

The Balanced Scorecard in Healthcare: Italy, Spain and Portugal. A review of recent literature.

María Beatriz González Sánchez (Ph. D)

Department of Financial Economics and Accountancy
Faculty of Business Administration and Tourism

University of Vigo

Edificio Xurídico-Empresarial, s/n

32004 Ourense (Spain)

Phone: 0034 988 36 87 12

Fax: 0034 988 36 89 23

Email: bgonzale@uvigo.es

Laura Broccardo (Ph. D)

Department of Business Administration

Faculty of Economics

University of Turin

Corso Unione Sovietica 218 bis, 10134 Turin (TO), Italy

Phone: (+39) 011 6706014

Fax (office): (+39) 011 6706014

www.m2a.unito.it - Email: broccardo@econ.unito.it

Ernesto López-Valeiras Sampedro (Ph. D)

Department of Financial Economics and Accountancy

Faculty of Business Administration and Tourism

University of Vigo

Edificio Xurídico-Empresarial, s/n

32004 Ourense (Spain)

Phone: 0034 988 36 87 11

Fax: 0034 988 36 89 23

Email: elvaleiras@uvigo.es

Amélia Maria Martins Pires (Ph. D)

Departamento de Economia e Gestão

Escola Superior de Tecnologia e Gestão do Instituto Politécnico de Bragança

Campus de Santa Apolónia

Apartado 134

5301-857 Bragança (Portugal)

Telefone: 273 313 050/273 303 000 Fax: 273 313 051

Email: amelia@ipb.pt

Summary:

- 1.- Introduction
- 2.- The Balanced Scorecard in healthcare
- 3.- Research methodology
- 4.- Findings
- 4.1.- Spanish Search; 4.2.- Italian Search; and 4.3.- Portuguese Search
- 5.-Conclusions
- 6.- References

Key words: Balanced Scorecard, Health, Hospital, Spain, Italy, Portugal.

ABSTRACT

The aim of this paper is to review all the articles published on the topic of the **Balanced Scorecard in healthcare by Spanish, Italian, or Portuguese authors or written in Spanish, Italian, or Portuguese between 1992 and 2009** (18 years in total). To carry out this task, we analysed the existing research in this area to date, and then attempted to draw connections between the theoretical view presented in the Balanced Scorecard and the empirical experiences in the hospitals that put this tool into practice. Finally, we obtained an organised compilation of all the articles dealing with the Balanced Scorecard in healthcare which had either been published in Spain, Italy, or Portugal or had been written by Spanish, Italian, or Portuguese authors and published in foreign journals.

1.- INTRODUCTION

The use of the Balanced Scorecard (BSC) in non-profit organizations is increasing. Despite the fact that the BSC is a tool that originated in the business world, the transfer of business management models and techniques to the healthcare field, including for-profit and non-profit health organizations and even public healthcare institutions, is a reality at present. For example, the BSC has been used in the healthcare sector in the United States, especially in hospitals, and also in the British National Health Service.

The aim of this study is to **analyse the discussion of and application of the BSC in healthcare in three different countries by reviewing all the papers published on this topic in scientific journals**. These articles can provide us with vital information. **Firstly, they indicate the extent to which this tool has been discussed from a theoretical point of view. Secondly, they inform us about the success of its use in the healthcare field. Thus our research has two angles: one from a theoretical perspective and the other focusing on the actual implementation of the BSC.**

This paper is structured in the following way. After the introduction, we will devote a second point to discussing the theoretical framework on which the Balanced Scorecard in the healthcare field is based. In the third section, we will describe the methodology used in our research. In the fourth section, we will present our findings from the analyses done on the research carried out in Spain, Portugal, and Italy on this topic. Lastly, we will offer some conclusions based on our findings.

2.- THE BALANCED SCORECARD IN HEALTHCARE

Traditionally, business management has been based on financial indicators. In fact, during the industrial age, economic and financial information became almost the sole instrument used to facilitate the decision-making process in the business world. However, with the arrival of the technology revolution, it became clear that a wider range of information was needed, and consequently qualitative and descriptive data began to be more highly valued.

In response to this need for new forms of information, Kaplan and Norton, professors at Harvard Business School, developed a methodology by which to assess management and organizational performance, which they called the Balanced Scorecard. Unlike its predecessors, this model incorporated both financial and non-financial indicators. As a result of the success of this model when applied in the private sector, where it was first tested, studies were done on how to adapt it to use in the public sector and in non-profit organizations.

The creation of the BSC dates back to the late 1980's with the earliest publications by Kaplan and Norton (1992, p.71) advocating a performance measurement system which would provide "a set of measures that gives top managers a fast but comprehensive view of the business." Four perspectives—financial, customer, internal business process, and learning and growth—are central to this measurement system. In subsequent developments, the perspectives were linked in a cause-effect manner by 'if-then' statements such as the following: "If we increase capabilities, then lower re-admission rates will occur"; "If re-admission rates are lower, then patient satisfaction will increase", and so on (Gao and Gurd, 2006).

According to Urrutia (2003), the differences between the four perspectives offered in the BSC are clearly delineated. The indicator relating to the learning and growth perspective explains how the organization will generate value in the future; the internal business process and customer perspectives describe how value is produced in the present; and the financial perspective explains how value was generated in the past. This model is also supported by the results from research (Voelker, 2001) which finds that the traditional systems which were used to evaluate a business' operations were focused primarily on financial measures that in many cases hindered the growth and success of the organization.

In addition to these four main perspectives, the Balanced Scorecard contains a series of indicators which are intended to reflect the strategy of the organization, allowing a business both to evaluate its strategy and to measure the success of its practical application. In order to reinforce this tool and to move from the theoretical part to the practical part in a simpler way, it is necessary to take some concepts from the field of strategic planning. In particular, businesses must select those indicators which are necessary and sufficient in each one of the perspectives based on an integral analysis of the company. It is also important to consider the relationship between the distinct processes involved in a company's daily activities.

Since 1994, when the first article on the BSC in healthcare settings was published, numerous articles have appeared in the health services and management literature, as the BSC appears to have entered a growth phase (Zelman, Pink *et al.* 2003). According to Zelman and colleagues (2003), the BSC has been adopted by a broad range of healthcare organizations, including hospital systems, hospitals, psychiatric centres, and national healthcare institutions. Several articles have described the use and potential benefits of this

tool in various healthcare settings: community health partnerships (Hageman *et al.* 1999); children's hospitals (Meliones *et al.* 2001); army medical departments (AMEDD) (Holt 2001); and outpatient services (Curtright, Stolp-Smith, and Edell 2000). Although many healthcare organizations have successfully implemented the BSC, Neely and Bourney (2000) claim that as many as 70% of these organizations fail to apply it successfully. It is reasonable to expect that "the success of the BSC's implementation depends not only on selecting measures that are relevant, manageable, and important, but also on how leadership, supervisors, and employees gain knowledge about the status of BSC metrics" (Mahammad, 2007).

