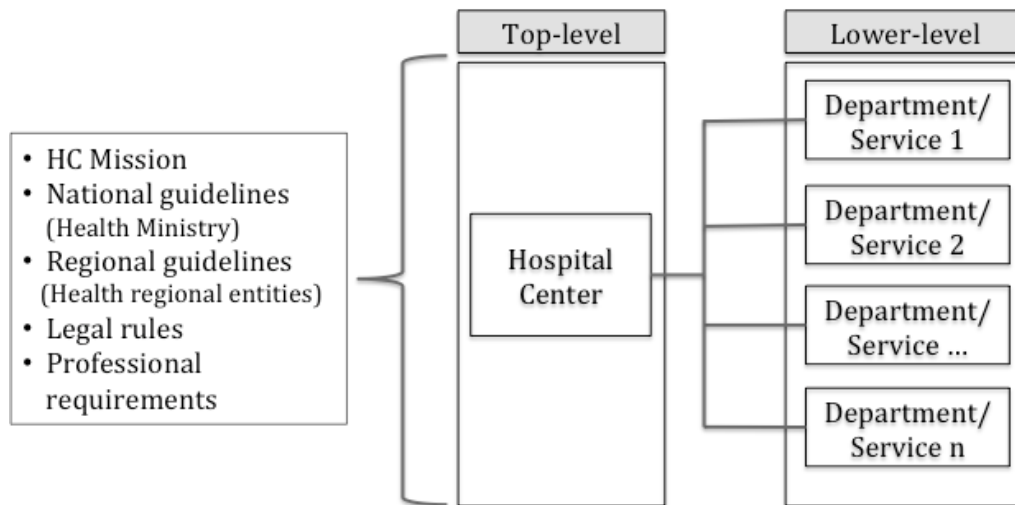


Figure 20: Two hierarchical levels in the HC

After defining the strategic goals for the HC, it is necessary to articulate specific plans to achieve them. Large and complex organizations do this in a hierarchical manner and specify several levels of strategy. At the highest level, the corporate strategy defines the main goals and allocates/acquires the resources to accomplish the corporate objectives, to maximise value for the patient. At the lower-level an operational strategy is defined to develop the resources needed and to configure the processes to acquire the capabilities needed to achieve the strategic organizational goals. Therefore, the domains defined in the conceptualization stage represent the different views of the HC operational strategy. This representation is shown in figure 21.

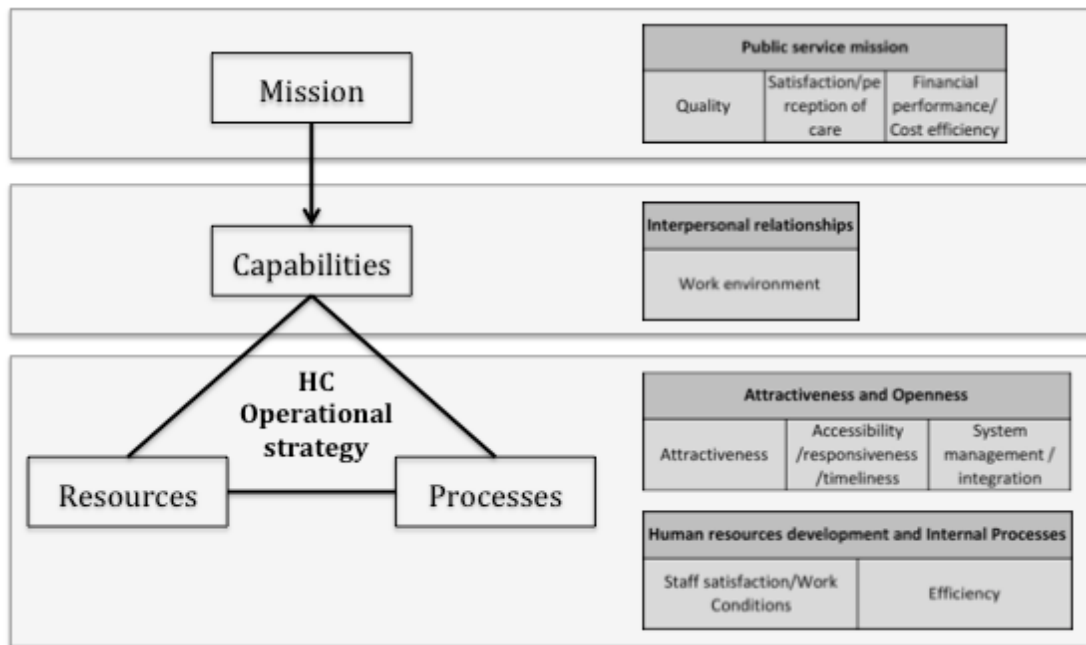


Figure 21: PM framework domains representing the different views of the HC operational strategy

The proposed PM framework design considers that the strategic objectives (at the top-level) are guided by the HC mission. These strategic objectives are reflected in the “Public service mission” domain and include objectives regarding the main stakeholders: the patient, in the sub-domain “Satisfaction/perception of care” and the health professionals, in the sub-domain “Quality” and the owner (the State) in the sub-domain “Financial performance/Cost efficiency”. The resources and processes need to develop the HC capabilities to achieve the organizational objectives are defined in the other three domains: “Interpersonal relationships”, “Attractiveness and Openness” and “Human Resources development and internal processes”. These three domains represent the three views of the HC operational strategy defined by Van Mieghem (- 2008): the resource view, the process view and the competency view.

To develop its activities, organizations need a wide variety of resources that can be classified as tangible and intangible (Van Mieghem - 2008). The tangible assets are the human resources, who play a crucial role in healthcare organizations, as mentioned before, and the medical equipment. The intangible resources are, for example, the reputation, image, adaptation capacity, the knowledge and experience, and the relationships with patient and the community. The resources view considers the organization as a group of resources. The objectives related with this component are represented in the “Attractiveness and Openness” domain.

The process view considers the organization as a set of processes. In a HC the processes are the sequence of activities (or a network of activities) that, in broad terms, transform a sick person in a healthy person (without a disease). The “Human resources development and internal processes” domain includes the most important objectives related to this view. The two sub-domains reflect the perspectives of two important stakeholders: the “Efficiency” sub-domain reflects the owner (State) perspective, as the objectives are linked with processes that conduct a more efficient HC; the “Staff satisfaction/work conditions” sub-domain is linked with HC professionals and contains objectives involving human resources processes that can lead to satisfied staff.

Thus, the combined resources, processes and the organizational values (standards or rules by which healthcare professionals set priorities) define what an organization can and cannot do, the organizational capabilities (Van Mieghem - 2008). Capabilities, or competencies, determine the services that the organization is particularly good at providing. The competencies can reside in the resources, in the processes or in the organizational values. The objectives of this part of the operational strategy are reflected in the domain “Interpersonal Relationships”. The HC, as an organization that delivers hospital care must be concerned with the relationships among all HC staff, in order to achieve a better working environment, and also between HC staff and the patients (and their families). These relationships are crucial to the success of the HC.

To conclude this section, figure 22 contains an overview of the objectives in each domain and sub-domain.

Public service mission	Quality	Improve conditions of the buildings Improve clinical safety Improve quality of care
	Satisfaction/perception of care	Improve healthcare quality (perceived) Improve patient satisfaction Improve proximity to patient (humanization of healthcare delivery)
	Financial performance/Cost efficiency	Operational (marginal) cost reduction Improve operational results Improve negotiation capacity
Attractiveness and Openness	Attractiveness	Creation of synergies between the integrated units and hospital departments Improve capacity to attract resources and patients Increase hospital unit specialization Increase and improve outpatient care
	Accessibility /responsiveness /timeliness	Better response to community needs Reduce inequalities in care Improve physical access to hospital care Facilitate the flow of patients inside and between hospital units Reduce the waiting time and waiting lists for ambulatory care Reduce the waiting time and waiting lists for surgery Improve clinical governance
	System management / integration	Improve articulation with other care levels (vertical integration) Improve healthcare service provided to the community
Human resources development and Internal Processes	Staff satisfaction/Work Conditions	Develop training/development programs adapted to organizational goals Improve work space/Physical space Access to better resources (equipment) Increase number/diversity of cases Encourage the sharing of know-how and best practices between professionals Promote team work between professional categories Boost research and teaching
	Efficiency	Improve Human Resources management Improve information system management Creation of synergies between the integrated units and hospital departments Reduce duplication: infrastructures/equipment/technologies Improve/optimize resource utilization (Reorganization of resources) Improve performance of the internal processes
Interpersonal relationships	Work environment	Increasingly engage healthcare professionals in management goals Promote actions on Professional motivation Implement actions that minimize the impact of reallocating jobs Improve the management of expectations, mainly during integration processes Improve leadership processes and participatory management

Figure 22: Overview of the objectives in each domain and sub-domain

4.4.2. Measures selection

Historically the measures development to assist managers in planning and controlling their organizations is linked to management accounting (Otley - 2002; Bourne et al. - 2003). They were internal, aggregate measures of financial performance concerned with both the organization as a whole and its segments rather than with overall organizational performance (Chenhall and Langfield-Smith - 2007; Kollberg - 2007). Nowadays, some of these measures, with adaptations, continue to be promoted in organizations (Chenhall and Langfield-Smith - 2007). However, these measures don't give a forward looking vision, they focus on the internal process of the business and tended to be highly aggregated (Chenhall and Langfield-Smith - 2007). Managers from other business functions such as operations, marketing and human resource management demand performance

measurement systems with relevant measures in their areas of management. The result was a proliferation of approaches to the design of performance measures (Chenhall and Langfield-Smith - 2007). According to these authors “much could be gained from coordination, communication and unification of different approaches to the development of performance measures.” (- 2007, 266).

Additionally, Kollberg (- 2007) referred that the advent of the Quality Management movement together with a focus on global competitiveness over the last decade can be seen as having made companies change focus from the traditional assets towards assets measured in non-financial terms.

Balanced approaches in order to capture process orientation, customer focus, supplier partnership, continuous improvement, and employee knowledge in performance measurement were developed.

Some integrated PM systems (systems for performance measurement assessing both financial and non-financial measurements) are developed in the late 1980s and early 1990s (Bourne et al. - 2003). Some well-known integrated PM systems are the balanced scorecard, the performance prism, the Tableau de Bord, and more recent variations of integrated PM systems include those that encompass environmental and social responsibility concerns. Chenhall and Langfield-Smith (- 2007, 277) referred that “there is growing evidence that many senior managers regard corporate social responsibility as leading to increased profitability and long-term survival.”.

However, designing measures is not a simply task. Neely et al. (- 1997, 1131) referred that “Designing a performance measure, however, involves much more than simply specifying a robust formula”. Performance measures are seen as important information sources on the current conditions and point out which processes to improve (Kollberg - 2007).

In healthcare, performance measurement informs people of the outcomes they can expect from certain treatments (Eddy - 1998; Hoelzer et al. - 2001). Perhaps they will be able choose their particular version of value, a balance of cost and quality. The measures are designed to evaluate the processes and outcomes of care associated with the delivery of clinical and non-clinical services (Hoelzer et al. - 2001). They also allow comparisons inside the organization and outside the organization to enable continuous improvement in patient health outcomes.

Performance measures can be given at as a global performance measure based on the aggregated data, such as the data available at the World Health Organization reports. They are used to compare healthcare systems. Examples of these measures are: life expectancy

and health expenditure per capita. According to Hoelzer et al. (- 2001) these measures reflect the achievement of healthcare services in comparison with the resources spent, giving a rough guide to how well health systems perform.

On the other hand, more detailed population-based measures deal with specific groups of patients that receive certain healthcare services (diagnostic or therapeutic interventions) or pass through certain medical facilities (institutions or departments) (Hoelzer et al. - 2001). They are used to evaluate healthcare organizations performance compared with regional, national and international standards.

