

The Innovation of the Role of Accounting in Public Hospitals - Lessons Learned from Hospital Financing Reforms in Indonesia and Germany

Dissertation

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Abbreviations

ABC	Activity Based Costing
ALOS	Average Length of Stay
AR-DRGs	Australian Diagnostic Related Groups
Askes	<i>Asuransi Kesehatan Sosial</i> or Social Health Insurance
Askeskin	<i>Asuransi Kesehatan Masyarakat Miskin</i> or Health Insurance for the Poor people
BLU	<i>Badan Layanan Umum</i> or Public Services Agency
BOR	Bed Occupancy Rate
BPJS	<i>Badan Penyelenggara Jaminan Sosial</i> or Social Security Administering Body
DAK	<i>Dana Alokasi Khusus</i> or Special Allocation Grants
DAU	<i>Dana Alokasi Umum</i> or General Allocation Grants
DRGs	Diagnostic Related Groups
EDV	<i>Elektronische Datenverarbeitung</i> or Electronic Data Processing
EU	European Union
GDP	Gross Domestic Product
G-DRGs	German Diagnostic Related Groups
GmbH	<i>Gesellschaft mit beschränkter Haftung</i> or Limited Company
GNI	Gross National Income
HoF	Head of Finance Department
HoPs	Head of Physicians
INA-DRGs/ CBGs	Indonesian Diagnostic Related Groups/ Case Based Groups
InEK	<i>Institut für das Entgeltsystem im Krankenhaus</i> or Institution for payment system in hospital
Jamkesda	<i>Jaminan Kesehatan Daerah</i> or Local health insurance
Jamkesmas	<i>Jaminan Kesehatan Masyarakat</i> or Public Health Insurance for poor people
Jampersal	<i>Jaminan Persalinan</i> or Maternity Insurance
Jamsostek	<i>Jaminan Sosial dan Tenaga Kerja</i> or Workforce Social Security

KIS	<i>Krankenhaussinformationssystem</i> or Hospital Information System
MoF	Ministry of Finance
MoH	Ministry of Health
NCC	National Centre for Casemix
OECD	Organisation for Economic Cooperation and Development
Perjan	<i>Perusahaan Jawatan</i> or state owned enterprise
PPS	Provider Payment System
PT	<i>Perseroan Terbatas</i> or Limited company
Puskesmas	<i>Pusat Kesehatan Masyarakat</i> or Health Centre
SJSN	Sistem Jaminan Sosial Nasional or National Social Security System
Susenas	<i>Survey Sosial Ekonomi Nasional</i> or National Economy Social Survey
THE	Total Expenditure on Health
WHO	World Health Organization

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Chapter 1: Hospitals' Responses, the Role of Accounting, and Diagnostic Related Groups (DRGs) based Provider Payment System (PPS)

1.1. Introduction

1.1.1. DRGs system – a panacea for inefficient hospital sector?

The persistent rise of healthcare sector expenditure within an unstable global economic situation has caused repeated calls for healthcare reforms. Subsequently, recent reform proposals in many countries (see for instance Geisler et al., 2011) have emphasized on cost containment and efficiency improvement in healthcare provision. In these reforms, hospital sector has become a primary target of reconfiguration as it could absorb up to 70% of the overall health care budget¹. As a result, the past thirty years there has been an increased concern on hospital sector's efficiency not only in developed, and more recently in developing countries.

Provider payment system (hereafter PPS) is one of the key aspects of hospital sector efficiency. This system arranges both mechanism and amount of money that have to be paid to hospitals for their services. According to Langenbrunner et al. (2009), PPS is commonly targeted to change because of its potential ability to change hospitals' behaviours. They maintain that each PPS create economic incentive that able to stimulus certain hospitals' behaviour. In traditional fee-for-service payment system, as an illustration, hospitals are paid at the costs for each delivered service. Hence, hospitals have an incentive to maximize utilization of resources because all their costs can be claimed and in turn financial risks minimized (Casto and Layman, 2006). In fact, such incentive could be stronger as clinicians, given their professional priority in saving lives, have similar interests in doing so.

Furthermore, a prospective payment system called Diagnostic Related Groups (hereafter DRGs) has been widely adopted in reform proposals across the globe including in developing countries (e.g. Vietnam, Indonesia). The adoption of this new payment system seems to be the most important element within the reforms. The adopters believe that DRGs based PPS could help them to remedy inefficient practices within their hospital sectors that have been created by the old payment system. In this system, hospitals are reimbursed per case rather than per day or per delivered service. Its reimbursement fees are lump sum and determined based on average actual

¹Hospital costs are responsible for 50 per cent of health care budget in many western European countries, and even 70 per cent in the former Soviet Union countries (McKee and Healy, 2002)

costs of each DRGs case (Dismuke and Sena, 1999). Consequently, the actual costs of patients might not be fully recovered and thus, hospitals are required to seek a cheaper alternative to treat patients in order to gain surplus or at least to avoid loss. Thus, hospitals finally obtain the required incentive to contain costs (Sanford et al., 1987).

According to Geisler et al. (2011), DRGs have been adopted in European countries with different intentions but similar reasons. Finnish DRGs system for example is adopted to assess hospital case-mix while the French DRGs version is employed with intention to pay hospitals (Geisler et al., 2011). Besides, some countries adopt DRGs as a new payment system through an incremental and stepwise implementation, whereas the others have taken a short cut to directly use it as the payment system (Geisler et al., 2011). However, the purpose of the DRGs adoptions are similar, namely to improve transparency, efficiency and in turn, the quality of hospital services (Geisler et al., 2011).

Theoretically, the DRGs-resulted incentive can encourage hospital administrators to expand admissions and shorten the hospitalization days per case (Geisler et al., 2011). Such responses seem to be a rational way to gain optimal profit since the reimbursement rates are fixed for each DRGs case. Many studies, in fact, have documented these classical and common hospitals' responses to DRGs payment (e.g. Rosko and Broyles, 1987 in the US cases, Louis, et al., 1999 in Italian case, Theurl and Winner, 2007, in Austrian case). The problem is, however, such responses do not always indicate a successful efficiency improvement in hospitals. Ellis and McGuire (1996), for instance, have documented different causes of shorter average length of stay (hereafter ALOS) following DRGs payment adoption in New Hampshire. Their study unveiled that a portion of the ALOS reduction can be attributed to moral hazard and practice-style effect, rather than hospitals' achievement in efficiency improvement.

In essence, these divergent research results indicate the need of further and deeper investigations on the implication of DRGs payment systems for providers and the ideal design of DRGs system (Busse, 2012). More importantly, research on hospital reactions and their determinants are imperative because their responses can affect the success of a hospital financing reform and quality of hospital services. Despite many studies that have been conducted to empirically prove the outcome of DRGs systems to hospital performance and hospital responses (e.g. Borden, 1998 and Donaldson and, 1992), only few studies elaborate on the reasons and determinants behinds the hospitals' responses (e.g. Herding and Preker, 2000). This topic is worthwhile to study because more and more middle – income countries have developed DRG-based PSS (Mathauer and Wittenbecher, 2012) with a similar purpose, but divergent implementation route, capability

and organizational hospital setting. These differences make DRGs systems are poorly understood (Quentin et al., 2011) and required further investigations.

1.1.2. The role of accounting within DRGs based payment system

“Sometimes changes in organisations are part of any reform and some reforms produce little or no change at all” (Melchor, 2008: p.9)

In the previous provider payment system, cost accounting played a less significant (Tan et al., 2011). In contrast, a DRGs based PPS relies heavily on high quality and truthful cost accounting systems within hospitals (Tan et al., 2011). The reason is that the system needs to “[...] summarize the confusingly large number of different (individual) patients treated by hospitals into a manageable number of clinically meaningful and economically homogeneous groups, thus providing a concise measure of hospital activity, or in other words, they define hospital products” (Quentin et al., 2011: 25).

Thereupon, it can be argued that a strong interplay between hospitals’ responses, DRGs system and the hospital accounting exists. Firstly, a DRGs system requires precise cost information to establish fair reimbursement fees that reflect average actual costs in hospitals. These fees play a vital role not only to incentivize hospitals, but more importantly to ensure efficiency improvement in hospital sector as a system. Tan et al. (2011) maintain that too low tariffs could stimulate unintended hospitals’ responses whereas too high tariffs potentially hinder efficiency improvements. Accordingly, high quality hospital cost data is required within the development and update of DRGs systems (Quentin et al., 2011).

Secondly, capacity of hospital accounting systems could shape hospitals’ responses. Quentin et al. (2011) suggest that hospital management cannot evaluate and control cost of each DRG case unless the hospital accounting has provided accurate and detailed cost information. The management may not know whether their actual costs of DRGs-related patients are below or above the DRGs rates (Quentin et al., 2011). Consequently, “[...] the hospitals may attempt to reduce costs in a blunt fashion” (Hill, 2000: 64) and thus, financial viability and service quality of the hospitals could be deteriorated.

In the reality, DRGs payment systems are adopted in different setting of accounting practice. The payment system could operate in hospitals where accounting plays a marginal role and clinical sub-cultures and administrative sub-cultures are decoupled (Pettersen, 1999). Consequently, accounting innovation e.g. accounting system improvement, new accounting techniques adoption

and enhanced role of accounting in medical activities seems to be inevitable. But, the implantation of economic rationality and accounting logic into public hospitals could be problematic. Firstly, public sector accounting is not neutral socially, politically or economically (Broadbent and Guthrie, 1992, as cited in Guthrie, 1998). Any accounting innovation should represent the change of ideology and the establishment of economic logic in public hospitals rather than merely the use of new accounting techniques. Secondly, administrative activities and clinical activities in public hospitals could be decoupled or disjointed. Subsequently, accounting innovation in public hospitals fail to achieve their objectives because accounting logic do not penetrate into hospitals' medical activities (Pettersen, 1999)

Based on the above discussions, accounting has apparently a crucial role not only in hospitals, but also in the whole DRGs system. The new PPS requires case based cost information that might not have existed in the past. Besides, Webster and Hoque (2005) argue that public hospitals had traditionally few incentives for controlling cost. Therefore, this study predicts the emergence of new management accounting/ controlling practices in hospitals in the DRGs era. This innovation can be viewed as the hospitals' initial responses' to DRGs system adoption. More importantly, the innovations could signify hospital's intention to improve efficiency and control costs. Finally, public hospitals are selected not only due to their dominant role in hospital sector but also their unique and complex organizational characteristics. Meanwhile, case study method is selected because it provides a relevant context and setting that are required to deeply investigate accounting changes in public institutions (Marcon and Panozzo, 1998).

1.1.3. Divergent Results of Hospital Financing Reforms in Indonesian and Germany

“[...] reforms do not always produce change and changes are not always the product of reform efforts” (p.4) [...] reforms are not risk free and may generate unintended consequences” (Melchor, 2008:p.39)

Indonesia's hospital sector is now in the ongoing process of reforms. Based on their objectives, these reforms could be distinguished into two phases namely, autonomization phase and cost containment phase. In 2005, the Indonesian government has introduced a more business-like public sector organizational form including in public hospitals through the creation of *Badan Layanan Umum* (BLU or Public Services Agency) status. The BLU status gives the public sector administrators a wider autonomy and authority to manage their organization. Meanwhile, the second wave of reform intends to improve efficiency in the hospital sector through the

introduction of Indonesian Diagnostic Related Groups/ Case Based Groups (hereafter INA-DRGs/CBGs). The government have implemented the DRGs system since 2007.

Similarly, previous German hospital financing reform has introduced the German version of the DRGs system (hereafter G-DRGs). Ernst and Szczesny (2008) believe that the DRGs based PPS adoption can be viewed as a substantial effort to improve hospital efficiency as well as to contain expenditure in the health care sector. This new payment system has been mandatory for all hospitals since 2004 and it is used to reimburse the inpatient cases (Porter and Guth, 2012).

However, the implications of INA-DRGs/CBGs for hospital sector performance are apparently different from the results of G-DRGs. The INA-DRGs/CBGs adoption has not been followed by a significant reduction of national ALOS, although the case number has gradually risen². Moreover, problems and obstacles have been uncovered e.g. the rejection of some private hospitals to serve DRGs-related patients due to unfair reimbursement DRGs rates and unreadiness of Indonesian local public hospitals to adapt to the new payment system³. On the other hand, the German Federal Statistical Office (2013) has reported a significant decline of national ALOS and rise of productivity of German hospitals particularly after G-DRGs adoption. It also unveiled the drop in the number of hospital, mostly public hospitals, in the recent decade and the tendency of hospital speciality has been also noticed.

Based on above brief and preliminary assessment, it seems that Indonesian hospitals react in a different way from German hospitals to the DRGs system. Thus, this research seeks the explanation behind and highlights lessons learned for improvement of the DRGs systems. Besides, this study was carried out in Indonesia and Germany in order to capture the distinctive circumstances between a developing and lower-middle-income country and a developed and high income country⁴. To gain practical, rich and actual findings, thus, this research employs multiple-case studies in two selected Indonesian public hospitals and two selected German public hospitals. This direct comparison study is expected can improve our understanding and knowledge on DRGs payment system.

²According to statistical data published by Indonesian MoH (2007, 2008, 2009, 2010, 2013)

³Source: (<http://otomotif.kompas.com/read/2009/02/26/17142959/direktori.html>)

⁴According to GNI per capita rank published by World Bank (2013). Source: api.worldbank.org/datafiles/NY.GNP.PCAP.CD_Indicator_MetaData_en_EXCEL.xls

1.2 Research design

1.2.1. Problems definition

This dissertation is designed to explore communalities and differences between recent hospital financing reform in Indonesia and Germany, the responses of the selected Indonesian and German public hospitals and their determinants, and finally, to explore preconditions and requirements of a better DRGs system implementation based on lessons learned from the Indonesian and German cases. Moreover, the role and practices of accounting in Indonesian public hospitals have been poorly studied. As the DRGs system required a more detail and unit level costing information, this study explores the drawback of accounting practices in the selected Indonesian public hospitals and compares them to accounting practices in the selected German public hospitals. The comparison enables the researcher to propose required accounting practices in DRGs payment system.

Also, this research addresses the questions why accounting has not functioned as it supposed to and seeks the answer why the reform does or does not trigger accounting innovation in public hospitals. Through suchtwo sided explanations, a better understanding of the hospital's reaction to DRGs system can be attained. However, this study does not aim to evaluate directly both the outcome of DRGs system to public hospitals performance and efficiency of health care system. Rather, it is a case study research that intends to illustrate and explore the reasons behind certain public hospitals' responses to the DRG based payment system.

1.2.2. Research objectives and questions

Extensive studies on the outcomes of DRGs adoption for hospital efficiency and the hospital responses have been mostly conducted at macro level and based on quantitative approaches (e.g. Shmueli, et al., 2002). The quantitative studies have provided empirical proofs on the relationship and correlation between DRGs systems and hospital performances. But, these studies barely explored the rationales and the reasons behinds specific hospitals behaviours followed the adoption of DRGs systems. Accordingly, qualitative study is needed to explore the rationale behind hospital behaviours. Besides, most of these studies were conducted in developed countries which their hospital sectors' characteristics and environment are significantly different from hospital sectors in developing countries. Consequently, there is a void of knowledge on DRGs systems in developing countries and the hospitals' reactions to the new payment systems. For this reason, the purposes of this research are:

1. to investigate and analyse the similarities and differences of hospital financing reform under DRGs payment systems between Indonesia and Germany
2. to investigate and illustrate the selected Indonesian public hospitals and German public hospitals responses' to the new payment system and their determinants
3. to explore and link anticipated accounting innovation resulted from the DRGs reforms with the public hospital responses
4. to highlight and formulate several learned lessons for a better design of DRGs payment system

Accordingly, several research questions are proposed and answered in the next chapters in order to achieve the above mentioned objectives. These research questions are:

1. With the main focus being on the adoption of the DRGs system, what are the differences and similarities in relation to the hospital financing reforms in Indonesia and Germany
2. What are the similarities and differences in the responses of selected Indonesian and German public hospitals with respect to the adoption of the DRGs
3. How the DRGs based PPS improve the role of accounting and its practice in the selected Indonesian and German public hospitals
4. When a comparison is made between them, what are the basic requirements and preconditions that can be learned about the effective adoption of a DRGs based payment system

Moreover, Indonesia and Germany are selected as the research sites in this study because:

(1) Both countries can represent developed and developing countries. On the one hand, Indonesia represents a health care sector in developing countries where low density of hospitals and limited hospital resources challenge the adoption of the DRGs system. The country is also still struggling to improve the equality, quality and capacity of health care sector through universal coverage initiative. On the other hand, German health care sector represent a more sustainable health care sector which have higher hospital density and capacity. In addition, German case provides a good insight of common situation and challenges of the health care sector in developed and high income countries.

(2) Personal interest to conduct a comparative research in both countries. The author has studied and lived in both countries for some years. These life and academic experiences enable the

researcher to gain not only daily experiences as a user but also knowledge of administrative, economic and health care system directly from the sites.

(3) Language skills. As this case study requires direct contact with and observation of the research object, the Indonesian and German skills are imperative for the researcher. The interviews for example are more comfortable and open if the interviews are conducted in their national language. Having sufficient German skills helps the researcher to manage required interviews in the German public hospitals.

(4) Personal motivation to contribute in development of public accounting research particularly in Indonesian public hospitals. Currently, the role of accounting and accounting practices in Indonesian public hospitals are understudied, although the hospitals have been subjected to organizational transformation and efficiency improvement since the early 2000s. The study in accounting within hospitals in transition is required as cost information is important element particularly in DRGs based payment era.

1.2.3. Significances of the research

This dissertation contributes not only for the policy makers but also literature of hospital accounting and financing system particularly in Indonesia context. First, the results can be considered as a preliminary evaluation of INA-DRGs/CBGs and G-DRGs systems. Moreover, this study evaluate the hospitals' responses as well as provide explanation behind the hospitals responses and strategies to the new payment system. Having these informations, the government can improve the DRGs design and reconfigure the related system in order to unfold its positive outcomes.

Secondly, this study contributes to public hospital accounting and hospital sector financing studies. These research areas have been poorly studied within the developing countries context. Comparative study that involved a developing and a lower-middle income country and a developed and high income country could give opportunity for a better understanding of DRGs systems. At last, it gives opportunity for the author to enhance his capacity in doing qualitative case study and it could be a cornerstone to do further research in the area of public hospital accounting and health care financing in Indonesia.

1.2.4. Structure of the Dissertation

This dissertation consists of seven chapters. The first chapter depicts the overview of the dissertation that includes the research background, objectives, questions and a brief methodology. Following that, the second chapter provides a literature review on hospital financing reforms and accounting innovation in public hospitals as well as its correlation. In chapter three, an overview and a comparison of the Indonesian and the German health care system are presented in order to guide the reader to understand the responses of the selected public hospitals to the new payment system. This includes an in-depth analysis of the main focus of this research, namely the DRGs based payment system. In chapter four, the systematic research procedure and methodology is described. Later on, chapter six provides the research results, namely the implication of DRGs based payment system for the health care system and hospital sector performance (macro analysis) and for selected Indonesian and German public hospitals (micro analysis). The discussion about the findings as well as the proposal of precondition and requirements of an effective DRGs system are presented in chapter six. It is followed by the elaboration of research limitations and remaining unanswered questions for further research. Finally, a summary of all findings and conclusions are presented in chapter seven.

Chapter 2: The Role of Accounting in Hospital Financing Reforms

The periods of economic instability associated with the World War II have shaped a new ideology in public good provision, including in how public sectors are managed and financed (Hopwood, 1992). Such continued economic pressures have stimulated a greater call for efficiency improvement in public sectors, including in the health care sector (Hopwood, 1992). Hence, efficiency has been an important topic in the discussion on the provision of hospital cares and proposals to improve the efficiency of health care sector has been implemented across the globe.

As a result, accounting has been playing a more vital role as the demand for financial rationality and accountability have substantially increased (Lapsley, 1996), particularly in public hospitals where accounting used to play a marginal role. The reason is, according to Hopwood (1992), accounting can make detection of inefficient practices possible and ensure a better performance of the public sector can be attained in the future. However, the infiltration of economic and accounting logic in public hospitals can be problematic because the core hospital activities are controlled by head of physicians who might not ready for a transparent organizational evaluation (Llewellyn and Northcott, 2005). Subsequently, any efficiency inspired reforms could be challenged or even rejected by physicians.

This chapter is designed to discuss the linkage between hospital financing reforms, hospitals' responses and accounting practices in public hospitals. It includes the elaboration of the hospital financing reform through the introduction of prospective payment system under DRGs based system. Finally, two commonly used organizational theories e.g. contingency theory (e.g. Jones, 1985; Rayburn and Rayburn, 1991) and institutional theory (e.g. Covaleski et al, 1993; Järvinen, 2006) are discussed. These theories have been widely employed to explain accounting changes in public sectors. Therefore, they are used in this study to interpret and link accounting innovation and the hospitals responses.

2.1. Accounting innovation in public hospitals

Within the western world, the public sector including health care sector has been long targeted to managerial changes (see for instance, Broadbent, 1992). Pettersen (2004) argue that the public hospitals particularly have been forced not only to improve their medical service qualities, but also to contain costs. This demand can be seen as a shift of governments' principle concern from quality and hospital care access to economic and financial interest inspired concern (e.g. in the USA in the mid-1970s in Chua and Preston, 1994). Consequently, accounting has played a vital

role and the utilization of accounting information has been expanded and improved within hospital services (Broadbent, 1992). As one of crucial element, however, far too little attention has been paid to management accounting system in public hospitals especially in countries under transition (Hassan, 2005). Until now, most studies in the area have been taken place in Western and European countries such as U.K, New Zealand and U.S.A (Hassan, 2005). Therefore, this section discusses hospital accounting and its changing role in transformed public hospitals. It demonstrates how the role of accounting has evolved in public sectors and whether the evolved role could indicate the emergence of accounting logic. It also includes the discussion on how divergent and unique accounting practices in hospitals compared to other organizations and how the environment of public hospitals has been changed drastically within the last three decades.

2.1.1. Characteristics of hospital accounting practices

According to Nowicki (2010), hospital accounting can be defined as “the accumulation, communication, and interpretation of historical and projected economic data relating to the financial position and operating results of a hospital enterprise, for purposes of decision making by its management and other interested parties (p. 10)”. Based on this definition, hospital accounting can be categorized into two parts namely internal and external accounting. On the one side, the external accounting or financial accounting depicts the nature of a financial nature that take place between the hospital and its environment (Nowicki, 2010). It produces some financial reports that are used by stakeholders in hospital evaluation. On the other side, the internal accounting or management accounting is responsible for serving management by providing relevant information for the managerial decision making process. The products of this system are cost and service information, statistics and plans (budget).

Although the basic principles of hospital accounting are substantially similar with accounting principles employed by other types of organizations, hospitals have many unique characteristics that require specialized applications of accounting principles and procedures (Nowicki, 2010). In fact, Pettersen (2004) argues that management accounting in public hospitals is more complex compared to management accounting in the private sector.

Firstly, hospitals have been long seen as social institutions, in which economic logic and interest are barely taken into account (Pettersen, 2004). Hospitals have both social dimension and political dimension that in some extent are not fully compatible with economic (rational) logic (Pettersen, 2004). This circumstance affects the role of accounting in hospitals because

accounting logic can only exist in an organization where economic interest exists (American Accounting Association, 1965 as cited in Kurunmaki, 1999).

Secondly, hospitals are complex and consist of two different activities or subcultures, namely administrative activities and medical activities (Pettersen, 1995; Jacobs et al., 2004). The former are represented with hospital management and administration staff, and the latter consists of doctors and nurses. The clinical sub-culture represents the logic of appropriateness through their professional education and experience while the administrative sub-culture represents the logic of consequentiality (March and Olsen, 1989 as cited in Pettersen, 1995). Furthermore, medical activities as the technical core activity in hospital aim to deliver health care on standards and procedures set by the medical professional (Scarparo, 2006). Meanwhile, administrative activities (including accounting practice) aim to provide support to the core activity and guarantee the legitimacy of the health care organization (Scarparo, 2006).

These divergent aims and principles potentially hamper the integration of both subcultures. As a result, a decoupled organization would form. The application of new accounting method and accounting logic could be failed to penetrate into the core of the organization and not become institutionalized in the hospitals (Pettersen, 1995). Hence, the effort to intervene in the physician's decision in the purpose of cost controlling will be blocked. In fact, Jacobs et al. (2004) insist that accounting reforms can only achieve their objectives if the reforms have impacts on the clinical activities.

Moreover, the obstacles of accounting reform have been well documented in public sector accounting literatures. Among of these are loosely coupled between hospital doctors and hospital managements (see e.g. Coombs, 1987, on the Swedish hospitals case), physician resistance in cost containment attempts within their clinic (see e.g. Doolin, 1999, New Zealand experiences) and power struggle between health professionals and hospital administrators (see Kurunmaki, 1999 on the Finnish public hospitals). On the contrary, the active involvement of physician in controlling ensures an effective application of new adopted management accounting techniques. For example, Lehtonen (2007) studied mechanism that contributes to the successful implementation of new accounting and control systems in Helsinki University Central Hospital. He suggests that successful adoption of new accounting and control systems related to the implementation of DRG payment system and case-mix system depend on the active involvement of physicians in the process (Lehtonen, 2007). Based on these studies, the integration between both cultures and professional groups seems to be the first requirement of any cost reduction inspired reforms in public hospitals

2.1.2. Public hospitals in a changing environment

According to Kurunmaki (1999), the public sector had already seen as a problem in many Western countries within the late 1970s. As the backbone of the health care sector, the way public hospitals were managed was the target of intense criticism. The public hospitals were led by directors who have little or no experience and educational background on private sector management (see Durán et al., 2011 for European cases). They are politically connected to and appointed by the government as the representative of ruling political parties (Durán et al. 2011).

Furthermore, public hospitals were budgetary units of their owners while clinicians and their professional norms dominated the hospitals' management decisions (Kurunmaki, 1999). Alam and Lawrence (1994) state that public hospital' activities were considered as the implementation of social justice to ensure the fulfilment of citizens' rights. Besides, they believe that costs were barely a concern in this period. Additionally, power was greatly delegated to physicians who have right to decide primarily based on their own professional training and code of conduct and ignore any administrative consideration or economic logic (Alam and Lawrence, 1994). This condition had caused budget overspent because the physicians had a limited concern on patient's treatment costs (Alam and Lawrence, 1994). Consequently, it led to public distrust and the accusations that public hospitals were inefficient and financial responsibility was absent in the old system (Kurunmaki, 1999).

One of the reform objectives seems to eradicate this old hospital management system. In the first reform wave, the introduction of market mechanism accompanied by corporatization of public hospitals has become the two common features. According to Mattei et al. (2013), the aims of these policies are to transform public hospitals into self-management public hospitals, to increase the role of management professions and to create an economic incentive to improve efficiency within the public hospital. Following that, a recent reform wave apparently aims to correct and align hospital economic interest with the interest of the owners. This second wave of reforms is represented by the introduction of PPS that aims to contain costs within the hospital sector.

However, not all reforms have fully and dramatically changed the attributes of public hospitals. In some countries (for instance in Indonesia) public hospitals are still managed as budgetary units of the owner with extended authority in financial management. In other countries, public hospitals are more independent and may operate as a separate corporation or even being privatized by the private hospitals (for instance in Germany). Such diversity of organizational form has also occurred in other public institutions (see Harding and Preker, 2000).

Additionally, cost containment and efficiency improvement efforts have been delegated to the public hospitals' management. The owners (governments) see public hospitals as '[...] a collection of cost centres producing health products, highlighting the need for managing products and outputs and creating clear lines of accountability'" (Webster and Hoque, 2005: 47). On the other words, the hospitals are now considered as separated economic entities that are responsible for their own financial viability. Hence, financial uncertainty in the new environment has evolved substantially. Subsequently, a new role and practices of accounting have been found in public hospitals (e.g. Chua and Preston, 1994, in the USA Hospitals, Pettersen (2004) in Nordic public hospitals) that indicates a greater demand for accounting information and financial accountability in the public hospitals.

2.1.3. An enhanced role of accounting in public hospitals

In the past, accounting systems in public sector were used mainly as planning tools and principally aimed to serve the external parties e.g. preparing financial reports for the owner (Pettersen, 1994; Webster and Hoque, 2005). Cash accounting was adopted widely in public sectors including because the needs for detailed cost information barely existed. Besides, public hospitals were discouraged to produce accounting information because cost controlling was centrally performed by the owner (Webster and Hoque, 2005). Moreover, Durán et al. (2011) state that the hospital annual budget seemed to be main cost controlling device in public hospitals. Cost controlling was mostly conducted by comparing budget and its realization (Durán et al., 2011).

More importantly, the activities and responsibilities of health professionals and hospital managerial staffs were separately clear cut. The physicians were excluded from the managerial efforts and cost controlling activities and encouraged only to focus on patients' life (see Alam and Lawrence, 1994). On the contrary, the role of hospital administrators was merely as facilitators rather than managers in the corporate concept (Sanford et al., 1987). They were responsible only for maintaining the stability and financial feasibility of physicians' work place (Sanford et al., 1987). Moreover, Pettersen (2004) believes that accounting information had been ignored by clinicians in the past. For example, the functional managers have so limited information regarding cost information about patient treatment that they cannot completely control the hospital expenditure (Alam and Lawrence, 1994). Such traditional accounting practices, however, fitted to the needs of the managements because of following reasons:

- (1). Public hospitals operated as ‘an administrative arm’ of respective governments rather than a self-managed economic entity (see Durán et al., 2011, for European public hospital cases). Accordingly, public hospital managements were not responsible for the financial performance of hospitals as they were given limited authority to manage hospital resources.
- (2). Physician professionalism norms dominantly shaped the management actions. Accounting mechanism or other administrative procedures were aimed merely to clarify and justify physician actions rather than to control costs (Kurunmaki, 1999).
- (3). The traditional ideology considers health care provision as a right of citizens and it is delivered for the sake of social justice (Alam and Lawrence, 1994). Thus, economical logic is not allowed to interrupt physicians’ medical action in saving patients lives.