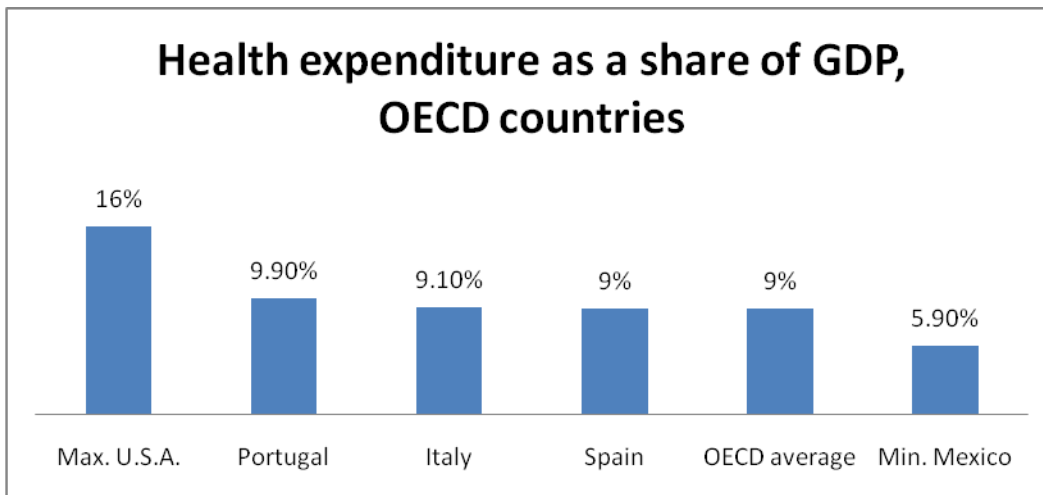
Hospitals, like other types of businesses in the service industry, have operated for many years in a stable, non-competitive, highly regulated, and protected environment with little freedom to open new businesses or to establish the prices for their services. However, the current trend in the healthcare field is to put forth initiatives aimed at decentralising and offering health services and hospitals more management autonomy and other useful tools to help them be successful in a competitive market. As a consequence of these new trends, healthcare providers have to be aware of the relative impact of their assets on their performance, and recognise that it is the intangible assets that make the biggest difference in a competitive market (Santos and Fidalgo, 2004).

The management of intangible assets is very important for the success of businesses, whether in for-profit or non-profit organizations. Few institutions offer such an intensive use of knowledge-intangible assets as hospitals do. Thus, it seems important to examine the current state of research in this field, taking into account the limitations imposed by such a highly regulated market.

There are numerous similarities between Spain, Italy, and Portugal in terms of their economic structure, historical development, and institutional arrangements regarding healthcare. In the three countries, the vast majority of hospitals are public. This is notably different from the situation in the United States, where health management is more often private than public, and in some European countries, such as Germany and Switzerland, where the tendency is to increase the number of private hospitals rather than public ones. Whether a country offers predominantly public or private healthcare has a strong impact on the choice of management tools, as this choice is influenced by leadership style and by the organizational culture. Clearly, a strategic management tool focused on performance measurements will not be used in the same way in a public company as in a private one.

The three countries we have examined in this study, Spain, Italy, and Portugal, share a considerable number of characteristics concerning healthcare:

- Healthcare expenditure makes similar relative contributions to each country's GDP, between 9% and 9.9%.



- Hospitals are financed primarily by funding from national budgets, and government agencies are responsible for the control of the respective national healthcare services.

Given that the vast majority of hospitals in these three countries are public, their employees are less accustomed to working in an environment that emphasises fulfilling objectives. In addition, the use of management tools like the BSC is uncommon in public healthcare organizations. Both of these characteristics are more prevalent in private healthcare institutions.

- National public healthcare in all three countries has come up against a similar challenge in recent years: maintaining the financial stability of their respective healthcare systems while continuing to guarantee universal coverage for all citizens.

The enormous cost of maintaining public healthcare systems has put pressure on those responsible for healthcare management to reform the systems in such a way as to bring down expenses. For example, in Portugal in 2002, 31 public hospitals were turned into “Hospitals, S.A.”¹, later to become “Public Business Entities (PBE)” (approximately 50% of public hospitals in Portugal underwent this kind of transformation).

3.- RESEARCH METHODOLOGY

Our aim in this study was to identify as many of the papers published on the Balanced Scorecard in healthcare as possible written in Spanish, Italian, or Portuguese, or written in English by Spanish, Italian, or Portuguese authors. To do so, we structured our research in the following way. To begin with, **we looked for data in the most prestigious international academic databases**, namely Google Scholar, Ebsco Host, Science Direct (valid for any topic), and Pub Med (specific to the field of medicine). After that, we continued our search **in Spanish, Italian, and Portuguese databases**. For the Italian search, we used Essper. The Spanish databases consulted were Elsevier and Dialnet. For the Portuguese search, we used B-On. The key words used were: Balanced Scorecard in

¹ Equivalent to a Private Limited Company

hospital/health/healthcare. These words were entered in English and also in Spanish, Italian, and Portuguese. More details are presented in Table 1.

As we understand it, the highest quality research is that which is published in international journals, which are the most frequently cited in scientific publications, according to the majority of international studies to date (Stahl *et al.*, 1988; Bairam, 1994). For this reason, we concentrated our efforts on locating articles which had been published in scientific journals and chose to exclude doctoral theses and papers which had been presented at conferences.

The period of time taken into account started in 1992, when the Balanced Scorecard was first described by Kaplan and Norton in their publication², and ended in December, 2009, the end of the last full calendar year before the onset of our study.

Table 1 Details about research methodology

	International Search	Spanish Search	Italian Search	Portuguese Search
DATA BASES	Google Scholar Ebsco Host Science Direct Pub Med	Elsevier Dialnet	Essper	B-On
KEY WORDS	Balanced Scorecard + Spain/Italy/Portugal Spanish/Italian/Portuguese + Hospital/Heath/Healthcare	Cuadro de Mando Integral + hospital salud sanidad centros sanitarios	Balanced Scorecard + sanità ospedali	Balanced Scorecard + hospital saúde sector da saúde
Time Period	From 1992 to 2009 (18 years)			

We consider that this period of time is sufficiently broad, as it spans almost two decades since the initial development of this tool. For this reason, we feel we are in a position to obtain reliable findings as to the trends and the development of the research published in the three countries on this topic.

After selecting the most pertinent articles from our initial search, we **reviewed the bibliography**, taking care not to overlook the articles which were not indexed in any database. In order to broaden our preliminary list, we contacted hospitals in our region in an attempt to obtain the unindexed articles. Gratefully, the missing articles were provided to us by the libraries at the hospitals in Ourense and A Coruña. Finally, we were able to compile a comprehensive list of the most relevant articles on this topic.

² Kaplan, R.S. y Norton, D.P. (1992), "The Balance Scorecard-Measures That Drive Performance". Harvard Business Review 1992

The main aim of our work, using the methodology proposed by Gao and Gurd (2006), consists of reviewing all of the articles obtained from our in-depth search, taking into account the following three questions:

1. **Which perspectives are used?** This is an important question, as there are several perspectives to choose from in the Balanced Scorecard. While it might seem to be a given that the focus of the Balanced Scorecard in healthcare institutions should be the health of the patient, this is not always the case in reality. A review of the perspectives chosen will give us a more accurate view of the importance that is in fact attached to the patient.
2. **Which indicators are used?** Most public health organizations use a large number of indicators. Thus, the aim in implementing the Balanced Scorecard is to identify those indicators which are the most critical and which allow the organization to implement and control the strategy that is applied. According to Marr and Adams (2004), the least common perspective used is 'learning and growth', because it incorporates intangible assets, which are difficult to control and quantify. According to Speckbacher (2003), 30% of the Balanced Scorecard analysed in his study did not incorporate the perspective of 'learning and growth'. When this is the case, the working environment and the organizational culture, the knowledge and skills of the workers, and the technology and systems of management control cannot be taken into account adequately using the Balanced Scorecard.
3. **Which generation of the Balanced Scorecard is used?** There are at least three definitions for the different stages in the development of the Balanced Scorecard. Authors on the subject agree that the first generation combines financial and non-financial indicators with the four classical perspectives (financial; customer; internal processes; and learning and growth). In this first stage, cause-effect indicators are not incorporated. The second generation, however, centres on the cause-effect relationship between indicators and strategic objectives. At this stage, the BSC often uses strategic maps to illustrate the link between indicators and strategy (Speckbacher, Bischof *et al.*, 2003; Lawrie and Cobbold, 2004). According to Speckbacher, Bischof *et al.*, (2003), the third generation is characterised by the development of strategic control systems which contain plans of action and are linked to incentives. These authors consider that in order for the Balanced Scorecard to be considered third generation, it must serve not only to describe the strategy of the company by way of cause-effect relationships, but also to implement the strategy. This is because communication alone is not considered sufficient to change the behaviour of the organization.