Clinical performance measures are designed to provide comparable data on quality of care. These data can be used to inform: the patients about expected outcomes of the applied care; the physicians about areas for quality improvement; and service providers about resources allocation (Hoelzer et al. - 2001). They are almost always a quantitative value and focus on a global performance. However, detailed data can be useful for more specific judgments with respect to the appropriateness of clinical decision-making and implementation of feasible evidence (Hoelzer et al. - 2001). More specifically, case-based performance measures use a defined group of patients depending on specific patient characteristics (age, gender, etc.) and features of disease (grade, stage, etc.). These measures enable the number of patients that receive a necessary medical procedure to be compared against those patients who do not (Hoelzer et al. - 2001). Case-based measures focus on the management of individual patients rather than general performance.

Although these case-based performance measures are extremely important to improve the healthcare results of the organization at a clinical level, it is important to adapt them for a patient's perspective. Thus, it is important to know what the patient want to know. As referred by Hoelzer et al. (- 2001, 360) "a common language for understandable performance measures is imperative that it incorporates responsiveness (e.g. patient's satisfaction), quality of life, as well as mortality data.". The intended audience of PM affects the appropriate level of detail and the clinical sophistication required to understand what a change or difference in a measure means. For example, a measure intended to help a physician evaluate the effects of an asthma treatment can be much more detailed and clinically oriented than a measure intended to help asthmatic patients choose an asthma clinic (Eddy - 1998). Patients and physicians lack a common language for understanding and discussing healthcare quality/performance issues (Galvin - 1998). According to this author the final aim of performance measurement is to improve the quality of the healthcare system. The performance measurement system must include measures that inform and interest the stakeholders involved.

Performance measures are the specific data used in performance measurement. They measure inputs, activities, outputs and outcomes (Quann-Youlden - 2003):

- Inputs: Resources used in the process of providing services are the input of the service.
- Activities or process: *are what an organization does with the inputs with respect to fulfilling its mission.*
- Outputs: measure the direct products of activities (e.g. number of patients treated or the number of applications processed), quantity of services delivered (e.g. number of patients treated and discharged). They rarely provide any useful assessment of the quality of service delivery
- Outcomes: measure that evaluates the extent to which objectives have been achieved. They measure the impact of the service delivered to the patient, this is one the reasons they are difficult to measure. They usually require sophisticated research tools for continual monitoring. They are often developed through an iterative process, take time, are limited by the ability to control environmental influences, are resource intensive and time consuming.

This stage of the design of the PM, measures selection, was not developed in-depth during this research work due to resource and time constraints. However, in this section we will present some guidelines and recommendations.

4.4.2.1. Issues in choosing measures or indicators

A thousand measures or indicators are available in the literature (Adair et al. - 2003; Lemieux-Charles et al. - 2003). Moreover, Adair et al. (- 2003) referred that there is no way to estimate how many are in actual use and how many of those in use are actually being used appropriately.

Measures databases are available on the Internet. They allow the identification of sets of measures for selection. These databases include operational definitions that are very useful for standardisation. These indicators can be classified in broader types and are distributed over several domains.

Traditional measures of financial performance continue to be critical for healthcare decision makers, mainly in the NHS ((Love, Revere, and Black - 2008). However, non-financial measures such as physician and employee satisfaction, hospital-acquired infection rates, surgical site infection rates, inpatient mortality, infection control outcomes, and medication error rates have gained importance in the PM frameworks.

4.4.2.1.1. Traditional measures

Traditionally, performance measures are considered as an integral part of the planning and control cycle; it is a means of capturing performance data, which can be used to inform decision making (Neely et al. - 1997). This traditional view was classified as mechanistic by these authors.

In healthcare, the traditional measures have been in use for several decades in some PM frameworks. These are measures related to structure measures, for example length of stay, bed occupancy, numbers of discharges and admissions, surgery facility use. These measures have been classified as poor indicators of effectiveness (Adair et al. - 2003). These measures are usually readily available, but are not always the most appropriate or strategically linked. The easy solution of selecting only traditional structural measures has the consequence of giving incomplete knowledge of organizational performance. There is a temptation to measure what is measurable rather than what is important/meaningful (Adair et al. - 2003).

4.4.2.1.2. Other measures

Waiting time measures have also received increase attention as a reflection of health system access. Waiting time can be defined as the time patients have to wait on a waiting list to be eligible for surgeries or outpatient visits. These indicators have an important impact on the public as an indicator of overall system level performance (Adair et al. - 2003). Good values in these performance measures are published with the intention to influence patients, general practitioners and health insurance companies to select 'high quality care' (Stoop, Vrangbæk, and Berg - 2005). Abnormally long waiting times are seen as being caused by a sub-optimal circulation of patients. Thus, waiting times are seen as a process performance measure of the organization.

Measures related to system integration, continuity of care and population needs are being developed, with the aim of redesigning healthcare delivery systems to meet population needs (Adair et al. - 2003; Lemieux-Charles et al. - 2003; Minkman - 2012).

Other measures of patient satisfaction and worker conditions and satisfaction have also been included in PM systems and frameworks as critical aspects of care that should be considered in evaluating performance (Marshall and Davies - 2000; Péfoyo and Wodchis - 2013; Press and Fullam - 2011).

4.4.2.1.3. Safety measures

Safety measures have received increase attention in recent years as a critical component of quality (Zineldin - 2015). Safety measures can be applied to patients and to healthcare professionals.

Regarding the patient, these measures are related to medical errors or “adverse events” for hospitalization (Hurst - 2002). One important indicator of patient safety is the rate of adverse events among hospital patients. Baker et al. (- 2004, 1678) defined adverse events as “unintended injuries or complications that are caused by healthcare management, rather than by the patient’s underlying disease, and that lead to death, disability at the time of discharge or prolonged hospital stays.” According to these authors some adverse events are the unavoidable consequences of health care, such as an unanticipated allergic reaction to an antibiotic. However, 37%–51% of adverse events have been judged in retrospect to be potentially preventable. In some cases, the cause was medical care prior to hospitalization (Hurst - 2002). The necessity of routine reporting of these “adverse events”, given standardization of measurement, is crucial for PM systems and frameworks.

In the literature it is possible to find, in relation to the healthcare professionals, several papers relating to safety performance with lagging and leading indicators (e.g. (Toellner - 2001; Grabowski et al. - 2007; Hinze, Thurman, and Wehle - 2013)

An organization could be interested in measuring safety performance to understand if the safety efforts are actually preventing accidents and illness. Thus, to measure safety performance it’s necessary to develop safety metrics. These kind to metrics fall into two basic categories: leading indicators, which are measurement linked to preventive actions (system or individual behaviours); and lagging (or trailing) indicators, which are linked to the outcome of an accident (Toellner - 2001).

Toellner (- 2001) concluded that safety professionals should gather, analyse and report accident statistics, and use that data to help management and workers to better understand overall performance trends and the significance of relatively minor events. Therefore, the site’s safety resources will be maximised.

4.4.2.2. Formal criteria for selecting indicators for performance measurement systems and frameworks in health

This section presents some examples of criteria related to the selection of indicators for performance measurement systems and frameworks in health complemented with examples from the business area.

The most important and referred formal criteria to select performance measures presented in the literature are: reliability (consistency and measurement: A reliable performance indicator is free of measurement errors) and validity (measures that relate closely to the quality/appropriateness of the aspect of care of interest, even if proxy measures are used) (Androwich and Hastings - 1995; Hoelzer et al. - 2001; Kates, Marconi, and Mannle - 2001; Love, Revere, and Black - 2008). To have reliable and valid measures it is necessary that data collection approaches and indicator calculations are identical, that differences in patients' severity of illness across organizations be controlled, and that the measures identify significant opportunities to improve patient care. It was also important that the indicators measure multiple aspects of care to get a picture of the organizations' performance as a whole (Braun, Koss, and Loeb - 1999).

Beside these two criteria there are other criteria for selecting performance measures. Hoelzer et al. (- 2001) referred to the feasibility to obtain the data as an important criterion to consider when selecting a measure. They considered this criterion the most important constraint. Performance measures should be clinically relevant, transparent, understandable/interpretable output for the target groups (politicians, providers, physicians and/or patients) and sensitive to change (Hoelzer et al. - 2001; Androwich and Hastings - 1995). Feasibility, can be verified in terms that measure should include data that are essential to provide a basis for understanding the accomplishments of goals and objectives of the organization (Al-Turki and Duffuaa - 2003).

Other important criteria are: interpretability, communicating in a readily understandable manner that is concise, yet comprehensive; and timeliness, reporting in a timely manner so that it will be available to users before it loses its decision-making value (Al-Turki and Duffuaa - 2003).

Adair et al. (- 2003) mentioned two desired characteristics of measures: directionality and attribution. Concerning directionality, sometimes the desired direction of change of a measure is ambiguous. Adair et al. (- 2003) referred to the following example, a reduced length of stay may not represent good performance if it results in readmissions. The attribution "refers to the reality that changes in indicators can be, to a greater or lesser degree, attributed to healthcare interventions" (Adair et al. - 2003, 51). These authors mentioned perinatal mortality as an example of a measurement with low attribution, which has more to do with pre-existing factors (i.e. social-economic status, nutritional status, smoking status) than it does to perinatal care.

Therefore, the performance measures selected for inclusion in the PM framework may possess the abovementioned criteria/characteristics. However, the fact that performance

measures possess these attributes does not guarantee that their use will improve performance. Another important criteria is acceptability. The people in the field, who manage the performance measures, must perceive the selected measures as a fair and accurate assessment instrument (Kueng - 2000).

4.4.2.3. Process and Outcome measures

The disadvantages of the structural measures (traditional measures) previously mentioned led to a movement towards the outcome measures.

Adair et al. (- 2003, 13) used a Donabedian definition of outcome measures *“Not simply a measure of health, well-being or any other state; rather, it is a change in status confidently attributable to antecedent care.”*

There are several, and the advantages of outcome measures: matter more to stakeholders, particularly patients, since they update patients on the outcomes they can expect; inform physicians by pointing to possible areas for improvement and to use individual and flexible approaches, encouraging innovation; and enable providers to be accountable to funders and patients by demonstrating the value of their services (Hoelzer et al. - 2001; Adair et al. - 2003)

Outcome measures can be classified as: i) immediate outcomes, measures during service delivery that are usually not the ends themselves but are expected to lead to the desired ends; ii) long-term outcomes, measures that follow service delivery, they frequently take years to measure and require clearly established baselines and benchmarks. As referred to by Quann-Youlden (- 2003), an evolution of outcomes occurs until the most desirable, ultimate outcomes are achieved. The ultimate outcomes are those results that reflect the organization's mission, and directly relate to its effectiveness.

This outcome movement began in the mid-1990s. However, the inherent difficulties with outcome measures are largely accepted. The most recognised difficulty is the need for a long observation time. Another is that comparisons require case-mix or risk adjustment, i.e. they are confounded by pre-treatment variables. Moreover, healthcare is only one variable in determining health outcomes, other variables are outside of the provider's control (Adair et al. - 2003; Mannion and Davies - 2002; Rubin, Pronovost, and Diette - 2001).

Adair et al. (- 2003, 13) defined process measures, based on the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) definition, as *“A measure which focuses on a process which leads to a certain outcome, meaning that a scientific basis exists for*

believing that the process, when executed well, will increase the probability of achieving a desired outcome." Process measures measure some aspect of the process of care that was performed. These authors (- 2003, 50) in their literature review described several advantages of these type of measures, for example: they are easily interpreted; Broader coverage; Easier to measure and they achieve in the short term, etc..

Another advantage referred by Crombie and Davies (- 1997) is that data of process measures are easier to interpret than data of outcome and avoid the need for subjective measures, such as patient assessments of symptoms and level of quality of life. According to this author, in healthcare, measuring the process through outputs can be an indicator of quality of care and is, in many ways, superior to measuring outcomes. This is because they can be readily measured, interpreted, and sensitive to deficiencies in care, provide indicators for action and are sometimes the only aspects that can be measured (Quann-Youlden - 2003).

However, process measures also present some disadvantages, for example: they are less important to patients; require updating regularly as practice changes; links to outcomes are indirect and inferred (Adair et al. - 2003).

