

AN INSTITUTIONAL SOCIOLOGY PERSPECTIVE OF THE  
ADAPTATION OF ACTIVITY BASED COSTING BY SPANISH  
HEALTH CARE INSTITUTIONS

IE Working Paper

CG8-105-I

24-11-2004

Scott D. Eriksen

Ignacio Urrutia

Instituto de Empresa  
María de Molina, 12-5º  
28006 Madrid - Spain  
Scott.Eriksen@ie.edu

IESE Business School  
C/ Camino del Cerro del Águila, 3  
28003 Madrid - Spain  
iurrutia@iese.edu

**Abstract**

Per institutional sociology hospitals will respond to external environmental pressures and adopt Activity-Based-Costing (ABC). This theory overemphasizes conformity and failures to consider the advantages of organizational non-conformance. A conflict of interests between physicians and management leads to physician resistance of accepting ABC. This paper investigates the Spanish government's response to this resistance by creating new public foundation hospitals, and involves a case study of foundation hospital Alcorcón. Population ecology is offered as an explanation for the emergence of new entities as a result of inert existing entities resistance to reform.

**Keywords**

Activity Based Costing, ABC Implementation, Health Care, Institutional Sociology, Population Ecology, Spanish Health Care Sector



## INTRODUCTION

During the 1980s many developed countries experienced a movement to change the existing formulas for managing public institutions (Hood, 1995; Olsen et al, 1998; Olías de Lima, 2001). This movement, termed New Public Management (NPM), was driven by significant changes in the environment, combined with globalization and provoked a profound change in the mentality affecting both customers and management of public institutions (Hood, 1995, Lapsley, 1999). The customer who had perceived two forms of receiving services – from the market and from a public administration – now held the public administration to the same discipline as the market. The revolution in management thinking for public administrators was the belief that they could achieve optimum levels of productivity and customer satisfaction.

One of the most important sectors to be affected by this NPM movement was the public health sector which began to experience pressure to improve the management of health services (Ham, 1997; Ruef & Scott, 1998). Part of the response to this pressure related to the introduction of contemporary management practices, including improved costing systems (Preston 1992), such as Activity Based Costing (ABC). Cost control is arguably the most important issue facing the healthcare industry which has been transformed from a fee-for-service model where the healthcare provider could pass on cost increases, to a system of managed care where the healthcare provider is reimbursed a fixed predetermined fee for a medical service (Ferguson & Lapsley, 1989; Ruef & Scott, 1998). This change in the contractual relationship between healthcare providers and the funding entities has been the primary focus for introducing market discipline into healthcare management, one of the components of management reform (Hood, 1995). These market pressures would suggest that for healthcare providers' success or even survival, especially under capitated<sup>1</sup> systems such as Health Maintenance Organizations (HMOs) where the financial risk of providing healthcare services is shared between the healthcare provider and the HMO, is dependent upon two factors: the appropriate utilization of resources, i.e., the identification of resource consumption from a procedural basis, and control of costs per unit of service (Berghold, 1990). The true advantages are the prospective and retrospective reviews of high volume procedures in order to assess resource utilization (Hood, 1995) and contracting with payers (Hussey and Holford, 1993). Typically healthcare providers, due to their weak cost measurement systems (CMSs), enter into negotiations and contracts with payors with no realistic knowledge of their costs (Long et al, 1983; Fowkes, 1985; Ryan et al, 1996; O'Connell & Feely, 1997; Reichert et al, 2001).

Most prominent organizational theories suggest that organizational diversity is due to adaptation, with adaptation theories suggesting that organizations respond to external environmental pressures. Institutional sociology posits that an organization's survival requires it to conform to institutional pressures (Covaleski & Dirsmith, 1988; Oliver 1991; Carmona & Macías, 2001). It follows that hospitals would respond to various institutional

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<sup>1</sup> Capitation is a set amount of money received or paid out. It is based upon membership rather than services rendered and usually is expressed in terms of per member per month.

pressures since hospitals seek legitimacy in the view of these various institutions; thus the adaptation of contemporary management practices including ABC, would not only provide the economic benefits of a more sophisticated CMS, but would also signal the hospital's intention to improve efficiency. Nonetheless, the actual implementation of the ABC model in hospitals has been very difficult (Cobb et al, 1993). While considerable attention has been given to the technical considerations necessary for a successful implementation (Hussey and Holford, 1993; King et al. 1994; Rotch 1995; Urrutia 2001), less attention has been given to the issue of resistance to the pressures for implementation.

This paper expands on the previous work regarding the impact of institutional forces on the adaptation of management processes in hospitals. Specifically it addresses the issue of resistance to institutional pressures in the highly institutionalized Spanish health care sector. Rather than passively responding and complying with environmental demands as suggested by the institutional perspective, a resource dependent perspective suggests that organizations actively employ a range of strategic adaptation choices including non-compliance (Oliver, 1991). Consequently, the successful deployment of New Public Management in the Spanish health care sector should consider that hospitals' responses to pressures to conform will depend on several factors including, why these pressures are being exerted, who is exerting these pressures, what these pressures are, how these pressures are being exerted, and where these pressures occur (op. cit.). This paper explores these institutional factors in the Spanish health care sector in an attempt to provide insight into the predicted strategic responses of hospitals and the consequences of these responses.

Additionally this study expands on the previous literature and responds to Marcon and Panozzo's (1998) call to go beyond English speaking countries by examining the issue of implementation in a significantly different setting – a Latin as opposed to Anglo-American environment – and by focusing on costing systems as opposed to the control function which has been the primary focus of previous studies.