However, environment change resulted from healthcare and hospital financing reforms have demanded a more significant role of accounting in public hospitals. The old role of accounting as well as the capacity of hospital accounting is questioned. In turn, the traditional accounting practices have been changed gradually over the years. Under the mission to achieve higher efficiency and contain costs, the accounting innovation in public hospitals can be categorized: (1) improved role of accounting in public hospitals, (2) the adoption of new accounting techniques, (3) the encouragement of health professionals’ involvement in hospital accounting and controlling.

Firstly, the role of accounting in public hospitals has been expanded from a reporting tool to a controlling device. Lapsley (1994) confirmed how market reforms in the U.K. National Health Service (NHS) as well as the creation of self-government hospital trusts have encouraged the application of budgetary control in the UK hospitals. The hospitals were not primarily established by the need to produce and sell its products. But, the self-governing hospital trusts seeks profit since they must earn a return on capital employed (Lapsley, 1994). Thus, he argues that the role accounting in the organizations depends on the nature of the organization itself.

Secondly, the adoptions of new accounting management techniques have taken place in public hospitals. These adoptions are aimed to fulfil greater demand of more detail and relevant accounting information (see Eriotis et al., 2011, the adoption of accrual accounting in Greek public hospitals; Pettersen and Nyland, 2011, for the adoption of accrual accounting in Norwegian public Accounting). These initiatives have been commonly started with the adoption of accrual accounting to replace cash accounting in public hospitals. Accrual accounting system

records all transactions as long as they have implication for the future income and cash flow of the company although cash payment is not involved (Ouda, 2009). The system also recognizes more cost items (such as depreciation and liabilities value) that are important for controlling purpose. Having a more comprehensive and informative accounting information, hospital management can establish their rational thinking based on economic logic (Ouda, 2009).

More recently, public hospitals in many countries have also adopted private sector originated management accounting techniques e.g. Activity Based Costing (ABC). For example, Järvinen (2006) studied the motivation behinds the adoption of ABC in two Finnish university hospitals. Similarly, Pomberg et al. (2013) investigated the intention of Vietnamese government hospitals to improve their accounting system as a response to the rapidly changing environment. They found that the sample hospitals have adopted not only a more modern and private cost calculation method such as ABC but also other private business method such as inventory method such as Just in Time (JIT).

Thirdly, the initiatives to involve hospital physicians in managerial process have been started (Fitzgerald, 1994). This is apparently the most significant stage in establishing a new role of accounting in public hospitals, in turn, achieving the ultimate goal of the hospital accounting innovation. Physicians play a crucial role in hospital management accounting is crucial because they are the decision maker of hospital resource allocation (Pettersen, 1995). The accounting innovation, thus, needs to penetrate to their clinical actions; otherwise the change might fail to meet its objectives (Pettersen, 1995).

One of initiatives to involve actively clinicians into managerial process and activities is the setup of the clinical budget in hospitals. This initiative has widely attracted public accounting researchers because of its potential to facilitate accounting penetration into clinicians' routines. Clinical budgeting by definition is budgets for hospital physicians (Lepsley, 2001). These budgets enable clinicians to be held financially responsible for their medical actions and assuage their clinical freedom (Lepsley, 2001). This initiative later on has stimulated the 'hybrid professions' of physicians in hospitals. The hybrid professions in this context can be understood as the willingness of health professionals to adopt and run management accounting tasks in their clinics (Kurunmäki, 2004). Kurunmäki's (2004) study, for example, describes a process of hybridization in Finnish hospitals that was started with the introduction of clinical budgets since early 1990s. These budgets make them responsible for their clinical expenditures and improve physicians' commitment in cost management in their clinics (Kurunmäki 2009).

Lastly, the accounting innovations have not always shared similar motivation and achievements. Lapsley and Wright (2003) uncovered the diffusion of management accounting innovation in the Scottish public sector. The study finds a small variance of adopted accounting techniques, but a substantial divergent motivation behind. On one side, the sample of hospital trusts have adopted specific accounting techniques to fulfil the higher demand of cost information due to increasing financial pressures. Meanwhile, the sample of other public sector (local authorities and government agencies) has adopted new accounting methods merely to grant the requests and recommendations from the government (Lapsley and Wright, 2003). Thus, the benefit of accounting innovations in decision making process could be divergent.

2.2. Hospital financing reform – an effort to contain hospital cost

The recent hospital financing reforms particularly in the western world have introduced a prospective provider payment system based on DRGs system. The adopters of the DRG payment system believe that this PPS system incentivizes hospitals to hold down costs (Chua and Preston, 1994). This section is designed to review the role of the provider payment system within the efficiency improvement of hospital sectors.

2.2.1. Hospital payment systems and their anticipated incentives

The health care economics studies have documented that each PPS created divergent incentives that in turn stimulate deviating hospitals' response (Langenbrunner et al., 2009). Generally, PPS can be classified into two main groups, namely retrospective payment system (hereafter RPS) and prospective payment system (hereafter PPS). In RPS, hospitals are paid based on total patient treatment costs that are calculated by the hospitals after the patient treatments are performed (Casto and Layman, 2006). Thus, hospitals as the healthcare provider play a significant role in determining reimbursement fees for the patients. According to Weiner et al. (1987), RPS scheme encourages hospitals to utilize the most advanced technologies, expand services and increase costs without considering the efficiency of hospital resource consumption because they will be paid at costs. As a result, the payers are at risk of fluctuate reimbursement value (Casto and Layman, 2006).

In PPS, on the contrary, reimbursed rates are prospectively determined, irrespective of the actual treatment costs (Chua and Preston, 1994). Consequently, hospitals are at risk if they fail to contain their actual cost of treatment, lower that predetermined fees (Casto and Layman, 2006).

Following is the list of hospital payment schemes and anticipated resulted results:

Payment Method	Unit of Service	Retrospective or Prospective	Main incentives created
Line Item Budget	Functional budget categories	Either	Little flexibility in recourse use, cost control of total costs, poor incentives to improve productivity, sometimes results in rationing
Global Budget	Health facility	Prospective	Spending artificially set rather than through market forces, not always linked to performance indicators, cost-shifting possible if the global budget covers limited services
Capitation	Per person to a health care provider who acts as fund holder	Prospective	Incentives to undersupply, strong incentives to improve efficiency that may cause providers to sacrifice quality, rationing may occur, improves continuity of care
Case-based payment	Per case or episode	Prospective	Incentives to reduce services per case but increase the number of cases (if per case rate is above marginal costs), incentives to improve efficiency per case
Per Diem	Per day	Prospective	Incentives to reduce services per day but increase the length of stay (if per diem rate is above marginal costs)
Fee-for-Service	Per unit of service	Retrospective	Incentives to increase units of service

Table 2.1: Six payment methods and main incentives created

Source: Marceira (1998: 6)

Hence, a proper combination of provider payment mechanism, according to Marceira (1998), should align (or strike a compromise between) the goals of the principal and the agent. Above hospital payment schemes can be used together in order to generate expected incentive and to overcome the weakness of each scheme. However, the anticipated incentives may not cause expected hospital responses and in turn the threat the successful implementation of the payment system. According to Christianson and Conrad (2011), the resulted PPS incentives can be also affected by the characteristics of providers themselves (e.g. their preferences for monetary versus other rewards, such as autonomy) and of the context in which they practice. Thus, one cannot take for granted that the hospitals will respond to the PPS as it is predicted from the theories.

2.2.2. Diagnostic Related Groups (DRGs) - A successful system to increase efficiency?

The adoption of DRGs based PPS has become an international trend since 1980s (Geisler et al., 2011). Its adoption represents a worldwide initiative for moving from provider retrospective payment system to prospective payment system that aimed to improve hospital performance. Mathauer and Wittenbecher (2012) define it as a system that classify each patient case based on their diagnosis and other characteristics of the case, such as the patient's age, gender, case severity, co-morbidity and procedures performed. Similarly, Miranda and Cortez (2005) define DRGs as a patient classification system that group patients according to the consumption of resources of their treatment and their clinical characteristics. Based on these definitions, one can conclude that DRGs is a patient classification based on the similarity of diagnosis and patient profile.

It was first developed and adopted by Health Care Finance Administration (HCFA) to pay American hospitals in 1983 under the Medicare Program (Street et al., 2011). Originally, the purpose of DRG development was nothing to do with hospital payment system like nowadays application, rather to serve as a basis for hospital internal management and quality control (Fetter, 1991).

Moreover, the first phase of DRGs adoption is to define hospital 'product' based on "a similar bundle of goods and services in the diagnosis and treatment of the patient's illness" (Fetter, 1991: 6). The system groups patients based on their uniformity of clinical diagnoses and requisite resources (Casto and Layman, 2006). Thus, each product is labelled with a different DRG code, for example: DRG F60B is the code for patients with heart attacks with no complications in Germany (Porter and Guth, 2012). It means that any patients who have been diagnosed with heart attacks without complications will be categories in DRG F60B. Having these "products" definitions, hospitals can perform better resource control, budget and other industrial management techniques (Fetter, 1991). As a result, both costs controlling per patient cases is possible through, for example, benchmarking with other hospitals.

In a DRG based payment system, each DRG case is attached with its own predetermined flat rates which are independent from the actual costs incurred in the patient treatment (Chia and Preston, 1994). For example, the payment rate for DRG F60B (heart attacks without complications) is 2,762 Euros in Bavaria state, Germany (Porter and Guth, 2012). It means that each Bavarian hospital which treats any patients that are classified as DRG F60B will receive the same amount of reimbursement fee in spite of the possibility of different actual costs of treatment among the patients and among hospitals. Therefore, the common objectives of DRGs-adopters for example the European countries are to increase efficiency, transparency, as well as

to assure high quality of hospital care (Busse and Quentin, 2011). However, far too little attention has been paid to whether the countries are really moving towards achieving these goals (Wiley, 2011). The reason is that DRG payment systems have been installed in different hospital sector settings, times, systems and environments that might not be compatible with their basic characteristics.

The ultimate anticipated outcomes of a DRG based payment system are efficiency improvement. The peculiar virtue of the DRG-based payment system is the uniform and flat reimbursement fees of each DRG case. Theoretically, such rates encourage hospitals to reduce their actual costs in order to avoid loss and obtain profit resulting from the differences between their actual costs and DRGs rates (Chua and Preston, 1994). Thus, better cost containment and resource management are expected in hospitals under DRGs payment system (Geissler et al., 2011). In other words, the financial risk related to the possibility of actual cost fluctuation is transferred to the providers. Subsequently, the advocates of DRGs believe that this circumstance incentivizes the hospital to “[...] switch from extravagant to parsimonious types of medical practices; physicians will adjust their styles and some hospitals that fail to adapt will shut down, thereby reducing overall expenditures and deterring efficiency...”(Chua and Preston, 1994: 10). To do so, hospitals might attempt to shorten ALOS of their patients, particularly patients who are classified as unprofitable DRG cases and to expand patients’ admission particularly the profitable DRG cases (Sanford et al., 1987).

Secondly, it can improve transparency of hospital services and costs. In this system, hospitals are required to record and document their medical treatment, procedure and materials of each patient (Geissler et al., 2011, Quentin et al., 2011). More importantly, the system categorizes patients based on their resource consumption and medical characteristics into groups. According to Street et al. (2011), the categorization of patients finally enables hospital manager and policymakers to compare LOS, costs and quality within the same DRG case across different hospitals or internal departments. Finally, DRGs based payment system potentially improves quality of hospital service. According to Or and Häkkinen(2011), increasing transparency of care procedures can facilitate benchmarking for improving quality of hospital services (Or and Häkkinen, 2011). Additionally, proponents of DRGs adoption also believe that the system incentivize hospitals to invest in quality improvements in effort to reduce total cost of treatment (Busse and Quentin, 2011) and to attract more patients.

Although the basic idea underlying DRG-payment system is fairly simple and clear-cut (Borden, 1988), previous studies on DRGs implication and hospitals’ behaviours have found heterogeneous findings. In fact, DRG seems to create unintended incentives and thus result in

unexpected hospital behaviours. Hence, one could conclude that hospitals' responses could be divergent, given the fact that the character and features of DRG system, public hospitals characteristic and their environment are varied from country to country.

2.2.3. Hospitals' Responses to DRGs adoption and their determinants

Public hospitals behaviours seem to be manipulable through an appropriate economic incentive design. Harding and Preker (2000: 10) have developed a model illustrating the key determinants of hospitals behaviour and other provider organizations, as follow:

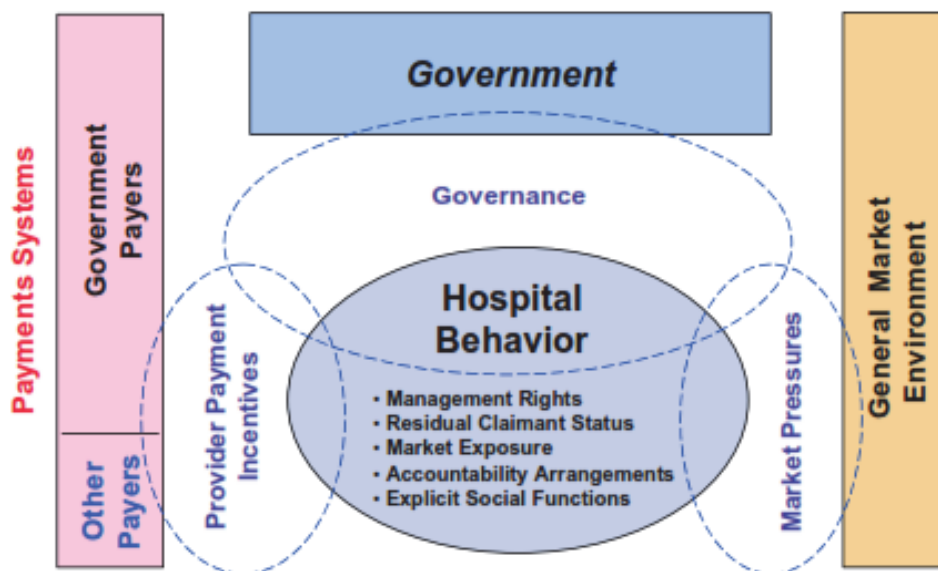


Figure 2.1: Key determinants - changes of organizational behaviours
Source: Harding and Preker(2000: 10)

Based on the above theoretical model, behaviour of public hospitals can be influenced by three core elements, namely (1) relationship between hospitals and the owner, (2) level of market exposure and (3) incentives resulting from payment system (Harding and Preker, 2000). Health care reforms in many countries, thus, have attempted to change these elements in order to find the most potential configuration to incentivize public hospitals to contain costs. For example, the creation of Hospital Trusts in the United Kingdom aims to broaden the management autonomy in order to create incentives for efficiency (Harding and Preker, 2000). Similarly, the introduction of DRGs to replace existed payment systems can be seen as a part of the cost reduction effort.

Furthermore, DRG supporters believe that this prospective payment system offered management hospitals both reasons and, more importantly, instruments needed to contain hospital costs (Sanford, et al., 1987). However, hospitals might fail to respond correctly as they fail to expand their control over physician decision making process and in turn, the anticipated change in clinical activities not occurs (Sanford, et al., 1987). One of the reasons is that clinical activities in most cases are hardly intervened by managerial control. In fact, the ability to actively involve clinicians in hospital cost containment efforts seems to be the first and the most significant factor of a successful reform proposal.

A considerable amount of literature has been published on the implication of DRG system for hospital performance. These studies documented that ALOS reduction and hospital productivity increase are classic and common hospitals' responses of DRGs adoption. Among others, Shmueli et al. (2012) found a quick response of hospitals to DRG payment based on an analysis toward at least 17,000 inpatient cases which occurred between 2 years before and 5 years after the implementation in the four largest Israeli public and non-profit hospitals. After the implementation, the fall of LOS in selected cases was higher than three times of the mean annual decrease over the period of 15 years before the DRG adoption. In fact, the fall of LOS in DRG related cases was even sharper. Similar hospitals responses also found in other previous studies e.g. the New Jersey case (Sanford et al., 1987), the New Hampshire case (Ellis and McGuire, 1996) and the Austrian case (Theurl and Winner, 2007, Austrian case). Meanwhile, Sanford, et al. (1987) have documented various efforts of hospitals in New Jersey in responding the DRG payment. They found that most of them followed traditional strategy, namely expanding admission through more physician recruitment, new specialists, or adding more advanced and modern medical equipment to accelerate medical protocols.

However, the hospitals' responses are not always homogenous and more importantly, there have been no control studies which compare differences in hospitals' responses. Some hospitals may respond quicker and more intensely than the others or the responses cannot be associated with the achievement of more efficient hospital activities. For example, Ellis and McGuire (1996) found that the observed LOS reduction in their study was attributed to a pure moral hazard effect and practice-style effect. In other study, Borden (1988) has also documented the absence of positive impact on operational efficiency after the introduction of the DRGs payment system in New Jersey hospitals. Therefore, investigation to DRG-resulted implication and the management responds are necessary to correctly understand the hospital motivation and chosen available alternatives that constructed the strategies.

Except physician participation, scale of economic incentive resulted from a DRGs system and their features seem to play a deciding role within hospitals' responses. The hospital response seems to have a positive correlation with the portion DRGs-related revenue on all hospital revenue. For example: in Spain (Catalonia), where DRG-based hospital payment accounts for only 20 per cent of hospital revenues, the power of the incentives related to DRG-based hospital payment is relatively weak (Cots et al., 2011). Moreover, Mathauer and Wittenbecher (2012) have found that DRG system could be less effective in a single purchaser hospital sector. The impact of the DRGs system for hospitals can be also determined by the role of private hospitals in the DRGs system based payment. The integration of public and private hospitals under a DRG system creates potentially stronger competition that gives stronger incentives for public hospitals to respond to DRGs impact (Mathauer and Wittenbecher, 2012).

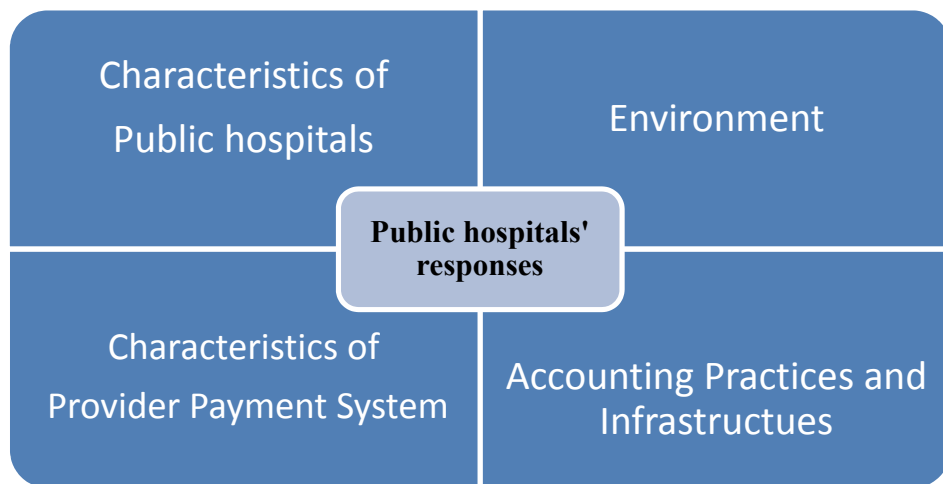


Figure 2.1: Potential factors that shape public hospitals' responses to DRG adoption
Source: Author's illustration

The routes and duration of implementation might also determine hospital's response to DRG. Other factors e.g. characteristics, capacities and performance of hospitals can also be used to understand the divergent hospitals' responses to DRG system. Mathauer and Wittenbecher (2012) maintain that technical challenges are also very crucial in DRG hospital payment adoption. This includes the ability to generate and classify data in hospital system because the quality of hospital costing data affected both hospital response and ultimately and the fairness of DRG fees. In addition, the capacity of hospital database and information technology (IT) system also plays a significant role as hospitals require detailed documentation and costing information to perform profitability and feasibility study for each DRGs case (Mathauer and Wittenbecher, 2012).

Based on above discussion, it appears that there are several possible factors that determine hospitals' reactions to DRGs adoptions. The previous model that has been developed by Harding and Preker (2000) seems to be not sufficient and too general to explain the hospitals' behavior and ignore some other potential factors. Therefore, this research aims to close the deficits. It explores not only the determinants of public hospitals' responses to DRG but also highlights the preconditions required for a better DRGs system. Accordingly, it is expected that this research can propose correction of the DRG system to ensure the goals of the reforms will be achieved.

2.3. Understanding accounting changes within hospital financing reforms

Accounting traditionally played a marginal role in public hospitals. This condition was created not only by the contract between hospitals and governments (as the owners), but also can be attributed to previous adopted provider payment system. The recent hospital financing reforms e.g. DRGs adoption has emphasized a necessity of accounting management in public hospitals. Thus, accounting changes apparently will be anticipated especially in public hospitals in which accounting used to have a secondary role. Hence, this research assumes that the change of accounting practice and the adoption of new accounting methods in public hospitals after the adoption of DRGs reflect the presence of economic incentive to contain costs and gain better operational efficiency.

Accordingly, this section is designed to discuss the correlation between DRG adoption, public hospital's accounting and their responses. Two theories have been selected to construct explanations regarding accounting changes in public hospitals after the reforms taken place due to the facts that accounting change can be triggered by different motivations and triggers. By defining their motivations and triggers, the existence of a new economic incentive in public hospitals resulted from DRGs adoption can be detected and explored.

2.3.1. The linkage between DRGs system, accounting and hospital response

The recent health care reform initiative has focused on the introduction of accounting logic in public hospitals as an effort to hold down costs. In fact, Chua and Preston (2004) claims that the shift to PPS can be considered as the earliest accounting led initiatives intended to contain health care costs. Consequently, the demand for more detailed and comprehensive cost information have increased particularly in public hospitals in which accounting practices for controlling had been long ignored.

The interplay of DRG systems, accounting and hospital responses could exist and may indicate the presence of expected economic incentives in public hospitals. First, the adoption of the DRGs payment system encourages hospitals to adopt new accounting (management) techniques. This adoption is attributed to the increasing need of costing information for decision making in public hospitals. In the other word, innovation of accounting in public hospitals after DRGs adoption could be said as the early sign of cost containment efforts. The shift from a retrospective payment system (such as fee-for-service) to the DRGs system means the need of more detailed cost per patient information rather than aggregate cost information. In the DRGs system, hospitals have incentives to seek cheaper medicating treatments because they are paid based on predetermined and fixed rates. This incentive shift requires an improved accounting practices including its role in medical activities. For example, hospitals need to know how much they have actually spent for each patient and compare it with the related DRG fees. Having this information, management of public hospitals is able to initiate further strategies to avoid loss and earn profit such as acceleration of medical treatment.

Second, hospital cost accounting data could contribute to fairness and representatives of DRGs rates. Although DRGs rates can be calculated by using different approaches, the role of hospital cost information is very important. The calculation of the rates in most cases is based on the collected actual costs of sample hospitals. If the quality of collected cost data is low, or not even valid, the DRGs tariffs will be not accurate, under-priced or over-priced. As a result, hospitals are paid more or less than they should be. Under-priced rates might lead to unintended consequences, e.g. hospitals could be frustrated to reduce their costs and thus, initiate unintended strategies. On the other hand, overpriced rates might lead to inefficiency because hospitals, regardless whether they are really efficient or not, might be paid more than their actual costs.

Third, hospital behaviour responses and strategies depend on the capacity of their accounting system. If the accounting system does not have the capacity to produce unit cost information of each patient, hospitals possibly try to reduce costs in a 'blunt fashion' (Hill, 2000: 64). On the other words, if hospital accounting cannot provide such detailed and relevant information for cost and reimbursement analysis, the responds would be a uniform effort to reduce all costs that in turn affect the quality of hospital care and hospital financial situation (Hill, 2000).

Based on above discussion, DRGs adoption potentially triggers hospital accounting reform, particularly in management accounting. It is not only because public hospitals traditionally had fewer demand on cost information (Webster and Hoque, 2005), but also because DRGs system itself requires micro costing data that seems to have never existed. Thus, the presence of

economic incentive embedded in DRGs system and the intention to follow up this incentive in hospital could be reflected by accounting innovation in public hospitals.

2.3.2. Appropriate frameworks in explaining the accounting change in hospital

Previous management accounting literatures have documented divergent motivation behind accounting innovation in public sector, including in public hospitals (e.g. Kurunmaki et al. 2003, Järvinen, 2005). The innovation could be triggered by external factors that include environmental change, and also by internal factors such as the need of more comprehensive cost information. Moreover, challenges and failures of hospital accounting innovation have been also documented. Departing from the institutional theory, the implementation of new accounting techniques could be aimed to gain external legitimization and obedience to governmental recommendation rather than to improve financial visibility (Pettersen, 1995). In hospital accounting research, this phenomenon can be indicated with the failure of accounting information and practice to penetrate the medical decisions. In the worst case, the accounting information is being seen as irrelevant information, or a threat to clinician autonomy or being rejected to be used in medical decision making process. Thus, the enhanced role of accounting should be seen as a process of change rather than a fixed and ultimate result.

This section aims to discuss theories that have been used to examine the motivation of the public sector to adopt new accounting technique. The purpose is to understand why some public hospitals adopt new accounting techniques after DRGs system whereas others have not.

2.3.2.1. Contingency Theory

The proponents of contingency theory assume that accounting design including the adoption of new accounting techniques could be triggered by change of its environment, technology, organizational structure, and strategies (Jones, 1985). This theory assumes that a universal accounting system which equally fit for all organizations in all situations is assumed to have never existed (Jones, 1985, Islam and Hu, 2012). On the other words, the optimal organizational structure, including accounting, for a given situation cannot be separated from the nature of the external environment and the level of task uncertainty (Rayburn and Rayburn, 1991). Configuration of the internal accounting system, according to this theory, is contingent on the differing constraints on organizations, namely (1) organizational attributes, (2) environment and technology and (3) decision making styles (Rayburn and Rayburn, 1999). Hence, accounting

change can be seen as an organizational response toward occurred changes in order to remain effective (Jones, 1985).

Recent evidences suggest that DRGs system has enhanced the role of accounting in hospitals. Based on contingency theory approach, Rayburn and Rayburn (1991) have demonstrated how the role of accountant in hospitals has increased after the introduction of DRGs based provider payment in Medicare reform in the U.S hospitals. They found that the DRG system has raised several new accounting issues e.g. reporting losses on Medicare in-house accounts and offsetting profits on Medicare in-house accounts. More importantly, the Medicare reform has also accelerated financial risk in hospital sectors as the environment become more hostile and uncertain. Given this entirely new situation, competitive pressures in the health care industry have been noticed. Consequently, an increased respect for accounting has been reported by most of the interviewed accountants (Rayburn and Rayburn, 1991). The accountants also have been involved frequently in the key decision making process as the management appreciation in value of financial data has increased. Even more, the demands for cost-benefit studies and analysis of cost behaviour have been increased after DRGs adoption as the management assesses the financial feasibility of proposed programs and services. Such new accounting practices concluded by Rayburn and Rayburn (1991) conclusion, is the outcome of hostile health care environment associated with the DRGs payment system.

In another major study, Hill (2000) also confirmed that medical reimbursement policy (the DRGs based payment system) was a trigger behind the adoption of costing systems over the 1980s in the U.S hospitals. The reason is that profit maximization can only be done through managing and controlling costs in a DRGs payment system where prices are dictated by external parties (Hill, 2000). Subsequently, hospitals required more detailed cost accounting to facilitate an advanced cost controlling in hospitals.

Accordingly, the adoption of new accounting technique can be said as one of hospital behavioural responses to environment change resulting from DRGs adoption. Devine et al. (2000) maintain that the changing health care environment has impacts on hospital management accounting system. The shift from a fee-for-service environment to fixed lump payment makes cost control in hospital more important than before. In this new environment, hospitals need to accurately calculate and trace costs of services; otherwise they cannot improve their efficiency (Devine et al., 2000). This study documented that 37.8% of sampled hospitals adopt a costing system that collects procedure level costs as the response to the changing health care environment resulted from DRGs based payment system.

Such accounting innovation can be understood by using contingency theory. Russel and Russel (1992) argue that organizations operating in relatively hostile environments are expected to adopt a greater number of innovations than those residing in a relatively friendly environment. The reason is that decision makers need more information as uncertainty increases in the environments (Gordon & Narayanan, 1984). Therefore, DRGs system potentially trigger accounting reforms in hospitals because its ability in improving competition and uncertainty as hospitals face an environment of declining demand for services (Rayburn and Rayburn, 1991).

Moreover, research to date has tended to explain the reason of accounting changes rather than the reasons behind the absence of accounting change or why accounting is not used as much is might (Choudhury, 1988). Put another way, most studies of public accounting reforms have been carried out to address the questions “why these accounting systems were chosen, and what effects have their implementation generated?” rather than “why there are no robust accounting systems here?” (Ballas and Tsoukas, 2004: 663). Nevertheless, both questions are important to gain “a lot about the nature of accounting and its existence” (Choudhury, 1988: 550) because “by investigating examples of accounting absence and explaining accounting’s non-pervasiveness, it might be possible to create a dialectic between the existing and non-existing accounting worlds and thereby achieve a deeper understanding of the nature of accounting”(Choudhury, 1988: 550).

Few studies have dealt with the absence of accounting innovation in a changing environment. One of these studies is Berens et al. (2011). They found an unchanged pattern of application of management accounting instruments in German hospitals based on an online questionnaire that involved 600 managing directors in German hospitals. Cost accounting and information systems are the most widely used accounting instruments, whereas the relative new management techniques (for instance Balanced scorecard) has been not widely used in hospitals (Berens et al., 2011). More importantly, this study demonstrates that hospitals do not always adopt new instruments that have been recently promoted in academic literature (Berens et al., 2011), although significant environmental changes have occurred.

In short, this research seeks the answer to both questions and linked them to the adoption of DRGs payment system. Hence, it is assumed that an effective DRGs system creates or enhances uncertainty in environment and thus, stimulates accounting innovation in public hospitals, and vice versa. Based on this preposition, further exploration is conducted to understand why innovation of accounting occurs in some hospitals where it is not found in other hospitals. More importantly, it examines whether accounting innovation in hospitals could be seen as an indication of the emergence of economic incentive in hospitals after DRGs payment system adoption.