Additionally, process and structure performance measures are user as *proxies* of quality of care and health outcomes. The basic premise is that, if specific structural and procedural criteria were met, then it could be assumed that good quality of care was achieved (Quann-Youlden - 2003). This concept is used especially where actual outcome measures are elusive or methodologically difficult to capture. Quann-Youlden (- 2003) gave the example of inoculations where outputs instead of outcomes are more effective. Vaccination clinics count the number of vaccines administered, and assume that the results follow, based on well-documented medical research. It would not be feasible for each vaccination provider to follow each patient to ascertain whether the treatment was effective. Rather they depend on the results of large medical research institutes.

Therefore, considering the advantages and disadvantages of outcome measures, there are several PM frameworks where outcome and process measures are complementary. Leggat et al. (- 1998) recommend the use of groups of measures. Combining outcome measures with outputs provide a superior indication of how well health objectives are reached (Perrin - 1998). Nevertheless, regardless of what performance measures should be used, a key to success is ensuring that the measures are relevant to the organization, easily understood by those who need to use them and feasible, given the constraints of the organization.

4.4.2.4. Proposed framework for performance measures design

A framework for select performance measures to include in the PM framework will be proposed in this section.

Three main principles that must be considered for measures selection will be presented before the actual framework. The first is to define a multi-dimensional set of performance measures, which means that they may include both financial and non-financial measures. This principle was emphasized in some recommendations made in the previous section (guidelines for the design and development of PM framework - *Develop multiple measures for comprehensiveness and balance*).

The second recommendation is to use both process and outcome measures. As stated above, combining outcome measures with process measures provides superior indication of how well objectives are reached. Given the difficulty with data gathering to measure health outcomes, performance cannot look at outcomes alone but must also consider process and intermediate outcome measures (Perrin - 1998). Hence, outcome measures remain a priority without requiring that the outcome itself be the focus of measurement. If there is a link between process and outcome, one can use process measures with confidence since improved performance on those measures will lead to better population health (Hoelzer et al. - 2001).

Finally, the third recommendation is to establish a target/standard against which efficiency and effectiveness can be judged, whenever possible. The standards, against which performance is evaluated should be derived from strategy and overall objectives with respect to different perspectives. The levels of performance the organization needs to achieve to satisfy these objectives are dependent on how good its competitors are. By just specifying a level of performance to be achieved and a time scale for achieving it, it's possible to assess organization performance and evaluate the organization position in relation to its competitors. Kueng (- 2000) suggested the following sources to establish realistic but challenging target values: scanning the market; asking stakeholders; competitive benchmarking; simulation and experiments; or research institutions. It is possible to use benchmarks for some measures. Benchmarks can be defined using the healthcare industry established values, alternatively similar healthcare programs results may be used as a comparison.

In general, two approaches exist to select the appropriate performance measures: using a generic set of performance indicators and picking the right ones; or starting from the very beginning (Kueng - 2000, 75).

The first option seems to be the more efficient. However it's necessary to consider some weakness of this approach. Kueng (- 2000) lists some of these weaknesses:

- there is no generally accepted list of performance indicators. Propositions made are often imprecise or related to a process which is not congruent to the one being measured;
- choosing the adequate indicators from a list requires solid and well-founded selection criteria which discriminate sufficiently;
- achieving a feeling of ownership and acceptance is quite difficult through this approach.

According to this author, the second option, starting from the very beginning, appears to be more promising. Since "performance indicators can be defined with an appropriate level of detail, according to the vocabulary used and precisely adapted to the process being measured" (- 2000, 75).

The first step in the selection of performance measures for a certain goal (after establishing the objectives in the different domains) is to ask "What is measurable and reflects the extent to which a certain goal has been fulfilled?" (Kueng - 2000). For example, in order to measure the objective "improve patient satisfaction in the inpatient service" an overall patient index for inpatient service could be used. However, sometimes it is not possible to find indicators which are clearly related to the goal stated. In this case further fine-tuning/breakdown of the objective is necessary (definition of a sub-objectives). The Kueng (- 2000, 77) proposal to this fine-tuning involves asking the question: "Which means or actions can be taken by the organization to fulfil a certain goal?". The answer (normally) received, according to this author, is in the form of a sub-goal.

Two other aspects must be considered in the definition of performance measures. One aspect is the influence/restrictions of the external economic, technological, social and legal environment which also influence the definition of performance measures. Another is to consider the unintended side effects that can appear. Kueng (- 2000) warns against that continuous measurement of selected performance indicators, stating this often leads to the effect that process actors emphasize the aspects measured at the expense of unstated or implicit goals. If this is very likely, additional performance measurements should be undertaken.

Neely et al. (- 1997) defined the design of a performance measure as a process: the measurement of requirements is the input and the performance measurement produced is the output. To structure and support this process these authors developed a framework,

the performance measurement record sheet. This framework was developed based on a list of recommendations with regard to the design of performance measurements. Appendix 6 contains a list of recommendations related to the design of performance measures. This list is based on the studies made by Neely et al. (- 1997) and more recently by Folan and Browne (- 2005), which are based on extensive research of this field.

Since the performance measure record sheet presented by Neely et al. (- 1997) aims to develop appropriate and to simply obtain performance measures, it was considered a good starting point to develop a framework to design performance measures adapted to the HC. The proposed framework also considers the guidelines for the design and development of the performance measurement framework, previously presented.

The proposed framework to obtain performance measures is presented in figure 23.

1. Measure title: It should be clear and explanatory in the sense that it explains what the measure is and why it is important. It shouldn't include functionally specific jargon.
2. Purpose: The rationale underlying the measure has to be specified. Only measures with a specific purpose should be introduced. Examples: enable us to monitor the rate of improvement, thereby driving down the waiting time; ensure a cost reduction of purchases.
3. Relates to: Specify the objective to which the measure relates.
4. Target: An appropriate target, level of performance to be achieved, for each measure should be specified. The time scale for achieving that target should also be defined. The importance of this component was previously discussed.
5. Specify the formula: Define the way the performance measure is measured. According to Neely et al. (- 1997) this is one of the most challenging elements to specify because it affects how people behave, in the sense that it can induce unintended effects when inappropriately defined. However, the opposite effect is also possible when the formula is defined in such a way that it induces good business practice (for example: increase the number of inpatient admissions in service X).
6. Establish the frequency: the frequency with which the performance measure should be recorded and reported depends on the importance of the measure and the volume of data available.
7. Establish the review frequency: In many cases this frequency coincided with the frequency, but not in some.
8. Identify who measures: Identify the person who collects and report the data.

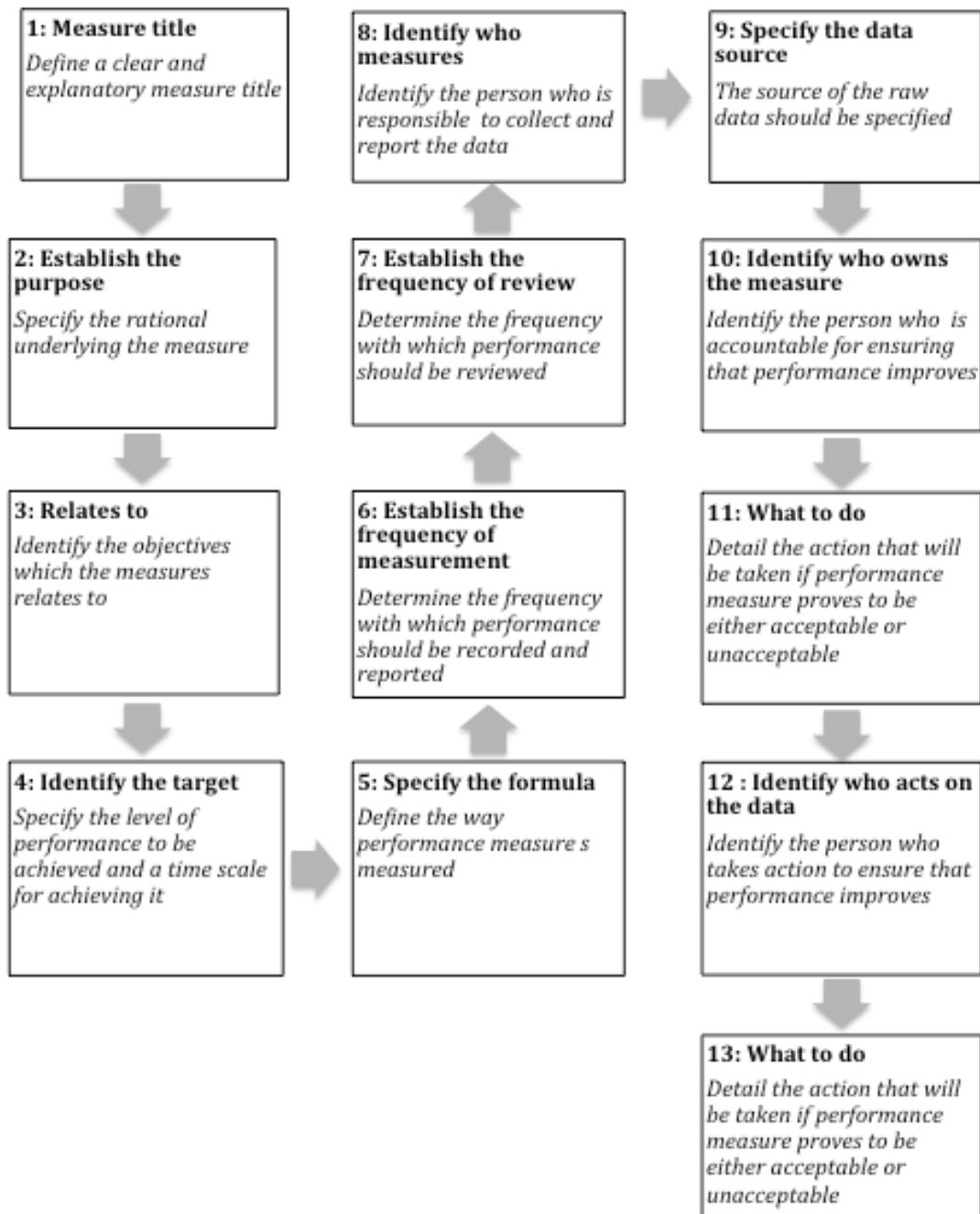
9. Specify the data source: This component is directly related with the consistency criteria, previously mentioned. A consistent source of data is vital if performance is to be compared over time.

10. Identify who owns the measure: Identify the person who is accountable for ensuring that performance improves.

11. What to do: Actions to be taken if the performance measure proves to be either acceptable or unacceptable.

12. Identify who acts on the data: Identify the person who takes action to ensure that performance improves. Many times the person who owns the measure is the same who acts on the measure statistics.

13. What to do: This is the most important component of the framework since this point establishes the action to be taken if performance proves to be either acceptable or unacceptable. According to Neely et al. (- 1997, 1140) it is sometimes not possible to detail the action, but it is always possible to “define in general the management process that will be followed should performance appear to be either acceptable or unacceptable”.



(Adapted from Neely et al. (-1997))

Figure 23: Proposed framework to obtain performance measures

Neely et al. (- 1997, 1150) tested this framework in different organizations and they concluded that the “experience suggests that the record sheet is valuable because it facilitates the design of performance measures and encourages the designers of such measures to consider the behavioural implications of the measures in particular settings. The record sheet has also proved valuable in the education process as it provides a framework which can be used to explore what constitutes a well-designed performance measure.”

To conclude this section, a related theme should be addressed, the information system that manages collected data, or the information technology infrastructures. These infrastructures allow the process of data collection and data management and the analysis of current patterns of care by the use of routine data from electronic patient records or clinical registries (Hoelzer et al. - 2001).

4.5. Operational Implementation Methodology

This section presents the methodology to apply the proposed framework in the field. It was considered relevant in this operational implementation process to clarify that we believe the people who know most about hospital services delivery are the people who are currently running it. Therefore, we believe that what is needed is a process for “extracting” this knowledge and organizing it in a way which can be used to design and operationally implement the PM framework (Neely et al. - 2002).