The research method involved a qualitative intensive case study of the Alcorcón hospital over a one year period. Data was gathered by means of a total of fifteen visits made to the hospital including three semi-structured interviews with the CFO and Controller totaling ten and a half hours. These interviews were conducted as in-depth qualitative exchanges on a specific set of topics. The remaining twelve visits totaled approximately 36 hours. Notes were taken in all fifteen visits. The objective of the initial interview with the CFO and Controller was to discuss and diagnose hospital cost accounting systems. We received documentation related to the design of the ABC system as well as the operational plan which included the organizational chart and the portfolio of medical services to be offered. The objective of the second interview was to analyze the reasons top management had decided to implement an ABC system, and to discuss the potential problems which had been identified in the literature (Hussey and Holford, 1993; King et al., 1994; Rotch, 1995) which focused primarily on issues internal to the hospital. The objective of the third interview was to discuss potential sources of problems external to the hospital regarding relations with the taxing authority, the hospital proprietor<sup>2</sup>, and the consulting firm hired to assist in the design of the ABC system. Each of

the remaining twelve visits to the hospital had the objective of verifying statements made by top management via observation and collaboration with medical personnel. Additionally we made four visits, of on average one hour, to three other hospitals - Hospital Getafe, Hospital Puerta de Hierro, and Hospital Doce de Octubre<sup>2</sup> in the area to identify both common and contrasting costing practices and procedures.

A qualitative methodology is appropriate when the research aim is to understand a complex process (Blumer, 1969), with the interview method considered as an accepted method within qualitative research for the purpose of building theory (Holstein & Gubrium, 1995). Advocates of qualitative methods stress the richness of qualitative arguments on the big picture and the appealing explanations of how processes, chronological facts and causal links occur (Miles & Huberman, 1994). Specifically, a case study approach was adopted as it is apt for 'why' and 'how' questions (Yin, 2003), thus enabling the researchers to make sense of events, iterate theory with empirics, and generate ideas for future research (Patton, 1987)

This paper is organized as in three parts. The first part, briefly discusses institutional sociology theory including criticisms. It then discusses institutional sociology in the context of management accounting and hospitals followed by a discussion of the Spanish health care sector from an institutional and resource dependent perspective including the strategic responses to institutional pressures, specifically the resistance from health sector civil servants and hostility towards economic reforms. This part concludes with a review of studies of ABC applications to hospitals identifying key issues regarding implementation of ABC in hospitals. The second part, first describes the Spanish health care sector, followed by a discussion of the foundation hospital Alcorcón. The third part includes a discussion of the authors' observations and conclusions regarding the penetration of ABC in Spanish health care organizations.

## **INSTITUTIONAL SOCIOLOGY, THE HEALTH CARE SECTOR AND ABC**

Market-based theories view organizations as sites for economic transacting (Scott, 1995, 2001; Baxter & Chua, 2003) and suggest that behavior is directed towards improving internal technical efficiency due to market pressures, thus emphasizing rational decision making. In contrast, institutional sociology emphasizes cultural, normative and cognitive factors and suggests that organizations need to appear legitimate, and that behavior may be more directed towards environmental acceptance rather than technical efficiency (op. cit.). While both of these pressures produce an *isomorphism*, a process which forces one member in a population to resemble other members which face the same set of environmental conditions or pressures (DiMaggio, 1988), institutional sociology posits that organizations react and ultimately conform to institutional pressures in order to achieve legitimacy, institutional support and stability. This isomorphism can be either *competitive isomorphism* (e.g. Hannan & Freeman, 1977) or *institutional isomorphism* (DiMaggio & Powell, 1983), of which there are three core mechanisms: mimic, normative and coercive forces. It should be noted that legitimacy (the focus of institutional sociology) is not necessarily gained at the expense of efficiency (the

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<sup>2</sup> Instituto Nacional de Salud (INSALUD)

focus of market-based theories) and visa versa. The authors take the position that rational behavior seeking improved efficiency and effectiveness can coexist with isomorphic behavior seeking to gain legitimacy. Furthermore, increasingly in private and public organizations, legitimacy depends on being perceived as a ‘modern’ organization demonstrating efficiency and rationality (Lapsley, 2001).

While institutional sociology has been studied in many settings, there is a general lack of studies focusing on the actual process of change as opposed to the result (Dacin et al, 2002; Scott 2001), particularly regarding this issue of resistance to change. Institutional sociology has been criticized for its lack of attention to the role of organizational self-interests and active agency in these responses (Covaleski & Dirsmith, 1988; DiMaggio, 1988). Likewise institutional sociology emphasizes the survival value of conformity and generally fails to consider the advantages of non-compliance and the ability of the organization to maintain autonomy over decision making. In institutional sociology’s focus on isomorphism, it has deemphasized both the ability of organizations to defy external demands as well as the usefulness of doing so (Oliver, 1991).

### **Institutional Sociology – Management Processes and Hospitals**

In the health care sector there is a fundamental conflict of interest between physicians and management resulting primarily from their different socialization experiences and resultant set of values. The medical profession is the dominate socialization agent for physicians (Derber & Schwartz, 1991; Lurie, 1981) with two important consequences. First, physicians are orientated towards effective clinical care for individual patients (Alexander et al, 1986) and secondly the profession operates as the primary control mechanism (Mintzberg, 1979) due to the fact that physicians are “dominate professionals” who control the core clinical processes (Friedson, 1975). The management group is oriented towards efficient and effective use of economic resources for all patient groups as well as the overall needs of the hospital (Alexander et al, 1986). This conflict in orientation is compounded by the fact that the core hospital processes depend on the expertise of the physicians, thus granting them a significant degree of autonomy (Barley & Tolbert, 1991; Derber & Schwartz, 1991; Zucker, 1991) and rendering them not being subject to formal bureaucratic controls (Mechanic, 1976). Consequently physicians have a great deal of authority over hospital resources – their decision making commits up to 70-80% of hospital resources (Flood & Scott, 1987; Hillman et al, 1986) – but essentially no responsibility for the economic consequences of their decisions (Young & Saltman, 1985; Werner et al, 1987; Burns et al, 1993).