4.- FINDINGS

4.1.- THE SPANISH SEARCH

As a result of our research, we obtained 17 papers published by Spanish authors in ten different journals coming from two very different fields: medicine (12 papers) and business

(five articles). In table 2, we present the full list of articles found, the names of the journals with the number of articles published in each one, and the impact index of these publications for the year 2008, the last available listing.

All of the data pertaining to the publications used in this study are listed in Appendixes 1 and 2.

Table 2: Journals used in the Spanish search

	Number of articles	Impact index
Spanish Journals (medicine)	12	SJC³ 2008
Gaceta Sanitaria	3	0,060
Revista de Calidad Asistencial	4	0,031
Revista de Administración Sanitaria Siglo XXI	1	0,029
Todo Hospital	2	-
Revista del Laboratorio Clínico	1	-
Gestión hospitalaria	1	-
Spanish Journals (business)	3	IN-RECS⁴
Harvard Deusto Finanzas y Contabilidad	1	0,014
Revista Iberoamericana de Contabilidad de Gestión	2	0,000
Foreign Journals	2	JCR⁵ 2008
Health Care Manage Review	1	0,087
Measuring Business Excellence	1	0,032
Total papers	17	

In view of the results obtained, it is notable that:

- In Spain, articles on this topic were first published in the year 2002, ten years after similar publications were undertaken in the United States.
- Spain publishes very few articles on this subject, between one and three per year.
- Very few of the Spanish articles have been published in English: two in ten years.
- *Calidad Asistencial* is the journal with the most publications: four articles.
- There is a predominance of papers dealing with public institutions as opposed to private ones.
- The majority of the Spanish articles are theoretical and do not deal with the practical implementation of the BSC.

As for the development of these publications over time, there has been a slight increase in the number of publications on the subject of the Balanced Scorecard since 1992. Before

3 The *SCImago Journal & Country Rank (SJR)* includes the publications and scientific indicators developed from the information contained in the Scopus databases, belonging to Elsevier.

4 The IN-RECS is an Impact Index for the Spanish Journals of Social and Legal Sciences elaborated by the University of Granada. It offers statistical information from the bibliographical citations in more than 100 Spanish journals of social sciences, to determine the relevance and scientific impact of the articles as well as that of their authors.

5 The JCR is elaborated by the *Institute for Scientific Information (ISI)*, which establishes the impact factor and the classification of the publications from their bibliographical citations. There are very few Spanish publications in the JCR and it does not cover the humanities field.

2002, there were no publications, which means that Spain began publishing articles on its research on this topic ten years after the BSC was introduced.

Number of papers published in English and Spanish

	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL
Number of papers in Spanish	2	1	3	1	3	1	2	2	15
Number of papers in English	0	0	0	1	0	0	0	1	2
	2	1	3	2	3	1	2	3	17

From an initial analysis of the studies carried out, we can conclude that the immense majority of the papers (14/17) deal with public institutions, while very few, only 2/17, focus on private institutions. One paper takes into account both kinds of institutions. This is a logical reflection of the relative importance of the public health sector in Spain as compared to its private healthcare services.

It seemed equally important to us to examine whether the studies offered theoretical descriptions of the methodology or whether, on the contrary, they collected information regarding the healthcare services' experiences upon implementing the BSC. We find that there are significantly more theoretical articles (10/17) than those describing actual implementations of the model (7/17).

Regarding the professional milieu of the authors, a majority of the theoretical studies come from universities (6/10), whereas the papers which deal more with the practical implementation of the BSC come at least partly from hospitals or healthcare institutions (5/7).

It is also important to examine the tendency of Spanish authors to publish their studies in English, in international journals. The results obtained clearly inform us of the small number of Spanish papers published in English; as we can see in Appendix 2, there were only two articles by Spanish authors published in English, one in 2005 and the other in 2009.

One would expect the volume of research on a particular topic to reflect researchers' interest in the subject as well as their acknowledgement of its importance. From our findings, it is clear that the potential application of the BSC in the healthcare sector is not as valued as it might be in Spain, given the relatively small number of articles published on this topic by Spanish authors over quite a considerable period of time.

4.2.- THE ITALIAN SEARCH

In the Italian search, we obtained 12 papers published in eight different journals, ten written in Italian and two in English. The Italian articles are from two types of journals, those specialising in the fields of medicine (4 papers) and business (6 papers).

Table 3: Journals used in the Italian search

	Number of papers	Impact factor⁶
Italian journals (medicine)	4	
Mondo Sanitario	2	-
Politiche sanitarie	1	-
Scenario	1	-
Italian journals (business)	6	
Amministrazione & Finanza – Pianificazione e Controllo	1	-
Economia Aziendale On line–International Business Review	1	-
Mecosan	4	-
International journals	2	
Cost Effectiveness and Resource Allocation	1	0,87
The Health Care Manager	1	1,875
Total number of papers	12	

After reviewing all of the papers, we obtained the following information:

- In Italy, publication on this topic began in 2004, two year after Spain and 12 years after the first paper was published in the United States.
- The average number of publications is between two and four articles per year.
- Very few studies have been published in English: only two in six years.
- *Mecosan* is the journal with the most publications: four articles.
- All of the papers are related to public health institutions (none to private ones).
- Most of the studies are theoretical (7/12), as opposed to those which analyse the practical implementation of the Balanced Scorecard in healthcare (5/12).

Number of papers published in English and Italian

	2002	2003	2004	2005	2006	2007	2008	2009	TOTAL
Number of papers in Italian	0	1	3	0	2	1	0	3	10
Number of papers in English	0	0	0	0	0	0	0	2	2
	0	1	3	0	2	1	0	5	12

Following the same analysis process as in the Spanish search, we find that once again the majority of Italian papers deal with public institutions. In fact, all 12 of the Italian articles examine the role of the BSC in public rather than private healthcare facilities.

⁶ As indicated on the journal's website

Another aspect to consider is whether the Italian studies focus mainly on theoretical aspects of the BSC or whether they go a step further and examine its practical implementation as well. What we find is that the majority of the papers are theoretical descriptions (7/12), while only five out of 12 of the studies examine the practical application of the BSC.

It is also notable that seven out of 12 of the articles consider that out of all of the possible perspectives, the financial perspective is the primary one, despite the fact that the institutions in question are public. Four other studies indicate that the user/patient perspective is the most important one, which would seem to be the most logical emphasis in a healthcare institution. Only one paper considers the internal processes perspective to be the most essential one. Regardless of their preferences for each of the different perspectives, 11 of the 12 hospitals use all four of the classic perspectives in their studies (user/patient; economic and financial performance; internal processes; learning and growth). In one hospital, the financial perspective is excluded entirely. In total, ten of the 12 hospitals use four perspectives, in one hospital three perspectives are considered, and in the remaining hospital five are used.