The methodology we proposed in this section assumes the existence of two hierarchical levels in the HC, as mentioned previously. One at top-level, where strategic objectives are defined, and a second level, the lower-level (departments and services that constitute the HC), where the strategic objectives are converted into more operational objectives and activities.

For the proposed PM framework process design, the learning process and the participation and engagement of professionals are critical for a successful outcome as supported by Bourne et al. (- 2003). These authors (- 2003) suggested two dimensions to categorise this process:

- the underlying procedure (the “hard” issues);
- the underlying approach (the “soft” issues).

Considering the previously described aspects regarding PM process design and the various options that these authors presented, we suggest a “needs led” procedure and a “facilitator led” approach. A brief description of these two dimensions follows.

A “needs led” procedure is proposed since, as previously mentioned, the HC mission should be the guiding thread of the HC strategy. The HC as a hospital services provider should be focused on patient needs. This is a top-down procedure to develop performance measures, where the patients’ and the stakeholders’ needs “are severally or jointly identified and used as a basis for the development of performance measures.” (Bourne et al. - 2003, 6). In this procedure the measures are designed to monitor the HC’s progress towards achievement of patient and stakeholder needs.

The “facilitator led” scheme is proposed as the approach (the soft issues). Again, as previously mentioned during the process of PM framework design, the communication channels between the HC board and the staff in the HC services/departments should always be open. This process should be a participatory. Therefore, “facilitator led” appeared to be the best approach in this case since the majority of the work is undertaken by the management team together in facilitated workshops. The management team and the facilitator don’t work in isolation, instead they are “are intimately involved in the discovery and analysis phases of the work. The role of the facilitator now revolves around eliciting information from the assembled group, structuring the debate, probing the assumptions and, if necessary, challenging the decisions made.” (Bourne et al. - 2003, 7).

Based on this classification, the operational implementation methodology presented in figure 24 is proposed. This methodology is based on the “Getting the measure of your business” approach developed by Neely et al. (- 2002).

This methodology is divided into two phases. Phase 1 concerns the identification/development of the top-level HC objectives and the design of performance measures for HC in each area. This phase has five parts. Phase 2 is concerned with how the top-level performance measures can cascade through HC to develop appropriate local performance measures.

The facilitator has a crucial role in both phases. The facilitator, with the senior management team, conducts a series of workshops with the aim of analysing the HC objectives. The facilitator’s role is to conduct the workshops, steering and guiding the management team through the process, but the business knowledge and expertise comes from the individuals working in the HC and not the facilitator.

In phase 1, beside the facilitator that is present in all parts, at least one member of the senior management team is involved in each of these parts. In phase 2 the workshops are conducted by the facilitator, but with HC team members.

In part 1, the HC defines its services according to the main areas. The rationale for this is that HC may have different objectives for different areas. Thus, you may need different performance measures for different areas. Some main areas of a traditional HC are presented in figure 24 as an example (Inpatient, outpatient, Day-hospital and non-clinical area). However, this distribution can be different if the HC so wishes.

At the end of part 1 a clear and shared view on the HC areas is achieved. A hierarchy of importance (attention and action) between HC areas must be established.

Part 2 involves the definition of a balanced set of objectives for each HC area. These objectives must consider patients' needs and stakeholders' needs. Blending patient and stakeholder needs, which are often different, is a hard task but it will prove to be an extremely valuable effort. It is important to define for each area what needs to improve, how much it needs to be improved, when these improvements should have been achieved, who can contribute to the attainment of these improvements, and what performance measures are required in order to be able to assess progress. This part involves the participation of all the senior management team. The performance domains should be considered in the definition of these top-level objectives.

In part 3, to evaluate if the objectives are being achieved, it is important to define and agree on performance measures capable of doing just that. It is important to define the title of the measure and the how it will be calculated (the formula). Performance measure enables us to evaluate the progress towards objectives attainment. The proposed framework to obtain the performance measures presented in the previous section can be used for the detailed definition of the performance measures.

It is important to bear in mind in this part that the defined performance measures must stimulate the appropriate improvements and appropriate behaviour.

In part 4 we will decide if we chose the right measures. This is made by reviewing the measures developed in the previous phase, testing them for comprehensiveness and coherence before obtaining agreement on implementation.

A formal review process is implemented in part 5 to ensure that the results of the measurement framework are acted on.

Phase 2 is concerned with cascading the top-level measures through the entire organization to identify the appropriate lower-level performance measures.

Part 6 aims to explore how the various teams (that make up the HC) might help the HC to achieve its aims. In this part the HC objectives for each area are explained to each HC team, giving an indication of where the HC wants to go. The members of each team have the opportunity to identify what they can do (activities) to ensure that the HC objectives are achieved, and the HC performance improves.

In part 7, team members separate the activities defined in part 6 into two groups according to their importance. The most important activities are designing the key drivers.

A performance measure is defined for each key driver in part 8. This part is equivalent to part 3 in phase 1. But in this case the performance measures are defined for the key

drivers and are made by the team members. It is again important in this part to define a title and a formula for each performance measure, the person responsible for managing performance improvement, checking if the measure leads to appropriate behaviours and what to do if the performance is not improving.

Part 9 is equivalent to part 4, but it is focused on key drivers. The purpose of this part is to test the performance measures and that each HC team agrees with the proposed performance measures.

PHASE 1 (Top-level performance measures)	Inpatient	Outpatient	Day-hospital	Non-clinical (Support area)	PART 1
	Identify the HC objectives for each HC area in each performance domain				PART 2
	Design and agree on the set of performance measures for each area				PART 3/4
	Implement a review process/Use the measures to manage the HC				PART 5
PHASE 2 (lower-level performance measures)	Identify performance drivers by each HC team				PART 6
	Identify the most important performance drivers				PART 7
	Identify the right measures for the key drivers				PART 8/9
	Use the measure to drive HC performance				PART 10

(Adapted from Neely et al. (-2002))

Figure 24: Operational implementation methodology

To conclude this section it is important to indicate some barriers and difficulties to the implementation of performance measurement systems encountered in the literature revision made by Bourne et al. (- 2003, 18-19). They appointed four barriers: senior management team have failed to achieve consensus on how the vision should be achieved; Strategy is not linked to department, team and individual goals; Strategy is not linked to resource allocation; feedback concentrates on short-term results and there is little focus on the review of indicators of strategy implementation and success. Regarding the main difficulties, they point out: difficulties in evaluating the relative importance of measures and the problems of identifying true ‘drivers’; metrics are too poorly defined; goals are negotiated rather than based on stakeholder requirements; time and expense; the need to quantify results in areas that are more qualitative in nature; difficulty in decomposing goals for lower levels of the organization; large number of measures diluting the overall impact; the need for a highly developed information system, etc..

4.6 Final remarks

The success of an HC depends on its capacity to adapt and to respond to environment (population catchment area needs, political context and environment rules), on improving staff motivation and, finally, the most important factor, on having very satisfied patients. The effectiveness of this kind of organization will depend on how well its activities will be integrated and coordinated to create efficiency and value for patients (Bryceson and Slaughter - 2010).

The HC decisions are both strategic and operational. Strategic decisions are normally made over a long time horizon and they guide HC policies from a design perspective. Operational decisions are short term, and focus on activities in a day-to-day basis. Both types of decisions attempt to create a situation that effectively and efficiently manages the HC operations associated with patient needs. Good HC management integrates patient and professional expectations, clinical, organizational and professional requirements, and the flow of materials and people: it rewards the internal and external stakeholders by enhancing better resources utilization and value creation. However, the measurement of “good” HC management needs to be reflected in performance metrics that address the resources involved, outputs created and overall system flexibility.

Thus, the HC comprises the internal units (services, departments) that add value to the patient as they progress through an integrated organization. Like other organizations, the success of an HC depends on integration, coordination, communication and cooperation between departments/services and appropriate performance measurement and management is essential if the HC is to attain better use of resources, better care delivered, satisfied patients, better quality and access to patient and community and a motivated staff. Developing a tailored performance measurement framework for such a horizontally integrated hospital care delivery organization is a complex task.

The design proposal of the PM framework for HC includes objectives considered important by key informants and internal stakeholders and performance domains valued by HC internal stakeholders. Additionally, it reflects the needs and peculiarities of the different stakeholders involved in the development process. The alignment of HC departments/services objectives with the HC objectives, and these with national and regional hospital care objectives were also considered in the design. This study was undertaken because no PM framework for HC was available that considered the different performance domains and a large set of objectives, apart from the stated ones (those defined in decree-law). It was realized that the PM frameworks currently used in the HC didn't match all the performance domains, mainly those most valued by the internal

stakeholders. Another important aspect considered in the proposed framework design is the identification of performance drivers at the HC middle management level. The proposed domains and sub-domains of the PM framework reflect the different views of the operational strategy. It is possible to achieve the organizational goals by developing the resources needed and configuring the processes to acquire the capabilities needed.

Therefore, the alignment between HC objectives, departments' objectives, and with objectives that are valued by stakeholders, would improve the HC performance not only at an organizational level but also at clinical level.

The findings of the qualitative and quantitative studies developed in the previous phases of this research provide a real life experience that was helpful in the development of this framework. The results of the qualitative study pointed out the necessity of better coordination between the hospital units, departments and services for making better use of the resources, to reduce duplication in services, to save money and mainly to improve the quality and access to care for all patients. A performance evaluation framework that focuses on these aspects will facilitate the coordination and integration between HC departments and will create goal coherence across the HC and thus a pathway to achieving a condition of integrated autonomy.

The analyses of the performance models currently used in the HC, mainly based on production and financial information, showed that they don't include some objectives valued by internal HC stakeholders and by the external key informants. The alignment of these valued objectives with the stated ones, and the alignment of these objectives in all HC services/departments lead to the development of an alternative PM framework. This framework will facilitate the collection and dissemination of information that could be used for improving HC effectiveness and accountability.

The proposed design for the PM framework provides the basis for the HC to assess how well it's achieving the proposed objectives, and also to identify areas of strength and weaknesses. It also enables the definition of future strategies for performance improvement. Finally, the design of the PM framework must be periodically re-evaluated to better respond to internal and external needs. As mentioned before, the design process is not strictly sequential and inverse loops exist to adapt the PM framework to its functions. Thus, HC strategic objectives must be updated as a consequence of internal or external changes, and decisions need to be taken to achieve these new objectives. These adaptations need to be made all along the HC organization levels.

Performance measurement is not an end in itself, but a tool for more effective management. The results of performance measurement will enable managers to ask why it happens and define what to do about it. Performance management is viewed as the application of information arising from measurement activities. Performance management activities included both the establishment of management activities as well as the “actioning” of information, which, ideally, follows the task. Management activities include the establishment of the initial strategy for the improvement efforts leading up to the performance measurement task. Performance management must also be able to anticipate the changes needed in the strategic direction of the organization and have a methodology in place for effecting strategic change. The organization is effective only when performance measurement outcomes are able to make the transition from measurement to management.

Organizations which do not integrate ongoing performance measurement and feedback into their management development programs tend to experience lower than expected performance improvements and higher dissatisfaction and turnover of employees (Purbey, Mukherjee, and Bhar - 2007).

The current efforts in performance measurement appear to concentrate on available measures instead of the important ones. This fact may be linked to the necessity of assessing healthcare organizations cross-sectionally.

The contribution to the conceptualization, development and implementation of a PM framework presented in this study intends to support HC managers in the decision-making process. Thus, the results of this study will enable the HC decision-makers to develop a comprehensive and balanced PM framework. Besides being a great help in the definition of key objectives and performance domains, it also includes guidelines for measures selection, data collection, and implementation.

The proposed framework is a contribution and should evolve in the future. The operational implementation framework section shows the first steps in the direction of PM framework deployment have been taken. The validity of the proposed framework will be achieved with a real test in a HC. Moreover, the proposal of extending the development of a PM framework to other HCs, gives the opportunity to identify standard parameters to evaluate the performance of healthcare systems.

Chapter 5: Findings and contributions

This chapter contains an overall discussion of the research findings. The main contributions of the research are presented based on the answers collected for each research (sub-) question. Some managerial implications resulting from this research are provided. Finally, as with other research projects, this one was not immune to some limitations, and so the main limitations of this work are also referred.