There are two major trends which have intensified this conflict. Physicians are increasingly becoming salaried employees of the hospital as well as becoming integrated into the management structure as managers and board members (Abernathy & Stoelwinder, 1990). Secondly, the significant change in the funding in the health care sector via the introduction of prospective payment schemes (PPSs) has transferred the economic risk of providing health care services from the funding entity to the hospital<sup>3</sup>. In response to these PPSs, hospitals are

now seeking to develop sophisticated budgeting and costing systems (Comerford & Abernathy, 1999). These costing systems are based on the product costing concepts which originated in the manufacturing sector and focus on accurately capturing resource consumption thus allowing for a determination of the profitability of the various product lines (Chua & Degeling, 1991; Preston, 1992).

A number of studies have employed an institutional sociology framework to examine hospitals' responses to the pressures to adopt more sophisticated management planning and control tools (Abernathy & Chua, 1996). Despite the fact that several of these studies (op. cit.) sought to address the three fundamental criticisms of institutional sociology - that it neglects issues of power and interest, the assumption that practices adopted to secure legitimacy are only symbolic and always decoupled from actual internal systems (Carruthers, 1995; Mouritsen, 1994; Chua, 1995), and that it only provides limited insight into institutionalism as a process as opposed to as an achieved state (DiMaggio, 1988) - there remains a lack of studies in management accounting literature exploring the resistance to institutional change.

### **Institutional Sociology – Strategic Responses to New Public Management in the Spanish Health Care Sector**

While organizational choice is possible within the context of environmental constraints, institutional sociology has tended to focus on the passive imitation of organizational structures, activities and routines in order to achieve stability and survival. A resource dependence perspective diverges and argues that organizational stability and survival are achieved via the exercise of power, control or negotiation of interdependencies. Strategic responses to environmental pressures can range from acquiescence to compromise, to avoidance, to defiance, and to manipulation in order of increasingly active agency (Oliver, 1991).

Many organizations are often confronted with inconsistencies between institutional expectations and internal objectives; specifically in the health care sector institutional expectations are based on New Public Management while the internal objectives of physicians center on maintaining autonomy over decision making (Lapsley, 1997). In broad terms the response of physicians will be either in the spirit of conforming through tactics such as pacifying and bargaining or in the spirit of defiance with tactics ranging from dismissal and manipulative control (Oliver, 1991).

It is useful to consider the scope conditions under which organizations are both willing and able to conform; an organization's willingness to conform is bounded by skepticism, political

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<sup>3</sup> PPSs reimburse the health care provider a predetermined amount for standard treatment critical path protocols of medical conditions. These treatments are classified as DRGs (diagnosis related groups) and the hospital case-mix is the mix of DRGs. The actual treatment received depends upon several factors, including the severity of the patient's condition, etc, hence it must be noted that the DRG reflects an average standard cost and does not have a direct relationship to the costs incurred for a specific patient. DRGs have the effect of clustering patients and are the final level cost objects in a healthcare organization.

self-interest and control, whereas its ability to conform is bounded by its capacity, conflict and awareness (op. cit.). Responses to these pressures to conform will depend on the circumstances surrounding these pressures, e.g., why pressure is being exerted, by whom is it being exerted, what pressures are actually being exerted, how are these pressures being exerted, and in what environmental context are these pressures being exerted. In the health care sector, the pressure is by the funding agencies to achieve economic efficiency. However there is organizational skepticism about the legitimacy of this objective by clinically trained physicians who see this objective in conflict with their clinical objectives of providing health care. This is compounded by the non-profit nature of the hospital (Lapsley, 1994) and the general lack of physicians being subject to formal bureaucratic controls (Mechanic, 1976). And finally, compliance would generally be perceived by physicians as a loss of discretion and autonomy (Jones & Dewing, 1997; Doolin, 1999; Cosialls i Pardo, 2000, Kurunmaki et al, 2003). These argue for an unwillingness to conform to institutional pressures, to which it should be added that the ability to conform may be limited due to a lack of capacity due to an absence of managerial training on the part of physicians.

Organizations can be perceived as structures for accomplishing collective actions as well as repositories of corporate resources. As such they require two fundamental competencies - reliability and accountability – to obtain public legitimacy and social support. Reliability refers to the degree of variance of performance and accountability refers to organizations accounting rationally for their actions. Reliability generally requires that organizations continually reproduce their structure, which is primarily accomplished through processes of institutionalization and the creation of highly structured routines (Hannan & Freeman, 1984). However, while institutionalism gives organizations the necessary taken-for-granted character implying organizational purposes, it also tends to create structural inertia. The factors contributing to structural inertia can be both internal and external. Internal factors often include internal politics, which are likely to arise when different internal groups are pursuing different objectives, as it the case within hospitals.

### **ABC Applications to Hospitals**

Studies of ABC applications (Hussey and Holford, 1993; King et al., 1994; Rotch, 1995; Urrutia, 2001) to hospitals have focused primarily on the technical considerations necessary for a successful implementation. Despite their technical orientation, several of their conclusions are related to the fundamental conflict of interest between physicians and management noted in the previous section and potential conflict regarding collaboration of the physicians in their role as clinical department directors. Hussey and Holford (1993) noted that there must be a significant change in the attitude of hospital administrators who initially rejected the ABC model on the basis that the health care sector was fundamentally different from those sectors in which the ABC model had been implemented. King et al. (1994) found that in the hospitals investigated, the clinical department directors did not believe that a more sophisticated treatment of costs was necessary and consequently were suspect and not supportive of the implementation. These authors stressed the need for educating clinical department directors regarding the need for and benefits of the ABC model. This conclusion was supported by Urrutia's study (2001) of the Spanish health care sector.



Data collection was identified as another area of potential conflict. There must be recognition of the total dependence, regarding data collection, on the owners of the data (Hussey and Holford, 1993); physicians are the primary proprietors of data within the hospital and the implementation team must understand that they must negotiate with these proprietors, as opposed to making demands upon them, regarding both the quantity and collection of data. The design of the ABC model necessitates the adaptation of a horizontal process view of the hospital based upon the hospital's operating processes, which contrasts with the typical vertical view of the hospital organization, based upon specialized functional divisions or departments (op. cit.). Due to the technical complexities of sanitary work, the designer of the ABC model must rely on the physicians for capturing the intricacies of the hospital operating processes (King et al., 1994, Lapsley, 1996)<sup>4</sup>. Furthermore, in situations where there is a general policy of cost reduction, the generation of this information may cause problems in the relations between hospital personnel and management, with the possibility that hospital personnel may suspect that after the implementation of the ABC model, management may use the model for objectives other than those originally identified, such as to analyze the under-utilization of productive capacity (King et al., 1994).