As for the background of the authors, we find that unlike in Spain, where the majority of theoretical papers were done by researchers at universities, in Italy only one out of the seven theoretical papers examined was written exclusively by university professors. Another two of the seven theoretical studies were done as a collaboration between researchers from the university and the healthcare field. The remaining four theoretical articles were written by authors working in healthcare institutions. This seems surprising, as one might expect professionals working in this field to carry out studies dealing with practical applications within the institutions they are associated with rather than doing theoretical research. It is also notable that three out of five of the practical papers were written by authors coming from universities.

4.3.- THE PORTUGUESE SEARCH

As a result of our Portuguese search, we obtained only one published paper.

Table 4: Journals used in the Portuguese search

	Number of papers	Impact index
Portuguese Journals (business)		
TOC	1	-
Total number of papers	1	

Due to the extremely limited number of articles obtained, we decided to extend our search in order to determine the causes of such sparse research in the field. To do so, we decided to include papers which had been presented at conferences by Portuguese authors. The results are outlined in Table 5.

Table 5: Papers presented at conferences by Portuguese authors

Year	Conference	Number of papers
2003	VIII Congreso do Instituto Internacional de Custos, Punta del Este, Uruguay, 26 a 28 de Novembro	1
2004	2.º Congresso Nacional da Administração Pública (INA), Lisboa	1
2005	III Seminário Internacional “Gestão e Estratégia no século XXI”, Universidade do Alvarge	1
2007	X Congresso do Instituto Internacional de Custos, Lyon, França, 13 a 15 de Junho	1
2007	XXVII Encontro Nacional de Engenharia da Produção, Foz do Iguaçu, Brasil	1

From the results of this additional search, it became clear to us that the number and relevance of Portuguese papers on this topic presented at conferences was low. What is more, all of the papers presented at these conferences were very conceptual in nature, their content based on either bibliographical reviews or on the authors’ own knowledge of the subject. No original research was presented.

To complement our Portuguese search, we also compiled a list of all of the books which had been published on the subject of the BSC. The three resulting books are listed in Table 6.

Table 6: Books published in Portugal on the BSC

Year	Title	Authors
2006	Balanced Scorecard em Portugal – visão, Estratégia e Entusiasmo	Rui Almeida Santos
2007	O Balanced Scorecard aplicado à Administração Pública	João Carvalho, Nuno Ribeiro, Sónia Nogueira, Agostinha Gomes
2007	Balanced Scorecard – Alinhar Mudança, Estratégia e Performance nos Serviços Públicos”, Edições Sílabo.	Francisco José Simões Pinto

Reviewing all of the published material and the papers presented at conferences in Portugal allows us to form an impression of the current management situation in the healthcare field in Portugal, primarily in hospitals. The conclusions are discouraging, as the findings highlight the limited interest on the part of Portuguese researchers in studying the possible applications of this management tool in the healthcare sector.

According to Simões (2004), for example, in order for the BSC to be implemented successfully in the healthcare field in Portugal, it is necessary to bring about a change in mentality, to define the strategy, and to make the financial perspective the main concern in organizations. Ribeiro (2008), however, defends the idea that despite the BSC having originated in the private business sector, where financial objectives are considered vital,

public hospitals should not use such objectives as the ultimate indicators of organizational success.

Most of the Portuguese authors on this subject appear to be in favour of applying the BSC in healthcare institutions, although they acknowledge that this is a distant goal. Some characteristics which are intrinsic to the public sector, such as the organizational culture, make it difficult to implement the BSC at present. The feeling is that once these obstacles have been overcome, the healthcare field in Portugal should follow the international trend, which has shown that positive results can be obtained by using the BSC to improve public healthcare management.

The empirical evidence that is available on the application of the BSC in healthcare facilities comes mainly from countries in the north of Europe, the United States, and Canada. The experience of carrying out tests in these countries has shown to be very positive and indicates that the use of the BSC could potentially favour a more efficient healthcare sector with a greater capacity to provide quality care to patients.

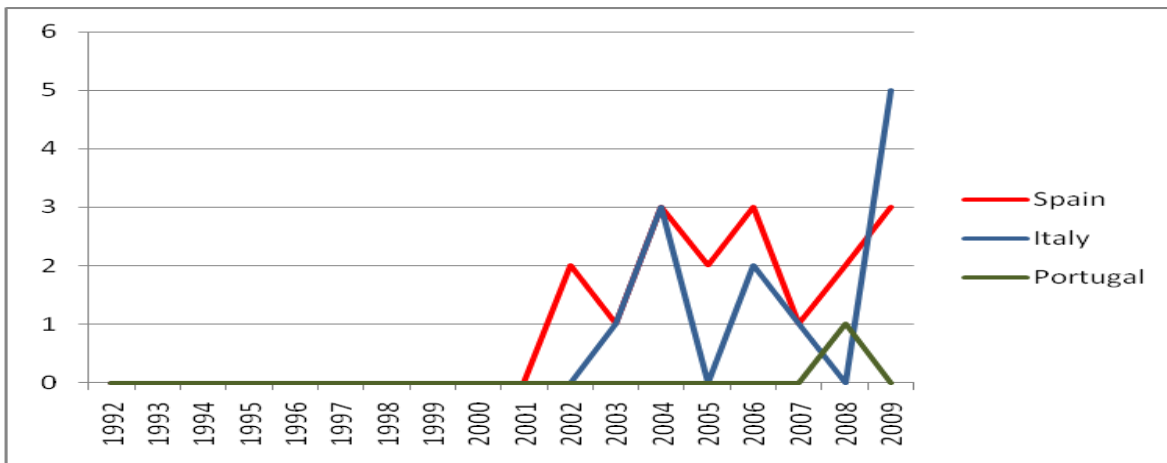
From our review of the Portuguese papers, we find that:

- It will take some years before Portugal will be ready to implement the BSC in the healthcare sector.
- Currently there are very few studies available on the topic of the BSC in healthcare, and all of them are theoretical in nature.
- There are no articles on this topic published outside of Portugal by Portuguese authors.
- The papers cited are all relatively recent, which shows the short period of time in which the BSC has been of interest in Portugal.
- The papers are all written by authors from an academic milieu, which indicates that there is a limited connection between universities and the business world. In fact, this is an aspect which is common to all areas of the business sciences in Portugal.
- Given that the studies on this topic are not significant in number and are not supported by either solid theoretical foundations or ample empirical demonstrations of having implemented the BSC, we can conclude that this topic has still not received the attention it deserves in Portugal.

To summarize, from the findings related thus far, we have identified three main points that the three countries appear to have in common:

- Few papers published in English (4/30)
- Primarily theoretical articles (18/30)
- Mainly public institutions considered (26/30)

All of the articles which were analysed are listed in Appendixes 1 and 2. All of the identifying data are listed—title, authors, journal, International Standard Serial Number (ISSN) of the journal, and databases used. Additional variables are also included: type of organization, theoretical vs. practical focus of the paper, perspectives used, number of indicators, and the generation of BSC (first, second, or third). The following graph shows the development over time of the number of articles published on this topic in the three countries since 1992.



5.- CONCLUSIONS

The aim of this paper is to analyse the development and the methodological characteristics of the research on the Balanced Scorecard applied to the healthcare sector through the analysis of the scientific publications which appeared in the most prominent scientific journals edited in Spain, Portugal, Italy, or abroad but written by Spanish, Portuguese, or Italian authors between 1992 and 2009.