5.1. Overall findings

The guidelines for implementation a new organizational model for the delivery of hospital care, the HC, were published in 1999. It consists of the integration of individual hospital units and has the final aim of creating value for NHS users. Additionally, other important aims of this initiative were to rationalize resources and to increase the returns and efficiency in healthcare provision.

However, the population view these initiatives, in general, as a consequence of the economic pressures to decrease health expenditure. Therefore, the few studies available in the Portuguese context regarding the impact of the HC are in financial area.

Although the stated objectives regarding horizontal integrations are widely recognized, there is little knowledge on how these integrations have been planned and implemented. Therefore, sixteen years after the first HC implementation and after several horizontal integrations have been conducted between hospital units in the Portuguese health system, there is still little knowledge regarding its impact.

In order to develop a PM framework design for the HCs a better understanding of the process of planning and implementing the integration process was required. A better understanding of this process is achieved if it is conducted in different perspectives (external and internal perspectives). Conducting a qualitative study was crucial to having a holistic perspective regarding the integration planning and implementation phases. Therefore, key informants gave an external perspective. They were selected based not only on their direct and indirect participation in the planning and implementation of HCs but also on their positions as Portuguese healthcare managers and decision-makers, and their past (and present) political and management responsibilities in healthcare over the last ten years. On the other hand, HC professionals gave an internal perspective. The HC internal stakeholders were selected based on their hierarchical position, role and the services/departments where they work.

These two perspectives gave an essential contribution to the definition of the expected benefits and objectives in the different areas related to HC performance. The results of this research showed that the HC objectives can be divided into three main dimensions: Organizational dimension (related to improvement or optimisation of resource utilization and increasing the specialisation of hospital units); Patient dimension (focusing on patient access and reducing inequalities), and finally, Professional dimension (addressing the improvement of work conditions and the work environment). This contribution

complements and enriches the official objectives defined for HCs, giving a comprehensive idea of the perspectives of key informants and internal stakeholders.

The contributions to the development of a PM framework for the HCs also involved the definition of performance domains. The internal perspective gave us important inputs, suggesting that the HC performance concept should be expanded and performance measurement frameworks with a larger scope should be used. The results of the quantitative study showed that interpersonal relationships, human resources development and public service are important domains to consider in the performance measurement of the HC. Moreover, it was possible to show the existence of consensus among the three groups of internal stakeholders: physicians, caregivers and administrative staff, regarding the most valued performance domains and shared organizational values which could contribute to a beneficial and healthy working environment and improvements in HC performance.

The contributions of this research are presented in the following sections.

5.2. Contributions

The results from the qualitative study regarding the first research sub-question, “What are the HC objectives most valued by the main stakeholders?” provide an insight into the understanding of the planning and implementation of the integration process. Moreover, this understanding was not only in the perspective of those inside the HC but also those outside. This holistic perspective contributed to the establishment of a set of benefits and objectives in different areas and with different contexts. It was possible to identify during the interviews general planned objectives and others that were more specific of each HC during the planning phase. Some objectives become more clearly understood because it was also possible to have a picture of the environment lived outside and inside of the HC during the planning phase and the implementation phase. Although the understanding of the real context was not a main aim of this research, it contributed to a better understanding of some objectives referred by the interviewees.

The large majority of the objectives mentioned during the interviews were from the organizational perspective, with a major focus on resources rationalisation and optimisation. This was not a surprise, as mentioned before, since there is a general sense in the Portuguese population that the horizontal integrations of hospital units had cost reductions as the final aim. Moreover, this study contributed with more detailed information on some of the stated objectives, fine-tuning some of them.

The objectives related to the patients' perspective enabled to enrich the set of HC objectives giving a more complete perspective regarding design of the PM framework. These objectives were broadly mentioned during the planning phase. It was possible to give them more detail during the implementation phase as a consequence of clearly understanding the difficulties lived by the patients and their families when facing some problems arising from the integration process. The data collected from the internal stakeholder interviews (internal perspective) provided an important contribution in the definition of the objectives for this perspective.

The objectives definition would be incomplete if the professional perspective were not present. This perspective was almost wholly neglected in the official documentation regarding the integration process, despite its great importance in the success of the HC. The internal perspective again provided an important contribution, indicating the objectives that would be beneficial for the HC and others that should be avoided. A specific description of some situations enabled us to fine-tune some objectives. The data collected during the key stakeholders interviews (external perspective), although without the same particularities, also made significant contributions to these objectives. The key informants were aware of the problems faced by the HC professionals, and they too made an important contribution to the definition of objectives in this field.

Concerning the second research sub-question: "What are the external pre-conditions that influence a successful HC implementation (which achieves the proposed objectives) according to key informants and internal HC stakeholders?" The experiences and in-depth knowledge of the key informants and internal HC stakeholders made an important contribution to understanding the integration process and enabled the construction of a list with the external pre-conditions that influence successful HC implementation (achieving the proposed objectives). Although this list doesn't directly feed the design of the PM framework it was an important contribution for the in-depth understanding of the integration process and useful information for future integration processes in the Portuguese context.

The results of the qualitative study make it possible to complement and enrich the official objectives of the HCs, giving a comprehensive idea of the perspectives of key informants and internal stakeholders. Moreover, it was possible to obtain a more complete and adjusted (to the reality) list of objectives to incorporate in the design of the PM framework for the HCs.

After defining the most important objectives regarding the HC, it would be interesting for the design of the PM framework to know the relative importance given by internal

stakeholders to the performance domains. This led to the third research sub-question: “What are the most important performance domains in the Portuguese HC context?”

Since performance measurement means different things to different people (Robbins - 1983; Adair et al. - 2003; Yavas and Romanova - 2005), a comprehensive framework was used in this research work to assess the performance of healthcare organizations. This framework, developed by Sicotte et al. (- 1998), combines the four dominant models for the evaluation of organizational performance: rationale, open system, internal process and human relations. This comprehensive theoretically based framework was used to find out the importance given by the internal stakeholders to different performance perspectives.

The results of this quantitative study enabled four domains to be defined for HC performance: “Human resources development and Internal Processes”, “Attractiveness/Openness”, “Public service mission” and “Interpersonal relationships”. The first three domains are of equal importance to the internal stakeholders. Only the “Attractiveness/Openness” domain was viewed as less important comparatively to the other three. However, the four domains are very well correlated, which reveals that these domains are greatly dependent on each other.

The definition of these domains, all of them considered very important to the HC assessment of performance by internal stakeholders, was a key factor in the design of the PM framework for the HC. Therefore, the performance domains were established based on the internal stakeholders preferences/opinions regarding the best way to measure performance. A PM framework design with internal stakeholders contributions is better accepted, since all professionals were asked to be involved in its definition. Moreover, all the domains reflect the different concerns of the internal stakeholders regarding the different aspects of performance, even those related to hospital units’ integration.

One aspect that should be considered in the design of a PM framework is the possibility that different stakeholders share a different view regarding the importance given to the different performance domains. Thus, the fourth research sub-question was “Are these performance domain preferences different between internal stakeholder groups?” The results of the quantitative study revealed that the three professional groups shared a common opinion regarding the four domains, showing consensus on the importance that each domain has on HC performance. A PM framework that contains a shared view regarding the HC performance domains will be more likely to be well succeeded.

This research not only defined the performance domains that were most valued by the internal stakeholders, but also evaluated performance domain preferences between internal stakeholder groups.

Finally, concerning the main research question: “How to develop a PM framework for a HC?”, the intermediate results and contributions achieved in the qualitative study and in the quantitative study, enabled the development of the PM framework design for the HC.

In the design of this PM framework the involvement and advocacy of both HC professionals and decision-makers was considered important. Thus, the development process of this PM framework makes a difference and stakeholders’ participation is a valuable input from the initial design stage.

The ultimate purpose of this research was the conceptualization and development of a PM framework design that provides a more comprehensive view of the organization's performance in meeting the HC mission. Therefore, in the PM framework design the objectives and performance domains were those valued by internal stakeholders.

The current PM frameworks used in the Portuguese HC were standardized and most of them were developed by national health organizations. They focused mainly on financial indicators (e.g. total expense, costs per unit) and clinical activity (number of outpatient visits, number of inpatients). In Portugal, reporting based on external demands is a central part of the use of performance measurement. Much of the work involves sending information to other actors for processing and presentation. Comparisons between individual organizations are a common form of publication of the data from these outside entities. Few hospital units use the performance information to improve their activities and achieving better performance.

This research was undertaken because no PM framework specially designed for the HC was available that considered the different performance domains and a large set of objectives, apart from the stated ones (those defined in decree-law). The PM frameworks currently used in the HC were found not to match all the performance domains, in particular those most valued by the internal stakeholders. Another important aspect considered in the proposed framework is the identification of performance drivers by middle management of the HC. The alignment between HC objectives, departments’ objectives, and objectives that are valued by stakeholders, would improve the HC performance not only at the organizational level but also at the clinical level.

The alignment of the objectives valued by the internal stakeholders and key informants with the stated ones and the alignment of these objectives in all HC services/department

led to the development of a more comprehensive PM framework. This framework will facilitate the collection and dissemination of information that could be used to improve effectiveness and accountability of the HC.

The proposed framework for performance measurement provides the basis for the HC to assess how well it's achieving the proposed objectives, and also to identify areas of strength and weaknesses. It also enables the definition of future strategies for performance improvement.

5.3. Managerial implications

This research will be of assistance to HCs in Portugal in their establishment or fine-tuning of performance measurement frameworks. Recommendations for performance measures for integrated hospital units will contribute to the dialogue regarding what we hope to achieve by creating hospital centres. The recommendations should assist hospital care organizations interested in establishing common measures that enable meaningful comparisons among them and to contribute to performance improvement.

The ultimate objectives of a performance assessment are to continuously assess and improve organization performance. However, other objectives such as: improve accountability, monitor and assess the performance of management staff, and foster collaboration (the ability to facilitate cooperation between institutions and interest groups with competing interests, enabling the standardisation of information and the establishment of a common language for comparison) can also be achieved if these are considered in the design phase. Accountability can be enhanced by the required reporting of defined performance measures by all hospital units as part of their annual business planning process, and other regularly scheduled reporting requirements. Ideally, community health needs and HC performance results should be considered in establishing funding values for each HC.

The definition of the most important performance domains was made with inputs from key informants and internal stakeholders. As referred to above, the involvement of stakeholders in the development of the PM framework in order to get the best design will guarantee the future applicability of the framework. The PM framework should be a continuous interactive process with all stakeholders. Additionally, the objectives and tools selected for the framework must reflect the needs and peculiarities of the different stakeholders involved in the development process. The proposed PM framework may be viewed as a way of moving the knowledge of improvement initiatives from top

management down to the professionals, which will increase their influence on management decisions.

5.4. Limitations

In the previous chapters referring to qualitative and quantitative studies, the main study limitations were presented. We will limit this section to the research design limitations.

According to Yin (- 2009), an exploratory analysis can be based on a single case study if the research purpose is to represent a unique situation providing in-depth analysis and multiple sources of information. However, limitations related to generalisation of the findings can be identified, depending on the particular characteristics of the organizational and national socio-economic context investigated (Giovanelli et al. - 2015). Thus, one limitation of this research is related to the possibility of generalising the results beyond the original sample. Since we selected only one HC in Portugal, for the reasons we mentioned above, it would be impossible to generalise the study results for all HCs in Portugal. For the same reason, in the use of exploratory research based on a single case we are also aware of the risk of misjudging a single event and of exaggerating available data

However, this research was orientated to the specific context of integrated hospital units, in which the main characteristics (size and complexity) of this HC are similar to others. The key informants experience in the healthcare sector has indicated that the issues examined in this particular case study are not unique and it was considered acceptable to use a single case study for data collection and analysis – and to make some limited generalised assumptions about such organizations. Additionally, the extensive experience of key informants and Senior Executives and Managers of the HC involved was a significant advantage when attempting to interpret and understand the real facts. Whyte (- 1989) noted that these circumstances enable a better interpretation of real world situations than would otherwise be possible.