Finally, several studies identified the need for information systems that were both capable of capturing the different medical resources, which are utilized in every DRG and that considered product diversification by including a classification of patients, i.e. a case-mix (Hussey and Holford, 1993; Rotch, 1995; Urrutia, 2001). A description of the traditional hospital cost system is provided in the Appendix.

## **THE SPANISH HEALTH CARE SECTOR AND THE FOUNDATION HOSPITAL ALCORCÓN**

Article 43 of the Spanish constitution of 1978 established the right to health service to the general public. In 1978 el *Instituto Nacional de la Salud* (INSALUD), a governmental agency under the Ministry of Health, was created to oversee the administration and management of the Spanish health care services. INSALUD continued to exercise this role until 2002 when it lost its executive powers and became a support agency. In 1986 a law<sup>5</sup> was enacted regarding the transfer of health service responsibilities and resources from the national agency INSALUD to the 17 regional autonomous communities of Spain. This transfer began in 1981 beginning with the autonomous communities of Catalonia, the Basque Country, Galicia, Canarias, Valencia, Navarra and Audalucia.

The politicians who direct the public health system have the greatest impact on INSALUD (Núñez Feijóo, 1998). The Popular Party (*Partido Popular; PP*) replaced the Socialist

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<sup>4</sup> Each DRG has an operating process which is comprised of the protocols for the related activities, tasks, and operations. The only way of understanding the hospital operating processes is via the descriptions and specifications of these protocols. However, there is no common language regarding these protocols. The ABC model requires standardized protocols, but the lack of a common language contributes significantly to the inability to develop these standardized protocols, hence there exists a vicious circle

<sup>5</sup> Texto Refundido de la Ley General de la Seguridad Social, y en la Disposición Transitoria Tercera 1 de la Ley14/1986, April 25, 1986

Spanish Workers Party (*Partido Socialista de Obreros Españolas PSOE*) assumed office in 1996 and installed a new management group in INSALUD with the mandate of identifying the problems in the health care sector, quantifying these problems, and identifying possible solutions to these problems (Ley 15/1997; Núñez Feijóo, 2000). The management group found high levels of inefficiency, including the de-capitalization and deterioration of hospital equipment due to a lack of investment in previous years as well as a centralized bureaucratic organizational model lacking management tools and with an overemphasis on controlling expenses rather than managing costs. Furthermore, there was a complete lack of valid measurement tools combined with obsolete sanitary information systems. The sanitary infrastructure, responsible all the autonomous communities excluding Catalonia, the Basque Country, Galicia, Canarias, Valencia, Navarra and Andalucía<sup>6</sup>, was also de-capitalized as a result of an overemphasis on controlling expenses (Núñez Feijóo, 1998).

The pretext that INSALUD would transfer hospitals to the autonomous communities in the short to intermediate term, effectively excluded a long term perspective. Along with the uncertainty regarding the transfers, the autonomous communities were not prepared in terms of organizational structures to receive and administer the hospitals, e.g., it would take time to develop the necessary infrastructure. This lack of a long term focus, resulted in a in a “residual” or “minimalist” management approach for an indefinite period of time; hospitals effectively only controlled a few marginal aspects of the resources as INSALUD both employed personnel and owned the infrastructure resources and without a long term perspective this was not going to change. This management approach resulted in both the deterioration of the administration of sanitary services and the loss of motivation on the part of the physicians due to a lack of initiative and clear set of objectives for the sanitary system (Núñez Feijóo, 1999). For these reasons, the management group implemented both structural and cultural changes in the organization which produced a general strategic plan, the first general planning document in the 20 year history of the organization (Núñez Feijóo, 1998).

These reforms were not only limited to the improvement of the management of sanitary services, but also were directed towards the establishment of new trends of organizational behavior which would promote strategic changes within the organization; specifically to consolidate and make the sanitary system more flexible (González González, 2002). These desired changes were driven by the need to achieve a higher level of quality in the administration of sanitary services as to facilitate the transference of the management of the hospitals from INSALUD to the autonomous communities which was concluded in 2002 (Uribe Ladrón de Cegama, 2002).

Concurrent with these reforms, as detailed in the INSALUD Strategic Plan (*Plan Estratégico del INSALUD*) (1997; 15) was the implementation of various actions designed to both

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<sup>6</sup> In 1996, the INSALUD was the entity responsible for the health needs of 14 million people and had at its disposal an extraordinary amount of human and material resources. These included 81 hospitals with 37,133 beds, 95 specialty centers, 994 health centers, 1083 primary attention teams, and over 132,000 employees. Furthermore, the organization had another 108 subsidized centers with 21,916 beds. INSALUD’s total budget was approximately 1.5 billion pesetas (0.9 billion euros) and covered 10 autonomous communities plus Ceuta and Melilla, in total covering 27 provinces (INSALUD Annual Report 1998.).

promote the involvement of physicians in the hospital management structure and increase the motivation of physicians to internalize this new managerial focus, which has been a common approach to the application of New Public Management to the health care sector (Abernathy & Stoelwinder, 1990). These actions were generally unsuccessful due to amongst other things, the physicians' lack of managerial training and generally resulted in the medical director becoming isolated from the clinical group (Repullo Labrador and Oteo Ochoa, 1999).