Our review leads us to the following conclusions:

- In regards to the first question posed (which perspectives are used?), the answer is that most of the papers consider the four traditional perspectives, because the authors use the model as it was developed in areas other than the healthcare field. It seems essential to adapt this management tool more specifically to healthcare organizations.
- Regarding the second question (which indicators are used?), we find that hospitals do not generally take into account the strategy or identify the most critical points on which the strategy depends (key factors). Instead, they tend to incorporate the indicators which had previously been used at their institution. In general, hospitals do not consider the 'patient' perspective, nor do they pay special attention to the 'learning and growth' perspective. The latter can be quite important in this type of institution because of the intensive utilization of knowledge.
- Regarding the third question (which generation of the Balanced Scorecard was used?), we find that the majority of the studies appear to follow a first generation Balanced Scorecard model. This means that in these studies the Balanced Scorecard is considered a control tool, and therefore cannot be considered a tool to implement the strategy or even a management tool.

The analysis carried out, following Gao and Gurd (2006), leads us to several conclusions. From the articles analysed, two things stand out above all: the lack of a clearly defined

strategy, and the fact that the key success factors are not specifically laid out from the start. Given that the Balanced Scorecard is intended as an instrument with which to implement the strategy and align all of the elements that help to integrate the organization, it seems clear that the first step of the process is missing.

It is also true that some characteristics of the public sector may hamper the adaptation of the Balanced Scorecard to national healthcare systems. For instance, public institutions are not accustomed to establishing their objectives in terms of a specific strategy. In Spain, where public healthcare institutions make up between 70% and 80% of the total healthcare sector, this would obviously make the implementation of the BSC difficult. This may explain the limited number of practical studies dealing with the implementation of the BSC. However, it does not explain, or justify, not taking into account a perspective that considers the patient the primary focal point of the system.

Finally, it seems important to ascertain the reasons behind the almost complete absence of publications done jointly between researchers from the university and those associated with hospital settings. The lack of communication and cooperation between these different areas makes it impossible to attain the kind of interdisciplinary collaboration that would be required for the implementation of the Balanced Scorecard. In few areas can we find such intense co-existence of the business and medical fields as in healthcare management. Clearly, a stronger collaboration between these two fields could bring about interesting results. One can only hope that more studies will take this into account and bridge the gap between the two fields in the near future.

6.- REFERENCES

- Asif Syed, M., Bresson, C. and Moskowitz, M. (2007) 'It Framework for the Implementation of Balanced Scorecard in Healthcare Systems', *Nesug* 11(14), pp. 1-12.
- Astier Peña, M.P., de Val Pardo, I., Gost Garde, J., Silvestre Busto, M.C., Larrayoz Dutrey, M., Chivite Izco, M. and Galíndez, A. (2004) 'Propuesta de indicadores para cuadros de mando de servicios médicos y quirúrgicos' [Proposed indicators for Balanced Scorecard in medical and surgical services], *Revista de Administración Sanitaria Siglo XXI*, 2(3), pp. 485-507
- Bairam, E.I. (1994) 'Institutional affiliation of contributors to top economic journals, 1985-1990', *Journal of Economic Literature*, 32(2), pp. 674-679.
- Barichello, P., Impiumi, F., Orlandin, A., Paiola, M. and Piccinini, M. (2007) 'Balanced scorecard in sanità: la realizzazione di mappe strategiche' [Balanced Scorecard in healthcare: the creation of strategy maps], *Mecosan*, 62, pp. 99-108.
- Benítez Estévez, A.J., Caballé Martín, I. and Torra Puig, M. (2007) 'Recomendaciones para la elaboración de un cuadro de mando integral en el laboratorio clínico' [Recommendations for preparing a balanced scoreboard in the clinical laboratory], *Revista del Laboratorio Clínico*, 1(3), pp. 122-132.
- Calhau, A. R. L. (2009) 'Concepção de um sistema de Balanced Scorecard para o Serviço de Traumatologia do Hospital Garcia da Orta' [Design of a Balanced Scorecard system for the Traumatology ward at Garcia da Orta Hospital], Ph.D. dissertation, Universidade Técnica de Lisboa, Lisboa, Portugal.

- Carvalho, J.B., Ribeiro, N.A., Nogueira, S. and Gomes, A. (2007) *O Balanced Scorecard aplicado à Administração Pública* [The Balanced Scorecard applied to Public Administration]. (PublisherTeam: Lisboa).
- Cavaco, A. A. S. (2007) 'Exequibilidade da utilização do balanced scorecard num hospital do sector público administrativo' [Feasibility of using the balanced scorecard in a public hospital], Ph.D. dissertation, Universidade de Aveiro, Aveiro, Portugal.
- Colella, M.T., Coppa, G. and Sanguigni, V. (2006) 'BSC e controllo strategico: implementazione in un'azienda ospedaliera' [BSC and strategic control: implementation in a company hospital], *Amministrazione & Finanza*, 11, pp. 24-29.
- Cuccurullo, C. and Tommasetti, A. (2004) 'L'impiego delle mappe strategiche nella Balanced Scorecard: processo di costruzione ed effetti sistemici' [The use of Balanced Scorecard strategy maps: the process of building and systemic effects], *Mecosan*, 13(49), pp. 47-62.
- Curtright, J. W., Stolp-Smith, S. and Edell, E. (2000) 'Strategic Performance Management: Development of a performance measurement system at the Mayo Clinic', *Journal of Healthcare Management*, 45(1), pp. 58-68.
- Fanì, M., Ferro, S., Garramone, L., Arras, M. and Orecchia, S. (2009) 'Esercizio di misurazione delle performance in un servizio sanitario territoriale' [Exercise to measure the performance in a local health service], *Politiche sanitarie*, 10(1), pp. 34-41.
- Fernández Abásolo, A. and Trillo Holgado, M.A. (2006) 'El cuadro de mando integral y la gestión del departamento de mantenimiento de un hospital' [The balanced scorecard and management of the maintenance department of a hospital], *Harvard Deusto Finanzas y Contabilidad*, 70, pp. 74-80.
- Ferrari, D. and Merlini, L. (2006) 'Vincere la sfida della governance: l'introduzione della Balanced Scorecard all'Asl di Pavia' [Winning the challenge of governance: the introduction of the Balanced Scorecard in the ASL Pavia], *Mecosan*, 59, pp. 119-136.
- Fioretti, G., Paradisi, M., Pifferi, C. and Messeri, A. (2007) 'Applicazione della balanced scorecard nei dipartimenti dell'Asl 2 dell'Umbria' [Application of the balanced scorecard in the Departments of Umbria ASL 2], *Mondo Sanitario*, 11, pp. 29-35.
- Frittoli, G. and Mancini, M. (2004) 'Balanced Scorecard e aziende sanitarie' [Balanced Scorecard and healthcare companies], *Mecosan*, 49(1), pp. 21-46.
- Gao, T. and Gurd, B. (2006) 'Lives in the balance: Managing with the Scorecard in-not-for profit healthcare settings', *International Journal of Productivity and Performance Management*, 57(1), pp. 6-21.
- Hageman, W. M., Harmata, R., Zuckerman, H., Weiner, B., Alexander, J. and Bogue, R. (1999) 'Collaborations That Work', *Health Forum Journal*, 42(5), pp. 46-48.
- Holt, T. (2001) 'Developing an Activity-Based Management System for the Army Medical Department', *Journal of Healthcare Finance*, 27(3), pp. 41-46.
- Impagliazzo, C., Ippolito, A. and Zoccoli, P. (2009) 'The Balanced Scorecard as a Strategic Management Tool', *The Health Care Manager*, 28(1), pp. 44-54.