2.3.2.2. Institutional Theory

Since 1980s, popularity of institutional theory (hereafter IT) in accounting studies increased (Moll et al., 2006). IT has been used to understand why and how accounting change is taken place. Unlike orthodox theorists who believe that accounting innovation is an effort of organization to improve financial visibility and rationality for the sake of higher efficiency, the institutional theorists suggest an expanded perspective in seeing accounting change in an organization (Covaleski et al., 1993). They assume that the achievement of higher efficiency is not a sole alternative to survive in a changing environment. But, an organization can also survive if it can ‘conform to societal norms of acceptable practices’ (Covaleski et al., 1993: 66). Based on this assumption, any adoption of new accounting technique in public hospitals might be also motivated by the intention to gain legitimacy from the owner, parent companies, or financier rather than by the demand for cost containment (Carruthers, 1995 as cited in Järvinen, 2006).

Consequently, the objectives of accounting innovation in hospitals could be divergent from hospital to hospital, although they operate in the same environment. The possibility of such phenomena, according to Järvinen (2006), is even higher in public sectors where a higher financial independence to government subsidy exists. Hospital administrators may adopt new accounting techniques just to fulfil the owner’s order rather than self-initiation. In such situation, accounting change might be not followed by accounting practice changes, accounting penetration to clinical activities, and in turn cost containment initiatives in hospitals. Järvinen (2006), for example, explored the motivation and rationale of the adoption of Activity Based Costing (ABC) system in two Finnish public university hospitals. She used (new) institutional theory to elaborate the motivation behind ABC adoption in the hospitals. Based on two separate case studies, she found that both hospitals have different motivation of ABC adoption. The first hospital has adopted ABCs because its desire to have accurate full cost pricing. On the other hand, the second hospital adopted ABCs due to intention to conform to the external financiers order and thus gaining external legitimacy.

Similarly, Covaleski et al. (1993) drew on institutional theory to study the adoption of case mix accounting systems and DRG framework in the US hospitals. Both systems, according to them were adopted in the US hospitals only as a ‘ceremonial system’ in order to create a good reputation with the U.S. Federal government, which is the main payer of health care costs under the new DRG based system of Medicare and Medicaid programs (Covaleski et al., 1993). This is what Meyer and Rowan (1997) mean about ‘sagacious conformity’ in which hospital administrators seems to use the new accounting technique, but in reality it is not used in their daily managerial activities (as cited in Järvinen, 2006).

Meanwhile, some hospitals have other motivation or purpose of accounting innovation, namely purpose to be seen as ‘modern’ and ‘cost-conscious’ (Järvinen, 2006). The implementation of the new technique among these hospitals shares the same characteristic, namely de-coupling or loosely coupling between core hospital activities (medical activities) and administrative routines. In these cases, according to Jacobs et al. (2004), the outcome of the reform initiatives is apparently limited because the reforms do not have a real implication for the medical activities. Doctors are still receiving limited accounting information, and their limited role within cost containment remains unchanged. Moreover, Siti-Nabiha and Scapens (2005) insist that the internalization of the new routines e.g. the enhanced role of accounting in physician decision making process in these ‘loose-coupling’ hospitals has not occurred. The adopted accounting technique, thus, is only a cosmetic change rather than substantive ones (Burns and Vaivio, 2001 in Padovani et al., 2013). Hence, the expectation of accounting innovation to facilitate cost containment in hospitals could be not attained.

Moreover, Padovani et al. (2013) points out that the failure of accounting expansion in hospital activities can be attributed mainly to the resistance of clinicians (both physicians and nurses). The physicians are still playing a central role after and before the reform (Jacobs et al., 2004) because most of the hospital resource utilization decisions are in their hands. Consequently, any initiative to contain cost fails if it cannot change the existing physicians’ medical practices. Thus, any effort should be done to improve the interest of clinicians’ in cost containment before the adoption of a new accounting technique. Hence, the innovation of accounting in public hospitals after DRGs application cannot take for granted as a sign of the emergence of new economic incentives and rational logic. A further investigation is needed to distinguish the motivation and triggers behind the adoption of the new payment. The purpose is to evaluate whether the new payment system successfully incentivizes hospitals to hold down their costs.

2.4. Summary and Conclusion

This chapter has endeavoured to illustrate how and why economic logic infiltrates health care sectors including public hospitals in the last few decades. It also discusses anticipated enhanced role of accounting in public hospitals as a response to increasing competition in the hospital sector. Based on the above discussion, it can be argued that hospital financing and organizational reforms represent the change of government concern and objectives in public goods provision. The difficult economic situations have provoked cost awareness and efficiency objectives with policy makers. As the result, focus has been given more intensively on cost containment and reforms proposal have been initiated to introduce market philosophy, managerial and efficient

practices in public hospitals. One of the reform elements is the introduction of case base payment under DRGs system. This prospective payment system aims to remedy inefficient practices in hospital care, more importantly, to contain hospital expenditures. However, previous studies unveiled divergent hospitals responses to the new payment systems. Many studies, indeed, found an indication of efficiency improvements that can be signaled by the reduction of ALOS and case number expansion. But other studies have documented that such 'classical responses' are attributed to moral hazard and unintended practices.

The divergent hospitals' reactions are thus elaborated in this chapter to seek their potential determinants. These determinants and how they affect hospitals responses will be investigated in this research and the results are presented in the next chapters. Moreover, this chapter also provide an alternative to examine whether the classical responses of hospitals is really a result of efficiency improvement. As it is anticipated, accounting innovation could be emerged in public hospitals if the DRGs system successfully creates a powerful economic incentive to reduce costs. Thus, the occurrence of accounting innovation can indicate the management intention to improve efficiency. On the other words, accounting innovation could be used as a detector of the existence efficiency improvement effort in public hospital.

However, not all accounting innovation can be linked to efficiency improvement initiative. Thus, two organizational theories, namely contingency theory and institutional theory are used to examine the motivation and background of accounting innovations. The former assumes that accounting innovation can be triggered by the needs of decision makers as the hospital contingents variable has changed. Meanwhile, the latter argues that innovation of accounting can be associated with either efficiency improvement or legitimating action. These theories can be used to evaluate the linkage between the hospitals' responses to DRGs system, accounting innovation and efficiency improvement in the hospitals.

Chapter 3: Hospital Financing Reforms in Indonesia and Germany

This chapter aims to discuss and compare the Indonesian and German healthcare systems as well as the reforms that have taken place. In the first part, a profile of both the governmental administrative structures of both systems is presented, followed by the peculiarities of the structures of their healthcare sector. Subsequently, it highlights significant changes in the systems within the last three decades and their expected outcomes. In the last part, both systems are compared, in order to find their similarities and differences, and the implications of the reforms for the hospital sectors. Based on this head to head comparison, a comprehensive understanding of public hospitals' responses that is discussed in the following chapters can be gained.

3.1. Indonesian hospital financing reforms

The Indonesian healthcare financing system has undergone a serial wave of fundamental changes since the beginning of the 2000s as the government had the ambition to establish universal healthcare coverage for all Indonesian citizens. The implementation of the healthcare universal coverage program has been initiated by the establishment of *Asuransi Kesehatan Masyarakat Miskin* (Health Insurance for the Poor Population), or *Askeskin*, in 2007 as the follow up the SJSN Law No. 40/2004 regarding National Social Security System (*Sistem Jaminan Sosial Nasional* or SJSN). The enactment of the law represents a change in the paradigm of social protection programs in Indonesia (World Bank, 2012). Moreover, the government has taken initiative also provider payment system reform e.g. a shift from multi retrospective schemes to a single prospective payment system since 2008. The introduction of the new payment system is apparently the government's efforts to control the rise in healthcare expenditure after the expansion of statutory health insurance under the universal coverage policy.

3.1.1. Overview of Indonesian healthcare system

The Indonesian healthcare system has experienced dramatic changes due to the political chaos and the 1998 Asian crisis. To anticipate their impact on health care access, the previous Indonesian government had initiated healthcare reforms. According to Thabrany (2009), the reforms introduced a new paradigm in healthcare provision, namely a Healthy Paradigm. The aims of this new paradigm are to create a healthy environment and universal coverage through the movement to a healthy paradigm, professionalism, development of health insurance and a

decentralization of health services (Thabrany, 2009). These principles have inspired the future development of the Indonesian healthcare system and public hospitals.

3.1.1.1. Profile and governmental administration structure of Indonesia

Indonesia is the largest archipelago and one of the most populated countries in the world. It is situated in Southeast Asia, and it shares land borders with Malaysia, East Timor, and Papua New Guinea. It is the fourth most populated country in the world which has a population of approximately 242 million in 2011 that lives on 6,000 inhabited islands (WHO, 2013). Although the country has five major islands, namely Sumatra, Java, Kalimantan, Sulawesi and Papua, 80% of its territory are covered with water (WHO, 2008). Most of the population lives in rural areas especially on Java Island, one of the most densely populated areas in the world (Library of Congress, 2013).



Figure 3.1: Political map of Indonesia

Source: emapsworld⁵ (2013)

Such geographical and demographical situations have created additional and peculiar challenges for the provision of public services in Indonesia. According to the Indonesian Central Bureau of Statistics (2011), Indonesia is administratively divided into 33 provinces currently, 399 *Kabupaten* (regencies), 98 *Kota* (cities), and 6,973 *Kecamatan* (districts), 79,075 *kelurahan/Desa* (sub-districts). Jakarta, as the capital of Indonesia where all central administrative offices are located, is situated on the Java islands.

⁵Source: <http://emapsworld.com/indonesia-political-map-black-and-white.html>(Accessed in 1 January 2014)

In 1998, the country had experienced enormous political chaos that was exacerbated by the impact of the Asian economic crisis. The 32 year old regime of President Soeharto (the New Order Regime) collapsed with his resignation. The economic crisis accompanied by an unstable political situation 'became a fertile ground' for a dramatic change in all the governmental sectors through 'a big bang approach to decentralization' (Hofman and Kaiser, 2002:2).

The special autonomy law has gradually been implemented since 2001 following new rules of fiscal transfers from central to local government (WHO, 2008). Since then, the local governments have become the new key administrative units responsible for providing most public services (Asian Center for the Progress of Peoples, 2007). However, a recent study has found a little increase in fiscal and public fund management autonomy of the local government including the health sector (Heywood and Harahap, 2009). In fact, each level of administration in the health sector is confused regarding their roles and the upper level administration roles, particularly within the provincial government (WHO, 2008).

Furthermore, Indonesia is administratively operated under a presidential system and a unitary state principle. The government administration is divided into central, provincial and city/district government. Each level of government has its own executive and legislative body, namely the governor/major and local parliament. After decentralization, each city/district became an autonomous region. According to the decentralization laws⁶, the local governments have authority for most development sectors except international affairs, defence, the judiciary, monetary and fiscal policies, and other authorities governed by the laws. In addition, the decentralization laws allow the local governments to recruit their personnel (civil servants) based on their needs but under the approval of the Ministry of Administration and Bureaucratic Reform. In turn, the local governments are responsible for all responsibility, command, allocation and salaries of the personnel. The provincial governments, meanwhile, are responsible for matters across local governments.

Thus, Pepinsky and Wihardja (2011) suggest that the local revenues still come mainly from the central government grants known as *Dana Alokasi Umum* (DAU or General Allocation grants). They argue that, the abolishment of the 1999 decentralization law seems to deliver more political decentralization than fiscal decentralization. Although the local governments are allowed to collect and use their own revenues (PAD or *Pendapatan Asli Daerah*), most of financial sources come from the central transfer fund. For example, the salaries of civil servants are financed by the central transfer fund e.g. the central governments via the respective provincial governments.

⁶Law No. 22 regarding Regional Government and Law No. 25 regarding Financial Balance between Central Government and Regional Government

3.1.1.2. Indonesian healthcare administrative structure and authorities

Under the new laws and regulations enacted from the decentralization reform, the local governments particularly the *Kabupaten* (districts) government is now jointly responsible for health care delivery (Hotchkiss and Jacobalis, 1999). Subsequently, the intergovernmental transfer from the central government to the local government doubled between 2000 and 2006 (Hotchkiss and Jacobalis, 1999). However, some features have not changed significantly and potentially hinder the outcomes of the decentralization.

Political Structure		Health Structure	
Level	Position	Level	Position
Central	Government of Indonesia	Ministry of Health	Ministry of Health
Provincial	Governor	Provincial Health Office	Head of Provincial Health Office
District / Municipality/ city (<i>Kabupaten. Kota</i>)	Head of District / Major	District Health Office	Head of District Health Office
Subdistrict (<i>Kecamatan</i>)	Head of Sub district	Health Centre (<i>PUSKESMAS</i>)	Head of Health Centre (Head of <i>PUSKESMAS</i>)

Table 3.1: Political and health sector structure of Indonesia (revised)

Source: WHO (2000)⁷

In the new healthcare administrative regime, each provincial government and local governments are responsible for their own healthcare sector. Indonesian regencies and municipalities have become the key administrative units of the health care system. The responsibilities include the financing of health care providers. Public hospitals are now mostly administered by the local government except for the vertical hospitals (owned by Ministries). Each local government and parliament has the authority to determine public hospitals tariffs for general patients and class III patients, and the composition of beds. Moreover, each of the Indonesian provinces is sub-divided into districts and each district into the sub district (WHO, 2012). One can find at least one health centre (*PUSKESMAS*) in each Indonesian sub-district headed by a doctor that serves as a primary care provider and works with outpatient cases. Each sub district is supported by two or three sub-

⁷Source: http://www.searo.who.int/en/Section313/Section1520_6822.htm

healthcentres (*Puskesmas Pembantu/ PUSTU*), *Pondok Bersalin Desa/POLINDES* and *Pos Pelayanan Terpadu/POSYANDU*) which are mostly headed by nurses (WHO, 2012).

Meanwhile, the central Ministry of Health (MoH) has overall responsibility for the healthcare sector at a national level. It includes the arrangement of national health policy, minimal service standards, medical education standards, health care financing standards, disease control and accreditation (MoH, 2013). As the representative of central MoH the province level health offices are primarily responsible for training and coordination efforts as well as the supervision of provincial hospitals with limited authorities for resource allocation (Rokx et al., 2009). Last but not least, the district health departments have the key responsibilities for service delivery and resource allocation.

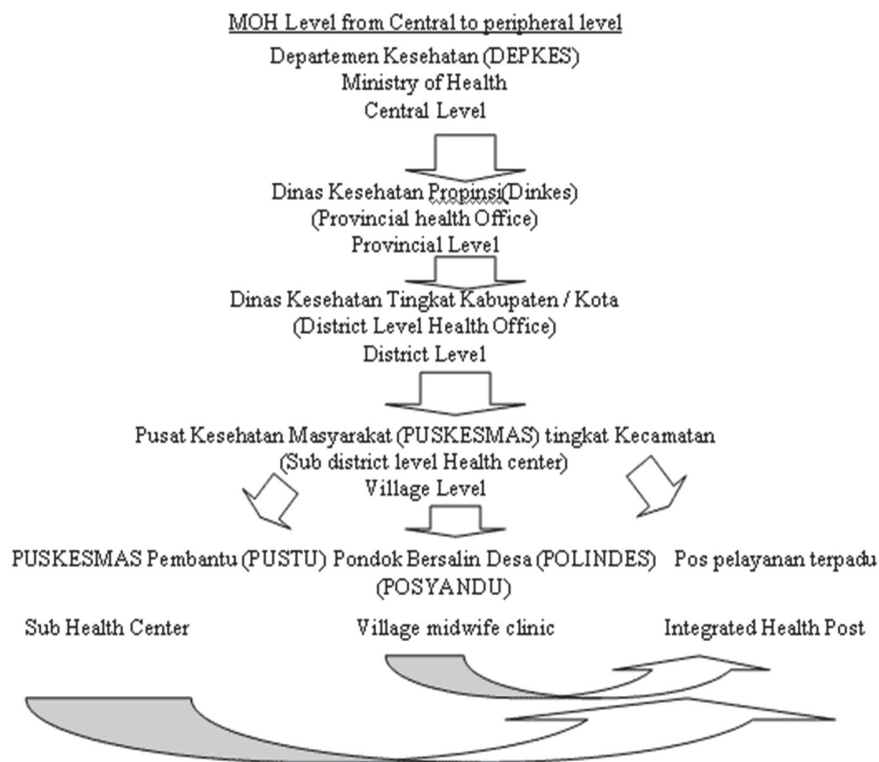


Figure 3.2: Organizational structure of the Indonesian health system

Source: WHO (2007)⁸

⁸Source: http://209.61.208.233/EN/Section313/Section1520_6822.htm

The segregation between inpatient and outpatient cares in Indonesia is blurred. On the one side, hospitals provide both inpatient and outpatient services. On the other side, health centres and general practice deliver mostly outpatient care. The health centres (*Puskesmas*) deliver various public health programs ranging from health promotion, sanitation, immunization, etc. and furthermore, primary health care services to the defined community (Thabrany, 2004). In rural or remote areas, health centres are the only health care providers because most of hospitals are situated in *Kabupaten* (districts). Meanwhile, district hospitals provide further curative services and all advanced treatments. For more complicated cases, patients will be transferred to a higher level hospital such as provincial and university hospitals that are situated in the capital of the provinces.

Moreover, the role of private hospitals seems to be limited in government public health care plan. The governments only subsidize public hospitals and social health insurances can mainly be used in public hospitals. More importantly, Indonesia has a rigid and restricted patient referral system (see Regulation of Minister of Health No. 2581, 2011) that to some extent has excluded the role of private providers. The referred patients should have a reference letter from a doctor who works in a lower level health care provider to be transferred to a higher level public provider. In addition, the social health insurances can be utilized mostly in public hospitals. These circumstances apparently have created a monopoly in the hospital care provision particularly in Indonesian districts, where the private hospitals are barely found.

3.1.1.3 Healthcare financing system in Indonesia

The healthcare sector in Indonesia can be classified as a partial decentralised sector where most of the healthcare budgets remain under the control of central government (Krussen et al., 2009). According to Krussen et al. (2009), each district government has a responsibility to provide basic health care as well as to set fees for public health services after decentralization is implemented. Meanwhile, central government and provincial government are responsible for policy making, a line of accountability and administration (Krussen et al., 2009). However, they argue that the decentralization arrangement is not followed by a fiscal decentralization. Consequently, district governments are still confused about their role within the healthcare system (Krussen et al., 2009).

For example, a personnel affair such as remuneration of civil servants, is still regulated by the central government. As a result, the financial dependency of districts to central government is

still very significant⁹. In addition, the central MoH also finances and manages the health insurance program for the near poor and poor people in Indonesia (Krussen et al., 2009). Thus, it is not easy to distinguish which government level is responsible for which area (Krussen et al., 2009).

Structure of Indonesian health care expenditure

The Indonesian healthcare sector is apparently underfunded, despite the increasing amount of government spending in the sector over the last ten years. In 2011, the share of expenditure on health (THE) as a percentage of the Indonesian GDP was only 2.7%. Meanwhile, THE/capita was only 95 US Dollars in the same year.

Selected ration indicators for expenditures on health (Indonesia)	2011
Total expenditure on health (THE) (in million US Dollar /converted)	23,019
Total expenditure on health (THE) as % of GDP	2.7
General government expenditure on health (GGHE) as % of THE	34.1
Private expenditure on health (PvtHE) as % of THE	65.9
GGHE as % of General government expenditure	5.3
Social security funds as % of GGHE	20.3
Private insurance as % of PvtHE	4.1
Out of pocket expenditure as % of PvtHE	75.7
Total expenditure on health / capita at exchange rate (in US Dollar)	95

Table 3.2: Selected ration indicators for expenditures on Indonesian health care in 2011

Source: WHO website (2012) (modified and currency is converted)

Furthermore, the portion of general government expenditure on health (GGHE) was 34.1% of THE. This is significantly lower than the percentage of private expenditure on health (PvtHE) although the government has spent significant funds to finance the social health insurance for poor people. Moreover, the out of pocket expenditure still contributed more than 75% of PvtHE

⁹According to the World Bank, 90% of districts' revenues is come from the intergovernmental transfer (World Bank, 2008)

or around 38% of THE. Thus, one can say that almost 40% of expenditure on health in Indonesia originated from the patients direct payments.

According to Rokx et al. (2009), healthcare public financing in Indonesia is integrated and managed centrally by the Ministry of Health (MoH) and under the financial supervision of the Ministry of Finance (MoF). The central government transfer funds to the provincial governments to finance the local healthcare sector. As a requirement, the Indonesian MoH have to propose a budget to MoF that is calculated on the previous year's budget rather than actual needs and demand (Rokx et al., 2009). Subsequently, each local government receives healthcare funds from MoF based on the agreement with the MoH. These funds are used to finance local hospital e.g. pay staff and doctor salaries, facilities and utilities (Rokx et al., 2009).

The decentralization has promised a change to the local governments' role in health care delivery and transfer of funds. After the decentralization, transfers are no longer earmarked and over 90% of regional funding is from the Balancing Fund (General Allocation Grant/ DAU). The Province governments have the authority to determine the portion of the DAU to be allocated to the health sector (World Bank, 2006). The special allocation grants (DAK) for the health sector are allocated after regional proposals fulfil the central government requirements and are specifically for the district level rehabilitation of the public health centre infrastructure (World Bank, 2006).

However, Heywood and Harahap (2009) uncovered insignificant change of local governments discretion in public funds management for health care sector. Their study found a high financial dependency of district governments on the central government. The inter government transfers in district health care accounted for 90% of total revenues. Furthermore, 40% of the district level expenditure on health is spent on personnel. It is paid by central government because most of the public hospital staffs are permanent civil servants. District governments have full authority only for one-third of the district public expenditure on health (Heywood and Harahap, 2009).

2. Health insurance system in Indonesia

The commitment to achieve universal health coverage that was declared by the Indonesian government seems to have contributed to a gradual increase in insurance coverage. Prior to the universal health coverage initiative, Indonesia had a low percentage of health insurance coverage. According to *Susenas* (Indonesian census) of 1998, only 14% of the population had health insurance of any type (as cited in Rokx et al., 2009). But, the number of citizens who have a health care insurance scheme has increased gradually after the introduction of *Askeskin* (later

on called *Jamkesmas*) since 2004. Thus, *Jamkesmas* can be said to be the main driver behind the rise of Indonesian health insurance coverage. The government expects that the percentage would increase significantly after the implementation of BPJS (social security provider law) in 2014 as each Indonesian citizen is required to have at least a health insurance scheme and pension scheme.

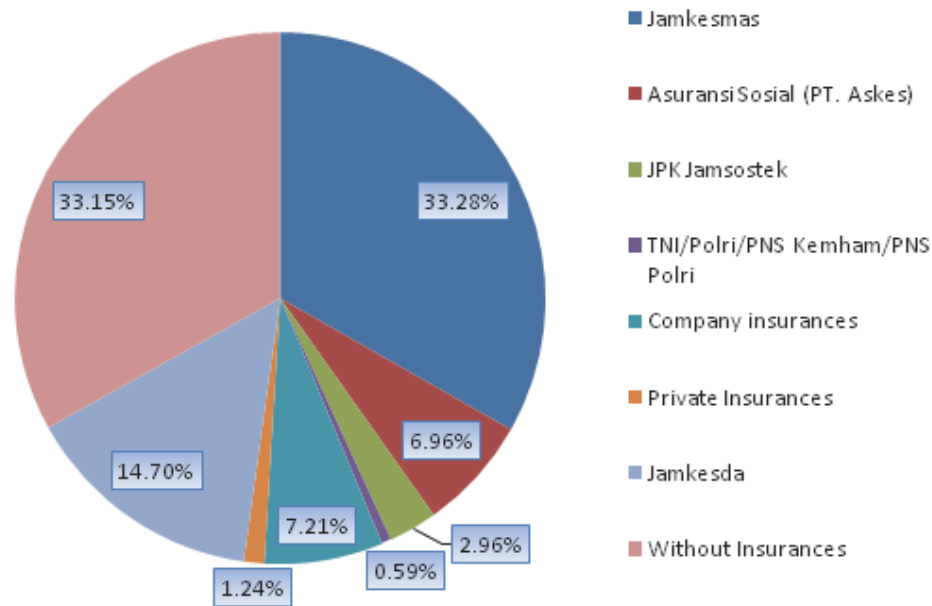


Figure 3.3.: Percentage of citizens based on their healthcare insurance
 Source: Collected document from MoH (2012)

Based on the above diagram, 33.15% of Indonesian population do not have health insurance scheme. Almost one third of the population has been registered as having *Jamkesmas* insurance. *Jamkesmas* was originally designed to cover the poor but later on it was also used to include the near poor population¹⁰. In the beginning, it was administered by *P.T. Askes*, a state owned for-profit enterprise, but in 2008, the MoH took over most of its major administrative functions, including the provider payment part (Rokx et al., 2009). It is purely financed by tax through central MoH and the users (the poor people) do not need to pay a premium for the coverage. In 2011, there were 76.4 million users of *Jamkesmas* based (MoH, 2013). In the same year, the government launched *Jampersal* (*Jaminan Persalinan* or Maternity Insurance) as the supplementary scheme of *Jamkesmas*.

¹⁰People who live just above the Indonesian poverty line

The second biggest portion is *Jamkesda* (*Jaminan Kesehatan Daerah* or Local Health Insurance) with 14.7%. These health insurance schemes are financed by provincial or district governments which target the poor people in their region who are not registered in *Jamkesmas*. Each province/district has its own *Jamkesda* scheme and the benefits can be utilized only by healthcare providers in their respective regions (ILO, 2013). Following that, the percentage of insurance for companies is 7.21%. In these types of insurances, a hospital has an agreement with firms to provide curative care for workers of the firms. The benefit, price and procedures are negotiated individually with each firm.

As the oldest health insurance scheme, the portion of *Askes* (*Asuransi Kesehatan Sosial* or social health insurance) was only 6.96%. It is a social health insurance (SHI) that covers mostly civil servants, retired civil servants, retired military personnel, veterans, and their families (Thabrany, 2009). This scheme is administered by a for-profit state enterprise namely *P.T. Askes*. It is funded by a 2% premium paid by government employees and matched by a 2% payment by the government. Additionally, every *Askes* holder is allowed to have medication in private hospitals but they might need to pay additional costs (out-of-pocket/OOP) if the treatment costs are greater than the *Askes* costs/price standards (Rokx et al., 2009).

Moreover, the percentage of *Jamsostek* (*Jaminan Sosial dan Tenaga Kerja* or Workforce Social Security) was 2.96% of total health insurance coverage in 2012. The scheme is similar to a classic social insurance program for private sector employees in firms with 10 or more employees and is also administered by a for-profit state enterprise. It covers about 2% of the population (mostly formal sector workers). *Jamsostek* is funded by a 3% (6% for families) payroll contribution paid by the employer (Rokx et al., 2009). Lastly, the private insurances are still playing an insignificant role in Indonesian health insurance.

Furthermore, Indonesia has currently adopted a multi-schemes provider (hospitals) payment system. Each of the insurance methods uses a divergent hospital payment scheme and has its own tariff and treatment catalogue. This situation leads to inefficiency in terms of regulation and administration because the hospital management have to negotiate with each insurer and take into account the diversity of procedure and tariff catalogue in their services. Moreover, such a multi scheme system potentially leads to the allocation of procedures being missed and thus the hospitals might not be reimbursed fully.

Insurance/scheme	Outpatient care	Inpatient care
Askes	Combination of Per diem and fee for services	Fee for services
Jamsostek	Capitation and fee for service	Capitation
Private health insurance	Fee for services	Fee for services
Jamkesmas and Jampersal	INA-CBGs	INA-CBGs
Community-based health insurance and Jamkesda	Depends on scheme (for example essential packet)	Depends on scheme (for example essential packet)

Table 3.3.: Health care providers based on insurances

Source: WHO reports (adjusted)

However, the existed multi schemes provider payment will be abolished in 2014 and replaced by a single prospective payment system, namely the Indonesian Case Based Group (INA-CBGs). The shift of the payment system is a vital element of the implementation of BPJS (*Badan Penyelenggara Jaminan Sosial* or Law of Social Security Administering Body) in 2014. The purpose of this shift is not only to contain hospital costs but also to minimize the complexity of the provider payment system in Indonesia (MoH, 2012)

3.1.2. Hospital sector in Indonesia

As the main healthcare provider, Indonesian hospitals have attracted significant concern and evaluation within the Indonesian health care reforms. The increase of health insurance coverage has challenged the capacity and service quality of the hospital sector following the rise of demand for hospital services and patient number. The hospital sector apparently reflects general characteristics of hospital sector in other developing countries. First, the hospital density in Indonesia is relatively low and the hospitals are unevenly distributed across Indonesia. The latest survey shows that the number of hospitals in Indonesia has increased gradually to 2,083 by 2012. Additionally, Indonesian hospitals and bed ratio have increased slowly, and thus, have failed to keep pace with the population growth (World Bank, 2008).

Classification	2012
Public Hospitals	813
Owned by Health Ministry	32
Owned by local government	624
Owned by Military/ Police Department	154
Owned by other government departments	78
Private hospitals	1,195
Total number of hospitals	2,083

Table 3.4.: Classification of Indonesian hospitals based on their ownership

Source: *Dirjen Bina Upaya Kesehatan* collected document (MoH, 2013)

In early 2013, the number of hospital beds was 238,373¹¹ or 94.64 pro 100.000 population¹². This ratio is smaller than the bed ratio of neighbouring countries such as Malaysia (180/100,000 populations)¹³ and Thailand (210/100,000 population)¹⁴. In fact, the hospital bed density in Indonesia is among the lowest in Asia (Awofeso et al., 2013). Besides, the hospitals, particularly the private hospitals, are not well distributed throughout the Indonesian regions. According to MoH (2013), more than 60% of hospitals are situated in Java Island.