As described in the INSALUD Strategic Plan (1997), political responsibility for avoiding deficits in any fiscal year during the legislative term was, was enhanced in 1998 by the acquisition of resources from the "Financial Agreement of 01/98" (*acuerdo de financiación 98/01*) as well as through changes in the financing arrangements which permitted savings by hospitals to be subsequently reinvested in the hospital and not reimbursed to INSALUD. This political responsibility for the economics of the system, combined with a no deficit policy facilitated the development of new relations with the hospitals culminating in the introduction of prospective payment schemes (PPSs) which transferred the economic risk of providing health care services from INSALUD to the hospital. In contrast to the prior method of financing where hospitals were reimbursed for the costs incurred in providing health care services, now the hospitals had to negotiate prospective payments, which were essentially standard prices for treatments as defined by DRGs.

### **Public Foundation Hospitals**

The foundation hospital Alcorcón was created by INSALUD on December 18, 1996 and effectively began operations in 1998 (Foundation Hospital Alcorcón, 2003). It began operations with an ABC system in place, although not operational until 2000 (Urrutia, 2001)<sup>7</sup>. It also began operations with a TQM program thus facilitating the vertical process perspective necessary to configure an ABC system (op. cit.). The foundation hospital Alcorcón provides public health service to a population of approximately 220,000 people and specializes in Allergology and Nephrology serving approximately 400,000 people (Foundation Hospital Alcorcón, 2003).

An intensive case study (Urrutia, 2001) of the design of the ABC system in the foundation hospital Alcorcón involving fifteen visits to the hospital over a one year period was initiated with a series of interviews with the CFO and Controller. The CFO had prior experience with ABC design and implementation when serving as CFO of the Ministry of Treasury's currency printing factory (*fabrica Nacional de Moneda y Timbre*), where an ABC system was implemented in 1996. Consequently the CFO was both familiar with the necessary requirements for ABC implementation as well as potential problems identified in the literature regarding ABC applications to hospitals (Hussey and Holford, 1993; King et al., 1994; Rotch, 1995). Also due to his prior successful experience, he championed the idea of implementing ABC in the foundation hospital Alcorcón. We received documentation regarding the design of the ABC system and the subsequent twelve visits to the hospital had the objective of

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<sup>7</sup> The ABC system was finalized in 2000. A costing system is not necessary to satisfy information requirements for interactions with the taxing authority and INSALUD, hence the hospital could begin operations before the finalization of the ABC system.

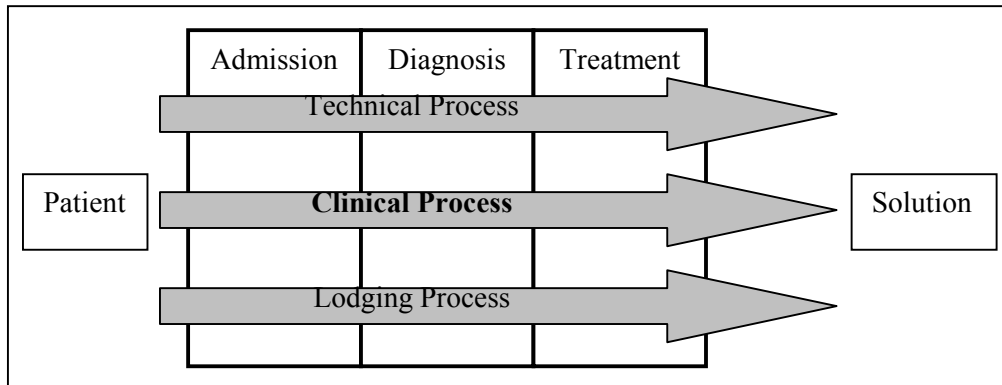
verifying statements made by top management via observation and collaboration with medical personnel, e.g., confrontation and confirmation that there were not differences of opinion regarding statements by top management and the medical personnel.

In considering the minimum requirements necessary for a successful implementation, three areas of potential problems were addressed in the second interview with the CFO and Controller which involved the implementation team, the design of the ABC model, and the model's operating environment (Urrutia, 2001). Regarding the design of the ABC system, top management had considered it necessary that the implementation team needed to be multi-disciplinary and needed to understand the hospital operating processes. They had also considered it necessary that there be a proper classification of both costs and patients as well as a cost accumulation process which included the proper selection of cost drivers. Top management was aware of the absolute need for collaboration on the part of the physicians. A subsequent visit to the hospital involving three interviews with physicians from three of the 18 medical areas, image diagnosis, gynecology and cardiology, were made to with the objective of determining potential resistance on their part. No potential resistance was detected. Reports representing output from the information system was collected at this time.

The third interview with the CFO and Controller involved a discussion of their presumptions regarding positive collaboration by the physicians, our interviews with the sample of physicians, and the conclusion that their presumptions were well founded, and that there did not appear to a problem of potential resistance on the part of the physicians. Having effectively discarded the internal sources of problems, the discussion then focused on existing problems resulting from interaction with external parties such as the taxing authority and INSALUD as well as with the consulting firm assisting in the design of the ABC system. Due to its legal status as a foundation hospital, there were several accounts utilized which were not normally utilized in the health care sector. The use of these accounts by hospital had created confusion in dealing with both the tax authority and INSALUD and these issues were ultimately resolved. There were also some design related difficulties due to the consulting firm, Cap Gemini's incomplete understanding of the clinical processes which lead to several technical problems regarding the mapping of activities and documentation of the critical path protocols. These design issue were eventually resolved with the collaboration of the clinical personnel.

The objective of the subsequent visit to the hospital was to review the ABC system design documentation we had received from top management in the initial interview. The design of the system involved three stages: the cost classification stage, the process assignation stage, and the establishment of valuation criteria (full vs. direct costing, actual vs. normal costing, etc). In this visit we were also able to briefly interview the hospital director and verify that there were no differences of opinion between top management and the hospital director regarding the benefits of the ABC model.