- Kaplan, R.S. and Norton, D.P. (1992) 'The balanced scorecard - Measures that drive performance', *Harvard Business Review*, 70(1), pp. 71-79.
- Lawrie, G. and Cobbold, I. (2004) 'Third-generation balanced scorecard: evolution of an effective strategic control tool' *International Journal of Productivity and Performance Management*, 53(7), pp. 611-623.
- Leite, J. A. M. and Fermin, A. H. (2003) 'Um Balanced Scorecard para hospitais: alguns indicadores' [A Balanced Scorecard for hospitals: some indicators], *VIII Congresso do Instituto Internacional de Custos*, Punta del Este, Uruguay, November 26-28.
- Leite, J. A. M. and Rodrigues, L. L. (2007) 'Práticas de contabilidade de gestão hospitalar divulgadas nos relatórios: estudo dos hospitais EPE portugueses' [Accounting practices disclosed in hospital management reports: a study of Portuguese EPE hospitals], *X Congresso do Instituto Internacional de Custos*, Lyon, França, 13-15 June.
- Marr, B. and Adams, C. (2004) 'The Balanced scorecard and intangible assets: similar ideas unaligned concepts', *Measuring Business Excellence*, 8(3), pp. 18-27.
- Martínez Pillado, M., Seco, J.M., Suárez, A., González Sanjuán, R. and Vázquez, C. (2006) 'Hacia el cuadro de mando integral por el cuadro de mando posible' [Moving towards the balanced scorecard by way of a possible scorecard], *Revista de Calidad Asistencial*, 21(1), pp. 13-9.
- Matos, L. F. (2006) 'A utilização do Balanced Scorecard para monitorar o desempenho de um hospital' [Using the Balanced Scorecard to monitor the performance of a hospital], Ph.D. dissertation, Universidade do Minho, Braga, Portugal.
- Meliones, J. N., Ballard, R., Liekweg, R. and Burton, W. (2001) 'No Mission, No Margin: It's that simple', *Journal of Healthcare Finance*, 27(3), pp. 21-29.
- Montserrat, D., Martínez, J.R., Alonso, M., Meirás, O., Franco, A., García, I., Vilanova, F. and García, A. (2002) 'Implantación de un cuadro de mando para seguimiento de los resultados de calidad pactados por los servicios hospitalarios' [Implementation of a scorecard to track quality outcomes agreed upon by hospital services], *Revista Calidad Asistencial*, 17(2), pp. 93-8.
- Mozos, M. (2008) 'CMI aplicado a la gestión del mando intermedio en un Centro de Día' [The Balanced Scorecard applied to the management of middle management in a Day Centre], *Todo Hospital*, 249, pp. 507-515.
- Muslera Canclini, E., Fernández Muñoz, P. and Natal, C. (2004) 'Cuadros de mando: breve historia de su *desempeño*' [Balanced Scorecard: A brief history of performance], *Revista de Calidad Asistencial*, 19(1), pp. 38-44.
- Naranjo Gil, D. (2009) 'Strategic performance in hospitals: the use of the balanced scorecard by nurse managers', *Health Care Manage Review*, 34(2), pp. 161-70.
- Neely, A. and Bourne, M. (2000) 'Why measurement initiatives fail?', *Quality Focus* 2, 4(4), pp. 3-7.
- Oliveira, R. C., Sousa, A. and Baylina, P. (2007) 'Serviços de saúde e avaliação do desempenho: uma revisão da literatura' [Health and performance assessment: a literature review], *XXVII Encontro Nacional de Engenharia de Produção*, Foz do Iguaçu, Brasil, 9-11 October.

- Ortiz-Berrocal, J., Martínez, J.R., Alonso, M., Millán, I., Ayuso, B. and Sáinz, A. (2005) 'Cuadro de mando para la gestión clínica en un servicio de medicina nuclear' [Balanced Scorecard for the clinical management in a nuclear medicine service], *Revista de Calidad Asistencial*, 20(5), pp. 239-45.
- Oteo Ochoa, L. A., Pérez Torrijos, G. and Silva Sánchez, D. (2002) 'Cuadro de mandos integral a nivel hospitalario basado en indicadores del modelo EFQM de excelencia' [Balanced Scorecard in hospital settings based on EFQM excellence indicators], *Gestión Hospitalaria*, 13(1), pp. 9-25.
- Pastor Tejedor, J. (2009) 'Reflexión sobre el fin último de la gestión en el sector hospitalario español' [Reflections on the ultimate goal of management in Spanish hospitals], *Gaceta Sanitaria*, 23(2), pp. 148-57.
- Perotti, L. (2006) 'Implementare la Balanced Scorecard in una organizzazione sanitaria' [Implementing the Balanced Scorecard in a health organization], *Economia Aziendale On line - International Business Review*, 3, pp. 77-107.
- Pinto, F. J. S. (2004) 'A avaliação da performance e o Balanced Scorecard no contexto da reforma da Administração Pública' [Performance evaluation and the Balanced Scorecard in Public Administration reform], *II Congresso Nacional da Administração Pública*, Lisboa, Portugal.
- Pinto, F. J. S. (2005); 'Balanced Scorecard - adaptações ao sector público e às organizações privadas sem fins lucrativos' [Balanced Scorecard - adapted to the public sector and private, non-profit organizations], *III Seminário Internacional "Gestão e Estratégia no século XXI"*, Universidade do Algarve, Faro, Portugal.
- Pinto, F. J. S. (2007) *Balanced Scorecard - Alinhar Mudança, Estratégia e Performance nos Serviços Públicos* [Balanced Scorecard – Bringing About Change, Strategy and Performance in Public Services]. (Edições Sílabo: Coimbra).
- Ruiz Muñoz, D. (2006) 'La aplicación del Cuadro de Mando Integral en organizaciones sanitarias' [The application of the balanced scorecard in healthcare organizations], *Revista Iberoamericana de Contabilidad de Gestión*, 8, pp. 13-32.
- Salinas La Casta, M., Flores Pardo, E. and Uris Selles, J. (2009) 'Cuadro de mando integral en el laboratorio clínico: indicadores de perspectiva interna del negocio' [The Balanced Scorecard used as a management tool in a clinical laboratory: internal business process indicators], *Gaceta Sanitaria*, 23(3), pp. 250-2.
- Santos Cebrián, M. and Fidalgo Cerviño, E. (2004) 'Un análisis de la flexibilidad del cuadro de mando integral (CMI) en su adaptación a la naturaleza de las organizaciones' [An analysis of the flexibility of the balanced scorecard (BSC) and its adaptation to organizations], *Revista Iberoamericana de Contabilidad de Gestión*, 2(4), pp. 1-21.
- Santos, R. A. (2006) *Balanced Scorecard em Portugal - visão, Estratégia e Entusiasmo* [Balanced Scorecard in Portugal - vision, strategy and enthusiasm]. (Gestãoplus Edições: Cascais).
- Simões Pinto, F.J. (2007) 'Gestão de performance e balanced scorecard nos serviços públicos' [Performance Management and Balanced Scorecard in public services] in Ayala Calvo, J.C. (2007) *Conocimiento, innovación y emprendedores: Camino al*