Island	Hospitals	%	Beds	%
Sumatera	334	17	34,057	15
Java	1,174	61	142,614	65
Sulawesi	213	11	23,684	11
Papua	47	3	4,160	2
Borneo	133	8	14,713	7

Table 3.5: Distribution of hospitals in Indonesia (2012)

Source: MoH (2013)

Secondly, the average length of stay (ALOS) in Indonesian hospitals is relatively shorter. Similar to neighbouring countries, ALOS in Indonesian acute hospitals is shorter than ALOS in other

¹¹ Source: http://202.70.136.52/rsonline/report/report_by_catrs_2012.php

¹² It is assumed that the Indonesia population in 2012 is 251.857.940 (http://www.kpu.go.id/index.php?option=com_content&task=view&id=7299&Itemid=1)

¹³ For 2011, source: <http://data.worldbank.org/indicator/SH.MED.BEDS.ZS>

¹⁴ For 2010, source: <http://data.worldbank.org/indicator/SH.MED.BEDS.ZS>

countries particularly ALOS in developed countries. In 2010, the Indonesian national ALOS was 4.37 days, which only declined by 9% between 2003 and 2010 (MoH, 2013).

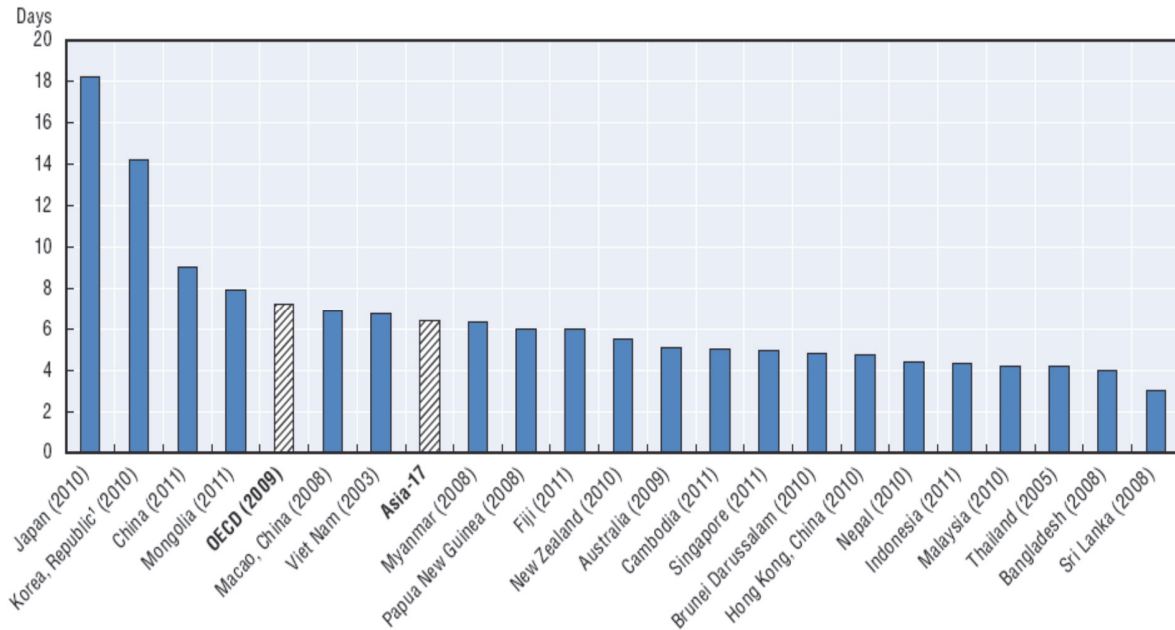


Figure 3.4: Average length of stay in acute care hospitals, 2011 (or nearest year available)
Source: OECD/WHO (2012)

Thirdly, Indonesia has a low ratio of doctors and nurses. According to WHO and OECD statistics, ratio of doctors and nurses per 1,000 in Indonesia are 0.3 (2011) and 2.0 (2007) respectively. These ratios are slightly smaller than in Malaysia and Philippines but significantly smaller than in OECD countries.

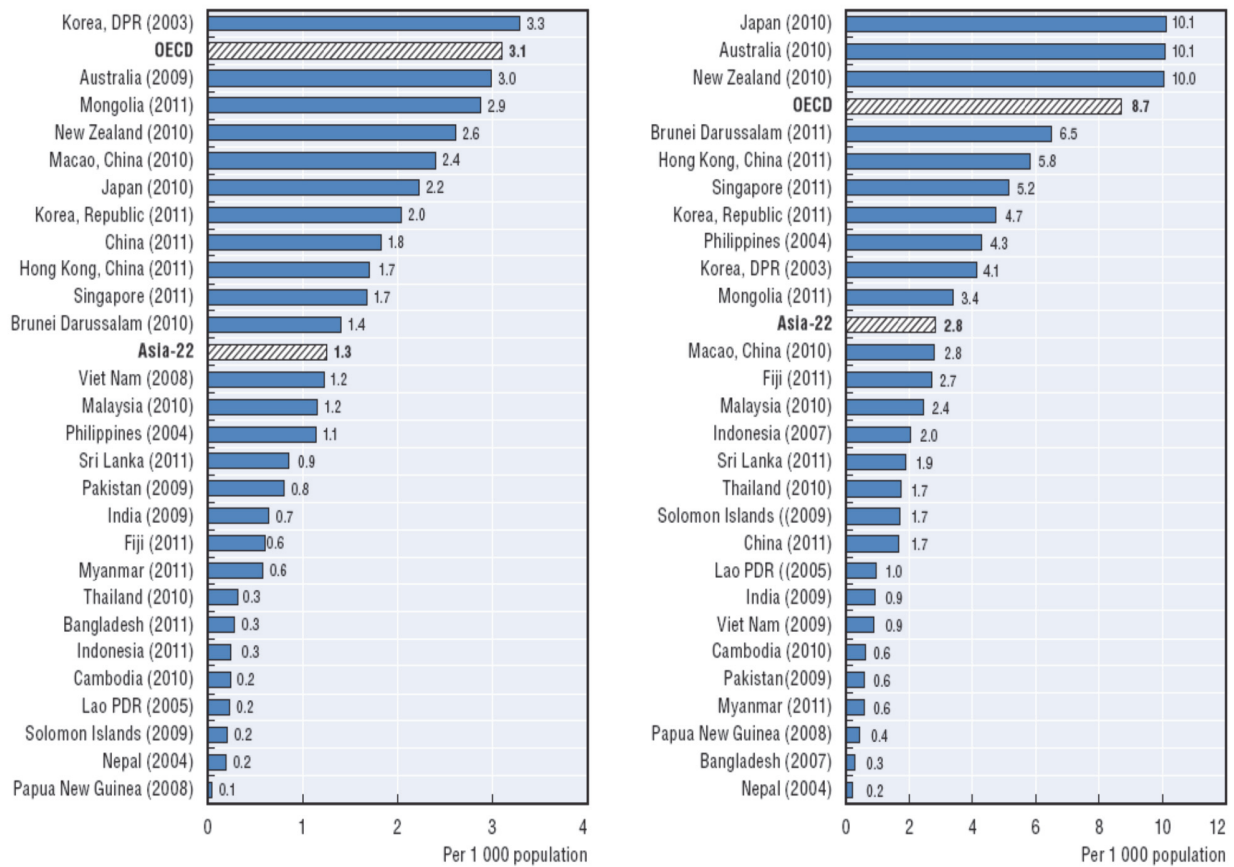


Figure 3.5: Doctors and nurses per 1,000 in Asia and OECD countries

Source: OECD/WHO (2012)

Finally, the Indonesian hospital sector has a low bed occupancy rate (BOR). This rate is calculated by dividing the number of in-patient hospital beds occupied with the average number of hospital beds, and is expressed in percentage (NSCB, 2013). According to Awofeso et al. (2013), the hospital sector in Indonesia has a smaller BOR (between 55% and 60%) compared with BOR in the South-East Asian region (80%).

3.1.3. Characteristics of Indonesian public hospitals

Although the number of Indonesian public hospitals is smaller than the private hospitals, the number of public hospital beds is higher than the private hospital beds. 83% of total hospital beds in Indonesia are owned by public hospitals (MoH, 2013) and 41% of them are class III beds. Moreover, most social insurance schemes can be used optimally in public hospitals. Last but not least, public hospitals can be found in each Indonesian district or city, meanwhile private

hospitals are mostly found in urban areas. Given these facts, the role of public hospitals in health care provision is very crucial, especially after the shift of healthcare paradigm in Indonesia¹⁵.

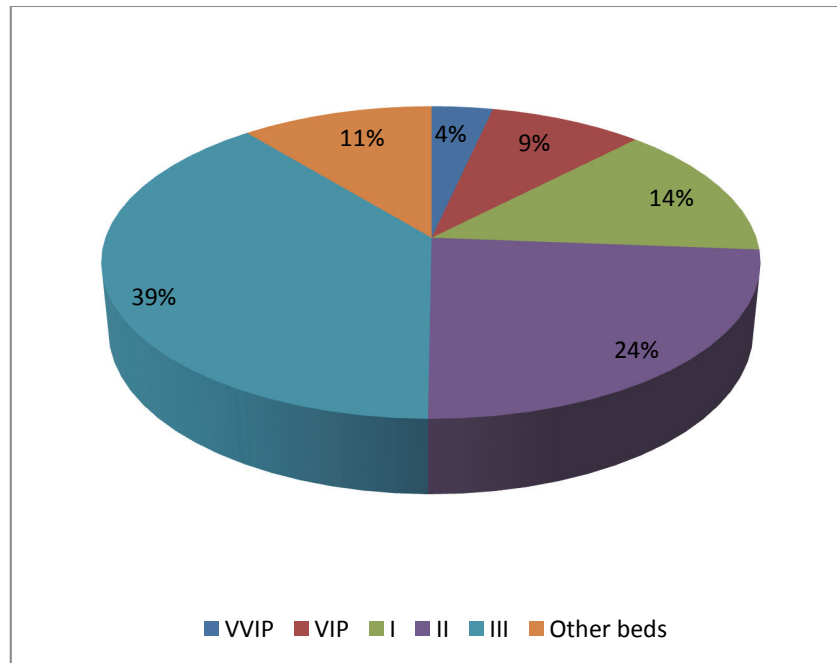


Figure 3.6: Hospital bed composition based on types in Indonesia (2012)

Source: MoH (2012)

The Indonesian governments only subsidize public hospitals. The public hospitals receive the investment costs as well as part of the operational costs such as the salaries of civil servant staffs. In fact, the civil servants who work in public hospitals are appointed and selected by the government (owner). The owner also pays for other operational costs in public hospitals, for example security, cleaning and utility costs) but not on a regular basis. As the trade off, the owners of public hospitals intervene in the public hospitals' tariffs, particularly the tariff for class III beds. In addition, the government has also authority to determine the bed structure of hospitals and require hospitals to have more class III beds. On the other hand, private hospitals do not receive any subsidies from the government although they can have an agreement with the government to treat SHI-patients (*Jampersal, Jampersal, Askes*).

¹⁵ The implementation of universal coverage in Indonesia can be seen as a new paradigm of healthcare provision in a country where the majority of the population is still poor and often cannot afford to seek medical treatment. For further explanation please read in <http://www.amcham.or.id/nf/features/4083-indonesia-s-shifting-healthcare-paradigm>

Moreover, the concurrence between public hospitals and private hospitals are limited because of the restricted patient referral system. Officially, the patient referral decision is in the hand of the primary care doctors (healthcare centres). Each patient should have a reference letter from the doctor in the lower healthcare facility before being transferred to a more advanced hospital for further treatment. Patients have no full right to decide the hospitals which they want to be treated in. Without the reference letter from the health centres, the patient can barely use their SHI-insurance in public hospitals, whereas the SHI-users can only use their insurance optimally if they are treated in public hospitals. More importantly, most private hospitals are usually located in the capital of provinces, whereas the public hospitals can be found in most Indonesian districts. As a result, Indonesian public hospitals have significant competitive advantages.

Type	Number of beds	Available specialist/ hospital status
A	Up to 1.500 beds	National referral care (located in Indonesian capital)
B	Between 100-400 beds	Referral cares at a provincial level
C	Between 50-100 beds	More than 4 types of specialists (in larger districts)
D	Less than 50 beds	Four specialist: internist, OBGYN, surgeon and paediatrician

Table 3.6: hospital classification based on available specialist and size

Source: Thabrany (2009)

Another peculiar characteristic of Indonesian public hospitals is the domination of physicians in senior management. In fact, it is regulated by law that the managing director of an Indonesian public hospital has to be a doctor. Thus, one can find that most of the important managerial positions in the public hospitals are dominated by doctors.

3.1.4. Indonesian hospital financing reforms

The healthcare reforms that directly dealt with hospital financing could be distinguished into two reforms, namely the automation/modernization of public hospitals and the adoption of DRGs based hospital payment system. This section aims to elaborate on both reforms with specific emphasis on the adoption of the DRG based hospital payment and their potential implications for public hospitals.

3.1.4.1. Autonomization and modernization of public hospitals

In 2005, the Indonesian government initiated the change in the public sector paradigm from bureaucracy to a more business-like concept through the creation of *Badan Layanan Umum* (BLU or Public Sector Agency)¹⁶. The BLU status is not only a new legal form of public institutions but also provides a wider autonomy for the management of Indonesian public institutions. According to the Government Regulation No. 23 (2005), a BLU public institution can be defined as (1) a government unit that is formed to provide public services and goods for the community, (2) its primary objective is not profit, and (3) it is based on the principles of efficiency and productivity. Thus, the aims of BLU are to improve the quality of public services by providing financial management flexibility based on economic and productivity standards and the implementation of sound business practices.

Hence, the core feature of the BLU status is the flexibility of management of government bodies to manage and use their own collected revenues. Such financial flexibility is expected can incentivize them to increase their performance. Before gaining the BLU status, public institutions have very limited authority both in their revenue and personnel management. The non-BLU public hospitals have to transfer all collected fees to the owner on a daily basis. On the other hand, the management have to follow bureaucratic procedures to obtain funding from the owner to cover their daily operational costs, for example proposal/official requests and approval from the owner). These bureaucratic procedures are not effective and can be inefficient. The hospitals might need to delay the purchase of medicines or the payment of other operational costs because they do not have enough money. As a result, the hospitals cannot serve the patients optimally as their cash flow is fully controlled by the owner.

Moreover, BLU public hospitals are allowed to use collected revenues for covering their operational costs. The managements have also mandated to manage their cash, revenues and expenditures, receivables and debts, investments, procurement, accounting, remuneration, surplus/deficit, human resources and top managements (DPPK-BLU, 2009). The BLU public hospitals are permitted also to hire non civil servant employees based on their needs. More importantly, they operate as a governmental agency as well as autonomous entities at the same time. Consequently, they have to provide two financial reports, namely financial reporting as a government agency and a financial report as an economic entity.

Furthermore, the BLU status is not merely about financial flexibility but an effort to advocate an ‘entrepreneurial government’ paradigm in which hospitals are remodelled into managerial

¹⁶Government Regulation (GR) No. 23/2005

organizations (DPPK-BLU, 2009). The new paradigm, “*Let and make the Managers Manage*” is expected to improve the efficiency and effectiveness of public services in Indonesia (DPPK-BLU, 2009). To do so, BLU hospitals are required to design a five year business plan based on their needs and revenue, and prepare a financial report based on accrual accounting.

Therefore, BLU status could be seen as an initiative to remodel public hospitals. BLU hospitals are supposed to imitate private hospitals, but they are not allowed to focus only on profit. They are allowed to gain operational surplus but the profit should be used to improve the hospital's performance. They have more complex and detailed responsibilities to assure that their services are in accordance with the Minimum Service Standard (MSS) designed by their supervisor (owner representative: Minister/Governor/Mayor/Head of district). They have to submit their financial report to MoF rather than MoH. As a result, the financial reports have to follow private (business) accounting principles that take into account the accountability, transparency and efficiency standards. This mechanism can be seen as an effort to increase transparency and accountability in public hospitals.

The improvement of public hospital autonomy and the modernization of public hospitals through BLU status seem to be an important factor in the further implementation of health care reform in Indonesia. But, an evaluation of the impact and outcomes of BLU status needs to be conducted since a similar initiative was undertaken a few decades ago, in a *Swadana* hospital. *Swadana* status can be said to be the prototype of the BLU status. On one hand, the *Swadana* hospitals are allowed to generate and retain additional incomes from a group of high incomers (VIP and VVIP bed classes, so called commercial beds) for “hotel” benefits and to use these revenues to supplement hospital operating costs (Suwandono et al., 2001). The aim is to mobilize resources and improve cost recovery in the hospital and thus, reduce government subsidies on public hospitals (Govondaraj and Chawla, 1996). Conversely, class III beds were still in the control of central/local government in term of their price and revenue collection as well as the personnel (recruitment and remuneration) decision. Most of the doctors and nurses are public officers that cannot be hired or fired by the hospital (Govondaraj and Chawla, 1996).

Having such quasi and partial autonomy, the *Swadana* status apparently failed to meet their objectives. Bossert et al. (1997) found that increased autonomy in a *Swadana* hospital increased hospital own source revenues, but did not contribute to lower financial dependency on government subsidies. They also documented limited evidence of better efficiency after the hospital gained *Swadana* status. On the contrary, the *Swadana* status led to the reduction of class III beds in hospitals and thus, restricted access to the poor (Bossert et al., 1997).

Govondaraj and Chawla, (1996) and Suwandono et al. (2001) supported these findings. Govondaraj and Chawla, (1996) identified that government subsidy and user charges increased after the *Swadana* status was implemented in their sample hospitals. Meanwhile, Suwandono et al. (2001) found that the commercial beds in the sample hospitals were being subsidized, rather than providing additional revenue for hospital operations (Suwandono et al., 2001). The main reason was the capacity of the hospitals' accounting system which failed to provide sufficient financial data to perform a comprehensive and routine financial analysis (Suwandono et al., 2001). Last but not least, *Swadana* status has not created new incentives for hospital employees because the hospital personnel policy/decision is still in the hands of the owner (Govondaraj and Chawla, 1996).

3.1.4.2. Indonesian Diagnostic Related Groups/ Case Base Groups (INA-DRGs/ CBGs)

The adoption of INA-DRGs¹⁷ as one of the provider payment systems in Indonesia is the latest change but crucial within the Indonesian hospital financing reform. It is a part of ratification of SJSN in 2004 and BPJS that aims to accelerate the implementation of universal coverage in Indonesia. The system has been gradually adopted in public hospitals within the last 5 years and become the principal hospital payment system in 2014.

1. The Implementation Phases of INA-DRGs/CBGs

According to the Directorate General of Health Care Development (MoH, 2009), the INA-DRGs/CBGs aim is (1) to establish standard hospital payment fees and enhance its transparency, (2) to enable a more objective calculation of hospital care based on hospital actual costs, (3) to pay hospitals based on their workload, and (4) to improve quality and efficiency of hospital care. Moreover, the current multi scheme PPS is too complicated and inefficient both for the providers and the purchasers. The adoption of the single payment system under DRGs, therefore, is expected to reduce the complexity of the provider payment system in Indonesia.

¹⁷since 2010 renamed as INA-CBGs

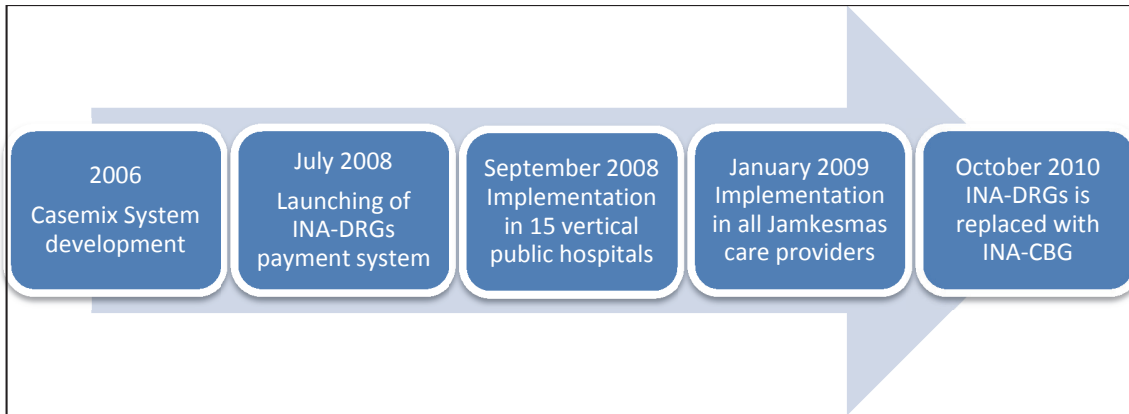


Figure 3.7: Phases of the INA-DRGs/CBGs adoption

Source: Wibowo (2012)

In the first implementation phase, the DRGs payment system was used by 15 vertical hospitals to claim for *Jamkesmas* patients, the class III beds patients, and commenced in September 2008. Following that, the new payment system was expanded to local/district hospitals as the reimbursement system for *Jamkesmas* patients in January 2009 (General of Health Care Development, MoH, 2011) and *Jampersal* patients since 2011.

According to Wibowo (2012), there were 1,114 hospitals (718 public hospitals and 426 private hospitals) which have agreed to provide health care for the *Jamkesmas* and *Jampersal* patients. This number increased slightly from 945 hospitals in 2009. In October 2010, the name of payment system was changed from INA-DRGs to INA-CBGs (Case based Groups) due to copyright issue. Recently, the scope of the INA – CBGs system recently broadened in Jakarta (capital of Indonesian) as the local government decided to use this scheme to pay hospitals for their services for the people who have registered with the ‘Jakarta Healthy Card’¹⁸. In the final phase, the INA-CBGs system is expected to become the primary hospital payment system in Indonesia.

2. Characteristic of Indonesian Diagnostic Related Groups (INA-DRGs/CBGs)

The INA-DRGs/CBGs has followed its own implementation route and has distinctive characteristics. Firstly, it has been implemented in a relatively short period of time. The pilot project of the INA - DRGs system was conducted in 2006 in 15 vertical hospitals. The first application was in 2008 in the 15 vertical hospitals before it expanded to other Indonesian

¹⁸ This is a social health insurance for poor people that are financed fully by the Jakarta local government.

hospitals in 2009. As a result of such a dramatic adoption, many hospitals are not ready to adopt the new system as expected¹⁹.

Secondly, the calculation of INA-DRGs/CBGs rates is based on the aggregate costs information from sample of public hospitals, although private hospitals are also reimbursed with the same rates. The current rates apparently do not represent the average actual cost of each case because the significant portion of operational and investment costs of selected public hospitals are covered by government subsidies. In the other words, the current rates are underpriced and unfair from the perspective of private hospitals which do not receive any government subsidies. Consequently, some private hospitals have dismissed the contract with the government due to this issue²⁰. Thirdly, INA-DRGs/CBGs system is used for both inpatients and outpatients cares. The latest CBGs catalogue consists of 833 groups (inpatient: 635 and outpatient: 198). However, this condition does not guarantee a significant scope of INA-CBGs adoption because the new payment scheme is only used for *Jamkesmas* and *Jampersal* patients. In fact, the portion of INA-CBGs related patients in 2010 is was only 16% of total patients in Indonesia (MoH, 2013)²¹.

Fourthly, INA-DRGs/CBGs tariffs are calculated based on a top down costing method. The National Centre for Casemix (hereafter NCC), which is responsible for preparing, calculating and updating the INA-DRGs rates, collects the aggregate cost from sample hospitals. The sample hospitals are required to fill a costing template rather than submit their actual cost of each DRGs group/case. Thus, the quality of basic data can be questioned since not all hospitals have the same capacity to produce high quality cost information and they might use different accounting methods. More importantly, such aggregate information based data might discourage the development of a more detail cost accounting system in hospitals.

Fifthly, the INA-CBGs rates are distinguished into 4 groups based on the location of providers, namely (1) Java and Bali, (2) Sumatera, (3) Borneo, Sulawesi and NTB and (4) NTT, Maluku, Maluku Utara, Papua and Papua Barat. Subsequently, the rates are classified based on hospital types (sizes) into 12 groups, namely (1) Class A, (2) Class B, (3) Class B non-university hospital, (4) Class C, (5) Class D, (6) Dr. Cipto Mangunkusumo national central general hospital, (7) Mother and Children Harapan Kita Hospital, (8) National cardiovascular center Harapan Kita hospital, (9) Dharmas Hospital National Cancer Center, (10) National Stroke Hospital Bukit

¹⁹ The chief of ARSADA (*Pengurus Pusat Asosiasi Rumah Sakit Daerah se-Indonesia* or Association of District Hospitals) reported that 80% of local hospitals are not ready for the DRG adoption due to incapacity of human resource and hospital facilities (<http://otomotif.kompas.com/read/2009/02/26/17142959/direktori.html>)

²⁰ Sixteen private hospitals resist to involve in Kartu Jakarta Sehat program because the CBGs tariffs are too lower compared to their real costs (<http://health.liputan6.com/read/590521/daftar-rumah-sakit-yang-menolak-dan-masih-menerima-kjs>)

²¹ Collected document from the central MoH of Indonesia

tinggi (11) the Drug Dependence Hospital, and (12) Prof. Dr. Sulianti Saroso – InfectiousDiseaseHospital.

According to NCC, such double categorization of CBGs rates is caused by significant variation of capital costs and other specific operational costs among hospitals based on their location, type and service speciality²². But, this argument could be questionable because these costs are covered by the government and thus, they are irrelevant in CBGs tariff calculation. More importantly, such divergent and individual rates for certain hospitals to some extent are against the principles of the DRG payment system. The DRGs rates should reflect the average costs of each DRGs case in order to encourage the inefficient hospitals to control their costs and to give rewards to the efficient hospitals.

3. The tariff calculation of INA-DRGs/CBGs

The INA-DRGs/CBGs rates catalogue is prepared by NCC. In 2007, the first INA-DRGs fees were calculated based on costs and patients' data which were collected from the participants of the INA-DRGs pilot study. The first catalogue was later on used to pay hospitals for *Jamkesmas* patients' bills. In 2012, NCC launched the new DRGs catalogue as well as the new name for the system, namely the Indonesian Case Based Groups (hereafter INA-CBGs). The INA-CBGs term is used to replace INA-DRGs as the contract with 3M (a provider of Grouper software) has ended and was replaced by the use of another grouper software company (University of United Nation Grouper – UNU Grouper).

The classification and establishment of INA-CBGs groups and tariffs are done centrally by NCC. In the latest INA-CBGs tariffs, data from 100 public hospitals was collected and used as the basis data in the calculation of INA-CBGs 2012 tariffs. These aggregate cost data are entered into UNU-Grouper software to generate DRG cases and their fees. Similar to the INA-DRGs fees calculation, top down costing is also used by the NCC to prepare INA-CBGs catalogue and fees. Following the formula to calculate INA-CBG tariff/fees (Wibowo, 2012):

$$\text{CBGs Tariff (fee)} = \text{Hospital Base rate} \times \text{Cost Weight} \times \text{AF}$$

$$\text{Hospital Base rate} = \frac{\text{Hospital cost}}{\text{Number of hospital equivalent cases} \times \text{CMI}}$$

²² Based on the interview with a NCC senior staff

According to Wibowo (2012), an adjustment Factor (AF) is included in the CBGs tariff calculation to take into account the special need and characteristics of hospitals. The AF is added to allocate additional fees to cover specific costs that might occur only in certain hospitals, for example: university hospitals, costs of research and development, regions, inflation, long LOS treatment and type of hospitals. Additionally, the revision and update of hospital base rates are performed yearly whereas the case mix index and cost weight are revised every 2 or 3 years in order to maintain the validity and representativeness of the DRG tariff (Wibowo, 2012).

The process of the administrative claim of INA-CBGs consists of three general steps; the preparation and activating of DRG software, claim administration and the verification process (Government regulation No.40, 2012). Meanwhile, the key players in the DRG system could be doctors, coders and verifiers. First, doctors who treat the *Jamkesmas* or *Jampersal* patients need to give detailed information about the diagnoses (both primary and secondary diagnoses) of their patients and their treatment procedures that have been conducted. They are also expected to categorize the diagnoses and treatments based on ICD-9 CM (International Classification of Diseases Revision Clinical Modification) and ICD-10 (International Statistical Classification of Diseases and Related Health Problems Tenth Revision)²³. The approval of the medical committee is mandatory for third level severity cases. Later on, the information is entered into the CBG software by the coders to generate the DRG code and its tariff. Following that, the administrative staffs will gather the necessary documents related to the patients and hand in to the independent verifier for the checking procedure. Finally, the hospitals can claim the DRG fees after the verifier confirm that the patients' have been categorized correctly and the documents are completed.

3.2. German hospital financing reforms

The German health care system can be said as one of the oldest healthcare systems in the world. The German social health insurance system was established by Chancellor Bismarck in 1883 (Carrera et al., 2008). It is also considered as one of the most comprehensive and extensively developed systems, which combines the participation of public and private systems. This section elaborates on the features of German healthcare and hospital sector. Additionally, it discusses the latest German hospital payment changes that have taken place since 1993.

²³International statistical classifications of diagnoses and medical treatment determined by WHO.

3.2.1. Overview of the German healthcare system

The German healthcare system is financed predominantly by public funds through social health care insurance. In fact, general government expenditure on health accounted for 76% of total health care expenditure (WHO, 2013). Meanwhile, the ratio of healthcare expenditure and German GDP was the fourth highest among OECD countries in 2000, with 11.6% of its GDP spent on health (OECD, 2012). Thus, the government's budgetary pressure due to high unemployment, changes in demographics and the costs of German reunification within the last few decades has an implication for health care financing (Weinbrenner and Busse, 2006). Subsequently, the German government has an economic motivation to implement healthcare and hospital financing reforms to contain the whole expenditure issue as much as is possible.

3.2.1.1. Profile and governmental administration structure of Germany

The Federal Republic of Germany is located in central Europe and covers an area of about 357,000 km (Busse and Riesberg, 2004). The country is surrounded by Denmark, Poland, the Czech Republic, Austria, Switzerland, France, Luxembourg, Belgium and Netherlands (clockwise from the north). IT is one of the most populous member states in the European Union (EU) with 81.777 million inhabitants in 2011 (WHO, 2013).

Before the German reunification, 30% of the total land belonged to the former German Democratic Republic (GDR) or East Germany whereas the rest was the political territory of the Federal Republic of Germany or West Germany (Busse and Riesberg, 2004). The reunification created a demand for equality between both (former) countries through fiscal transfers from West to East Germany. On top of that, Germany is categorized by the World Bank as a high income economy (\$12,616 or more Gross National Income (GNI) per capita)²⁴.