The value chain of clinical services hospitals provides to patients is comprised of three parallel processes and involves three business functions, as depicted as follows:

**Figure 1: Hospital Value Chain**

The clinical process is the core operating process, while the technical and hostel are support processes. In hospitals, patients are classified based upon diagnosis, e.g. what clinical process is necessary to treat the identified condition. These classifications are referred to as DRGs (diagnosis related groups) and the hospital case-mix is the mix of DRGs. A DRG is a classification of a standard treatment protocol or critical pathway for treating a particular medical condition. The DRG is determined by first identifying the pathology, and secondly identifying any complications within the pathology. Hence the DRG involves developing the expected sequence and timing of patient treatment processes and is intended to give the physician a concrete idea of the minimum cost procedure the average patient should receive to obtain effective treatment. The actual treatment received depends upon several factors, including the severity of the patient's condition, etc, hence it must be noted that the DRG reflects an average standard cost and does not have a direct relationship to the costs incurred for a specific patient. DRGs have the effect of clustering patients and are an intermediate level cost object in a healthcare organization<sup>8</sup>.

Foundation hospital Alcorcón initially designed the ABC system to capture four clinical processes – hernia, childbirth delivery, orthopedic surgery, and cataracts; the model would subsequently be expanded to include more clinical processes. We reviewed the four clinical process descriptions as well the critical path protocol descriptions which were codified as DRGs. Each clinical process contained several DRGs and we examined one DRG from each clinical process. The following is a partial illustration of the documentation for the clinical

<sup>8</sup> Managing a DRG environment is similar to managing a multi-product firm, where product-line management requires an accountability structure which assigns responsibility to “product lines” to those who control the production process (Comerford & Abernathy, 1999). Historically, hospital accounting systems have been designed and used primarily to report to external parties, e.g. government and other third party payers (see the Appendix for a description of the traditional hospital cost accounting systems). There was little demand for the accounting system to serve as a management planning and control tool, as there were few incentives to control costs.

process for a hernia, of which there are three possible DRGs. The first four protocol stages are diagnostic and the fifth stage is a treatment stage.

**Figure 2: Critical Process Description for Hernia**

Stage of Protocol:	DRG types:	DRG Codes		
		300	315	320
Epidemiology <sup>15</sup>				
Description and diagnostic problems				
Physical exploration				
Complementary tests				
Treatment program and follow-up				

The mapping of the clinical processes had been identified as a difficult problem by the CFO and Controller. This involved a creating a hierarchy utilizing the clinical process, the business function process, the macro activity, and the task or micro activity. We reviewed the methodology employed to codify the different tasks, activities and including a review of the documentation. Costs were accumulated in cost pools at the task or micro activity level and coded at that level. These activities could then be rolled up into the next level – macro activities, which could then be rolled up to the next level – business function processes, which could then be rolled up into the DRG, as illustrated below.

**Figure 3: Mapping of DRG 300 of the Clinical Process Hernia**

Business function process	Clinical process: Hernia						DRG: 300		
	11 Admissions			12 Diagnostics			13 Treatment		
Activity (macro)	111	112	112	121	122	123	131	132	133
Task (micro activity)	1111	1121	1121	1211	1221	1231	1311	1321	1331
	1112	1122	1122	1212	1222	1232	1312	1322	1332

Regarding the routings in the critical path protocols, each physician generally had his own idea of what the route should be, which was a major concern expressed by the CFO and Controller. Consequently, routing documents were developed for each clinical process, which would generally involve several DRGs and is illustrated below. We reviewed these documents which served primarily served as points of reference for the physicians as opposed to a control mechanism. Also note that the protocol and the DRG provide redundant information since they refer to the same thing.

**Figure 4: Routing Document for the Clinical Process Hernia**

Clinical process: <b>Hernia</b>		Protocol:		DRG:	
Cost Center:	Category:	Day:	Pre-hospital	Day 1	Day 2
External visits	Physician		1211		
Administrative	Secretaries		1111		
Hospitalization	Physician		1221	1221	
	Nursing		1231	1231	
Surgery	Physician		1311		
	Nursing		1321		

The ABC system provided reported costs for three objects – the tasks or micro activities, the DRGs and the patients. In concluding the review and evaluation of the ABC system, we reviewed the cost documents for these cost objects. The following is an illustration of the cost document for the intermediate products, e.g., the micro activities.

**Figure 5: Micro Activity Cost Document**

Cost Center	Medicine	Hospitalization	
Intermediate products	1211	1221	...
Costs:			
Materials			
Pharma products			
Sanitary ..			
Personnel			
Physicians			
Nursing			
Hospital Overhead			
External services			
Depreciation, ...			
Total			
Number of units			
Cost per unit			

The cost document for DRGs utilizes the codes established in the clinical process description documents, and is illustrated below.

**Figure 6: DRG Cost Document**

Clinical process:		Protocol No.:		DRG code:	
Operation name:			Operation code:		
Location within hospital:				Day:	
Cost center in which operation is performed:					
Resources Utilized:		Type	Quantity	Day	
	Human				
	Technology				
	Materials				

The documentation for the final cost object in the ABC system is presented below.

**Figure 7: Patient Cost Document**

Patient data			
Clinical process:		DRG code:	
Protocol No.:			
	Admission	Diagnosis	Treatment
Administrative process			
Medical process			
Lodging process			
Technical process			
Cost per activity			
			Cost per patient

The design and development of the foundation hospital Alcorcón incorporated an ABC system, as this was perceived by the CFO and Controller to be the optimal cost measurement system. As commented by the CFO in the first interview, the government in power intended for the foundation hospital Alcorcón to serve as a model for existing and future hospitals. Hospital Alcorcón has been ranked as one of the top four general hospitals three out of the past four years, by the association Iasist, the Spanish affiliate of Solucient International<sup>9</sup>. The CFO's prior experience with ABC design and implementation issues, not the least of which was the absolute necessity of collaboration on the part of the clinical personnel, was fundamental to the ultimate successful implementation at foundation hospital Alcorcón.

## DISCUSSION

Responding to the expectations and expressed preferences of both the citizens and the physicians, INSALUD began a modernization process, which included the creation of public foundation hospitals<sup>10</sup>. The creation self managed legal public foundation hospitals, combined with the steps taken to progressively introduce a management culture in traditional hospitals, was directed towards creating a profound change which would facilitate and promote the search for new progressive forms of management seeking to create effective clinical practice with an efficient utilization of resources (Ferrándiz Manjavacas, 1999).