- futuro* [Knowledge, innovation and entrepreneurship: the road ahead], pp. 3239-3248 (Grupo de Investigación FEDRA, Logroño).
- Simões, J. (2004) *Retrato Político da Saúde* [A Political Picture of Health]. (Editora Almedina: Coimbra, Portugal).
- Sousa Ribeiro, C.M. (2008) 'O controlo de gestão nas unidades de saúde: o Balanced Scorecard' [Management control in health facilities: the Balanced Scorecard], *Revista TOC*, 100, pp. 61-66.
- Speckbacher, G. (2003) 'The economics of performance in nonprofit organizations', *Nonprofit Management and Leadership*, 13(3), pp. 267-281.
- Speckbacher, G., Bischof, J. and Pfeiffer, T. 'A descriptive analysis on the implantation of Balanced Scorecards in German-speaking countries', *Management Accounting Research*, 14, pp. 361-387.
- Stahl, M.J., Leap, T.L. and Wei, Z.Z. (1998) 'Publications in leading management journals as a measure of institutional research productivity', *Academy of Management Journal*, 31(3), pp.707-720.
- Urrutia de Hoyos, I. (2003) 'Selección de indicadores en un hospital a través del modelo de cuadro de mando integral' [Selection of indicators in a hospital using the balanced scorecard model], *Todo Hospital*, 197, pp. 333-337.
- Urrutia, I. and Eriksen, S.D. (2005) 'Application of the Balanced Scorecard in Spanish Private health-care management', *Measuring Business Excellence*, 9(4), pp. 16-26.
- Vaiani, R., Zoia, P., Del Pero, G., Trevisan, R., Gioia, F., Carnaghi, F., Menegotto, G. and Manzi, O. (2004) 'Balanced Scorecard (BSC). L'azienda ospedaliera verso la frontiera dell'appropriatezza' [Balanced Scorecard (BSC). The hospital at the border of convenience], *Mondo Sanitario*, 11(1-2), pp. 19-24.
- Verzola, A., Bentivegna, R., Carandina, G., Trevisani, L., Gregorio, P. and Mandini, A. (2009) 'Multidimensional evaluation of performance: experimental application of the balanced scorecard in Ferrara university hospital', *Cost Effectiveness and Resource Allocation*, 7, pp. 7-15.
- Villalbí, J., Guix, J., Casas, C., Borrell, C., Duran, J., Artazcoz, L., Camprubí, E., Cusí, M., Rodríguez Montuquín, P., Armengol, J.M. and Jiménez, G. (2007) 'El Cuadro de Mando Integral como instrumento de dirección en una organización de salud pública' [The Balanced Scorecard as a management tool in a public health organization], *Gaceta Sanitaria*, 21(1), pp. 60-5.
- Voelker, K.E., Rakich, J.S. and French, G.R. (2001) 'The balanced scorecard in Healthcare Organizations: A Performance Measurement and Strategic Planning Methodology', *Hospital Topics*, 79(3), pp. 13-24.
- Zelman W.N., Pink G.H. and Matthias C.B. (2003) 'Use of the Balanced Scorecard in Health Care', *Journal of Health Care Finance*, 29(4), pp. 1-16.
- Zucconi, M. (2007) 'Misurare e gestire le performance assistenziali in Terapia Intensiva: il ruolo della Balanced Scorecard' [Measuring and managing performance care in the ICU: the role of the Balanced Scorecard], *Scenario*, 24(4), pp. 19-24.

Key to Appendixes 1 and 2	
#	1,2,3, etc. (last number = total number of papers from each country)
Year	Year of publication
Title	Title of the paper
Author	Name/s of the author/s
*	U: Author from University H: Author with some connection to a Hospital HI: Author with some connection to Health Institution other than hospitals (e.g. Health Service, Ministry of Health, etc.) HC: Author with some connection to Healthcare Consulting Company
Journal	Title of the journal, volume, number, pages
ISSN	International Standard Serial Number
Database	Name of database used
Type of organization	Public / Private
Theoretical/Practical	Theoretical description vs. Practical point of view / Implementation
Perspectives used	Usually the traditional four perspectives; sometime three or two.
# of indicators	Only if the paper has a list of indicators
Generation (Following Gao and Gurd, 2006)	First generation: “The first generation BSC combines financial and non-financial indicators with the four perspectives (financial, customer, internal business process, and learning and growth).” This generation Balanced Scorecard may also include measurement systems which do not contain cause-effect logic.

	<p>Second generation: “Emphasised the cause-and-effect relationships between measures and strategic objectives. It became a strategic management tool, usually utilising a strategy map to illustrate the linkage between measures and strategies.”</p> <p>Third generation: This generation “is about developing strategic control systems by incorporating destination statements and optionally two perspective strategic linkage models.” The difference between this BSC and the second generation is that this one adds action plans and incentive-linked targets.</p>
--	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Appendix 1: Papers by Spanish, Italian, and Portuguese authors written in their own languages

#	Year	Title	Author	*	Journal	ISSN	Database	Type of organizat.	Theoretical /Practical	Perspectives	# Indicat.	Gene-ration
1	2002	Implantación de un cuadro de mando para seguimiento de los resultados de calidad pactados por los servicios hospitalarios	Montserrat, D., Martínez, J.R., Alonso, M., Meirás, O., Franco, A., García, I., Vilanova, F. and García, A.	H	Revista Calidad Asistencial, 17(2), pp. 93-8	1134-282X	From Bibliography	Public	Practical	-	-	-
		Cuadro de mandos integral a nivel hospitalario basado en indicadores del modelo EFQM de excelencia	Oteo Ochoa, L. A., Pérez Torrijos, G. and Silva Sánchez, D.	HI	Gestión Hospitalaria, 13(1), pp. 9-25	0214-8919	Dialnet	Public	Theoretical	-	-	-
3	2003	Selección de indicadores en un hospital a través del modelo de cuadro de mando integral	Urrutia de Hoyos, I.	U	Todo Hospital, 197, pp. 333-337	0212-1972	Dialnet	Public	Theoretical	4	-	3rd
4	2004	Cuadros de mando: breve historia de su “desempeño”	Muslera Canclini, E., Fernández Muñoz, P. and Natal, C.	HI	Revista de Calidad Asistencial, 19(1), pp. 38-44	1134-282X	Elsevier	Public	Theoretical	4	-	2nd
5		Propuesta de indicadores para cuadros de mando de servicios médicos y quirúrgicos	Astier Peña, M.P., de Val Pardo, I., Gost Garde, J., Silvestre Busto, M.C., Larrayoz Dutrey, M., Chivite Izco and M., Galíndez, A.	H	Revista de Administración Sanitaria Siglo XXI, 2(3), pp. 485-508	1137-2966	Elsevier	Public	Theoretical	2	-	1st

#	Year	Title	Author	*	Journal	ISSN	Database	Type of organizat.	Theoretical /Practical	Perspectives	# Indicat.	Gene-ration
6		Un análisis de la flexibilidad del cuadro de mando integral (CMI) en su adaptación a la naturaleza de las organizaciones	Santos Cebrián, M. and Fidalgo Cerviño, E.	U	Revista Iberoamericana de Contabilidad de Gestión, 2(4), pp. 1-21	1137-6317	From Bibliography	Public	Practical	4	-	3rd
7	2005	Cuadro de mando para la gestión clínica en un servicio de medicina nuclear	Ortiz-Berrocal, J., Martínez, J.R., Alonso, M., Millán, I., Ayuso, B. and Sáinz, A.	H	Revista de Calidad Asistencial, 20(5), pp. 239-45	1134-282X	Dialnet	Public	Practical	2	63	1st
8		El cuadro de mando integral y la gestión del departamento de mantenimiento de un hospital	Fernández Abásolo, A. and Trillo Holgado, M.A.	U	Harvard Deusto Finanzas y Contabilidad, 70, pp. 74-80	1134-0827	Dialnet	Public	Theoretical	2	-	2nd
9	2006	La aplicación del Cuadro de Mando Integral en organizaciones sanitarias	Ruiz Muñoz, D.	U	Revista Iberoamericana de Contabilidad de Gestión, 8, pp. 13-32	1137-6317	Dialnet	Public	Theoretical	4	12	1st
10		Hacia el cuadro de mando integral por el cuadro de mando posible	Martínez Pillado, M., Seco, J.M., Suárez, A., González Sanjuán, R. and Vázquez, C.	H	Revista de Calidad Asistencial, 21, pp. 13-9	1134-282X	Elsevier	Public	Practical	2	25	1st