According to article 20 (1) of the Basic Law, Germany is a democratic and social federal state. As a federal state, powers are distributed between *Länder* (states) and local governments (Loeffler, 2002). This country has 16 states, 112 urban districts and cities (*Stadkreise* and *Kreisfreiestadte*, rural districts (*Landkreise*) and 14,987 municipalities (*Kommunen*)²⁵.

²⁴ Source: http://data.worldbank.org/about/country-classifications?print&book_recurse

²⁵http://www.regional.gov.au/local/publications/reports/2003_2004/C7.aspx



Figure 3.8: Political map of Germany

Source: [emapworld](http://emapworld.com)(2014)²⁶

The administrative structure is divided into three tiers, namely the federal government (*Bund*), states (*Laender*) and municipalities (*Kommunen*). According to Dotars (2003), the power and authority are shared among these three tiers. First, the federal government owns exclusive legislation rights in areas that affect the whole nation, for instance defence, monetary policy, air transport and nationwide taxes and levies, whereas the state governments are responsible for higher education, nature conservation, landscape management and regional planning (Dotars, 2003). Additionally, a clear separation in term of power and authority is clearly seen between the federal government and state governments (Derlien, 2004). Finally, the lowest tier, namely municipalities also have full powers, which include issuing substantive laws (Dotars, 2003). In fact, they have more rights as compared with the first and second tier governments. For example, they are allowed to provide public services, including social services themselves, but need to do this in accordance with federal and respective state guideline (Loeffler, 2002).

²⁶Source: <http://emapworld.com/germany.html> (Access in 1st January 2014)

3.2.1.2. German healthcare administration structure and authorities

Following the government political system, the German health system is based on federalism and corporatism principles (Weinbrenner and Busse, 2006). The former is seen in legislative affairs where health care legislation is mostly decided by the state governments. Each state acts as coordinator of health care provision in its territory, including co-ordination of inpatient and outpatient health care (Wendt et al., 2005). To do so, each state establishes a 'Hospital Plan' (*Krankenhausplanung*) based on the actual needs of hospitals and the people. Based on this plan, the states control the capacity planning of the hospital sector, hospital care quantity and overall costs (Wendt et al., 2005). It consists of a detailed number of hospitals required to care for the population together with their location and facilities (Böhm, 2009). Furthermore, the plan consists of a hospital investment scheme and necessary speciality for every hospital that are planned by a committee consisting of representatives from state government, hospitals and sickness funds (Busse and Riesberg, 2004).

Meanwhile, the federal government provides the legal framework that needs to be followed by the state governments. For example, The German Basic Law requires that living conditions shall be of an equal standard in all states (Busse and Riesberg, 2004). Moreover, the corporatism principle means hospitals and insurance companies operate as independent economic entities (Mattei et al., 2013). The providers and payers in the SHI system in Germany are represented by (1) SHI-affiliated physicians' and dentists' association and (2) sickness funds are quasi-public corporations respectively (Busse and Riesberg, 2004).

A strict and clear separation between inpatient and outpatient care is noticeable in the German health care system. In-patient care is mostly delivered by hospitals that are owned by the municipalities, universities, churches or private companies, whereas out-patient care is provided mostly by private clinics or general practices. Moreover, the in-patient health care budget negotiation involves sickness funds and hospitals, whereas in the out-patient health care budget negotiations, associations of health insurance funds (sickness funds) meet with a panel of doctors' associations to determine the service fees (Wendt et al., 2005).

Another peculiar characteristic of the German health care system is the full involvement of private hospitals and insurance companies in the SHI system, which creates strong competition among payers as well as providers. The ownership of hospitals plays a marginal role within the SHI system as the private hospitals are also entitled to the investment costs and allowed to treat SHI-patients as long as they are registered with the hospital plan. Moreover, the citizens are allowed to choose which sickness fund and provider they will register with. This situation leads to fierce competition both in the payer and provider sectors and forms a plurality system (Busse

and Riesberg, 2004). Lastly privatization of hospitals in Germany is also permissible. Public hospitals for example can be sold to private hospitals if the owners cannot cover their costs any longer or believe that the hospitals are not feasible to operate as a public institution.

3.2.1.3. Healthcare financing system in Germany

This section describes the health care financing structure and insurance system in Germany. As one of the oldest health care systems, it is currently confronted by financial challenges due to demographic changes and innovations in medical technology.

1. Structure of German health care financing

The German health care system is a multi-funding system, but mainly financed by public expenditure via the SHI system. SHI covered 88% of the population in 2003 (Schreyoegg et al., 2005). Meanwhile, 10% of the population uses private health insurance and the remaining is covered by other schemes or uncovered for any further schemes (Busse and Riesberg, 2004).

Below, is the structure of health care financing in Germany:

Selected ration indicators for expenditures on health (Germany)	2011
Total expenditure on health (THE) (in million US Dollar)	398,672
Total expenditure on health (THE) as % of GDP	11.1
General government expenditure on health (GGHE) as % of THE	75.9
Private expenditure on health (PvtHE) as % of THE	24.1
GGHE as % of General government expenditure	18.5
Social security funds as % of GGHE	89.7
Private insurance as % of PvtHE	39.9
Out of pocket expenditure as % of PvtHE	51.4
Total expenditure on health / capita at exchange rate (US Dollar)	4,875

Table 3.7: Selected ration indicators for expenditures of Germany health care in 2011

Source: WHO website (2013)

The contribution of public spending in the health care sector is still the highest portion compared to other private expenditure. In 2011, general government expenditure on health was 75.9% whereas another 24.1% was covered by private expenditure. It accounted for 11.1% of German GDP and 18.5% of total public spending in 2011 (WHO, 2012).

Compared to other OECD countries, Germany was the fourth highest health expenditure as a share of GDP after the United States (17.6%), Netherlands (12%) and France (11.6%) in 2010. In addition, total expenditure on health/capita in Germany was the seventh highest among OECD countries in the same year.

The above diagram unveils a less significant role of out of pocket expenditure in the German health care sector. Although it accounted for more than half of private expenditure on health care, it was only around 10% of total health care expenditure. On the contrary, the portion of social security funds as a % of GGHE is relatively high (89.7% or 75.9% of total expenditure on health care). In short, the above figures clearly show a very dominant role of public expenditure in German health care.

2. Health insurance system in Germany

As a result of a long history, Germany's insurance system has produced nearly universal coverage and is stronger compared to other countries (Porter and Guth, 2012). In fact, the government made health insurance compulsory in Germany for all citizens after 2009 (Busse, 2010). In 2012, the SHI covered around 87.6% whereas only 9% of the population are registered in private health insurance²⁷. The remaining citizens have other types of health insurance or no health insurance (0.06% uninsured population in 2010²⁸). Moreover, the German-SHI insurance is only optional for the self-employed and high earners (above € 52,200 per year in 2013²⁹), whereas the remaining population does not have this option (Stolpe, 2011). It means that the self-employed and high earners are allowed to opt into a private health insurance scheme if their salary is higher than the threshold. On the contrary, the low and middle income employees including students, pensioners and recipients of unemployment benefits must register for the SHI

²⁷Source: http://www.gkv-spitzenverband.de/media/grafiken/englische_grafiken/Grafik_Krankenversicherte_english_160dpi_RGB_2012-11-05.jpg

²⁸ Source: <http://cges.umn.edu/docs/KlusenGKVInfoSession27Apr2010Vs100423.pdf>

scheme (Busse and Riesberg, 2004). This regulation has successfully maintained a high level of universal health coverage in Germany.

Additionally, the amount of SHI sickness funds has reduced significantly over the years to only 134 in 2013³⁰. All SHI sickness funds are autonomous, not-for-profit, and public law corporations (GKV, 2013). Meanwhile, there are 40 competing, profit oriented and independent private sickness funds in Germany³¹. Both SHI and private sickness funds are funded largely through shared contributions between the employers and employees. Unlike private insurance, however, the SHI sickness funds are subsidized by the government.

Criteria	Social Health Insurance	Private Health Insurance
Mandatory participation	Yes, for individuals who earn less than 4,350 Euros/ month (in 2013) ³²	Restricted access based on a voluntary basis as an alternative for SHI
Coverage of dependents	For direct dependents including wife (or partner) and children	No
Premium calculation	Income related-premiums	Risk related-premiums
Solidarity principle	Yes	No
Obligation to underwrite every applicant	Yes	No
Self-governance	Yes	Yes
Cost sharing with employees	Yes	Yes
Risk pooling	Yes	No
Capital contribution financing	No (pay as you go)	Yes

Table 3.8: Main differences and similarities between SHI and PHI system in Germany

Source: Porter and Guth, 2012 (summarized)

²⁹ Source: <http://www.ce-expat.de/health-insurances/private-health-insurance.html>

³⁰Source:http://www.gkv-spitzenverband.de/krankenversicherung/krankenversicherung_grundprinzipien/alle_gesetzlichen_krankenkassen/alle_gesetzlichen_krankenkassen.jsp

³¹Source: <http://www.krankenkassen.de/private-krankenversicherung/pkv-liste/>

³²Source: <http://www.gtai.de/GTAI/Navigation/EN/Invest/Investment-guide/Employees-and-social-security/the-german-social-security-system.html?view=renderPdf>

According to Gress (2007), the method of premium calculation is the most significant difference between SHI and PHI. This difference represents the fundamental structural principles of SHI, namely the solidarity principle and equal benefits (GKV, 2013). In the SHI scheme, the premium calculation is independent of individual health risk (risk solidarity) but depends on income (income solidarity). Additionally, solidarity of family status is also found in SHI in which an insurer does not need to pay more premiums for their dependents (Gress, 2007). In contrast, the calculation premium of PHI is based on an individual's health risk.

Although the German health insurance involves around 134 SHI sickness funds and 40 private insurances, the hospitals are paid based on a uniform payment system. In inpatient care, DRG has been used as the primary hospital payment method for all patients regardless of their insurances since 2004. On the other hand, a fee for the service provided is mostly used in outpatient care.

3.2.2. Hospital sector in Germany

As a vital element of the healthcare system, the hospital sector in Germany has experienced many changes. Augurzky et al. (2009) state that German hospitals used to have small incentives to increase their efficiency as their costs had been reimbursed at full cost (Augurzky et al., 2009). In fact, the public hospitals were free from any default risk since the owner regularly financed their annual deficits (Augurzky et al., 2009). However, such circumstances have been dismissed due to the increase of the budget burden on the owners. In addition, the adoption of the DRG based hospital payment method has demanded greater efficiency in German hospitals.

Classification	2011	Percentage
Total number of hospitals	2045	100%
Public Hospitals:	621	30%
In private legal form	364	18%
In public legal form:	257	13%
Non autonomous	114	6%
Autonomous	143	7%
Non-profit hospitals	746	36%
Private hospitals	678	33%

Table 3.9: German hospital classification based on legal form

Source: Federal Statistical Office (2013)

Furthermore, the hospital density in Germany is one of the highest in the world. According to the Federal Statistical Office (2013), it had 2,045 hospitals and 502,029 beds or 614 per 100,000 populations in 2011. Subsequently, the density of hospital beds in Germany is the third highest after Japan and Korea among OECD countries (OECD, 2013). These numbers, however, have declined since the last decade, particularly the number of public hospitals.

German hospitals are owned by local government or university (30%), charity organizations (36%) and private organizations (33%), but almost half of the hospital beds are owned by the public hospitals. The hospitals are relatively fairly distributed in all the German regions. Moreover, Germany has a high ratio of doctors and nurses that contribute to hospital productivity. In 2010, there were 3.7 physicians per 1,000 of the population in Germany (World Bank, 2013). This ratio is among the highest in OECD countries and greater than the ratio in the US (2.442), the UK (2.743) and Netherlands (2.89). Moreover, more than half of German physicians were specialists in 2009 (OECD, 2011). These statistical facts show the high capacity within the German hospital sector.

In terms of efficiency, national ALOS and BOR in the German hospital sector have been declining gradually over the last three decades. In 2010³³, the national ALOS was 7.9 days and the national average BOR was 77.4%. Compared to other OECD countries, however, the ALOS of German hospital sector is higher than the ALOS in Spain, the US and the UK but smaller than Korea and Japan³⁴. On the other hand, the BOR of the German hospital sector in 2010 was still smaller than the BOR in the UK, Spain and Italy but slightly higher than BOR of the average OECD countries (OECD, 2011). Thus, one might argue that the capacities of the German hospital market have exceeded substantially the populations needs (Augurzky et al., 2009).

The principles of dual financing in the German hospital sector have been applied since 1972. Within this system, each state established a hospital plan that is used to ensure the quality and quantity within hospital sector. Only registered hospitals (around 97% of all clinics) receive payment for operational costs from the state from the sickness funds and investment costs (Hess, 2005). The state governments are responsible for the main part of the cost investments, supported by the regional governments, and the rest is covered by private capital or the accumulation of the hospitals surpluses (Mattei et al., 2013). However, the capacity of state funding in hospital capital costs has been reduced significantly over the last few decades. The portion of public funds for hospital investment costs have been cut from 25% in 1973 to only 5.5% in 2001 (Hess, 2005).

³³ The latest available data on ALOS and BOR of OECD countries

³⁴Source: <http://www.publicpolicy.ie/average-length-of-stay-in-irish-hospitals/>

Moreover, the hospital's revenue budget is negotiated between the hospital management and insurance companies which cover at least 5% of the inpatient days at the hospital (Lungen and Lapsley, 2003). The method of budget calculation has changed since the introduction of G-DRG. Therefore, Porter and Guth (2012) believed that the German hospital payment system has changed dramatically since 2005 where the G-DRG case tariffs replace the day rate tariff. Each state is responsible for long term investments such as reconstruction of their new hospital building. Likewise, hospitals must be licensed through a regional hospital plan to be eligible for contracts with the sickness fund, as well as for state contributions to their infrastructure investments (Porter and Guth, 2012).

3.2.3. Characteristic of German public hospitals

As the main health care providers, the German public hospitals are under financial pressures. The latest statistical data presents a gradual but significant decline in public hospitals in Germany, particularly the German local (municipalities) hospitals. Mergers and privatization have become a common alternative to reduce the poor performances in some German hospitals. Klenk (2013) believed that such poor performance can be attributed to the incapacity of the owner of public hospitals to cover and provide sufficient funding to finance investment costs of public hospitals. She adds that this incapacity originated from the German municipalities' financial crisis that occurred during the last few years. Apparently, the fierce competition for patients as well as the introduction of a DRGs based payment system in German hospital has exacerbated the financial performance of the local hospitals.

The number of German public hospitals has reduced gradually since the cost containment inspired reforms have taken place. This reduction is accompanied with the organizational transformation and modernization of German public hospitals from a pure bureaucratic organization to becoming more private business like hospitals. In the 1970s, accrual accounting was adopted in public hospitals, as well as organizational autonomy within a new organizational form such as a corporation (Porter and Guth, 2012). In addition, German public hospitals are also equipped with an information technology system (*Krankenhausinformationssystem*) for administrative functions like billing and controlling (Porter and Guth, 2012).

The hospital sector in Germany also has several peculiar characteristics. Firstly, German public hospitals can be operated in several different legal forms. They can be operated in a private legal form (*öffentlich-rechtlicher Formbetriebenen Krankenhäuser*) or (*privatrechtlicher Form betriebene Krankenhäuser*) in a public legal form (Federal Office of Statistics, 2011). Moreover, public operated legal form hospitals can be non-autonomous and autonomous unit.

In 2011, there were 364 in private legal form public hospitals (70% of total German public hospitals) and 257 public legal form hospitals. The form selection is decided usually by the owner of the hospitals (for example local government). Ten years ago, more than half of public hospitals were operated using the public legal form. It accounted for 72% of total German public hospitals in 2002 (or 586 of 817 German public hospitals). Moreover, the privately operated legal form hospitals enjoy wider autonomy than the other form of public hospitals. In certain types of hospitals, the governments (Federal state, state or municipalities) own more than 50% of the hospitals' share (nominal capital) that gives them voting rights (Federal Office of Statistics, 2011). They operate as a corporation (for example as a limited liability company/GmbH) rather than a budgetary unit of the owner, and are owned and financed by the government or a group such as a joint venture.

Porter and Guth (2012) stated that the form selection of a hospital is decided usually by the owner. This represents a corporatist principle within the German health service e.g. the public hospitals are self-managed and independent from the owner's intervention (Mosebach, 2009). The staffs of German public hospitals are not civil servants and recruited and salaried directly by the hospital management (Porter and Guth, 2012).

Secondly, top management of German public hospitals mainly consist of professionals who have a predominantly administrative and financial educational background. In most public hospitals, the managing director is not a doctor rather a person who has the administrative discipline and experience. Thirdly, Germany public hospitals can be sold by the owner or privatized by a private firm. In fact, privatization is apparently one of the common alternatives for the local government facing a hospital with a poor performance record. Through privatization the local governments (and also federal government) do not need to cover the on-going deficit nor provide their investment costs. This fact apparently gives a strong financial pressure to the hospital management. However, closing hospitals remains difficult in Germany because it deals with a variety of interests such as employees, citizens and politicians (Porter and Guth, 2012)

Fourthly, German public hospitals are operating in a competitive business environment where they go face to face with the private hospitals. German regulation allows patients to freely choose their hospitals regardless of their insurance scheme. In addition, private hospitals can also receive subsidies from the state as long as they are registered in the hospital plan. Consequently, German public hospitals need to compete in terms of quality to attract patients. Last but not least, hospital management receive less significant intervention from the owner.

3.2.4. German hospital financing reforms

The issue of health care reform has been an unending concern frequently discussed in German politics since the reunification (Carrera et al., 2008). Based on their objectives, the German healthcare reforms can be categorized into two eras, namely the expansion era and cost containment era (Porter and Guth, 2012). The former era occurred after the Second World War until 1970s. In this period, the government mainly focused on the enhancement of the capacity and equity of the health care sector. Therefore, the dual financing scheme was implemented in 1972 and aims to accelerate the capacity improvement of the German hospital sector. Meanwhile, the latter era is triggered by the persistent rising cost of the healthcare sector in the last two decades.

Both eras are represented by two vital hospital financing reform initiatives (Schreyögg et al., 2006), namely the 1972 Hospital Financing Act that launched the dualism hospital financing system, and the Health Care Reform Act 2000 (GKV-GRG) and Hospital Remuneration Act of 2002 (KHEntG) which officially introduced and regulates the G-DRGs. The first era is marked by the introduction of the dual financing principle where hospitals receive investment costs from the state government, whereas the sickness funds cover hospitals' operating costs. The second era started with the introduction of the mixed hospital payment system followed by the shift to a more prospective hospital payment system under DRGs system. This part discusses mainly the cost containment aimed reform that involves the application of the DRGs system as the primary payment provider system in Germany.

3.2.4.1. The Expansion era and dualism hospital financing system

Before 1972, German hospitals were financed by the health insurance fund based on a per day tariff (Krukemeyer, 2004). These per day fees were the sole financial resource of hospitals and they used them both for operational and investment costs. Consequently, hospitals could not cover all their costs with this reimbursement scheme. As a result, the existing infrastructural incapacity and deficiencies caused by the destruction suffered during the Second World War could not be overcome and thus exacerbated the situation of incapacity and low quality of health care provision. Therefore, the government responded to this unexpected reality by initiating a major reform in 1972 through the introduction of dualistic hospital financing system (Busse and Riesberg, 2004).

In the dualistic hospital financing system, the cost of hospitals is divided and paid by two different institutions. The investment costs or capital costs are covered by the respective federal

states whereas the operational costs are financed by the sickness funds (Böhm, 2009). All operational costs, which include cost of medical services and accommodation as well as personnel costs are covered through reimbursement contracts between hospitals and the sickness funds, whilst long-term infrastructure investments are to be financed by each respective state (Schulten, 2006). The aims are to ensure that the hospitals have sufficient fund to operate their activities and thus, improve their performance.

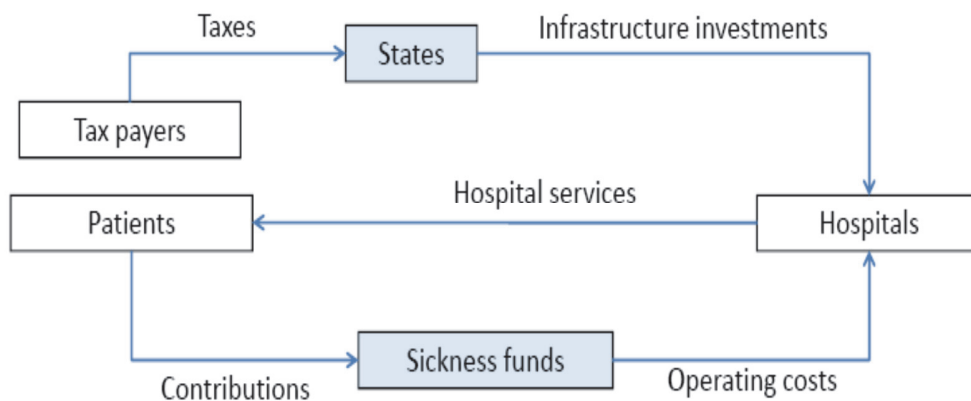


Figure 3.9: German Health Financing scheme after 1972

Source: (Geissler, 2011:5)

Apart from improving the hospital capacity, the dualistic hospital financing system allows each state government to gain more control in health care provision. The hospital plan is apparently a mechanism to control the health care system, in order to ensure that the need for hospital care is fulfilled (Busse and Riesberg, 2004).

Furthermore, the participation in a hospital plan is mandatory if hospitals require investment funds from the respective state (Busse and Riesberg, 2004). The listed hospitals are entitled to funds that are regulated under The Hospital Financing Act (KHG). With respect to this regulation, each state government covers the construction and fitting out of new hospitals, replacement of capital equipment with an average life of more than three years, depreciation on capital equipment, start-up and restructuring costs for internal reorganization, and costs arising through closure or conversion (as cited in Böhm, 2009). But, the hospitals are required to participate in the investment costs by contributing to 10% of total investment costs (Böhm, 2009).

The sickness funds cover hospital operating costs including medical goods and all personal costs such as the salaries of physicians. They also pay for the asset replacement with an average

economic life of up to three years or maintenance costs, except for parts of the building and operational facilities (Böhm, 2009). However, it is commonly known that for the past few years the operating costs have been used by the hospitals to finance hospital investment due to inadequate investment funds from the states (Böhm, 2009). Thus, some commentators have promoted the adoption of a monistic hospital financing system where both operational and investment funds are covered by the sickness funds (Mattei et al., 2013).

The main argument behind this is to improve efficiency in hospital financing. The present system separates the investment decision makers (state government) and the operational costs (sickness funds) that lead to inefficiencies because the government investment decisions are based not solely on economic criteria but also have political and budgetary considerations. Consequently, the decisions potentially stimulate overcapacity, inefficiency and high running costs, which then have to be covered by the sickness funds (Böhm, 2009).

3.2.4.2. Cost containment era – A movement to prospective payment system

Busse and Riesberg (2004) believed that the cost containment era began in 1977 with the introduction of the “Health Insurance Cost-containment Act”. The expansion era has successfully achieved its objectives but it has caused a new problem e.g. a heavy financial burden. On one side, hospital sector capacity has increased due to the significant increase in hospital bed numbers. On the other side, a rapid growth in health care expenditure has been noticeable, particularly in the hospital sector (Busse and Riesberg, 2004). Consequently, the suitability of the German-SHI system was questioned as the German economy was under pressure during 1990s and due to sharp global competition (Carrera et al., 2008). Subsequently, a new agenda in German health politics has emerged.

Prior to 1990s, German inpatient care in hospitals were reimbursed purely based on the per day tariff. Each hospital negotiated with the sickness fund per day tariff (per Diems) for each medical unit (specialist). The tariff consisted of two elements, namely a tariff for hotel service and a medical unit (department) -specific per diems. In other words, the hospital received the same reimbursement value each day of patient hospitalization. This rate was different for each patient depending on their case. Thus, inpatient prices varied widely among hospitals and regions (Porter and Guth, 2012). More importantly, the per diem method exempted them from risk of default due to uncovered actual costs. Thus, hospitals were reimbursed at full costs that created weak economic incentives for efficiency improvements (Augurzky et al., 2009). More importantly, hospitals had incentives to extend the period of hospitalization in an effort to gain

more income from the admissions (Böhm, 2009). Additionally, this system resulted in a high variation of reimbursement fees among hospitals, although they treat the same case with relatively the same medical procedures and treatments (Lungen and Lapsey, 2009).

But, this situation has changed as the government altered the hospital payment system from a purely retrospective approach under the per diem based payment system to a more prospective payment system e.g. mixed-payment system in 1992 (Carrera et al., 2008). In this period, inpatient medical or paramedical cares in German hospitals were reimbursed by either a fixed-rate if the rates have been calculated or a department-related per diem price on rates drawn for each individual hospital. Meanwhile a pure per diem was used for reimbursing nonmedical services (Carrera et al., 2008). These initial lump sum schemes were introduced within inpatient care under *Fallpauschale* and *Sondernentgelt* schemes in 1993. These schemes are similar to the DRGs scheme that was later on adopted as a single PPS for inpatient care. It was used to reimburse approximately 20% or 30% of total inpatient cases in hospitals (Hajen et al., 2004). This early introduction of the lump sum scheme can be seen as the first step to the adoption of DRGs in the German hospital sector. As an outcome, the new scheme enabled the stakeholders to compare inpatient care costs for the first time in Germany (Porter and Guth, 2012).

The latest hospital financing reform and one of the most important is the adoption of a DRG based payment system (Schulten, 2006). The Statutory Health Insurance Reform Act of 2000 has launched The German version of the DRGs system (hereafter G-DRGs). G-DRG is a “performance oriented payment” system (Dunn and Tracey, 2005) in which hospitals are paid based on their productivity with a predetermined and flat reimbursement fee for each DRG case. It has been mandatory for all hospitals since 2004, but they were allowed to adopt this new hospital payment scheme as early in 2003 (Porter and Guth, 2012). It originated from the Australian Diagnostic Related Groups (AR-DRGs) as the basis of its development and covers all costs related to inpatient admissions, including all salaries, services, and drugs (Porter and Guth, 2012). The system is used in all inpatient cases except psychiatry, psychosomatic and psychotherapeutic treatments (Volg, 2012).

Moreover, supporting arguments for G-DRGs adoption are numerous. First, the per day charge system caused a high variation in the cost of an inpatient case category in different hospitals across Germany (Lungen and Lapsey, 2009). The per day charge for a heart attack patient in hospital varied between hospitals even though both hospitals are located in the same federal state. Additionally, all attempts to equalize them over hospital comparisons had failed (Lungen and Lapsey, 2009). As a solution, the G - DRGs system was introduced to abolish this high cost divergence because all hospitals are paid the same lump sum fee for the same inpatient case.

Second, German hospitals had a significantly longer ALOS compared to other countries such as the US, Italy and Australia. According to the *Deutsche Krankenhausverlagsgesellschaft*, ALOS of the German hospital sector was 9.4 days in 1999, meanwhile the neighbouring countries such as France and UK have a smaller ALOS i.e. 5.5 and 4.9 days respectively (as cited Lungen and Lapsey, 2003). This condition is mainly attributed to the previous system because it had created incentives for hospitals to lengthen patient hospitalization in order to gain more revenue. Thus, the G-DRGs are expected to create a reverse incentive because it uses uniform fees for each DRG case.

Third, it is assumed that G-DRGs promote efficiency, quality and transparency in the German hospital sector. Given the assumption that G-DRGs can reduce hospitals ALOS due to the lump sum payment method, hospitals will need to cut unnecessary medical treatments and materials in order to contain costs. It also creates competition amongst hospitals in a regulated environment that potentially encourages them to pursue the goals of efficiency and cost reduction in their own interest (Böhm, 2009). As a result, hospitals have been encouraged to accelerate the medication process, thus the quality of service will increase in terms of the similarity of medical procedures and shorter hospitalization.

The quality can be also achieved through medication transparency in the DRG system where documentation and coding are mandatory. Thus, the information enables external benchmarking and evaluation of the appropriateness and outcome of medical procedures and treatments that have been performed in each DRG case (Böcking et al., 2005). More importantly, G-DRGs would increase cost transparency in the hospital sector because hospitals need to prepare cost information as a tool for cost controlling. More importantly, it is expected the DRG system can reduce the overall need of bed capacity because the system improves competition for patients as an effort to maximize hospital resource utilization. This situation, according to Dunn and Tracey (2005) will create winners and losers and affect the number of hospital beds in Germany.

As DRG adoption is considered as the most vital and latest change within the German hospital financing reform, a further elaboration of G-DRGs is presented in the following part of this chapter.

1. The implementation phases of G-DRGs payment system

The introduction of the G-DRGs in German hospitals has been performed stepwise and incrementally since 2000. Hospitals, thereby, have had the opportunity to adapt from an individual incremental budget to a standardized price system at the state level (Schulden, 2006). According to Quentin et al. (2010), G-DRG implementation can be divided into three phases:

- Preparation phase, (2000-2002),
- Budget-neutral phase, (2003-2004),
- Convergence phase, (2005-2009).

The first phase was started with the enactment of the SHI Reform Act Of 2000 followed by the Case Fees Act (FPG) in 2002. Schulden (2006) states that the SHI Reform Act Of 2000 requires the German Hospital Federation and Federal Association of statutory sickness funds and private health insurers association (the corporatist bodies) to opt for a universal, performance based prospective case fee payment system that considers the clinical severity based on DRGs. The Act summarizes a step-by-step approach to adopting DRGs as the only payment system with uniform prices at the state level (Schulden, 2006). The corporatist bodies later on established a non-for-profit institution that is responsible for technical management of the G-DRG system. The corporatist body is *Institut für das Entgeltsystem im Krankenhaus*(InEK). Its main duties are to set and develop DRG classifications and tariffs that involve sampling German hospitals³⁵. Additionally, it provides a standard breakdown of each DRG price so that the hospital can compare its actual DRG costs with its DRG fees on an on-going basis during the year and it can do this at the departmental level (Dunn and Tracey, 2005).