One of the main premises underlying the search for new efficient and effective management models was the free enterprise model emphasizing the competitive (albeit non-profit) organization as opposed to the bureaucratic organization. Hence it was essential that these centers operate as separate legal entities independent from the health institutions on which

<sup>9</sup> Solucient International is the organizing company for the Top 100 Hospitals in the United States. Iasist has organized a similar benchmarking of top hospitals in Spain. For further information on the ranking results see <http://www.diariomedico.com/grandeshist/top202004.pdf>

<sup>10</sup> Ley 15/1997. This law established the creation of the new public foundation hospitals. Two foundation hospitals were created, Foundation Hospital Alcorcón in Madrid and Foundation Hospital Manacor in Palma Majorca.



they are dependent. This way these centers will be submitted to a juridical system with less administrative bureaucracy without losing their public entity nature, e.g. the mission of providing health care services (Martín Martín & Maneul-Keenoy, 1998). The relationship between the public foundation hospitals and INSALUD (and the Health Ministry) at the time of the creation of the first public foundation hospitals can be described as follows. INSALUD was both the owner and financing entity of the public foundation hospitals, as was the case with all hospitals in Spain until the transfer mandated in 1986 was completed in 2002 at which time the autonomous communities assumed the role of owner and financing entity. However, whereas traditional hospital employees are civil servants, employed by the Health Ministry and operate under contracts subject to administrative law which governs all transactions involving government agencies, including employment conditions, the employees of the public foundation hospitals are employees of the hospital itself and operate under contracts subject to labor law. This difference in employment agreements results in the ability, among other things, to utilize different incentive programs. These new public foundation hospitals were designed from the beginning to offer state of the art medical facilities, combined with a contemporary managerial culture in a bid to attract the best physicians from traditional hospitals (Núñez Feijóo, 1999). Hence, those physicians who were critical of the inert bureaucratic nature of the traditional hospitals were free to migrate to the better equipped and managed public foundation hospitals but in doing so would forfeit their civil service status.

Furthermore, according to the terms of the financial agreement of 1998, the public foundation hospitals could retain any favorable budget surplus which could be invested in improvements, new installations etc; a situation significantly different from traditional hospitals in which positive budget surpluses were remitted to INSALUD. In contrast to this new system, the current public sanitary organizations lack autonomy and thus have serious difficulty introducing incentive systems designed to create a more competitive organization focused on achieving better results.

The fundamental conflict of interest between physicians and management resulting primarily from their different socialization experiences (Derber & Schwartz, 1991; Lurie, 1981) and resultant value sets is compounded by the hyper-bureaucratic nature of the Spanish health care sector, where physicians are civil servants employed by the state rather than the hospital itself. The design and implementation of an ABC system absolutely requires the cooperation and input from the physicians (Hussey and Holford, 1993; King et al., 1994), who as “dominate professionals” both have knowledge of and control the core clinical processes (Friedson, 1975). However, these physicians have viewed the attempt to introduce more sophisticated costing systems such as ABC as effectively leading to a loss in their autonomy and have been unwilling to conform to these institutional pressures.

When faced with this resistance, it could be argued that the Spanish government opted for a strategy of creating new hospitals with a managerial culture rather than trying to change the culture of the traditional hospitals, which are taken-for-granted institutions (Ruef & Scott, 1998); the successful operations of these new hospitals would serve as a model for both existing and future hospitals. Rather than attempting to explain this emerging organizational diversity via adaptation theories, we suggest utilizing population ecology theory, which

challenges the adaptation view and argues that the observed changes in organizations reflects changes in the population in which new organizations emerge to replace highly inert organizations, as opposed to changes in the organization due to adaptive behavior (Hannan & Freeman, 1984). There are two significant aspects to population ecology which should be emphasized. The first raises the fundamental question of whether observed diversity is due to adaptation or to selection and replacement. The second aspect is that population ecology takes the population as its unit of measure, as opposed to the organization itself.

Population ecology argues that the selection processes tends to favor organizations with high levels of structural inertia, such as traditional Spanish hospitals.

“...for wide classes of organizations there are very strong inertial pressures on structure arising from both internal arrangements (for example, internal politics) and the environment (for example, public legitimatization of organizational activity). To claim otherwise is to ignore the most obvious feature of organizational life” (Hannan & Freeman, 1977: p. 957)

The creation of new organizations, designed specifically to take advantage of some new set of opportunities, is one of the most important kinds of threats to existing organizations (Hannan & Freeman, 1984) and may be seen as a rational response from the Spanish government to the resistant of physicians to conform to New Public Management pressures.

## CONCLUSION

The health care sector has been under pressure to the management of health care services due to among other things the transformation from a fee-for-service model to a system of prospective payments schemes. Effectively, this has transferred the economic risk of providing health care services from the funding entity to the hospital. It has become imperative that hospitals have both prospective and retrospective reviews of high volume clinical procedures in order to assess resource utilization and for contracting with payors, thus arguing for the introduction of improved costing systems such as ABC.

Organizational theories such as institutional sociology suggest that the observed diversity amongst organizations is due to adaptation, specifically that organizations have an isomorphic response to environmental pressures in order to ensure their legitimacy and survival (Covaleski & Dirsmith, 1988). This would suggest that hospitals conform to pressures to implement a managerial culture including the implementation of improved costing systems such as ABC. However, the institutional sociology literature has been criticized for a lack of studies focusing on the actual process of change as opposed to the result (op. cit.; DiMaggio, 1988), e.g., it has overlooked the advantages of non-compliance by political players amongst other things in an attempt to maintain autonomy over decision making (Oliver, 1991; Scott, 2001).