#	Year	Title	Author	*	Journal	ISSN	Database	Type of organizat.	Theoretical /Practical	Perspectives	# Indicat.	Gene-ration
11	2007	El Cuadro de Mando Integral como instrumento de dirección en una organización de salud pública	Villalbí, J., Guix, J., Casas, C., Borrell, C., Duran, J., Artazcoz, L., Camprubí, E., Cusí, M., Rodríguez Montuquín, P., Armengol, J.M. and Jiménez, G.	HI	Gaceta Sanitaria, 21(1), pp. 60-5	0213-911	Elsevier Dialnet	Public	Practical	4	-	2nd
12		Recomendaciones para la elaboración de un cuadro de mando integral en el laboratorio clínico	Benítez Estévez, A.J., Caballé Martín, I. and Torra Puig, M.	HI	Revista del Laboratorio Clínico, 1(3), pp. 122-132	188-4008	Ebsco Host	Private	Practical	4	45	2nd
13	2008	CMI aplicado a la gestión del mando intermedio en un Centro de Día	Mozos, M.	HC	Todo Hospital, 249, pp. 507-515	0212-19721	From Bibliography	Public	Theoretical	4	-	1st
14	2009	Cuadro de mando integral en el laboratorio clínico: indicadores de perspectiva interna del negocio	Salinas La Casta, M., Flores Pardo, E. and Uris Selles, J.	H+U	Gaceta Sanitaria, 23(3), pp. 250-2	0213-911	Elsevier	Public	Practical	2	15	1st
15		Reflexión sobre el fin último de la gestión en el sector hospitalario español	Pastor Tejedor J.	U	Gaceta Sanitaria, 23(2), pp. 148-57	0213-911	PubMed	Private and Public	Theoretical	4	70	2nd

Total number of papers written in Spanish = 15

#	Year	Title	Author	*	Journal	ISSN	Database	Type of organizat.	Theoretical /Practical	Perspectives	# Indicatt.	Generat-ion
1	2004	Balanced Scorecard e aziende sanitarie	Frittoli,G. and Mancini, M.	H	Mecosan, 49(1), pp. 21-46	1121-6921	Essper	Public	Theoretical	4	-	2nd
2		L'impiego delle mappe strategiche nella Balanced Scorecard: processo di costruzione ed effetti sistemici	Cuccurullo,C. and Tommasetti, A.	U	Mecosan, 13(49), pp. 47-62	1121-6921	Essper	Public	Theoretical	4	-	2nd
3		Balanced Scorecard (BSC). L'azienda ospedaliera verso la frontiera dell'appropriatezza	Vaiani,R., Zoia, P., Del Pero, G., Trevisan, R., Gioia, F., Carnaghi, F., Menegotto, G. and Manzi, O.	H	Mondo Sanitario, 11(1-2), pp. 19-24	0544-7771	Essper	Public	Theoretical	4	-	2nd
4	2006	BSC e controllo strategico: implementazione in un'azienda ospedaliera	Colella, M.T., Coppa, G. and Sanguigni, V.	H+U	Amministrazione & Finanza, 11, pp. 24-29	1971-5013	Essper	Public	Theoretical	4	-	2nd
5		Implementare la Balanced Scorecard in una organizzazione sanitaria	Perotti, L.	U	Economia Aziendale On line – International Business Review, 3, pp. 77-107	1120-0588	Essper	Public	Practical	5	45	2nd
6		Vincere la sfida della governance: l'introduzione della Balanced Scorecard all'Asl di Pavia	Ferrari, D. and Merlini, L.	U	Mecosan, 59, pp. 119-136	1121-6921	Essper	Public	Practical	4	-	2nd

#	Year	Title	Author	*	Journal	ISSN	Database	Type of organizat.	Theoretical /Practical	Perspectives	# Indicat.	Genera-tion
7	2007	Misurare e gestire le performance assistenziali in Terapia Intensiva: il ruolo della Balanced Scorecard	Zucconi, M.	H+U	Scenario, 24(4), pp. 19-24	1592-5951	Essper	Public	Theoretical	4	-	1st
8		Balanced scorecard in sanità: la realizzazione di mappe strategiche	Barichello, P., Impiumi, F., Orlandin, A., Paiola, M. and Piccinini, M.	H	Mecosan, 62, pp. 99-108	1121-6921	Essper	Public	Theoretical	3	12	1st
9		Applicazione della balanced scorecard nei dipartimenti dell'Asl 2 dell'Umbria	Fioretti, G., Paradisi, M., Pifferi, C. and Messeri, A.	H	Mondo Sanitario, 11, pp. 29-35	0544-7771	Essper	Public	Practical	4	30	1st
10	2009	Esercizio di misurazione delle performance in un servizio sanitario territoriale	Fanì, M., Ferro, S., Garramone, L., Arras, M. and Orecchia, S.	H	Politiche sanitarie, 10(1), pp. 34-41	2038-1832	Essper	Public	Theoretical	4	-	1st
Total number of papers written in Italian = 10												

#	Year	Title	Author	*	Journal	ISSN	Database	Type of organizat.	Theoretical /Practical	Perspectives	# Indicat.	Genera-tion
1	2008	O controlo de gestão nas unidades de saúde: o Balanced Scorecard	Sousa Ribeiro, C.M.	U	Revista TOC, 100, pp. 61-66	1645-9237	B-On	Public	Theoretical	4	-	-
Total number of papers written in Portuguese = 1												

Appendix 2: Papers in English by Spanish, Italian, and Portuguese authors

#	Year	Title	Author	*	Journal	ISSN	Database	Type of organizat.	Theoretical /Practical	Perspectives	# Indicat.	Gene-ration
16	2005	Application of the Balanced Scorecard in Spanish private health-care management	Urrutia, I. and Eriksen, S.D.	U	Measuring Business Excellence, 9(4), pp. 16-26	1368-3047	Ebsco Host	Private	Theoretical	4	46	2nd
17	2009	Strategic performance in hospitals: the use of the balanced scorecard by nurse managers	Naranjo Gil, D.	U	Health Care Management Review, 34(3), pp. 161-70	0361-6274	PubMed	Public	Theoretical	-	-	-
Total number of papers written in English by Spanish authors = 2												
#	Year	Title	Author	*	Journal	ISSN	Database	Type of organizat.	Theoretical /Practical	Perspectives	# Indicat.	Gene-ration
11	2009	Multidimensional evaluation of performance: experimental application of the balanced scorecard in Ferrara university hospital	Verzola, A., Bentivegna, R., Carandina, G., Trevisani, L., Gregorio, P. and Mandini, A.	H	Cost Effectiveness and Resource Allocation, 7, pp. 7-15	1478-7547	Google Scholar	Public	Practical	4	28	1st
12		The Balanced Scorecard as a Strategic Management Tool	Impagliazzo, C., Ippolito, A. and Zoccoli, P.	U	The Health Care Manager, 28(1), pp. 44-54	1525-5794	Essper	Public	Practical	4	38	1st
Total number of papers written in English by Italian authors = 2												