³⁵ G-DRG pilot study was conducted by InEK and involved 20 selected sample hospitals. The hospitals adopted the Australian Refined DRGs totally without any adjustment. Thus, DRGs were recalculated to set GDRG cases and their payment fees (Schulden, 2006)

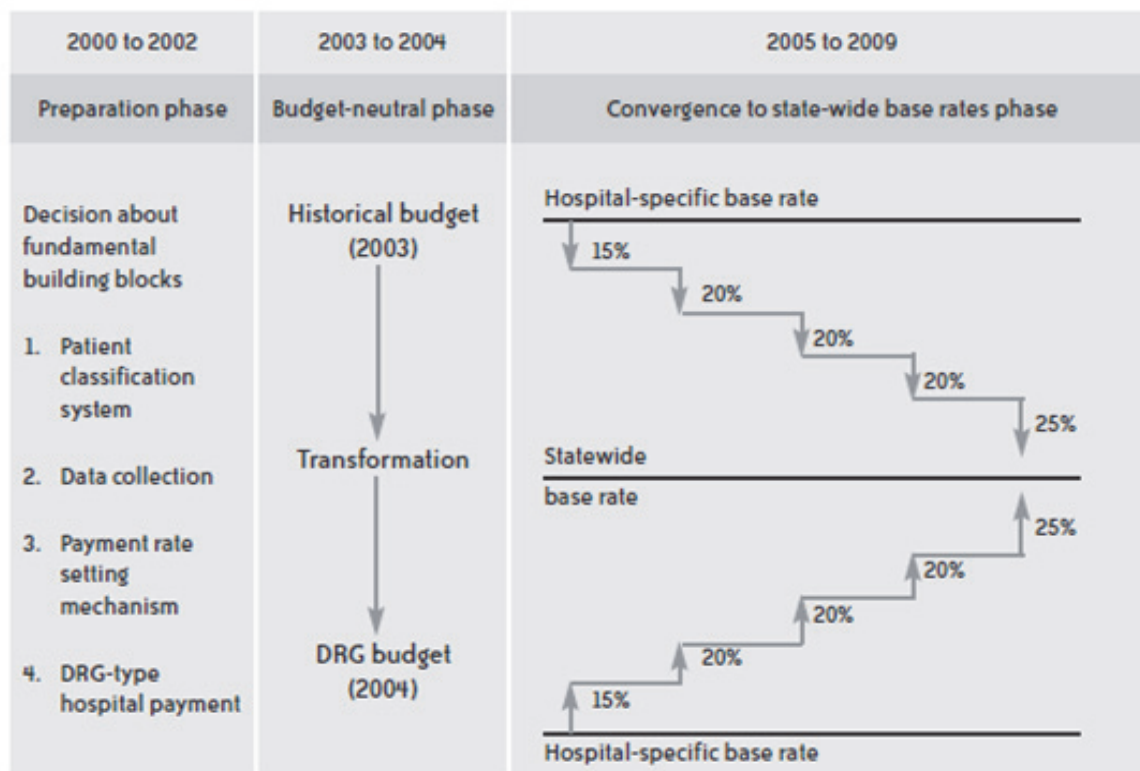


Figure 3.10: Three phases of introduction G - DRGs payment system in Germany

Source: Quentin et al. (2010: 12)

The second phase introduced the budget neutral (2003-2004). During this period, the focus was to create a new hospital budget that captures the DRGs nature (Quentin et.al, 2010). Hospitals could apply for the G-DRGs based reimbursement initially in 2003. Starting from 2004, the adoption of the DRG system has been mandatory for all hospitals, but it did not apply to the hospital income budget like in 2003 (budget neutral) (Böhm, 2009). In other words, the hospital's income budget was still negotiated on the basis of its actual costs until 2005 (Böhm, 2009). The budget-neutral basis is a historically based-budget as in previous years, but it has started patient classification with DRGs concept (Quentin et.al, 2010). Prior to 2002, hospital budgets were divided by the negotiated number of annual patient days in order to calculate per-diem charges. During the budget neutral phase, negotiated hospital budgets were divided by the hospital case mix in order to calculate a hospital-specific base rate. The final objective of this phase, thus, is to set the DRGs budget so that it enables the full adoption of DRGs application in hospitals.

Finally, the convergence phase in which the hospital specific based rate is gradually standardized at the state level. In G-DRGs system, InEK calculates the DRG cost weights at the national level.

In the convergence phase, however, the base rate is negotiated individually between hospital operators and sickness funds rather than determined nationally (Böhm, 2009). After 2010, it was expected that the G-DRG used a standard national wide base rate that would gradually bring the state base rates into a range of -1.25 and +2.5% below and above the national base rate (Böhm, 2009).

2. Characteristics of G-DRGs system

The introduction of G-DRGs follows a stepwise rather than ‘big bang’ approach that aims to give hospitals sufficient time to adapt to the new system. The G-DRGs system was initially implemented through a pilot study in 2001 in 25 selected sample hospitals (Schulten, 2006). Subsequently, this prospective payment system was adopted voluntarily by German hospitals before it became obligatory after 2004. But, the new system affected hospital revenue budgets after 2005. But, German hospitals have become accustomed to such a lump-sum payment system but in a smaller scope under *Fallpauchale* and *Sondernentgelt* schemes used between 1993 and 2002 (mixed system era).

Another peculiar characteristic of G-DRGs is the involvement of hospitals in the establishment of DRG cases and tariffs regardless of their ownership type. G-DRGs databases and systems are formed based on actual data from sample hospitals. The DRGs fees are the average costs of each case in German hospitals. Thus, the calculation of G-DRGs fees requires participation of hospitals which voluntarily send their costs information to InEK. In 2010, there were 253 hospitals which participated in the DRGs fees calculation. In the same year, InEK had successfully calculated 1,195 DRGs cases and fees (Quentin, 2010). More importantly, the calculation of G-DRGs fees relied on actual hospital cost data. The selected hospitals need to follow a standardized cost accounting system developed by InEK (Quentin et al., 2010) to make sure that high quality cost information provided by the hospitals. Consequently, a capable hospital accounting system is required e.g. to calculate the unit cost of each case (patient) in order to be used to determine the average cost of each DRG case.

Furthermore, the G-DRG scheme is used only for the inpatient care sector, whereas the ambulance care is still using a fee for service scheme. In fact, not all inpatient cares are reimbursed by using DRGs. In addition, some highly complicated cases as well as cases with a lengthy LOS are reimbursed separately from the DRGs system. However, the scope of G-DRGs implication is still significant as 80% of the hospitals revenue comes from DRGs reimbursement (Quentin et al., 2006). Moreover, the G-DRGs tariffs are relatively more uniform because the same cost weight is calculated and used in all hospitals, whereas each state has its own hospital

base rate regardless of the type of hospitals. On the other hand, the same G-DRGs tariffs are used by all hospitals in a state, but the tariffs are not the same among the states. In fact, the G-DRGs system is in an on-going process to use a same hospital base rate for all German hospitals (national level base rate) after 2010.

3. Tariff calculation of G-DRGs

The G-DRGs system is formed based on actual data of sample hospitals in order to calculate the average costs of each case and moreover, to determine the average costs. In general, there are 4 essential building blocks of the DRGs system, namely the patient classification system, data collection, price setting and reimbursement rate(Quentin et al., 2010).

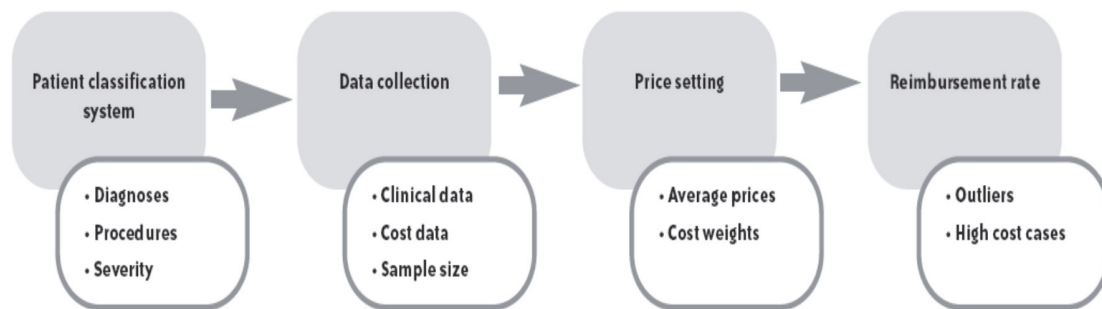


Figure 3.11: Essential building blocks of G-DRGs system

Source: Scheller-Kreinsen et al. (2009:2)

First, the corporatist bodies decided to use the Australian Refined DRGs (AR-DRGs) because of its high degree of accurateness in differentiating resource consumption (Hensen et al., 2007). Later, the Australian codes for procedures and diagnoses were transformed into German procedure classification codes (OPS) and ICD-10-GM (German Modification) codes for diagnoses (Quentin et al., 2010). In 2001, a pilot test was conducted, and it established 664 DRGs by the end of 2002 (Quentin et al., 2010). Subsequently, all discharged hospital patients are assigned into these DRGs codes based on a grouping algorithm using the inpatient hospital discharge dataset (Quentin et al., 2010).

In the grouping process, patient hospital discharge dataset e.g. major diagnosis, other diagnoses, clinical intervention (medical procedures e.g., stent implantation), patient characteristics (gender, age, weight of new born children), cause of hospital discharge (e.g., death) and length of stay become the ingredients for establishing each G-DRGs (Schreyögg et al, 2006). All the data are

entered into a special software tool, the so-called “grouper”, which classifies all cases to a particular DRGs system (Schreyögg et al., 2006). The grouping process as well as the whole DRG-system is annually revised (Porter and Guth, 2012).

Secondly, the actual cost data of the sample hospitals are collected and used to determine the price (rates) of each DRG case that have been constructed before. At the beginning, the clinical patient data of the hospital discharge that have been grouped into DRGs are collected from all German hospitals. These data will be checked by medical review boards on the sickness fund to detect any fraudulent action undertaken by hospitals, such as inappropriate discharges of patients or classification of patients into higher paying DRGs (Quentin et al., 2010).

At the same time, clinical data from all hospitals, accompanied with hospital-related structural data (for example, number of beds, number of personnel and total costs), are sent to the Data Centre (operated by 3M Medica), which performs data checks before forwarding data to InEK for the development of the new G-DRGs catalogue (Quentin et al., 2010). Meanwhile, cost data were collected from a sample of about 253 hospitals (in 2010) conforming to a standardized cost accounting system developed by InEK (Quentin et al., 2010). These hospitals voluntarily submit their actual costs of each DRGs case to a Data Centre, which performs data checks before forwarding the data to InEK for the development of the new G-DRGs catalogue (Quentin et al., 2010).

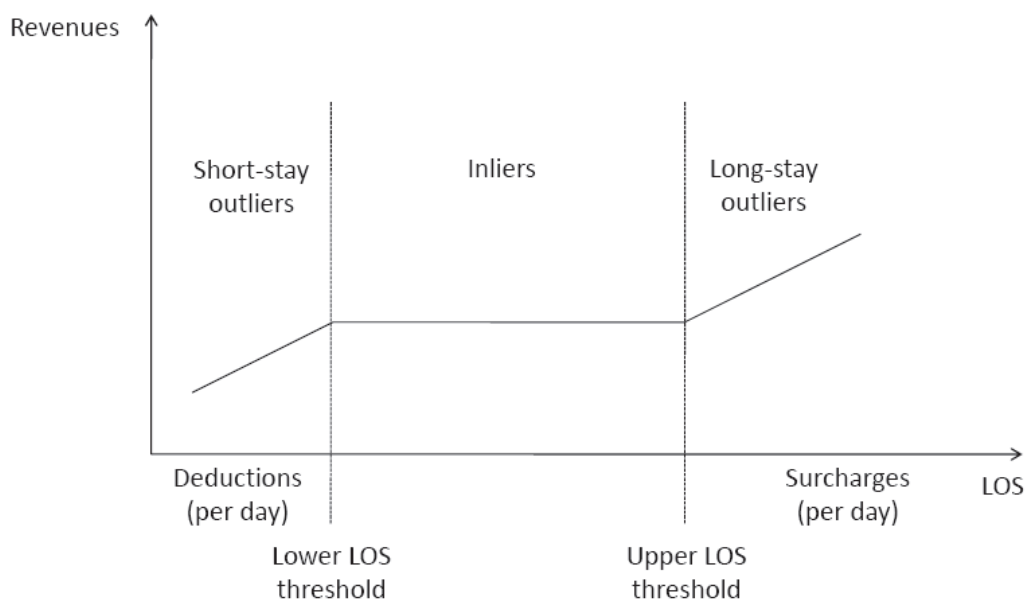


Figure 3.12: Inliers and Outliers
 Source: Quentin et al. (2010: 18)

Thirdly, cost weight and average prices of each DRGs case are determined. Cost weight describes the relationship between the different DRGs groups according to the intensity of resource used (Scheller-Kreinsen et al., 2009). The cost-weight of each DRGs group also reflects the resource consumption relative to the reference DRG, which adjusts prices for resources (Scheller-Kreinsen et al., 2009). It is the average costs of inliers cases for the DRGs allocation that is collected from all hospitals using DRGs divided by the total number of all cases of all hospitals using DRGs in Germany (Schreyögg et al., 2006).

The term “inliers” presents cases that are treated within the standard LOS (Schreyögg et al., 2006a). The standard value of LOS is demarcated by the lowest point and the highest point, between which the average treatment cases are expected to be located. Therefore, after data have been refined with plausibility checks, the average costs of inliers cases are determined for each DRGs case (Schreyögg et al., 2006b). But, there are cases that involve more treatment or a longer length of stay due to a very severe illness that lead to a significant increase in the total cost of the treatment. These cases are called ‘outlier’, and they are excluded from the calculation of average DRGs in particular cost weights because it distorts the arithmetic average (Schreyögg et al., 2006a). There is an additional calculation for hospital cost that is in respect of an outlier area. According to Schreyögg et al. (2006) outliers are caused by procedural inefficiency by the care provider or solely due to the result of patient or treatment characteristics that were not taken into proper consideration.

There is always a time lag of two years between the year of the data used to calculate cost weights and the year for which the G-DRGs case fee catalogue is developed. For example, the 2010 version of G-DRGs is based on data from the year 2008; hence, 2009 was used for data checks and DRGs catalogue development (Quentin et al., 2010).

The next step is the determination of the G-DRGs rates. G-DRGs rates are meant to cover medical treatment, nursing care, the provision of pharmaceuticals and therapeutic appliances, as well as board and accommodation (Quentin et al., 2010). Since 2010, each patient’s DRGs cost weight is multiplied with a uniform state-wide base rate in order to calculate the hospital payment (Quentin et al., 2010). For long-stay outlier cases, hospitals receive DRG specific surcharges for every day that the patient stays above the upper length of the stay threshold, and vice versa (Quentin et al., 2010). The rest is made up of supplementary payments for certain procedures, additional payments for technological innovations, apprenticeship and quality assurance surcharges etc. (Quentin et al., 2010).

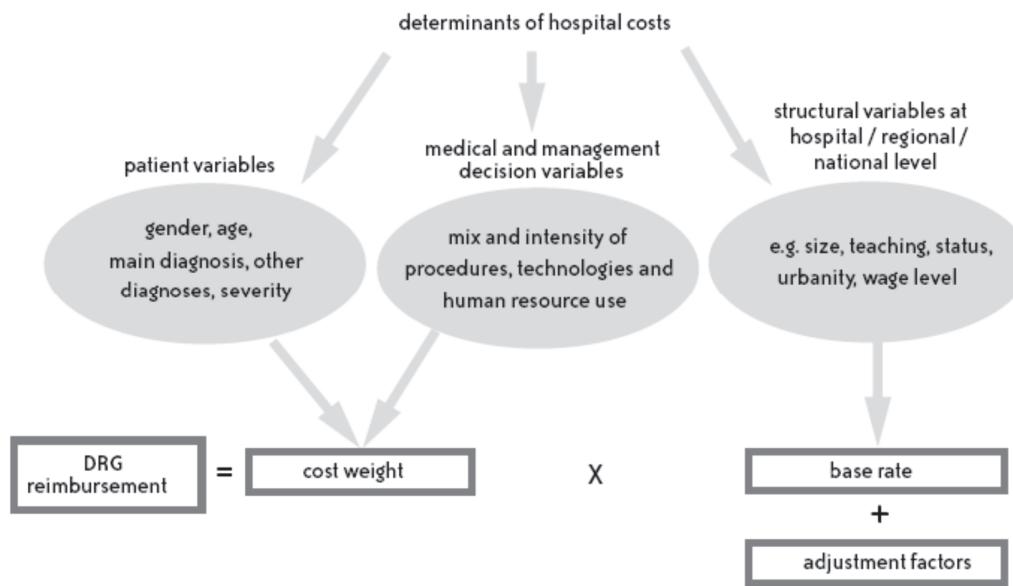


Figure 3.13: DRGs adjustment and determinants of hospital cost

Source: Scheller-Kreinsen et al. (2009:2)

In the G-DRGs system, the rates are determined not by supply or demand but by negotiations between the corporatists (Böhm, 2009). The organizations representing the sickness funds and the hospital operators negotiate the prices for hospital treatments by using the base rate, whereas the sickness funds try to keep the price as low as possible while the hospitals strive to increase it, at least to a level that covers costs (Böhm, 2009). Moreover, each of Germany's 16 states has a unique rate. For example, DRG F60B uses the reimbursement code for patients with heart attacks with no complications. Its relative weight is 0.941. If the regional base rate is 2,935 Euros (e.g. in the state of Bavaria), the total reimbursement for the case would be 2,762 Euros. The DRG catalogue defines the relative weight of each DRG (Porter and Guth, 2012).

Lastly, InEK adopts 'One Hospital Model' (*Einhaus-Modell*) in establishing DRGs tariffs and groups. According to Schreyögg et al. (2006), this principle means that all participating hospitals' cases for a particular DRG are included in one single file, as if they had all come from the same hospital (Schreyögg et al., 2006). Subsequently, this information serves as the starting point for determining the length of stay and cost values reported in the Case Fees Catalogue, whereby the mean per case costs provide the main foundation for the derivation of the DRG classifications (Schreyögg et al., 2006). The goal of this statistical calculation is to achieve a smaller variance in the entire system and to attain cost homogeneity in the individual case groups (Schreyögg et al., 2006a). Additionally, any cost information that is extremely different from the average cost called outliers are excluded from the DRG calculation for the calculation of cost

weights, in order to gain coherent and cost homogeneous groups in the DRGs (Schreyögg et al., 2006).

3.3. Summary and conclusions

This chapter attempts to compare and contrast between the Indonesian and German healthcare systems as well as their recent reforms. It can be concluded that the Indonesian hospital financing reforms have similarities with the German hospital financing reforms, which are chiefly to contain hospital costs. However, several features of the both healthcare and hospitals systems are different and might cause divergent reforms' implications, particularly the responses' of the hospitals.

Selected important features	Indonesia	Germany
Populations in million(2011)	242.3	81.8
Total expenditure on health (THE) as % of GDP (2011)	2.7	11.1
Total expenditure on health / capita at exchange rate (in US Dollar)	95	4,875
Health insurance coverage (2012)	< 70% of population	>95 % of population
Number of hospitals (2011)	2,083	2,045
Number of cases (2010)	35,135,850	18,032,903
Ratio of bed/ 100.000 population (2010)	68	614
National ALOS (2010)	4.37 days	8 days

Table 3.10: Statistical comparison between Indonesian and German health sectors

Sources: WHO (2013), MoH (2012, 2013), German statistic federal office (2013)

Based on above table, it can be clearly seen that the Indonesian health sector is significantly cheaper than the German health sector. For example, it accounted only for 2.7% of GDP or three times smaller than the ratio of total expenditure on the German health sector to GDP in 2011 (11.1%). But, it could indicate also that the Indonesian healthcare system is underfunded rather than more efficient. The number of hospitals in both countries is relatively similar although Indonesia's population is three times greater than the population of Germany. Thus, the comparison of the hospital sector between Germany and Indonesia represents a comparison of a low provider density country and a high provider density country. Interestingly, the national

ALOS in Indonesia is smaller than in Germany, although the hospital sector has smaller ratios of beds and clinicians.

Selected important criteria	Indonesian (public) hospital sector	German (public) hospital sector
Public hospital organizational form	Budgetary or autonomous units	Corporatized units
Integration of private hospitals	Limited	Full integration
Government subsidies	Only for public hospitals	For all hospitals listed in the hospital plan
Public hospital financing	Mixed financing system	Dual financing system
Competition	Weaker	Stronger
PPS system	Multi-schemes payment system	Dual schemes payment system

Table 3.11: Hospital sector/ public hospital comparison

Source: Author's description

Another important divergence between both systems is the characteristics of the hospital sectors. In Indonesia, the government subsidies are only given to public hospitals whereas private for profit and not-for profit hospitals (charity hospitals) are not entitled to governmental subsidies although they are allowed to provide hospital care to SHI patients by agreement. Moreover, competition for patient in the Indonesian hospital sector is feeble due to a strong and strict patient referral system, which in many cases excludes the private hospitals. On the other hand, the German hospital sector has been built in a fiercely competition environment where patients are allowed to choose hospitals, including private hospitals. On top of that, hospitals are subsidized if they are listed in the hospital plan proposed by each state government regardless of their ownership.

Furthermore, Indonesian public hospitals are operated as budgetary units or autonomous units. On the contrary, German public hospitals are managed as corporate units in which the manager have a fully financial responsibility toward hospitals' viability.. In fact, privatizations of public hospitals or hospital mergers have become a prominent issue in German health care politics. In addition, the managing director of the hospital as well as the top management positions has to be a physician. Such doctors dominated hospitals, are in fact, regulated by a law. On the contrary, the top managements of German hospitals are mostly professionals who have an administrative disciplinary background and are assisted by the medical director and nurse director.

Lastly, there are also several substantial differences between the INA-DRGs/CBGs and G-DRGs payment system, although both systems have similar objectives. For instance, INA-DRGs/CBGs systems have been implemented with a ‘big bang’ approach, whereas the G-DRGs implementation was more gradual and stepwise. The former is used in both inpatient and outpatient care, while the latter is applied only in inpatient care. Given these substantial differences, the responses or behaviours of hospitals to the DRG systems between both countries could be different, and in turn the divergent outcomes and consequences are anticipated.

Chapter 4: Research Methodology

This chapter provides a review of research methods and design appropriateness. It aims to explain how the research purposes and research questions that have been presented in the earlier chapter are addressed. The first part of this chapter discusses the selected research method and the reason why it was chosen instead of another. The second part includes explanations about the research sites, their profiles and the reasons behind the site selection. Following that, the third part provides a complete description about required data and how these data were collected. The fourth part clarifies the ethical consideration in this research. Finally, the fifth part concludes the research methodology of this research and highlights its limitations.

4.1. Research approaches

Research method and design are shaped by the nature of research questions and purposes of the dissertation. They capture pre-established research questions, define the required data to address the questions, and more importantly, construct reliable data collection instruments. Research questions can be partially addressed if the researcher chooses appropriate research methods and design. Every research design and method have its advantages and disadvantages, therefore, research method selection plays an important role in the success of a research or investigation.

Rowley (2002:17) classify three factors that should be considered in selecting the research methodology, namely (1) type of research question, (2) the level of researcher's ability to control over behavioural events, and (3) the scale of focus on contemporary events, in contrast to historical events. Based on this guideline, thus, a multiple-case study method has been selected as the research method.

First, this research mainly focuses on explaining and understanding the responses of public hospitals to the implication of DRGs systems in Indonesia and Germany. The ultimate question is to understand the relationship between the new adopted hospital payment system, the role of accounting, and the hospitals' responses. Accordingly, this research seeks the answer: 'how' the selected public hospitals react to the DRGs system, "why" are their responses similar or divergent, 'how' do the DRGs systems shape and change the role of accounting in public hospitals, and finally 'what' are the determinants of the hospitals' reactions on the DRGs systems. These types of questions cannot be addressed by using quantitative methods with statistics analysis because the researcher needs to explore further insights and day to day

activities within the hospitals. Hence, the qualitative method seems the only way to ensure these questions are answered properly.

Secondly, the possibility of the researcher to exert control over behavioural events in this research is almost zero. In fact, this research does not need such control. It needs access to observe the object of the research directly, particularly how the real daily situations occur in the hospitals. Moreover, the aim of this research is not to conduct experiments by adding for example limitations or the use of certain new management method, rather to depict nature of the objects within their environment. Thirdly, it looks into a contemporary phenomenon in depth and within its real environment. It does not exclude the phenomenon from its context, namely the health care system, characteristic of public hospitals, and their environment. In addition, accounting changes cannot be understood separately without linking them with environmental changes or the internal structure (Preston, 1992). In fact, hospitals are complex organizations, and thus, one needs to understand their organizational characteristics in order to explain their functions (Jensen, 1983). Consequently, the study needs to take into account other discourses such as medical knowledge and practice, the way the hospitals are administratively controlled and financed and in their political and social context (Preston, 1992).

Based on the above reasons, the case study approach has been selected as the research method in this research. This method has been used widely not only in the social sciences, but also in other disciplines because it able to facilitate the evaluation process (Yin 2012) and more importantly, theory development (Blatter and Haverland, 2012). Although increasing popularity, case study research is still receiving many critics, and even its existence as a research method is still refutable. Yin (2012) argues that case study has been wrongly seen as a preliminary research phase, and it must be followed with other more serious and rigid research methods. This view, according to Yin (2009), is a common misconception that originated from hierarchical views of research. Case study research, on the contrary, is not used in descriptive and explorative research phase, but also can facilitate further investigation of studied phenomena (Yin, 2012). In fact, it requires no other research methods to complete the research process (Yin, 2012).

Furthermore, generalization of findings is the second common prejudice about case studies. They have too small of a sample that makes it difficult to generalize their findings in the population (Yin, 2009). This view can be criticised as the aim of case studies is not to generate findings statistically, rather to generate them analytically (Yin, 2009). In the other words, the goal of case studies is to expand and generalize theories (or analytical generalization) rather than enumerate frequencies (or statistical generalization) (Yin, 2009: 12). The analytical generalizations aim to

test whether logic resulted from a theoretical framework applicable to other situations (Yin, 2012). Thus, the term of “sample” in a case study research should be avoided (Yin, 2009).

Blatter and Haverland (2012) refer case studies and a non-experimental research method and involve small-N studies. They define four characteristics of case studies, namely (1) a small number of cases, (2) a large number of empirical observations per case (3) a huge diversity of empirical observations for each case, and (4) an intensive reflection on the relationship between concrete empirical observations and abstract theoretical concepts (Blatter and Haverland, 2012: 19). They are superior to large N studies because they help the researcher to “[...] to understand the perceptions and motivations of important actors and to trace the process by which these cognitive factors form and change (Blatter and Haverland, 2012: 19). In fact, the new proponents of case studies believe that case studies assists researcher not only to generate hypotheses, but also to test them, even to develop new theories (Flyvbjerg, 2006).

In a case study research, the integration between context and other context of condition associated with to studied case(s) is assumed as a vital element to understanding the case(s) (Yin, 2012). Thus, a serial direct observation is frequently conducted in a case study research. Moreover, a case study does not rely on a single source of data, in fact, the use of various sources of data is recommended to improve the quality of data (Yin, 2012). In addition, case study research should acknowledge the possibility of rival explanations as the opposition of pre-determined propositions (Yin, 2012). The rival explanations are not merely alternative explanations, rather true rivals of the propositions and thus, cannot exist in the same time (Yin, 2012)

Accordingly, the case study is a preferred method if : (1) “how” or “why” questions are being addressed, (2) the researcher has little control over events and (3) the focus in on a contemporary phenomenon within a real-life context (Yin, 2009:2). On top of that, the important strength of case studies, namely “[...] the ability to undertake an investigation into phenomena in its context” (Humphrey and Scapens, 1996: 89) is required in this research. Case studies can be used to improve our understanding about daily function of accounting and their paradoxes within hospitals (Humphrey and Scapens, 1996). More importantly, it gives a direct access to the main source of data and confirms it with other collected data during the field research.

To gain a more comprehensive understanding and enable comparison, this research is conducted in four public hospitals. Thus, it is categorized as a multiple-case study. According to Yin (2012), the use of multiple-case study aims to both predict similar results (direct replications) among the cases or contrasting results but for anticipatable reasons (theoretical replications). It also aims to compare the results and take opportunities to learn and propose recommendations

for improvements. But, one point to consider, the multiple-case study is not used to create statistical inferences or statistical generation and follows the sample logic, rather to enable analytical (or theoretical generalisations³⁶) e.g. to generalize certain theories based on conducted observations and other findings (Scapens, 1990).

The use of case studies in this research is consistent with the recent trend in accounting literature. Otley and Berry (1994) as well as Humphrey and Scapens (1996) have noticed repeated calls for the using of case studies in management accounting research since the last few decades. These calls have been triggered by the failure to understand evidently about variance and contradiction in accounting practices among organizations (Humphrey and Scapens, 1996). It could be viewed as the response to the failure of prior quantitative based accounting studies in explaining in more detail about the above mentioned phenomena (Humphrey and Scapens, 1996). Hence, the researchers had expected that case studies can fill this void. Humphrey and Scapens (1996: 97) believe that case studies provide an access to the daily functioning of accounting in present-day organizations as well as facilitate them to understand about the contradictions and paradoxes inherent in the growing resort of accounting. The access to the social context where accounting operates is a requirement of a comprehensive understanding of the role of accounting and other controls in organizations (Hopper and Powell, 1985; Otley and Berry, 1994 and Humphrey and Scapens, 1997).

Accordingly, this research is started with a macro analysis, namely the discussion about the recent situation of health care and hospital sector particularly after the reform proposal has been implemented in both countries. First, it evaluates the implications of recent health care reforms particularly the implementation of the DRGs system for public hospitals in Indonesian and Germany. It includes the comparison between the features of the reforms as well as their consequences, provider payment system, competition in health care services, public hospital managements, and hospital autonomy in Indonesia and Germany. A descriptive-analysis based comparison is employed to highlight the significant differences that potentially explain any similarities or differences of the reaction and responses of selected public hospitals to the new payment system.