The relationship between physicians and hospital management is highly conflictive mainly due to the different socialization experiences and value sets of the two groups (Derber & Schwartz, 1991; Lurie, 1981). Physicians are “dominate professionals” who control the core

clinical processes (Friedson, 1975) and whose decisions commit up to 70-80% of hospital resources (Flood & Scott, 1978; Hillman et al, 1987), yet have essentially no responsibility for the economic consequences of their decisions (Young & Saltman, 1985; Weiner et al, 1987; Burns et al, 1993). The inconsistencies between the institutional expectations shared by management and the internal clinical objectives of the physicians, combined with the skepticism of physicians regarding the legitimacy of the institutional objectives, suggest the high probability of a strategic response on the part of physicians of non-compliance. This probability is augmented by the general absence of managerial training and education on the part of the physicians.

In investigating the implementation of ABC systems in Spanish hospitals, we found only one successful case, the hospital Alcorcón, a new foundation hospital (Urrutia, 2001). Given the hyper-bureaucratic nature of the Spanish health care sector and the resistance by state employed physicians to conform to pressures to improve costing systems, it could be argued that the Spanish government, rather than trying to change the culture of traditional hospitals opted to create new foundation hospitals imbued with a managerial culture. Rather than view the emergence of this new hospital as an adaptive response to institutional pressures, it can be viewed per population ecology theory (Hannan & Freeman, 1984) as the emergence of new more efficient organization which will ultimately supplant the highly inert traditional hospitals within the Spanish health care provider population.

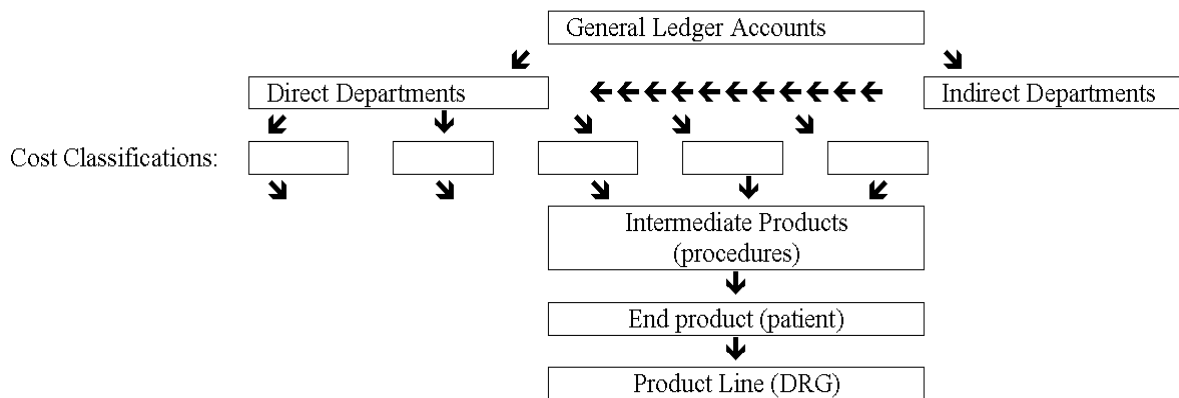
Successful design, implementation and subsequent operation of an ABC system in a hospital absolutely necessitates the full collaboration of the clinical personnel. As evidenced in the case of foundation hospital Alcorcón, the consulting group encountered difficulty modeling the clinical processes due to their incomplete understanding of these processes, thus supporting King et al.'s (1994) argument that the collaboration of the physicians was absolutely necessary for the design of the ABC model. These activity mapping issues were successfully resolved with the full collaboration of the physicians, thus allowing the ABC project to proceed to successful implementation.

This paper contributes to the institutional sociology literature by addressing one of its primary criticisms of being static and deterministic (Dacin et al, 2002; Scott, 2001) by exploring the institutional factors in the Spanish health care sector in an attempt to provide insights into the internal political conflict between physicians and hospital management and the predicted strategic responses of hospitals as well as the subsequent response by the Spanish government. This paper also expands on the previous literature by examining implementation in a significantly different setting than previous studies – a Latin as opposed to Anglo-American environment, and by focusing on costing systems as opposed to control systems, the primary focus of previous studies.

As with most empirical research, including case studies, there are potential limitations. The case study was limited to one hospital in the Spanish health care sector hence limiting the ability to generalize conclusions and suggesting that further research needs to examine other hospitals. A second potential limitation in the reference to population ecology theory is the use of the hospital as the unit of measure as opposed to the population. This again argues for further research examining other hospitals.

**Appendix**

The traditional cost system for hospitals works in the following manner. Costs are accumulated in departments which are designed as either direct or indirect. A direct department is revenue producing; i.e., it creates services and procedures that can be traced to a specific patient. Indirect departments are non-revenue producing and all costs are fixed. All indirect department costs are allocated to the direct departments using the step-down method. Then all direct department costs (variable and fixed) are assigned to a number of different intermediate products (stand alone medical services and procedures) based a ratio-of-costs-to-charges (RCC) or a Relative Value Unit (RVU) approach, both of which indicate the relative amount of resources used by that intermediate product. The RCC is a *top-down approach* which focuses on aggregate information and makes broad assumptions that may not reflect the actual costs of a particular procedure. The RVU is a *bottom-up approach* which focuses on the actual costs of a procedure. The summation of RVUs for a department is 1. The RVU approach allows costs to be captured without having to actually measure every single operation (activity) performed to complete the procedure. Hence the total cost of an intermediate product is determined by multiplying this ratio by total cost of the department. The actual unit cost of the intermediate product is then determined by dividing the total cost of the intermediate product by the actual volume of the intermediate product. Later the cost per patient is determined by accumulating the per unit intermediate product costs attributable to the patient. This is graphically depicted below:



There are two fundamental problems with this approach. The first is the origin of the RVUs. This is especially a problem in Spain, since these amounts are obtained by simply using RVU amounts published by the Health Care Financing Administration (HCFA); amounts which are developed in U.S. hospitals. The second problem is that the per unit intermediate cost is determined by using actual volume and not some measure of capacity.



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## NOTAS

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