However, it is clear that further research is needed to better understand the complexities of this integrated hospital care sector and to validate findings in subsequent studies.

Using a mixed method in data collection and analysis requires the construction of a team that integrates both methodological and disciplinary expertise (Creswell et al. - 2011). To conduct each aspect of the research it's necessary that the research team includes individual researchers who are collectively capable (Creswell et al. - 2011). However, in this research there was only one research team member, which posed considerable challenges in implementing the mixed methods. These challenges were both in the

knowledge required and extended time needed to collect and analyse both quantitative and qualitative data. On the other hand, this approach provided continuity and closeness to the data that could be more difficult to be achieved when studies have separate researchers in quantitative and qualitative phases. Therefore, using a case study research, which combined quantitative and qualitative methods, was demanding as the researcher needed to be familiar with both methods. However, this research design allowed the professional and personal enrichment of the researcher experience. And most of all, this research design strengthened the positive aspects and minimised the weaknesses of each method, and thus generated greater understanding of this research topic.

Chapter 6: Conclusions and Future work

This chapter shows the research conclusions. It reflects on the research steps that lead to the PM framework design and the intermediate conclusions. A brief description of the various phases and their rationale and main contributions are presented. A reflection on the overall importance of this research to hospital care management, and in particular in the HC, is made. Finally, possible avenues of further research and possible challenges in the implementation of the PM framework are identified.

6.1. Main conclusions

This dissertation started with the purpose to make contributions to the development of a PM framework for HCs. Several HCs, horizontal integration of hospital units, have been created in the last sixteen years and there is very little published information regarding their success.

Although the aim of this study was not to evaluate the success of these organizational structures, this research was conducted to establish the way to design a PM framework for HCs. Thus, the research question that guided this research was “How to develop a PM framework for HCs?” The proposed design of the PM framework provides the basis for the HC to assess how well it is achieving the proposed objectives, and also to identify areas of strength and weaknesses. It also enables the definition of future strategies for performance improvement. The proposed design for the PM framework involved the most valued performance aspects by the internal HC stakeholders and by the external key informants. The alignment of these valued objectives with the stated ones, and the alignment of these objectives in all HC services/department led to the development of an alternative design for the PM framework. This framework design will facilitate the collection and dissemination of information that could be used for improve HC effectiveness and accountability. It should be mentioned that performance measurement is not an end in itself, but a tool for more effective management. The results of performance measurement will enable managers to ask why it happens and to define what to do about it.

In trying to find a way to develop a PM framework especially designed for HCs, the first part of this research was to find published information regarding the HCs. Very few research results and also little official information were found. Therefore, an exploratory qualitative study was conducted to better understand the planning and implementation context of the Portuguese HCs. This understanding became more enriched with contributions from both external and internal perspectives. The external key informants were policy-makers, hospital managers and academics with expertise in healthcare planning at the different stages of the decision-making process related to HC planning and implementation. The selection of these key informants had beneficial effects on the richness of the data gathered, contributing to the research with different points of view. We intended to have an in-depth understanding on the internal perspective, with experience and expectations of the HC internal stakeholders. We tried to capture in-depth professionals' expectations and their personal experience in this subject. We wanted to collect evidence inside the HC according to different interpretations and points of view.

Another aspect that can contribute to a better understanding of the hospital integration context is the evaluation made when considering a successful integration. By a successful integration we mean an integration that achieves the proposed objectives. We tried to find out the ex-ante conditions that can contribute to a successful integration. A list of the most frequently mentioned was constructed. Although these ex-ante factors don't have a direct impact on the PM framework design, they were considered valuable information for future implementations of HCs.

The results of this part of the research helped to understand what people value and the meanings they attach to experiences, from their own professional and personal perspectives. As a final goal we intended to complement and enrich the stated objectives regarding the HC.

The next step was to understand the importance given by internal stakeholders to performance measurement. Therefore, a survey was conducted to define the performance domains valued by HC internal stakeholders in a horizontal integration context. The results of this study revealed four performance domains: "Human resources development and Internal Processes", "Attractiveness/Openness", "Public service mission" and "Interpersonal relationships". Three of these four domains were equally rated. The "Attractiveness/Openness" domain was viewed as less important in comparison to the other three.

In the development of a PM framework design it seemed important to evaluate if the importance of these performance domains vary among the internal stakeholders. We know from previous studies that general agreement regarding the performance domains to include in the PM framework will be a successful factor for its implementation. The results of the quantitative study revealed that the internal stakeholders shared a common opinion regarding the four domains. In fact, none of them revealed statistical differences when rating the four domains, showing a consensus on the importance that each domain has on HC performance.

Finally, the conceptual model presented for PM framework design includes the stated and non-stated objectives that were considered important by key informants and internal stakeholders in the context of a HC. This PM framework design also includes the performance domains valued by HC internal stakeholders. These aspects contribute to the development of a PM framework more complete and adjusted to reality. Additionally, two aspects were considered crucial in the design of the PM framework: the alignment of the HC departments/services objectives with the HC objectives, and with national and regional hospital care objectives, and the need for middle management level involvement

in the PM framework design, managing the department resources and taking into consideration the major HC objectives. This necessity of alignment between the organization's objectives and departments' objectives, and with the objectives valued by stakeholders, would increase the HC's results not only at the organizational level but also at clinical level.

The first steps were taken, in addition to the principles proposed for the development of the PM framework, to achieve the final framework, namely the definition of the main performance domains and the objectives in each domain. Our results constitute a key achievement in the development of a PM framework specially designed for the HC. However, further work is required for extending the development of a PM framework to other HCs. This gives the opportunity to identify standard parameters to assess the performance of healthcare systems.

Moreover, the research as a whole has generated a set of results that have filled significant gaps in the PM frameworks used in Portuguese public hospitals.

6.2. Future work

One of the most important research limitations is the possibility to generalise the results beyond the original sample. Further studies of different HCs are necessary to enhance the validity of our findings.

This research design used a mixed method approach for data collection and analysis. Although this approach generated greater understanding about the research topic, it is a big challenge for one individual researcher. Therefore, the construction of a team that integrates both methodological and disciplinary expertise would be beneficial.

The design task is not the most difficult one, the real challenges appear when trying to implement the PM framework. The next steps are intellectually challenging, time consuming and immensely valuable. For future work it would be interesting to proceed with the next phases: implementation and use. We propose an action research approach to develop and implement the performance measurement framework. This bottom-up approach proved very interesting since the expert's knowledge, external to the organization, comes into contact with real experiences (professionals) creating a better understanding of the organization.

Another important focus for work that can be addressed in the future is to find ways to deal with the pressures that arise internally and externally: exposed shortcomings undermine the credibility of the measurements in different ways; gaming of the system;

preventing it ever being implemented. These are some of the most important challenges that can be addressed during the next phases.

The development of performance management strategies, after PM framework implementation, would also be interesting future work.

Therefore, we hope this research contributes to the establishment of the foundations for future work in the PM area in HCs. We also hope that managers who face the challenges of managing HCs in an environment with several constraints, trying to provide the best service to patients, take advantage of this research as an aid for the continuous improvement and value creation of patients, families and community.

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Appendix 1: HC Characterization

Case Selected

We studied a Portuguese HC in the North of Portugal, Tâmega e Sousa Hospital Centre (TSHC).

Next we will briefly describe the HC and its catchment (influential) area.

Historical Context

The Vale do Sousa Hospital Centre was created in 1979. It integrated two hospital units (Penafiel and Paredes). In 1993 the hospital centre came to be called Padre Américo – Vale do Sousa Hospital. At this time it also integrated the Psychiatric and Mental Health Department. The present hospital building in Penafiel (new hospital of Padre Américo – Vale do Sousa) started operating in October 2001. This building substituted the three other previous hospital units: the old Penafiel Hospital (opened in 1894), old Paredes Hospital (opened in 1966) and the Psychiatric and Mental Health Department (only outpatient care). The first two buildings belonged to Santa Casa de Misericórdia. In 2007, the Tâmega e Sousa Hospital Centre (TSHC) was created which integrates Padre Américo – Vale do Sousa Hospital and S. Gonçalo Hospital (Amarante).

Legal context

The HC was created by decree-law in September 2007. The HC was the result of the integration of two hospital units: Penafiel Hospital (ex- Padre Américo – Vale do Sousa Hospital) and Amarante Hospital (ex- S. Gonçalo Hospital). According to this decree-law the HC organizational model was more suitable to differentiate unit care management, since it harmonises management autonomy with control by the State (Assembleia da Republica - 2007).

Penafiel Hospital Unit

The Penafiel Hospital Unit is located in the geographical centre of the Vale do Sousa region, in Guilhufe, on the outskirts of Penafiel city. The present building was inaugurated in 2001 to substitute three old units: Penafiel Hospital, the Psychiatry and mental health department and Paredes Hospital Unit. At that time it was classified as one of the most modern hospital units in the Portuguese NHS.

This hospital serves a region with the following municipalities: Castelo de Paiva, Felgueiras, Lousada Paços de Ferreira, Paredes and Penafiel

This hospital unit has the dimension and specialisation level according to the population it served. It served a population of 334 288 inhabitants (Census 2004). It's equipped with a medical-surgical emergency service and a heliport.

It also has an independent building, near the main building, with the psychiatric and mental health speciality.

Amarante Hospital Unit

At the time of integration the Amarante hospital unit operated at three separate physical spaces. The main old building, property of Santa Casa da Misericórdia, dating from 1961. This building had few conditions for delivering care in an appropriate way. Annexed to this building was another building where some administrative and support services operated. The psychiatric and mental health speciality worked in two separate buildings. One of them also belonged to Santa Casa da Misericórdia, and the other to Amarante City Council. The day hospital care also operated in one of these buildings.

This hospital served a population of 198448 (Census 2004) from the following municipalities: Amarante, Baião, Celorico de Bastos, Cinfães, Marco de Canaveses, Mondim de Bastos and Resende.

A new hospital building was planned to substitute the old one. The construction of this new building started in 2008 and was finished in 2012. It was projected and constructed to be a proximity/outpatient hospital, centred on the patient, only with outpatient activities. The idea is that the patient only makes one visit to the hospital. The patient will have the medical appointment, the diagnostic tests, and will receive the recommended therapeutic orientation all on the same day. It is equipped with three outpatient surgical rooms and with advanced technologies. Besides its main outpatient operations this new building is also equipped with 60 beds for inpatient care. (Serviço de relações públicas e comunicação do CHTS - 2013). It opened in December 2012.

TSHC General characterization

The HC creation was the result of the integration of two hospital units, Penafiel and Amarante. The HC Business Plan of TSHC (Centro Hospitalar Tâmega e Sousa - 2007) is an internal document of TSHC that was used to support the integration process of the two hospital units. This is a formal document where the strategic orientations for the TSHC were described for the years between 2007 and 2010. According to this document the main driver for this integration was to improve the proximity and accessibility to some hospital specialisations. If the Business plan was implemented, there would be several benefits resulting from the integration of these two hospital units such us: health gains to

the population, for example increased diversity of hospital specialisations, waiting time reduction, improved access, improved healthcare quality and processes updating.

The TSHC serves a population from Vale do Sousa and Baixo Tâmega with 519 722 inhabitants (2011), from the following municipalities: Penafiel, Paredes, Lousada, Felgueiras, Paços de Ferreira, Castelo de Paiva, Amarante, Baião, Marco de Canaveses, Celorico de Bastos, Cinfães, Resende and Mondim de Bastos (Centro Hospitalar Tâmega e Sousa - 2013)

The distance between the two hospital units is about 30 Km, 20 minutes by car (motorway) or 40 minutes (national roads).

The hospital centre has 480 inpatient beds (416 at the Penafiel hospital unit and 64 at the Amarante hospital unit), seven central operating rooms (one for emergencies and 6 for elective surgery), four operating rooms for outpatient surgery and 25 day-hospital services.

The HC has 1651 professionals for its activity.

The occupation index was 87.46% in 2012. In the same year the medical case-mix index was 0.671 and the surgical was 1.17.