The anticipated public hospital responses here are represented by the change of their ALOS and number of cases of DRGs-related patients. But, further investigation through in depth interviews conducted to evaluate the association between ALOS and case number changes with DRGs. Subsequently, these responses are compared, and the explanation behind the responses was elaborated in the interviews. It followed by the exploration of the determinants of the hospital

³⁶Similar term used by Scapens (1990)

responses. Finally, the change of accounting practices and its role in medical activities is examined and used to explain the diversity of hospital behaviours to the DRGs system among the selected hospitals. The multiple case studies enable the researcher to elaborate what conditions are required in an effective DRGs system.

Furthermore, the role of accounting and accounting practices in the selected hospitals are discussed as the main interest of this research. It includes the explanation why accounting information are not being used as it should be and why the enhanced role of accounting after the reform has not taken place. One point to consider is that accounting is not a neutral technical activity (Humphrey and Scapens, 1996). It is seen as socially constructed, and depends on the organizational, social, and political actors (Humphrey and Scapens, 1996: 95). Hence, the accounting practices are potentially shaped by both by internal and external factors. Its role cannot be fully explained in isolation, and it requires a more contextual approach to understand it (Roberts and Scapens, 1985, Otley and Berry, 1994). Thus, it is believed that case studies are one way to inform and improve understanding of both daily organizational complexities of accounting practices the interconnected influence of wider social and political contexts (Humphrey and Scapens, 1996: 94; Otley and Berry, 1994).

In addition, Otley and Berry (1994) have emphasized the need of theoretical features in case studies. Similarly, Humphrey and Scapens (1996) believe that particular social theories are used by investigators to develop an understanding of accounting practice in the case studies. They believe that the application of theories in approaching a case study is inevitable (Humphrey and Scapens, 1997). However, the researcher must be aware that the using a single predetermined theory as a lens can limit the opportunity to interconnect all organizational dynamics and tensions within the case study (Humphrey and Scapens, 1996). Thus, the researcher may need to use some theories in the case studies in order to ensure all related social, political contexts and findings are taken into account. In fact, the use of multiple theories within a case study aims to explain comprehensively the context and institutional complexity in public sector accounting research (Jacobs, 2012). Accordingly, the new institutional theory and contingency theory were used in this research to facilitate the elaboration of comprehensive understanding of the hospital daily accounting practices and its changed or unchanged role in clinical activities before and after the reform taken place.

4.2. Research sites

The research was carried out on two Indonesian public hospitals and two German public hospitals. It involved only the public hospitals because their central role in the hospital sector in both countries. The hospitals selection has taken into account the comparison of hospital sizes, number of staffs, type of hospitals, and more importantly the access of the researcher into the hospital management. The names of these hospitals as well as the name of interviewees are not published in this dissertation. The purpose is to encourage the interviewees to provide comprehensive and factual information. The anonymity in some extent has indeed increased the accessibility and quality of required information.

Criteria	Alpha Hospital	Delta Hospital	Caesar Hospital	King Hospital
Type of provision	Maximal medical care (Type A)	Intermediate medical care (Type B)	Maximal medical care	Basic medical care
Legal form	State owned Enterprise (BLU)	Provincial government owned enterprise (BLUD)	Limited company (GmbH)	State owned enterprise (<i>Eigenbetrieb</i>)
Owner	MoH	A provincial government	University, county and district	County
Number of staffs	2,226 (2012)	808 (2012)	2.500 (2012)	350 (2012)
Number of beds	770 (2012)	282 (2012)	900 (2012)	200 (2012)

Table 4.1: Comparison of selected public hospitals

Sources: Hospitals' website and Profile of hospitals

The Indonesian selected public hospitals operate in the same region (Jakarta and surrounded areas) and renamed Alpha Hospital and Delta Hospital. Although both are public hospitals, the hospitals are owned by different owners. Alpha Hospital is owned by Indonesian MoH (so called vertical hospital) whereas the DeltaHospital is owned by a provincial government (local public hospitals). Moreover, the size of both hospitals is also divergent. Similarly, two German public hospitals which operated in the same state have been selected as the research sites for this study. Both hospitals have been renamed, namely Caesar Hospital and King Hospital. The former is a maximal medical care hospital whereas the latter is a basic medical care hospital. Moreover, the hospitals are also divergent in term of the legal status. Caesar Hospital is a limited company

hospital (*GmbH*), meanwhile King Hospital is a district government-owned enterprise (*Eigenbetrieb*).

Furthermore, the selection of different type of public hospitals in this research aims to enable replication of results in case studies. The case studies, according to Yin (2009:15), can be used to generalize theoretical propositions rather than populations or universes. Thus, the using of multiple case studies does not represent sample, but to enable replication (Yin, 2009).

4.3. Data collection

Every evidence sources has a limitation (Yin, 2009). Therefore, by using multiple sources of evidence, the researcher can collect more reliable and comprehensive findings. In this research, data is collected from multiple various sources and methods, namely interviews, archival records, direct observations and documentation. This data triangulation, according to Yin (2009), helps the researcher to (1) enables data cross check and confirmation in order to improve the quality of research findings, (2) address a broader range of historical and behavioural issues, and (3) address the potential problem of construct validity because the various sources of evidence basically provide multiple measures of the same phenomena.

In this research, there are four sources of evidences that have been used to collect required research data, namely interviews, documentation, archival records and direct observation. The main source of data in this research is in-depth semi-structured interviews. This method is selected due to its ability to capture more information and behaviour of interviewees (Yin, 2009). In a depth interview, the researcher can ask about the fact of the matter along with the opinion of the interviewees (Yin, 2009). The interviews elaborate what have changed in hospital that can be associated with the hospital financing reforms, the hospital strategies as well as the opinion of the interviewees about both issues.

The respondents of these interviews were top management and senior officers, controller, accountants, head of physicians, and senior officers of the Ministry of Health (MoH). All interviews were conducted in the office of the interviewers during the working hours, and most of them were tape-recorded. The interview questions were sent to the interviewees few days before the interview appointment in order to give the interviewees a wide opportunity to understand the questions and construct their answers appropriately. Following the interviews, email correspondences with the respondents were employed to confirm and elaborate their very specific answers.

The introduction interviews were conducted with key officers of MoH to gain both historical information and the latest situation of the health care and hospital sectors. Following that, the primary interviews with e.g. the hospital respondents were performed. Most of the interviews were managed by the office of respondents and interrupted by their jobs. The main respondents were head of finance, accountant management (and controller), accountants and head/senior physicians and other related officers. However, due to divergent organizational structures among the hospitals, the respondents were not in the same positions although they have similar job descriptions. For example, DRGs codification is performed by medical controllers in the German hospitals, but the same activities are performed by administrative or marketing staff in the Indonesian hospitals.

Therefore, the researcher has informed and discussed with the secretary director or other related officer about the interview questions and required information about the research before conducting the interviews. The officer guided the researcher to the most potential and appropriate senior officers to answer the questions. In addition, the researcher also has received some feedback about the selection of interviewees after the first interview with the managing director or vice managing directors. The prepared interview questions for all interviewees are similar particularly the interview questions for the same interviewee position. The purpose is to gain more comprehensive information regarding certain topics and to enable cross check as well as confirmation for validity of interviewees' answers and responses. Furthermore, correspondences via email have been used to discuss and confirm the answers of the interviewee, to collect the missing pieces of information as well as data transfer.

In the German case study, the field research was started with a focus group discussion with 3 senior officers of Ministry for social, employment, health, and demography of Rhineland Palatine. The purpose of this interview is to gain update information and further explanation regarding hospital financing reform and accounting practice in public hospitals in Germany. The interview results have helped the researcher to sharpen the interview questions. In addition, the senior MoH officers have bridged the researcher with selected public hospitals, but the criteria of selected hospitals are decided by the researcher himself.

No.	Date	Interviewee(s)	Duration	Other information
1	20.3.2012	3 Senior officers of Ministry for social, employment, health, and demography of Rhineland Palatine.	App. 2 hours	Group discussion
2	12.07.2012	Managing director of Caesar Hospital	50 Minutes	In-depth with semi structured interview
3	18.07.2012	Head of finance and controlling department of Caesar Hospital	65 Minutes	In-depth with semi structured interview
4	18.07.2012	Head of medical economy department of Caesar Hospital	95 Minutes	In-depth with semi structured interview
5	21.08.2012	Director of physicians of Caesar Hospital	70 Minutes	In-depth with semi structured interview
6	03.09.2012	Managing director, Vice managing director, head of accounting department and assistance of head of accounting department, head of human resource department, head of controlling department of King Hospital	2 hours and 45 minutes	Group discussion
7	03.09.2012	Physician director of King Hospital	35 Minutes	In-depth with semi structured interview
8	19.09.2012	Head of accounting department and the assistance of King Hospital	60 Minutes	Group discussion
9	19.09.2012	Head of controlling department of King Hospital	70 Minutes	In-depth with semi structured interview
10	19.09.2012	Head of Medical Controlling	54 Minutes	In-depth with semi structured interview
	Total	14 interviewees	Approx. 13 hours	

Table 4.2: Compilation of interviews related to the German case

Source: Author's description

The field research in Indonesia was begun with interviewing one of the pioneers in INA-DRG research. He is a senior lecturer in University of Indonesia who has published several articles on INA-DRG implementation. This interview is relevant because the academic literature about Indonesian hospital financing reform particularly INA-DRGs system is very limited.

No.	Date	Interviewee(s)	Duration	Other information
1	22.01.2013	Vice director for financial and general affairs, Delta Hospital	115 Minutes	In-depth and semi structure interview
2	25.01.2013	Head of accounting unit, Delta Hospital	120 Minutes	In-depth and semi structured interview
3	29.01.2013	Head of medical committee, Senior physician, Delta Hospital	75 Minutes	In-depth and semi structured questions interview
4	25.01.2013	Senior staff of Marketing unit, Delta Hospital	45 Minutes (not recorded)	In-depth and semi structured interview
5	08.02.2013	Head of accounting department, Delta Hospital	84 Minutes	In-depth and semi structured interview
6	08.02.2013	Head of Finance and Planning department, Delta Hospital	68 Minutes	In-depth and semi structured interview
7	04.02.2013	Senior staff at Centre of Financing and Health Insurance, MoH	112 Minutes	In-depth and semi structured interview
8	06.02.2013	Staff of National Centre for Case mix, MoH	60 Minutes	In-depth and semi structured interview
9	12.02.2013	Head of Accounting department of Alpha Hospital	60 Minutes	In-depth and semi structured interview
10	12.02.2013	Head of Planning and Budgeting, Alpha Hospital	65 Minutes	In-depth and semi structured interview
11	13.02.2013	Head of Management Accounting and Verification and her assistance, Alpha Hospital	96 Minutes	Group discussion
12	20.02.2013	Head of Database Management System Department, Alpha Hospital	93 Minutes	In-depth and semi structured interview
13	21.02.2013	Head of patient payment claims, Alpha Hospital	53 Minutes	In-depth and semi structured interview
14	22.02.2013	Senior physician, Alpha Hospital	46 Minutes	In-depth and semi structured interview
15	19.02.2013	Financial Director, Alpha Hospital	98 Minutes	In-depth and semi structured interview
	Total	16 interviewees	Approx. 20 hours	

Table 4.3: Compilation of interviews in Alpha Hospital and Delta Hospital

Source: Author's description

The expert assisted the researcher to understand the background and the implementation process of INA-DRGs/CBGs, and thus facilitated the focus enhancement of interview questions. Later on, the researcher visited two selected Indonesian public hospitals namely, Delta Hospital and Alpha Hospital. Moreover, interviews were also conducted with key officers in Indonesian MoH.

No.	Title of documents	Type of files	Sources
1	Hospital staffs report	Excel	Human Resourcedepartment of Alpha Hospital
2	Organization charts	Word, PDF	Administrative department of Alpha Hospital, Delta Hospital, Caesar Hospital, and King Hospital,
3	Budget controller	Excel	Controller of King Hospital
4	Hospital financial statistic	Excel, pdf	Controller of Caesar Hospital, King Hospital, and Delta Hospital
5	Hospital patient statistic	Excel	Accountant of Alpha Hospital, Delta Hospital, Caesar Hospital, and King Hospital
6	DRGs related revenues Dec 2009	Pdf	Controller of King Hospital
7	Medical utilities and equipment report 2012	Pdf	Controller of King Hospital
8	Total cost of DRGs related patients	Word	Database centre of Alpha Hospital
9	<i>Jamkesmas</i> patient and coverage statistics	PowerPoint	Indonesian MoH
10	Costing template – INA-DRGs/CBGs (2009)	Word	Indonesian MoH
11	10 DRGs related patients' bills/ total cost	Excel	Accountant of Delta Hospital

Table 4.4: List of collected documents

Source: Author's description

Except direct interviews, the researcher also conducted indirect interviews with the managing director of Delta Hospital and head of Centre for case mix - MoH. He prepared the answer of all interview questions which he shared a few days prior the interview. But, he cannot attend the interview due to scheduling conflicts. As an alternative, the managing director provided the answer on papers and gave them to the researcher.

The second source of evidence is documentation. According to Yin (2009: 103), “the most important use of documents is to corroborate and augment evidence from other sources”. The documents are used to complete and substantiate the collected findings from another source of evidence. The documents are as e-mail correspondence, administrative documents, and news clippings. Thus, these documents are mainly internal documents that apparently play an explicit role in case studies (Yin, 2009: 103), namely to provide more detailed information that have been gathered from the main source of evidence. In this research, the researcher has successfully collected documents from the selected hospitals and MoH (seetable 4.4)

The third source of evidences is archival records. It includes public use files, organizational reports, service reports, and survey data (Yin, 2009). Similar to documents, the archival records are used to support the research findings that have been collected from other source of evidences. Following are the archival records that have been collected and used in the research:

No.	Title of archival records	Type of archival records	Sources
1	Key hospital statistical indicators	Statistical information	Caesar Hospital, King Hospital, Delta Hospital and Alpha Hospital, Indonesian MoH
2	Profiles of Indonesian Health care sector	Annual report	Website of Indonesian MoH
3	Profiles of German health care sector	Annual report	German Federal Statistic office
4	Hospital profiles	Administrative documents	Caesar Hospital King Hospital, Delta Hospital and Alpha Hospital (website)
5	Hospital annual reports and financial plan reports	Administrative document	King Hospital, Delta Hospital and Alpha Hospital
6	Kalkulation von Fallkosten – Handbuch zur Anwendung in Krankenhäusern - 2009	DRG unit cost manual	InEK website
7	Hospital performance reports	Annual reports	Administrative Department of Delta Hospital
8	Jakarta Governor regulation regarding BLU/PSA hospital	Regulation	Vice Director of Delta Hospital

Table 4.4: List of collected records

Source: Author's description

Lastly there is direct observation. In a case study, a researcher mostly has the opportunity to observe the nature of the case. In this observation, the researcher can gather “some relevant behaviours or environmental conditions” (Yin, 2009: 109) that might become supporting evidences for previous collected evidences. In this research, an ample opportunity for direct observations on situation and environmental conditions as all interviews are conducted in the office of interviewees (hospitals). For example, direct observation to the office of senior or head of physicians, accounting and DRGs coding software and its procedures facilitates the author to understand the role of physicians in cost controlling, the role of accounting in medical activities and the usefulness of DRGs fees information. These direct observations are repeated in all hospitals in order to support and confirm the findings that have been collected from the interviews.

4.4. Data analysis

It is commonly believed that data analysis in case study research is not only one of the poorest developed parts, but most difficult phases of the case study (Yin, 2009). All data have been gathered, and thus, a data analysis is required not only to connect one data with another, to highlight pattern, but also to provide sufficient answer to the research questions. Unlike quantitative researcher, “(Q)ualitative researchers are not algorithmic automatons” (Saldana, 2009: 13). Hence, case study researcher needs to read and review the data carefully in order to notice themes, pattern, trend and concept (Saldana, 2009).

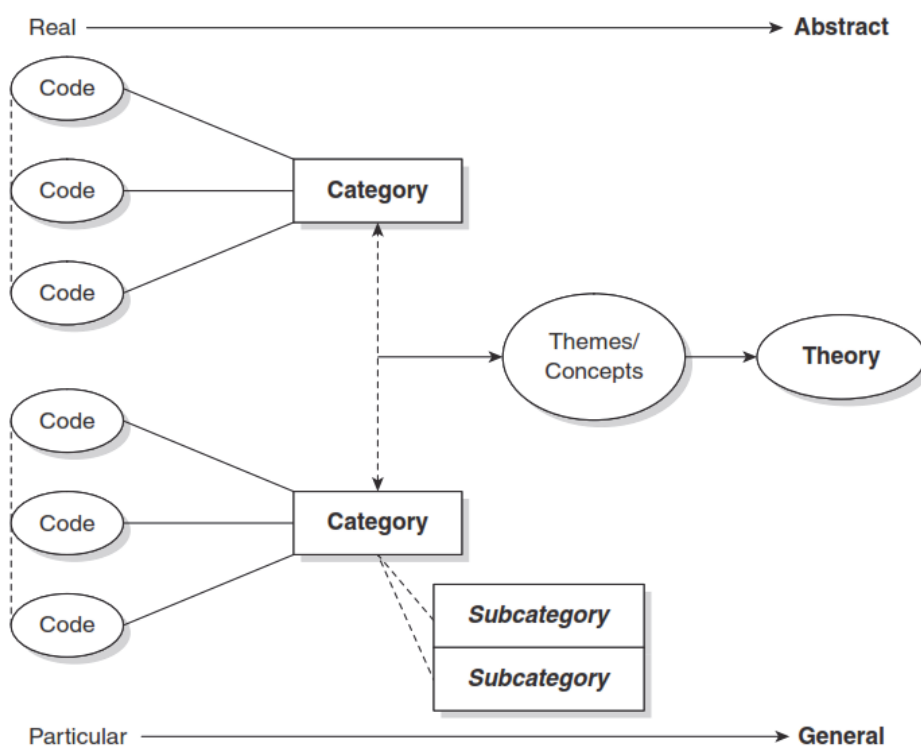


Figure 4.1: A streamlined codes-to-theory model for qualitative inquiry

Source: Saldana (2009: 12)

This study uses the coding method to analyse the collected data. According to Saldana (2009: 8), coding is intended to discover explanations that are used to apply a more rigorous and suggestive analysis for a report. In this method, data is not only labelled, but also linked to gather possible pattern and idea (Saldana, 2009). He illustrates how the coding method transformed the reality of collected data in quantitative research to a more thematic, conceptual and theoretical findings (Saldana, 2009: 11).

The author used a manual coding procedure, namely a text-based qualitative and usage of paper and pencil rather than a special software (Saldana, 2009). First, interviews' transcripts, field notes and other collected materials are printed. Sufficient space is provided for writing codes and notes. Secondly, coding process is started by using interviews and research questions as the guideline. The coding process classified the main message of each relevant sentence, and labelled them into few words, for example: 'segregation', 'resistance' and 'incapability'. This process is conducted separately for each case study (selected public hospital) and repeated for each collected data. Third, the generated codes later on grouped into a more specific categories, such as: accounting penetration and controlling collaboration. Fourth, the categories are compared with each other and consolidated in certain ways to construct themes and concepts (Saldana, 2009). Finally, these concepts are discussed intensively, linked and interpreted based on previous research studies findings and employed theories in this study to address the research questions.

4.5. Ethical consideration

In regard to informed consent, the researcher had informed the respondents about the purpose and outline of the research at the beginning of the field research, followed by requests for the approval/consent for the researcher to manage required interviews. Consents were in written form. After the completion of the research, the respondents involved in this research will be given the research summary based on their request. To ensure ethical consideration, this research also takes into account the issue of confidentiality and informed consent of the respondents. The collected data is kept in confidentiality and in case of publication of names of respondents, approval will be sought. The respondents may refuse to have his/her name mentioned, and thus shall be referred to as anonymous. More importantly, the identity of the selected hospitals is not published in the dissertation. Data from interviews, observation summary, collected archival records and documents will be kept for 5 years with restricted access.

4.6. Summary and conclusion

This chapter has declared the research design based on the basic characteristics of the research and the reasons behind the selection of case study method. The basic characteristics of this research can be defined based on its research questions and aims and types of required data. First, the type of the research questions and aims are more explorative and explanatory. It is designed to explore and explain the causal relationship between the role of accounting and

accounting practices in public hospitals, the hospital financing reforms particularly the adoption of DRGs system and public hospitals' responses. The aims of this research are not only to examine whether this causal relationship exists, but also to explain why and how they are related or interconnected and to explore their role to each other.

Second, this research requires both statistical data and more importantly, qualitative data. The qualitative are demanded as the research seeks for depth understanding of the causal relationship. These data can only be gathered through in-depth interviews with the key officers and collected documents and archival records. The usage of the various sources of data is imperative in order to ensure the quality and quantity of collected information.

As the research variables e.g. hospitals' responses accounting practices are socially constructed (e.g. Scapens, 1990), this research needs wider considerations and investigations to understand their changes. Accounting seems not to be neutral and independent from the influence of certain power structures and certain privilege group interests (Humphrey and Scapens, 1996). Thus, historical, economic, social and organizational contexts have to be captured in understanding accounting practices and their changes (Scapens, 1990). Case studies are particularly suitable for this type of research because they provide an opportunity to adopt a holistic orientation (Scapens, 1990). Moreover, the holistic approach assumes that element of each social system cannot be studied outside because of its characteristic integrity (Scapens, 1990). Within a holistic research, the researcher focus should to replicate the findings rather than generalize it to the population (Scapens, 1990). Thus, multiple-case studies in this research aims to highlight patterns in the case which explain the particular situation rather than factors which potentially could be generalised (Scapens, 1990).

Finally, this chapter has discussed how required data were collected and validated. Interviews have been the primary instruments to collect data. The respondents' answers were validated by other interviewees as well as the findings that gathered from other sources e.g. archival records, observations and documents. Given such richness of data, behavioural patterns (e.g. hospitals' responses and the role of accounting in the public hospitals) can be formulated and compared to address the research questions appropriately.

Chapter 5: Accounting Innovation within the Public Hospitals' Responses to DRGs based Provider Payment System

This chapter presents the results of the field studies in Indonesia and Germany that are preceded by a statistical description on health financing and the performance of hospitals in both countries. In the first part, the implications of recent hospital financing reforms, especially the adoption of DRGs for macro performance e.g. healthcare expenditure and the hospital sector performance in both countries is discussed. The second part presents the main results of case studies in two selected Indonesian public hospitals and two selected German public hospitals. This micro level study enables the researcher to gain a detailed insight, and in addition, the first hand-answers into the reasons for the hospital responses and the implications of DRGs on hospital performance and accounting practices. In this part, emphasis is given to the elaboration of current hospital accounting practices because any efficiency improvement efforts require sufficient accounting data, and more importantly, an appropriate practice of management accounting. Finally, the last part concludes the principle reasons why the Indonesian hospitals respond differently to the new payment system as compared with the German hospitals.

5.1. The impact of hospital financing reforms on Indonesian healthcare expenditure

The Indonesian hospital financing reforms have been initiated since the early of 2000s, whereas the German hospital reforms began at the beginning of the 1990s. As the core features of the reforms, both governments shifted the hospital payment system from a retrospective approach to a prospective approach by adapting a DRGs based provider payment system in which cost reduction was the primary objective. This section elaborates on the impact of the new payment system for national healthcare expenditure in both countries. Additionally, the outcomes of the DRGs systems in the performance in the hospital sectors are also provided to enable a more comprehensive assessment.

5.1.1. Rising expenditure in the Indonesian healthcare sector

The Indonesian healthcare sector has developed tremendously after the government took the initiative to enhance people's access to healthcare provision in early 2000s. The government spending for the demand side of the healthcare sector has increased considerably due to the setting up of the statutory health insurance scheme (*Jamkesmas, Jampersal and Jamkesda*). On

the contrary, the supply side e.g. health care provider, has not developed significantly as much as the demand side. Consequently, the Indonesian hospital sectors are struggling to anticipate the significant rise in patient numbers, particularly after the implementation of universal health coverage took place. This section highlights the significant rise of expenditure in the Indonesian healthcare sector, the reason behind it and unchanged hospital sector performance indicator for the last decades.

5.1.1.1. Expenditure in the health care sector in Indonesia

Selected ration indicators for expenditures on health (Indonesia)	1995	2001	2003	2005	2007	2009	2011	Δ%
Total expenditure on health (THE) (in million US\$)	3,949	3,583	5,949	8,082	13,555	15,430	23,019	↑483
General government expenditure on health (in million US\$)	1,411	1,547	2,384	2,609	5,381	6,168	7,858	↑457
Total expenditure on health (THE) as % of GDP	2.0	2.2	2.5	2.8	3.1	2.9	2.7	↑39.1
General government expenditure on health (GGHE) as % of THE	35.7	43.2	40.1	32.3	39.7	40.0	34.1	↓4.4
Private expenditure on health (PvtHE) as % of THE	64.3	56.8	59.9	67.7	60.3	60.0	65.9	↑2.5
GGHE as % of General government expenditure	4.8	4.6	5.4	5.0	6.5	6.8	5.3	↑11.9
Social security funds as % of GGHE	10.2	8.1	7.6	14.8	16.0	15.1	20.3	↑98.2
Private insurance as % of PvtHE	6.0	5.7	2.7	1.7	1.8	2.4	4.1	↓31.2
Out of pocket expenditure as % of PvtHE	72.4	73.5	74.1	79.6	80.5	80.7	75.7	↑4.6
Total expenditure on health / capita at exchange rate (US\$)	19.8	16.6	26.8	35.6	58.3	65	95	↑379.6
Population (in millions)	199.4	216.2	221.8	227.3	232.5	237.4	242.3	↑21.5
Exchange rate (NCU per US\$)	2,249	10,261	8,577	9,705	9,141	10,390	8,770	↑290.0

Table 5.1: The development of healthcare expenditure in Indonesia (1995-2011)

Source: WHO website (2013)³⁷

The government of Indonesia has initiated the implementation of universal coverage, namely increasing the health insurance coverage since early 2000s. It provides grants for full and free

³⁷Some figures are originally presented in NCU (National Currency Units) but the figures have been converted to US\$ in order to ease the comparison with the Germany figures. The currency conversion used the provided currency in the original table.

healthcare treatment for registered poor and near poor citizen. As the consequence of these free social health insurances (SHI), a sharp rise of the expenditure on the Indonesian health sector has been documented.

The first free Social Health Insurance (SHI) e.g. *Jamkesmas* was introduced in 2003 and led to a significant increase in both the total expenditure on health (THE) and the general government expenditure on health (GGHE). However, the role of private finance (PvTHE) particularly out of pocket expenditure in the Indonesian health care sector is still dominant even today. Based on the above diagram, PvTHE accounted for 65.9% of THE, and 75.7% of PvTHE originated from the out of pocket expenditure. This figure indicates that the number of patients who pay directly to the providers is still significant.

5.1.1.2. Efficiency indicators of Indonesian hospital sector

Prior to the hospital financing reforms e.g. DRGs adoption, Indonesian hospital sector has a relatively low ALOS (average length of stay). Based on the below diagram, the national ALOS has remained relatively constant for the last ten years, although INA-DRGs/CBGs has been adopted for a few years. Between 2003 and 2010, the ALOS increased slightly from 4 days to 4.37 days. Thus, the DRGs system apparently does not affect the Indonesian national ALOS.

Meanwhile, a significant and continual rise in hospital case numbers has been noticed since 2007. The number of inpatient cases in public hospitals has almost doubled from 17,541,324 cases to 35,135,850 between 2007 and 2010. This can be attributed mainly to the implementation of universal coverage that has increased peoples access to hospital services. The free SHI schemes were introduced both by the central and local governments. As a result, a patient number explosion has occurred in most hospitals as more and more patients utilize their free SHI schemes³⁸ rather than hospitals' responses to the DRGs incentive. Moreover, some public hospitals have also reported that they cannot serve these patients medically due to their resource shortages e.g. hospital facilities³⁹.

³⁸ Indonesian hospital association has complained the explosion of patient numbers due to the free SHI scheme and the indication of political interest within (<http://health.liputan6.com/read/538263/meresahkan-ledakan-jumlah-pasien-rumah-sakit-akibat-biaya-gratis>).

³⁹The Jakarta governor demands for replacing class II beds with class III beds as a response to the explosion of class III patient number (<http://arsada.org/index.php/tentang-kita/17-berita/45-perubahan-kelas-di-rsud-belum-mampu-menampung-pasien>)

Hospital indicators	2003	2005	2006	2007	2008	2009	2010
National ALOS	4,0	4,8	4	5	4	4,3	4,37
National Average BOR	55.5	56.4	57.0	65.0	79.8	58.7	41.2
Number of hospital beds	131,129	136,766	N/A	142,707	149,538	163,680	166,288
Number of inpatient cases	N/A	N/A	3,116,539	17,541,324	22,372,150	17,125,907	N/A
Number of outpatient cases	N/A	N/A	15,058,774	N/A	N/A	34,298,702	35.135.850
Total number of cases	N/A	N/A	18,175,313	N/A	N/A	51,424,609	N/A

Table 5.2: Selected Indonesian hospital indicators

Source: Indonesian MoH (2013)⁴⁰

Moreover, the INA-DRGs/CBGs system is currently adopted only for *Jamkesmas* and *Jampersal* patients' payment. The national ALOS of these patient groups has shown a reducing trend (table 5.3). This reduction of ALOS might indicate expected hospitals' responses to the new payment system although the current ALOS of patients *Jamkesmas* and *Jampersal* is still longer than the aggregate national ALOS. In addition, the SHI cases only accounted for 15% and 16% respectively of total patients in 2009 and 2010. Thus, case studies in Indonesian public hospitals are required to evaluate whether this reduction is a part of hospitals' responses to DRGs adoption.⁴¹

Years	2009	2010	2011	2012 (not completed) ⁴²
ALOS of DRG related patients	7.02	6.82	6.32	5.89
Number of outpatient cases	4.032.079	4.363.671	4.827.845	N/A
Number of inpatient cases	1.167. 573	1.208.571	1.581.547	N/A
Total cases	5,199,652	5,572,242	6,409,392	N/A
% total cases	15%	16%	N/A	N/A

Table 5.3: Aggregate ALOS and number of cases of DRGs related patients in Indonesia

Source: Collected information from an interview with senior officers of Indonesian MoH (2013)

⁴⁰ These are the collected documents from interviews in the Indonesian MoH central office, Jakarta. It is very difficult to find a valid, comprehensive published statistical data on Indonesian healthcare sector. These data are collected from Indonesian health sector profile 2004 – 2011 and SIRS (Hospital information system 2012).