TSHC activity

The next table presents the macro indicators regarding HC activity during 2012

Indicator	Value
Inpatient discharges	23 008
Attendances at Emergency service	187 744
Attendances at outpatient service	267 630
Day-hospital sessions	22 448
Homecare sessions	3943
Birth attendants	2617
Surgical interventions	22836
Outpatient weight	58.4%
Median time for surgery	2 months

(Source: Annual Report and Accounts 2012)

Appendix 2: Interview Guide – Key informants

Portuguese experience in the horizontal integration process

1. What is your understanding of horizontal integration?
2. In your opinion, what are the main drivers that lead to the horizontal integration process when creating the HC in the Portuguese context?
3. What are the main benefits expected for an integrated structure such as a HC?
4. What main dimensions/indicators would you choose to evaluate these expected benefits?
5. In your opinion and experience, what is the timeframe necessary to accomplish these expected benefits?
6. For each expected benefit, can you qualify/quantify an expected value after that period?
7. In your opinion, what are the main external factors that could enhance the success of an integrated structure like the HC?
8. In your opinion, what are the main internal factors that could enhance the success of an integrated structure like the HC?
9. What are the most important internal or external factors for the success of the HC as an integrated structure?
10. What are the internal factors that can contribute to the failure of an integrated structure like the HC?
11. What are the external factors that can contribute to the failure of an integrated structure like the HC?
12. What are the most important internal or external factors that can contribute to the failure of an integrated unit like a HC?
13. Can you identify the most important expected disadvantages for an integrated structure like a HC?
14. In your opinion, what are the most successful HCs in Portugal? Why?
15. In your opinion, what are the least successful HCs in Portugal? Why?
16. Can you identify the main challenges of integrating hospital units?
17. Can you identify the main difficulties of integrating hospital units?
18. Can you identify three performance assessment items that you consider the most important to assess the performance of the HC as an integrated unit?

Appendix 3: Interview Guide – HC internal stakeholders

Expectations and experiences of internal stakeholders with the integration process at a selected Hospital Centre (HC)

0. Introduction

1. Personal presentation
2. Study presentation
 - Objectives
 - Interview objectives
 - Can you describe, in general terms, your work at the HC?
 - What is your current position at the HC?

I. Expectations

1. What did you expect to obtain with the integration (integration of the Penafiel hospital unit and the Amarante hospital unit), which resulted in the creation of the TSHC?
 - a. At an organizational level?
 - b. At a professional level?
 - c. For the patient?
2. Can you identify the **objectives** you have already achieved over the past 6 years (after integration)?
3. Which of the objectives have not yet been achieved by the TSHC?
4. Which **benefits** did you expect with the integration process?
 - a. At an organizational level?
 - b. At a professional level?
 - c. For the patient?
5. Can you quantify those values /benefits? If the answer is yes, in what way can you do that?
6. In your opinion, what is the timeframe needed to reach those values?
7. Did you expect any **negatives effects** from the integration process? If the answer is yes, what were they?

- a. At an organizational level?
- b. At a professional level?
- c. For the patient?

II. Integration experience in TSHC

8. Generally speaking, how would you describe your experience of the integration process?
 - a. Previous planning: communication, involvement of external entities, involvement of representatives of different professional areas, process leadership,...
 - b. Implementation: collaborators' reactions, resistance, colonization feelings, results (healthcare, finances, etc.); specialisation of some clinical areas...
9. How did you participate, or how were you involved, in the integration process?
10. What were the main **POSITIVE** impacts on the HC (resulting from integration)?
 - a. At an organizational level?
 - b. At a professional level?
 - c. For the patient?
11. What factors (internal and external) contributed to those **Positive** impacts?
12. What were the main **NEGATIVE** impacts on the HC resulting from integration?
 - a. At an organizational level?
 - b. At a professional level?
 - c. For the patient?
13. Which factors (internal and external) contributed to those **Negative** impacts?
14. Can you identify the main difficulties that the HC faced (and eventually still faces) as an integrated unit?
 - a. At an organizational level?
 - b. At a professional level?
 - c. For the patient?
15. In your opinion, how do the patients see the provision of healthcare after the integration?

III. Strategic Plan

16. Are you aware of any strategic plan for the HC?

If the answer is NO, go to question 21

17. Are you aware of any operational plan in your department/service? If the answer is yes,

- a. Generally explain how the plan was devised?
- b. How is this operational plan aligned with the strategic plan?

18. Are you aware of any objectives in the strategic plan to improve the different levels of integration?

- a. Functional integration (support services, information systems, quality improvement, strategic planning, sharing the same culture and values,...)
- b. Physician integration (the way physicians are involved in the system, sharing the same objectives, giving inputs to the organizational and functional unit strategy,...)
- c. Clinical integration (clinical protocol development, clinical registration access, utilization of data on clinical outcomes, shared clinical services, coordination of clinical activities,...)
- d. Community (access, service disclosure,...)

19. How are these objectives developed?

20. Identify three performance evaluation items that you consider the most important to evaluate the performance of the HC as an integrated unit?

21. Would you like to add anything to this interview?

Appendix 4: Survey

Desempenho de um Centro Hospitalar (CH)

Apresentação do projeto

Breve descrição: Este estudo tem como objetivo recolher a opinião que os colaboradores têm sobre um Centro Hospitalar (CH) com um ótimo desempenho. Neste estudo pedimos para responder a um questionário on-line. Trata-se do desenvolvimento de uma ferramenta para avaliação dos Centros Hospitalares e alinhamento dos seus objectivos, aplicando uma abordagem multi-perspectiva, o qual está a ser realizado no âmbito do Programa Doutoral em Engenharia Industrial e Gestão da Faculdade de Engenharia da Universidade do Porto (FEUP). O preenchimento deste questionário demora cerca de 15 minutos.

Riscos: O preenchimento deste questionário não acarreta quaisquer riscos adicionais para o/a participante.

Benefícios: O estudo irá contribuir para uma melhor compreensão de alguns aspetos relacionados com a opinião dos diferentes grupos profissionais sobre o desempenho de um Centro Hospitalar e posteriormente para o desenvolvimento de um modelo de gestão para este tipo de organização.

Confidencialidade: As respostas que dará neste questionário serão tratadas de forma anónima. Não lhe serão pedidas nenhuma informação que o possam identificar, apenas alguns dados pessoais que nos permitirão compreender alguns resultados (idade, sexo e habilitações académicas). Apenas os resultados agrupados serão analisados e divulgados.

Participação voluntária: A sua participação neste estudo é completamente voluntária. Pode abandonar o preenchimento do questionário a qualquer momento bastando para tal fechar o seu browser.

Contacto: Se tiver alguma questão sobre estudo por favor contacte: Ana Simões deg10001@fe.up.pt

No final e para submeter o seu questionário preenchido clique na caixa azul "Enviar".

1. Informação Geral

1. 1.1 Sexo

Marcar apenas uma oval.

- Feminino
 Masculino

2. 1.2. Idade

Preencha apenas com um número

.....

3. 1.3. Habilitações académicas

Por favor indique o nível de ensino que concluiu
Marcar apenas uma oval.

- 1º ciclo ensino básico (1º a 4º ano)
- 2º ciclo ensino básico (5º a 6º ano)
- 3º ciclo ensino básico (7º a 9º ano)
- Ensino secundário (10ª a 12º)
- Bacharelato
- Licenciatura
- Mestrado
- Doutoramento
- Pós-Doutoramento
- Outra:

2. Informação profissional

4. 2.1. Unidade onde exercia funções imediatamente antes da criação do CH Tâmega e Sousa (até outubro de 2007)

Marcar apenas uma oval.

- Nenhuma
- Unidade de Amarante (S. Gonçalo)
- Unidade de Penafiel (Padre Américo)
- Outra:

5. 2.2. No. de anos de serviço na unidade que referiu anteriormente (questão 2.1)

Preencha apenas com um número

.....

6. 2.3. Unidade onde exerce funções atualmente

Marcar apenas uma oval.

- Unidade de Penafiel
- Unidade de Amarante
- Unidade de Penafiel e de Amarante

7. 2.4. Ano em que entrou ao serviço no Centro Hospitalar Tâmega e Sousa

Marcar apenas uma oval.

- 2007
 2008
 2009
 2010
 2011
 2012
 2013
 2014

8. 2.5. Serviço onde trabalha

Na seguinte lista apresentam-se os serviços/departamentos que fazem parte dos três serviços abaixo indicados. *****SERVIÇOS CLÍNICOS: Departamento cirúrgico; Departamento médico; Departamento da mulher e da criança; Departamento de urgência e emergência; Departamento de ambulatório; Bloco operatório, Serviço de anestesiologia, Departamento de psiquiatria, Unidade de estomatologia e medicina dentária. *****SERVIÇOS DE APOIO CLÍNICO: Departamento de MCDTs; Serviço de psicologia; Serviço de esterilização; Serviço farmacêutico; Serviço social; Serviço de nutrição e dietética. ***** SERVIÇOS DE APOIO À GESTÃO LOGÍSTICA: Serviço de planeamento e apoio à gestão; Serviço de gestão financeira; Serviço de gestão de recursos humanos; Serviço de admissão de doentes; Serviço de aprovisionamento; Serviço de contencioso; Serviço de relações públicas, comunicação e apoio ao utente; Serviço de formação e aperfeiçoamento profissional; Serviço de informática; Serviço de transportes e agendamentos de MCDTs; Serviços hoteleiros; Serviço de instalações e equipamentos; Serviço de viatura; Gabinete de qualidade; Unidade de gestão de altas; Serviço de segurança higiene e saúde no trabalho; Serviço de expediente; Serviços religiosos; Liga de Amigos do Hospital e Voluntariado.

Marcar apenas uma oval.

- Serviços Clínicos
 Serviços de Apoio Clínico
 Serviços de Apoio à gestão logística
 Outra:

9. 2.6. Grupo Profissional*Marcar apenas uma oval.*

- Administradores Hospitalares
- Médicos (inclui internos, internos de especialidade e ano comum)
- Enfermeiros
- Técnicos Superiores de Saúde
- Técnicos de Diagnóstico e Terapêutica
- Técnicos Superiores
- Pessoal Docente
- Técnico Superiores de Informática
- Técnico de Informática
- Assistentes Técnicos
- Assistentes Operacionais
- Outra:

3. Informação específica**Instruções de preenchimento**

Para as questões que se seguem não existem respostas certas nem erradas. O nosso interesse não é testa-lo(a), mas sim saber sua opinião sobre o desempenho ideal de um Centro Hospitalar.

De seguida ser-lhe-á apresentado um conjunto de afirmações sobre o desempenho de um Centro Hospitalar e uma escala numerada de 0 a 10. Terá de escolher um valor nessa escala que represente a sua opinião relativamente à importância que cada afirmação tem para o desempenho de um Centro Hospitalar. O "0" (zero) significa que na sua opinião essa afirmação não tem nenhuma importância (ou não é de todo importante) e o valor "10" (dez) significa que na sua opinião essa afirmação tem importância máxima.

Marque a sua resposta com um clique no número correspondente à sua opinião.

Atenção: O objectivo desta parte do questionário é que nos dê a SUA OPINIÃO sobre a importância de cada um dos itens na avaliação do desempenho de um Centro Hospitalar e NÃO como se comporta o Centro Hospitalar Tâmega e Sousa em termos de desempenho em cada um dos itens.

Considere que, para cada um dos itens a seguir apresentados, a primeira parte da afirmação é:

"Na sua opinião um Centro Hospitalar com um ótimo desempenho é um Centro Hospitalar..."

10. ...que procura garantir a melhoria da saúde da população*Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

11. **...que se esforça por melhorar não só a prestação de cuidados curativos mas também os preventivos**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

12. **...que avalia o impacto dos cuidados que presta**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

13. **...que minimiza os seus custos sem prejudicar a qualidade e segurança dos cuidados que presta**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

14. **...que produz os melhores resultados em saúde com os recursos (físicos, financeiros e humanos) que tem disponíveis**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

15. **...que evita a utilização desnecessária de recursos e de serviços (por exemplo: MCDT injustificados)**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

16. **...em que os utentes estão francamente satisfeitos com o serviço prestado**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

17. ...que recebem muito poucas reclamações dos seus utentes

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

18. ...que se esforça para bem receber e confortar o melhor possível os utentes e as suas famílias

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

19. ...onde, na sequência da opinião dos utentes, são implementadas melhorias organizacionais

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

20. ...que fornece a informação suficiente, e em modos apropriados, ao utente sobre o seu estado de saúde e sobre os cuidados prestados

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

21. ...em que os utentes nele tratados o recomendam a outros utentes

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

(Continuação)

Considere que, para cada um dos itens a seguir apresentados, a primeira parte da afirmação é:
 "Na sua opinião um Centro Hospitalar com um ótimo desempenho é um Centro Hospitalar..."

22. **...que estabelece os seus objectivos e se esforça por alcançá-los***Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

23. **...que é capaz de rever os seus objectivos quando se alteram as condições que os justificaram***Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

24. **...que procura não ultrapassar o orçamento definido***Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

25. **...que se esforça por gerir projetos de reorganização do trabalho de forma eficiente (por exemplo: implementação, num determinado serviço, de melhores práticas operacionais)***Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

26. **...que procura implementar com sucesso projetos institucionais (por exemplo: acreditação)***Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

27. **...que tem um elevado nível (relevância) de atividade de investigação clínica***Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

28. **...que oferece ao utente equipamentos/tecnologias com resultados demonstrados (ou seja, de acordo com o estado-da-arte)**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

29. **...em que os responsáveis pelos serviços clínicos têm elevada reputação técnica**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

30. **...que atrai profissionais qualificados**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

31. **... onde há uma elevada competição, entre os internos e outros profissionais em formação, para estagiar nos seus departamentos clínicos**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

32. **...que altera as suas práticas de gestão em resposta a novos conhecimentos**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

33. **...que recompensa/premeia a aprendizagem e a inovação**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

34. ...que é considerado um centro de referência a nível nacional e internacional

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

(Continuação)

Considere que, para cada um dos itens a seguir apresentados, a primeira parte da afirmação é:

"Na sua opinião um Centro Hospitalar com um ótimo desempenho é um Centro Hospitalar..."

35. ..."...que informa devidamente a população que serve, mobilizando-a e cativando-a para a sua atividade (por exemplo: mobilizar população para as diferentes unidades do Centro Hospitalar)

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

36. ...que desenvolve/forma redes com outras entidades ou profissionais para melhorar a prestação de serviços aos utentes (por exemplo: articulação com a rede de cuidados primários e continuados)

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

37. ...que interage frequentemente com a comunidade local (por exemplo: autarquias, associações, centros culturais, etc.)

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

38. ...que se preocupa com as suas relações com prestadores privados fora do Centro Hospitalar

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

39. **...que ajusta a sua estrutura organizacional às necessidades do ambiente local (por exemplo: cuidados ambulatoriais, etc.)**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

40. **...que se relaciona com o poder local de modo a melhorar o acesso e a utilização do Centro Hospitalar (por exemplo: criação de rede de transportes públicos que sirva toda a população da área de influência do Centro Hospitalar com ligação às diferentes unidades que o integram)**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

41. **...em que a prestação de cuidados é cuidadosamente coordenada entre as suas unidades (por exemplo: protocolos clínicos, sistemas de informação)**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

42. **...que possui os meios necessários para prestar os cuidados aos utentes sob as melhores condições físicas (por exemplo: transporte de doentes entre unidades)**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

43. **...que dispõe de profissionais qualificados**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

44. **...que se esforça por reduzir a burocracia para o utente**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

45. ...onde a arquitetura do edifício facilita a circulação do utente

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

46. ...que procura otimizar os processos internos melhorando a gestão (por exemplo: minimizando a burocracia interna para os profissionais)

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

47. ...que procura rentabilizar da melhor forma as estruturas físicas que dele fazem parte

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

48. ...onde a demora média é menor ou igual à das organizações hospitalares semelhantes

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

49. ...onde a prestação de cuidados é excelente do ponto de vista técnico

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

(Continuação)

Considere que, para cada um dos itens a seguir apresentados, a primeira parte da afirmação é:

"Na sua opinião um Centro Hospitalar com um ótimo desempenho é um Centro Hospitalar..."

50. ...que aumenta o seu volume de serviços, desde que a atividade seja justificada e relevante

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

51. **...que tenta continuamente melhorar a qualidade e segurança dos cuidados, mesmo com um volume de serviços elevado**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

52. **...que oferece serviços não disponíveis noutros locais (com elevado nível de especialização)**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

53. **...onde os profissionais continuam a tratar bem os doentes mesmo com um maior volume de serviço**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

54. **...que partilha serviços com outras organizações de modo a obter custos mais reduzidos**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

55. **...que presta cuidados em permanência e assegura a sua continuidade**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

56. **...onde os profissionais dão prioridade ao coletivo em detrimento do seu interesse pessoal**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

57. ...onde os gestores divulgam informação acerca do desempenho do Centro Hospitalar

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

58. ...onde os profissionais são dedicados e orientados para o utente

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

59. ...onde os profissionais são conscienciosos

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

60. ...onde os profissionais preservam a dignidade do utente

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

61. ...onde os profissionais se sentem orgulhosos por pertencer a uma organização como o Centro Hospitalar Tâmega e Sousa (visto como uma entidade única)

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

62. ...que procura minimizar o custo incorrido (a distância percorrida) pelos colaboradores com a deslocalização do posto de trabalho

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

63. ...onde a comunicação interna é uma prática habitual

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

64. ...que consegue convencer os profissionais clínicos a aderirem a novas formas de prestar cuidados (por exemplo: cirurgia de ambulatório, telemedicina, etc.)

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

(Continuação)

Considere que, para cada um dos itens a seguir apresentados, a primeira parte da afirmação é:
 "Na sua opinião um Centro Hospitalar com um ótimo desempenho é um Centro Hospitalar..."

65. ...onde os profissionais têm consciência da importância e utilidade do seu trabalho

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

66. ...onde as competências dos profissionais são avaliadas e elogiadas/louçadas

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

67. ...onde as competências dos profissionais são reconhecidas

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

68. **...que incentiva os profissionais a envolverem-se na procura da melhor solução para os problemas**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

69. **...onde existe uma forte coesão, respeito e solidariedade entre os membros da equipa na organização**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

70. **...onde cada profissional reconhece e respeita as competências e o trabalho dos seus pares/colegas**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

71. **...onde os níveis de stress e exaustão dos profissionais são tidos em conta**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

72. **...onde se proporciona condições para um equilíbrio entre a vida profissional e pessoal**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

73. **...que apoia programas de desenvolvimento/formação profissional e motiva os colaboradores na sua participação**

Marcar apenas uma oval.

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

74. ...que incentiva o trabalho em equipa*Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

75. ...que garante as melhores condições e métodos de trabalho aos seus colaboradores*Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

76. ...que se preocupa com a gestão das expectativas sobretudo nos processos de mudança*Marcar apenas uma oval.*

	0	1	2	3	4	5	6	7	8	9	10	
Nenhuma importância	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Importância máxima

Appendix 5: Papers used to formulate the PM framework principles

Title	Authors	Year	Reference
Performance measurement: problems and solutions	Eddy, David M.	1998	Eddy, David M. 1998. "Performance measurement: problems and solutions." <i>Health Affairs</i> no. 17 (4):7-25.
A review of organizational performance assessment in health care.	Leggat, SG, L. Narine, L. Lemieux-Charles, J. Barnsley, GR Baker, C. Sicotte, F.	1998	Leggat, SG, L. Narine, L. Lemieux-Charles, J. Barnsley, GR Baker, C. Sicotte, F. Champagne, and H. Bilodeau. 1998. "A review of organizational performance assessment in health care." <i>Health services management research</i> no. 11 (1):3.
A mental health program report card: a multidimensional approach to performance monitoring in public sector programs	Rosenheck, Robert, and Domenic Cicchetti	1998	Rosenheck, Robert, and Domenic Cicchetti. 1998. "A mental health program report card: a multidimensional approach to performance monitoring in public sector programs." <i>Community Mental Health Journal</i> no. 34 (1):85-106.
Developing Performance Measures for Complex Evaluations: An Introduction and an Application to Upgrading Infrastructure Systems	von Winterfeldt, Detlof	2000	von Winterfeldt, Detlof. 2000. "Developing Performance Measures for Complex Evaluations: An Introduction and an Application to Upgrading Infrastructure Systems." <i>Unpublished draft manuscript for the Institute for Civil Infrastructure Systems at New York University, New York.</i>
Selecting Process Measures for Quality Improvement in Mental Healthcare	Hermann, Richard C, H Stephen Leff, and Greta Lagodmos	2002	Hermann, Richard C, H Stephen Leff, and Greta Lagodmos. 2002. <i>Selecting Process Measures for Quality Improvement in Mental Healthcare.</i> Evaluation Center.
Performance measurement systems in health and mental health services: Models, practices and effectiveness.	Adair, CE, L Simpson, JM Birdsell, K Omelchuk, AL Casebeer, HP Gardiner, S Newman, A Beckie, S Clelland, and KA Hayden.	2003	Adair, CE, L Simpson, JM Birdsell, K Omelchuk, AL Casebeer, HP Gardiner, S Newman, A Beckie, S Clelland, and KA Hayden. 2003. Performance measurement systems in health and mental health services: Models, practices and effectiveness. In <i>A State of the Science Review.</i> Alberta Heritage Foundation for Medical Research.

A review of performance measurement: Towards performance management	Folan, Paul, and Jim Browne	2005	Folan, Paul, and Jim Browne. 2005. "A review of performance measurement: Towards performance management." <i>Computers in industry</i> no. 56 (7):663-680.
Making performance indicators work: The experience of using consensus indicators for external assessment of health and social services at regional level in Spain	Hilarion, Pilar, Rosa Suñol, Oliver Groene, Paula Vallejo, Elisabeth Herrera, and Rosa Maria Saura	2009	Hilarion, Pilar, Rosa Suñol, Oliver Groene, Paula Vallejo, Elisabeth Herrera, and Rosa Maria Saura. 2009. "Making performance indicators work: The experience of using consensus indicators for external assessment of health and social services at regional level in Spain." <i>Health Policy</i> no. 90 (1):94-103. doi: 10.1016/j.healthpol.2008.08.002.
Developing a performance evaluation system for the Italian public healthcare sector	Giovanelli, Lucia, Ludovico Marinò, Federico Rotondo, Nicoletta Fadda, Alberto Ezza, and Marta Amadori.	2015	Giovanelli, Lucia, Ludovico Marinò, Federico Rotondo, Nicoletta Fadda, Alberto Ezza, and Marta Amadori. 2015. "Developing a performance evaluation system for the Italian public healthcare sector." <i>Public Money & Management</i> no. 35 (4):297-302.

Appendix 6: The most important recommendations related to measures selection

This appendix presents the most important recommendations related to measures selection. These recommendations were based on the Neely et al. (- 1997) study. In their study for designing performance measures they revised the relevant literature in this field and presented a complete set of recommendations with regard to the design of performance measures. This work was recently complemented by Folan and Browne (- 2005, 666). Both works were based on a completely literature review of this field.

- be derived from strategy
- be simple to understand
- provide timely and accurate feedback
- be based on quantities that can be influenced, or controlled, by the user alone or in cooperation with others
- reflect the “business process” – i.e. both the supplier and customer should be involved in the definition of the measure
- relate to specific goals (targets)
- be relevant
- be clearly defined
- be part of a closed management loop
- be clearly defined
- have visual impact
- focus on improvement (rather than variance)
- be consistent (in that they maintain their significance as time goes by)
- provide fast feedback
- have an explicit purpose
- be based on an explicitly defined formula and source of data
- employ ratios rather than absolute numbers

- use data which are automatically collected as part of a process, whenever possible
- be reported in a simple, consistent format
- be based on trends rather than snapshots
- provide information
- be precise – be exact about what is being measured
- be objective – not based on opinion.