⁴¹ Statistics data published by the MoH is questionable. For example: the figure of 2007 national ALOS in Indonesian health profile 2008 is differ compare to the figure of 2007 national ALOS in Indonesian health profile 2009 although both reports were published by the same institution. The differences have been also found in hospital numbers.

⁴² The number is calculated based on incomplete 2012 data

5.1.1.3. An increasing capacity of Indonesian hospital sector

The Indonesian hospital sector is still dominated by public hospitals. The capacity of public hospitals in Indonesian (e.g. number of beds) is still significantly higher, although the number of private hospitals is currently higher than public hospitals as of 2009. Meanwhile, private hospitals in Indonesian are mainly small to medium size hospitals. On 1st January 2013, the number of beds in Indonesian hospitals in total was 238,373 and only 17% of them were owned by private hospitals, whereas the others were owned by public hospitals (MoH, 2013).

Classification	2000	2003	2005	2007	2008	2009	2010	2011	2012	Δ%
Total number of hospitals	1145	1234	1268	1319	1371	1523	1632	1721	2083	↑82
Public Hospitals	595	617	642	667	698	756	792	828	813	↑49
Owned by Health Minister	59	31	31	31	31	31	31	32	32	↓45
Owned by local government	357	396	421	446	477	521	551	582	624	↑75
Owned by Military/ Police Department	111	112	112	112	112	119	131	134	154	↑39
Owned by other departments	68	78	78	78	78	85	79	80	78	↑15
Private hospital	550	617	626	652	673	767	840	893	1195	↑117

Table 5.4: Number of hospitals in Germany based on ownership and legal form (2000-2012)

Source: Collected document from MoH and MoH website (2013)⁴³

The hospital density in Indonesia is relatively low compared to other neighbouring countries such as Malaysia and Singapore, although the number has gradually increased (82%) between 2000 and 2012. The above statistical data reported that Indonesia currently has 2,083 hospitals that serve more than 240 million people. Similarly, the ratio of beds per 100,000 of the population is still relatively low. In 2010, the ratio was 66.9 beds per 100.000 of the population. However Indonesia has also *Puskesmas* (Primary health care centres) that serve as “branches” of the public hospitals, which mainly focus on outpatient care. In 2011, there was 3,135 *Puskesmas* that were located in all Indonesian regions and one third of these *Puskesmas* were equipped with inpatient facilities (MoH, 2013)

5.1.2. A gradual increase of expenditure on German healthcare sector

For the last two decades, Germany has tried to rein its healthcare expenditure through significant changes, for instance, in hospital payment system. But, these serial changes might have

⁴³Source: (http://202.70.136.52/rsonline/report/report_by_catrs.php)

successfully slowed down the growth of the expenditure rather than creating a cheaper health care system. This section highlights the growth of German expenditure on health and the implication of hospital financing reforms to the hospital sector performance.

5.1.2.1. Impact of hospital financing reform for German healthcare expenditure

A persistent rise in German health care expenditure has been noticed since 2001. Before 2001, there was a gradual decline in German health care expenditure from 255,131 million US\$ in 1995 to 196,092 million US\$ in 2001 (WHO, 2013). It rose steadily again after 2001 to 398,672 million US\$ (or 56.26% bigger than in 1995, annual growth: 3.5%) in 2011 although some initiatives were made to contain costs. In fact, German health expenditure in 2011 (398,672 million US\$) was 50% bigger than the health care expenditure in 2003 (264,647 million US\$ in 2003) in which the G-DRGs was about to be implemented (annual growth between this period: 6.3%). In the other words, the growth of health expenditure after the adoption of G-DRGs is bigger than prior to its approval. Similarly, the health expenditure per capita in 2011 was 4,875 Euro or 52% higher than before the adoption of G-DRGs (in 2003, it cost 3,207.1 Euro). Thus, the German health sector is still one of the most expensive systems in the world, which counted 11.1% of GDP in 2011 (WHO, 2013).

According to Hartweg and Proff (2010), the continued rise of expenditure is caused mainly by the advancement of medical technology and the increase of the aging population. The former reason could be associated with the DRGs system as hospitals seem to be motivated to have more modern medical technology in order to attract patients and to shorten their ALOS. Consequently, the average cost of case in German hospital has substantially increased from 15,521 Euros in 1991, and 25,337 Euros in 2003 (prior to DRGs adoption) to 33,746 Euros in 2010 (Federal statistical office, 2012)⁴⁴

⁴⁴Source:
(https://www.destatis.de/DE/Publikationen/WirtschaftStatistik/Gesundheitswesen/20JahreKrankenhausstatistik.pdf?__blob=publicationFile)

Selected ration indicators for expenditures on health (Germany)	1995	2001	2003	2005	2007	2009	2011	Δ%
Total expenditure on health (THE) (in million US\$)	255.1	197.5	264.6	298.9	347.9	386.8	398.7	↑56.26
General government expenditure on health (in million US\$)	207.7	156.7	207.7	229	265.9	297.5	30.,4	↑45.60
Total expenditure on health (THE) as % of GDP	10.1	10.5	10.9	10.8	10.5	11.7	11.1	↑9.38
General government expenditure on health (GGHE) as % of THE	81.4	79.3	78.5	76.6	76.4	76.9	75.9	↓6.83
Private expenditure on health (PvtHE) as % of THE	18.6	20.7	21.5	23.4	23.6	23.1	24.1	↑29.89
GGHE as % of General government expenditure	15.0	17.5	17.7	17.7	18.4	18.7	18.5	↑23.40
Social security funds as % of GGHE	81.8	86.9	87.1	87.4	88.1	88.4	89.7	↑9.62
Private insurance as % of PvtHE	40.7	40.0	40.2	38.8	39.1	40.2	39.9	↓1.97
Out of pocket expenditure as % of PvtHE	53.7	51.1	51.0	52.4	52.7	51.2	51.4	↓4.35
Total expenditure on health / capita at exchange rate (US\$)	3,124.3	2,399.4	3,207.1	3,624.7	4,229.8	4,723.8	4,875	↑56.04
Population (in millions)	81.7	82.3	82.5	82.5	82.3	81.9	81.8	↑0.14
Exchange rate (NCU per US\$)	0.7	1.1	0.9	0.8	0.7	0.7	0.7	↓1.83

Table 5.5: The development of healthcare expenditure in Germany (1995-2011)
Source: WHO website (2013)⁴⁵

5.1.2.2. Hospital efficiency indicators in the German hospital sector

Although the expenditure of German health care has not declined after the implementation of G-DRGs, the adoption of the new provider payment system has changed the hospital performance indicators. The indicators have shown common implications of the DRGs system for the hospital sector, namely shorter ALOS, smaller BOR and higher productivity in the hospital sector. First, national ALOS and BOR have fallen gradually after the adoption of G-DRGs. In 2003, the national ALOS was 8.90 days or 16% longer than in 2011 (7.7 days) and BOR was slightly

⁴⁵ Some figures are originally presented in NCU (National Currency Units) but the figures have been converted to US\$ in order to ease the comparison with the Indonesia figures. The currency conversion used the provided currency in the original table

higher than in 2011. These ratios might indicate that the German hospital sector is more efficient than before because it requires less time to heal patients than before. However, these trends have started before the G-DRGs era, which indicate that the G-DRGs system is not the only trigger of the ALOS reductions.

On the contrary, the number of cases in the German hospital sector has risen 15% between 1995 and 2011 (or a 0.9% annual increase). The annual increase was sharper between 2003 (prior to G-DRGs era) and 2011, namely 6%. But, the increase in the case of numbers (15%) is apparently smaller than the annual increase in health expenditure (56.26%) between 1995 and 2011.

Selected Hospital Ratios	1995	2000	2003	2005	2007	2009	2011	Δ%
ALOS (Days)	11.50	9.70	8.90	8.70	8.30	8.00	7.70	↓33%
Bed Occupation Rate/BOR (%)	82.10	81.90	77.60	74.90	77.20	77.50	77.30	↓6%
Number of beds/ 100.000 population	746.00	681.00	657.00	635.00	616.00	615.00	614.00	↓18%
Number of cases/100.000 population	19,509	21,004	20,960	20,056	20,883	21,762	22,431	↑15%
Number of cases (in millions)	15.93	17.26	17.30	16.54	17.18	17.82	18.4	↑15%

Table 5.6: Selected German hospital ratios

Source: Federal Statistics Office (2013)

Moreover, the number of beds has also reduced by 18% over the last 16 years, particularly after the introduction of the DRG system (17% between 2003 and 2011). Thus, based on above tables, it might conclude that that today German health care sector is much more expensive than 16 years ago, but more productive.

5.1.2.3. A declining hospital sector capacity

Over the last 16 years, the number of German hospitals has gradually decreased from 2,325 in 1995 to 2,045 in 2010 (or a 14% decline). Between 2003 and 2011, the numbers of public hospitals reduced by more than 21%. Moreover, approximately 53% of the public legal form-public hospitals transformed to other public hospital forms or became private in the same period. Similarly, the number of non-autonomous public hospitals also declined 75%. On the contrary, the number of private hospitals rose sharply from 409 to 678 hospitals over the last 16 years.

Krolop, et al., (2010) argue that the takeover and the fusion of German public hospitals as the main reason behind such substantial change of German hospital sector. Further, based on

statistical data below, one may argue that the public and other similar form hospitals are apparently not favourable in the new hospital financing scheme. Moreover, public hospitals seem to face more difficulties and challenges than the other hospitals within the G-DRGs system.

Hospital Classification	1995	2001	2003	2005	2007	2009	2011	Δ%
Number of hospitals (Total)	2,325	2,240	2,197	2,139	2,087	2,084	2,045	↓14
Public hospitals:	972	825	796	751	677	648	621	↓57
in private legal form	n/a	n/a	245	332	380	383	364	↑58
in public legal form	n/a	n/a	551	419	297	265	257	↓56
Non autonomous	n/a	n/a	431	279	161	117	114	↓75
autonomous	n/a	n/a	120	140	136	148	143	↓18
Non-profit hospitals	944	903	856	818	790	769	746	↓26
Private hospitals	409	512	545	570	620	667	678	↑40

Table 5.7: Classification of German Hospital base on the ownership and legal form (1991-2010)
Source: Federal Statistical Office (2012)

Based on the ADMED GmbH, HCH and RWI study, consulting companies for health economics, more public and private non-profit hospitals had poor financial performances (deficits) compared to the private hospitals during 2006 and 2007 (as cited in Krolop et al., 2010). This study also uncovered that public hospitals have higher personal costs, lower debt financing, stronger reliance on subsidies and extended decision making processes compared to their competitors. In addition, public hospitals have been receiving significantly less investment costs from the federal state. These factors seem to be the reason behind the poorer financial performances of public hospitals (Krolop et al., 2010)

Thus, the trend for the transformation of public hospitals into more private or autonomous hospitals can be explained from this point of view. Hess (2005) maintains that public hospitals have suffered from competitive disadvantages that make them become the major victims in the current competition.

Firstly, public hospitals are still viewed from an administrative angle rather than as a business enterprise. He argues that operational decisions in public hospitals are mostly driven by local or regional policy considerations rather than merely driven by intentions to increase efficiency. Strategy of efficiency improvement may be against the political will of the government. Therefore, hospital autonomy could be defined as less political interference and greater responsibility in the grasp of the hospital management. Secondly, public hospitals are treated with different legal treatment, for instance, public procurement law and German public worker pay scales (Hess, 2005). The former restricts procurement mechanism of public hospitals' and is

considered as time consuming and not a cost-intensive mechanism. On the other hand, private hospitals have a flexible procurement system that enables them to have cheaper equipment and products. The latter prevents performance-based compensation and flexibility in wage policies and allowance for a new job profiles (Hess, 2005). As a result, German public hospitals gain on average a smaller 1.5% return on sales, compared to non-profit (1,8 %) and private hospitals (4,2%)⁴⁶.

Nevertheless, Tiemann and Schreyögg (2009) found different results. Their study evaluated the influence of ownership on hospitals' efficiency in Germany. They gathered related data from 1.318 German acute hospitals between 2002 and 2006 and used DEA (Data Envelopment Analysis) approach to measure efficiency. This study found that public ownership was associated with significantly higher efficiency than other forms of ownership, whereas large hospitals were more efficient than small hospitals (Tiemann and Schreyögg, 2009). They suggest that public hospitals focus mainly on input efficiency due to resource constraints, whereas private for-profit hospitals place greater emphasis on earning profits (Tiemann and Schreyögg, 2009).

5.2. The implication of DRGs systems and the response of public hospitals

This section evaluates the implications of the DRGs system at the micro level, namely two selected Indonesian and 2 selected German public hospitals. The former macro level approach has uncovered how the new payment system affects the whole system of healthcare and hospital sector at a glance. However, this section takes another point of view that is micro analysis to corroborate or to amplify the findings of the macro analysis. It evaluates how hospital financing reforms affect the (selected) public hospitals and how these hospitals respond to the new circumstances. Thus, more detailed and comprehensive findings are anticipated.

5.2.1. The Indonesian cases

Case studies have been performed in two selected Indonesian public hospitals, namely Alpha Hospital and Delta Hospital⁴⁷. The first hospital is owned by the MoH (vertical hospital) and the second hospital is owned by the local (provincial) government. Both hospitals are situated in *Jabodetabek* (the urban region surrounding Jakarta). They were selected because they

⁴⁶These figures are provided by KPMG as cited in *WirtschaftsWoche* vom 23.09.2013 / Unternehmen & Märkte "Spekulieren mit Krankenhaeusern"

⁴⁷ Not real name. The real names are not published in this research in order to improve quality and quantity of gathered data

can represent large and small size public hospitals, which have different owners, although they operate in the same region. More importantly, the researcher has gained sufficient access to required data in both hospitals. Data was collected based on interviews with key hospital officers e.g. the vice managing director, head of the finance department and employees, head of accounting and the employees, head of the physicians, and other senior staff. In addition, observation of the hospital accounting system was also conducted. Supplementary and secondary data was collected in both hospitals e.g. hospitals annual reports, hospital profiles and costs of treatment of selected DRG cases.

5.2.1.1. The Indonesian hospitals profiles

Alpha Hospital is one of the biggest and most modern referral public hospitals in Indonesia. The hospital was built in 1953, and it gained the BLU status in 2005. Before operating as a BLU, the hospital legal form was *Perjan*, which means it was managed and operated in a similar way to a (private) corporation. It is headed by a managing director, who is a civil servant and appointed by the central MoH. The managing director is assisted by three directors, namely (1) the medical and nurse director, (2) the general and education director and (3) the financial director. It is also a type ‘A’ university hospital that provides comprehensive and maximum health care provision.

Criteria	Alpha Hospital	Delta Hospital
Type of provision	Maximal medical care (Type A)	Intermediate medical care (Type B)
Legal form	State owned Enterprise (BLU)	Provincial government owned enterprise (<i>BLUD</i>)
Owner	MoH	Provincial government
Number of staffs	2,226 (2012)	808 (2012)
Number of beds	770 (2012)	282 (2012)

Table 5.8: Comparison of selected Indonesian public hospitals profile

Source: Collected document from the hospitals (2013)

Meanwhile, Delta Hospital is a district hospital, which is owned by a provincial Government. Since 1998, the hospital has been categorized as a type B hospital (intermediate health care provider). In 2007, it was transformed into a fully BLU hospital. Before that, it had operated in some legal form, namely a local *Swadana* Hospital (1992-2003) and a limited company (corporation, 2004-2006). It is headed by a managing director, who is appointed by the local

government. The managing director is assisted by two vice managing directors, namely vice director for finance and general affairs, and vice director for the hospital services affairs.

5.2.1.2. Implications of DRGs system for the Indonesian public hospitals

This part presents the result of case study research in Alpha Hospital and Delta Hospital. In the beginning, the features of both hospitals are exposed to support arguments construction for the hospitals' responses to the DRGs system. The impacts of the new payment system as well as prior organizational reform for the hospitals' features are also presented. Later on, the responses and strategies of both hospitals to DRGs systems are unveiled based on the collected statistical data and interviews with the key officers.

5.2.1.2.1. The features of the Indonesian public hospitals

1. Provider payment system (PPS)

In the Indonesian hospital sector, the governments (owners of public hospitals) subsidize only public hospitals. These subsidies are given not only to cover the investment costs but also several parts of the operational costs⁴⁸. As BLU hospitals, investment costs (capital costs) of the Alpha and Delta Hospitals are mostly financed by their owners (respective government/Ministry), while the operational costs are financed together by the owner (a significant portion) and the hospitals. For example, the governments pay salaries of all civil servants hospital staffs⁴⁹ directly, whereas the hospital administrators (BLU hospitals) are responsible for the salaries of non-civil servant hospital staffs.

The hospital beds are categorized based on the types of bed facilities. The lowest bed rank is class III which are aimed to serve poor people, particularly the SHI users. Based on the portion of class III beds to total hospital beds, the public hospitals appear to be operated to serve poor people (Vice director for financial affairs, Delta Hospital). In fact, the owner of Delta Hospital

⁴⁸ District public hospitals are subsidized by their owner (local governments), whereas vertical hospitals are subsidized by the MoH. Type of subsidies and the amount of subsidies are determined by the owner based on assessment of the hospitals requests.

⁴⁹ The civil servant staffs are responsible for the owner of hospitals as their salaries are paid the owners. The recruitments of these civil servant staffs are conducted by the owner. Hospitals can only requests more staffs to the owner if they needed. If the owner cannot fulfill the requests (for example because the budget for the new employees does not exist), the hospital management can recruit the non-civil servant staffs by themselves.

have restructured their public hospitals to add more class III beds as a response to the rapid increase in patients number resulting from the universal coverage policy⁵⁰.

No	Type	Number of beds			
		Alpha	%	Delta	%
1	VVIP	-	-	1	0.3
2	VIP	52	7	2	0.7
3	Class I	83	11	44	15
4	Class II	87	11	50	18
5	Class IIa	-	-	48	17
6	Class III	461	60	95	34
7	Other	87	11	42	15
	Total	770	100	282	100

Table 5.9: Composition of beds based on their type (2012)

Source: Annual report of Delta Hospital and Profile of Alpha Hospital (2012)

Moreover, the owners intervene not only in the decision the composition of hospital beds, but also in the hospital class III tariff⁵¹. The reason is that most of the class III patients are local government-SHI users (e.g. *Jamkesda*, *Kartu sehat*). Their medical costs are paid by the governments which also own the public hospitals. Both management of the hospitals have reported underpriced or smaller tariffs than their actual costs for class III beds due to the owners' intervention. Thus, these unrecovered patient costs significantly affect the hospitals' cash flow because more than half of public hospital beds are class III beds.

“Our cleaning service, security staffs, utilities and capital expenditure are subsidized by the owner. For medicines and other operational costs are not subsidized. Our own collected revenues are not enough to cover our expenditures. This is because the underpriced tariffs that never increases for a very long time” (Financial Director, Delta Hospital)

“For both class III general patients and those with insurance schemes, the tariffs are not cost recovered. In other classes, we can gain profit. But in class III, the tariffs are always lower than their actual costs” (Management Accountant, Alpha Hospital)

Furthermore, based on the types of payment, patients can be classified into two groups, namely general patients and patient with insurances. The former are patients who pay their medical bills directly with cash (out of pocket), whereas the latter's medical costs are paid by their insurances

⁵⁰The governor of Jakarta has instructed all public hospitals in Jakarta to add class III beds. Source (<http://www.tempo.co/read/news/2013/02/22/083462997/RSUD-Tarakan-Kebut-Sehari-Penuhi-Perintah-Jokowi>)

⁵¹For poor patients which are subsidized directly by the government through SHI.

e.g. private insurance companies, governments (MoH or the local government) or their companies where they work (employers). The hospitals receive cash payments only from the general patients, whilst the payment of the patients with insurance scheme needs to follow the reimbursement and claim procedures (non-cash/ receivables). In the light of this difference, general patients are more preferable for the hospital's management not only because hospitals receive the payments directly after patients' discharge, but also the payment fees are mostly higher than the patient with insurance⁵².

However, the recent health care reforms⁵³ have changed the composition of hospital patients and the hospital payment system. Firstly, the composition of patients has been changed steadily after the launching of new social health insurance schemes (*Jamkesmas, Jampersal* and *Jamkesda*). Consequently, the percentage of patients with insurance has increased dramatically. For instance, the number of general patients in Delta Hospital was up to 72% of total patients in 2005. Currently, more than half the patients are those who use an insurance scheme. This change directly affects the hospitals cash flow because (1) public hospitals are paid with smaller reimbursement fees (2) the process of the insurance for patients' bills takes one to three months (Vice director for financial affair, Delta Hospital)

% of General Patients	2005	2006	2007	2008	2009	2010	2011	2012
Alpha Hospital	N/A	N/A	N/A	40	37	36	32	29
Delta Hospital	72	63	57	60	57	56	50	44

Table 5.10: Portion of general patients of total patients

Source: Collected documents from Alpha Hospital and Delta Hospital (2013)

Secondly, the adoption of the INA-DRGs/CBGs system has gradually changed the hospital payment system. The new payment system is used together with other existing payment systems e.g. fees-for-service, semi packet and per-diem payment. Each scheme has its own scheme and catalogue fees, and thus creates an inefficient payment system and makes the system administratively complicated. The fully adoption of DRGs system in 2014 as the primary

⁵² The hospital (real) tariffs are eligible only for the general patients except patient of class III whereas the reimbursement fees for patients with insurance scheme are intervened by the governments (the owner) or negotiated with the insurance companies/ payer.

⁵³ The recent Indonesian health care reform has been initiated 2004 since the enactment of SJSN bill (National Social Security System). One part of this reform in the establishment of BPJS in 2014 (SJSN in health care), the government will provide universal health care insurance for the citizen starting 2014. This insurance will be managed by ASKES. As the result of the government imitative, the out of pocket payment is expected to reduce significantly because all citizens will be covered by insurance.

payment system aims not only to improve efficiency, but also to simplify the payment system (MoH, 2009).

Moreover, four important issues and challenges related to DRGs payment system that potentially affect hospitals' responses have been gathered. Firstly, the scope of DRGs based PPS adoption in both hospitals is still small and it is currently applied for only a small portion of hospital patients (*Jamkesmeas* and *Jampersal* patients). In Alpha Hospital, the percentage of DRGs related patients in 2012 was only 4.5%. Meanwhile, a larger portion of the patient group was found in Delta Hospital (17.18% in 2012). Consequently, it has not received sufficient attention from the management of both hospitals.

“The DRG payment system is not the main issue right now because the portion of DRGs related- patients are still low” (Head of Accounting department, Delta Hospital)

“We do not that focus on the DRGs system. Our main focus now is the implementation (consequence) of BPJS itself” (Accountant Management, Alpha Hospital)

Secondly, the interviewees complain about under-priced DRGs tariffs which are too low based on the comparison with their actual unit costs.

“The INA-CBGs system is not effective because the reimbursed rates are very low. These rates are calculated by MoH, and our physicians are surprised that their medical services fees are too cheap resulted from the DRGs rate. It gives a heavy burden to this hospital. The rates are too small compared to our actual incurred costs” (Vice Director for Financial Affairs, Delta Hospital)

Thirdly, it is very difficult to standardize treatments and more importantly, the total cost of each DRGs case. Both hospitals have recently developed clinical pathway (CP) to overcome these problems. But the CP development is constrained as each physician use different medical protocol and rejects to follow any standardization of medical protocol that formulated by the CP method. As a result, actual costs of each DRGs cases are vary significantly, and thus, are difficult to control.

“In this hospital, it is very difficult to implement CP. In my unit, we do not have CP yet. Each patient is treated differently although they are classified with the same DRGs code. Every patient is unique” (Senior Physician, Delta Hospital)

Lastly, the hospital administrators and medical staffs do not fully understand how the DRGs system works and its implications for hospitals financial viability. The actual costs of patient treatment and their DRGs rates are distributed to only certain units in the hospitals, particularly the unit which is responsible for the DRGs claiming process and codifying.

We are still confused how to respond to it. I personally do not know much about the DRGs system. Only marketing staffs know better about DRGs system” (Head of Accounting Department, Delta Hospital)

Until now, the DRGs socialization is still limited, particularly to the medical staffs. How can we respond properly if the physicians do not know comprehensively about the new payment system (Management Accountant, Alpha Hospital)

2. Professional Management

Both managing directors and vice directors of Alpha and Delta Hospitals (except the financial director of Alpha Hospital) are doctors. In Alpha Hospital, the selection or appointment of hospital directors is performed by a team on behalf of the MoH. Similarly, these positions in Delta Hospital are also appointed by a committee that consists of the local government senior officers. Only the second level management can be selected directly by the managing director of both hospitals.

In Delta Hospital, almost all of the senior managements do not have any administrative and business backgrounds. Only one of them has taken supplementary master in public health administration. The majority of the Alpha Hospital’s senior management (directors and vice directors) are doctors, except the financial director who does not have a clinical educational background. She has an economics background. Consequently, the management priorities are affected. According to the interview with the senior staff of both hospitals, quality has become the primary concern of management.

“In Indonesian public hospitals, the main focus of management is the medical service, not financial administration. Financial administrative follows the medical service. They concern more on the quality rather than efficiency. Even the MoH give more reward to quality improvement rather than efficiency improvement. (Head of Planning and Budgeting Department, Alpha Hospital)

3. Competition

Competition for patients in Indonesian hospital sector partially exists. This can be associated with: firstly, the patient referral system in public health providers (or SHI insurances) is clear and strict, which excludes private hospitals from the system. *Puskesmas* (Primary health care centre) is the primary care provider. Patients need to visit *Puskesmas* first in order to receive primary care. If they need a further examination and medication, they will be referred to a larger public hospital based on the doctor’s instructions. The doctor will refer them to the nearest public

hospital or to a private hospital which has signed contracts to serve patients with public insurance. Without a referral letter from *Puskesmas* or lower level public providers, the patients cannot use or claim their social health insurance (SHI) and needs to register as a general patient. Consequently, they will need to pay the service with their own money based on fee-for-service scheme (out of pocket payment). This type of referral system discourages patients with social health insurance to attend a private hospital.

Secondly, Indonesia has a low hospital density and more importantly, the distribution of hospitals is uneven across the country. It appears to lead to a hospital care monopoly in most Indonesian regions, including Java. Most *Kabupaten* (districts) only have one public hospital, whereas private hospitals are situated mostly in the capital of the provinces. Thirdly, public hospitals are financially supported by public expenditure, whereas private hospitals are not. In fact, in the current DRGs system, the DRGs fees are compiled and calculated by using only selected public hospital data costs as the foundation for the data. Consequently, the fees benefit public hospitals because a large portion of their expenditure is financed by the government. The DRGs fees are likely under-priced for the private hospitals because their capital costs are not subsidized by the government. Subsequently, private hospitals can only fairly compete with the public hospitals in attracting wealthy people. Wealthy people in Indonesia tend to visit private hospitals because the hospitals usually have better quality and a shorter waiting list (Roxt et al., 2009). Hence, the competition can be classified as more quality competition rather than price competition.

4. Organizational autonomy and the separation of role

The introduction of the BLU status for Indonesian public hospitals can be seen as an initiative for autonomy extension in public hospitals. In few aspects, the BLU status gives hospital administrators a wide opportunity to self-manage their resources e.g. revenue utilization. But, the status does not release other important and vital authorities to the management. Although both hospitals have been transformed into BLU hospitals, their staffing issues, or even tariffs are still under the owner's direct intervention. The owners still fully intervenes in the hospital tariff and they tend to make the tariff cheaper particularly for the patients class III. Indeed, the fee-for-service based payment for doctors in class III beds are lower than in other classes. The classification of hospital beds as well as the hospital strategic plan is also under the owner's intervention.

In addition, the owner also has influences in the procurement of hospital equipment. For example, the procurement of equipment whose value is more than IDR 50.000.000 (4,500 Euro) has to be done through a public auction. Apart from equipment, salaries of civil servant staff are also determined and transferred directly by the government. Only the salaries of non-civil servant staffs are under hospital management control. Because of the way it is financed, the civil servant staffs cannot be hired or fired by the hospital management. In a nutshell, both the hospital management still have limited autonomy, although the hospitals have gained BLU status since 2006.

“Management has limited authority particularly in class III beds. It is expected that at least 60% of beds in each local/district hospital are class III beds. The management has received the mandate to run hospital, but the tariff for class III beds is determined by the government. This makes us confused” (Vice Director for Financial Affairs, Delta Hospital)

More importantly, the autonomy of these hospitals has not totally changed the principal agency relationship between the hospitals and their owners. The BLU status might increase financial interest in the hospital’ administrators since BLU hospitals have to be responsible for non-civil servant salaries. However, it is partial and orientated on hospital cash flow or liquidity, rather than hospital efficiency and financial performance. It exacerbates it with an unclear financial evaluation of hospitals and the owner priority concern on service quality. The owner acts as ‘financial protector’ for their hospitals. Consequently, economic interest in Alpha and Delta Hospital seems to partly exist.

“If the hospital has deficits, the owner will cover that. No worries. We just need tell to the owner that we has deficit, and the owner immediately will cover it” (Vice Director for Financial Affairs, Delta Hospital)

“When we have deficits, the owner will not punish us. The financial evaluation is still vague” (Head of Accounting Department, Alpha Hospital)

5.2.1.2.2. Implication of INA-DRGs/CBGs system for the hospitals

This section evaluates the implication of the DRGs system for Alpha Hospital and Delta Hospital based on data gathered from field research in Indonesia between January and March 2013. First, it shows the responses of the two public hospitals toward INA-DRGs/CBGs by using ALOS and a number of patients as one of the indicators. It is assumed that the DRGs system encourages hospitals to shorten their ALOS in order to avoid losses due to the low cost recovery of the actual costs. Second, it addresses the question whether the DRGs system creates a powerful economic

incentive for the public hospitals to improve efficiency. Lastly, it evaluates whether the new payment system has stimulated a better transparency, tighter competition and financial performance.

1. ALOS and hospital productivity

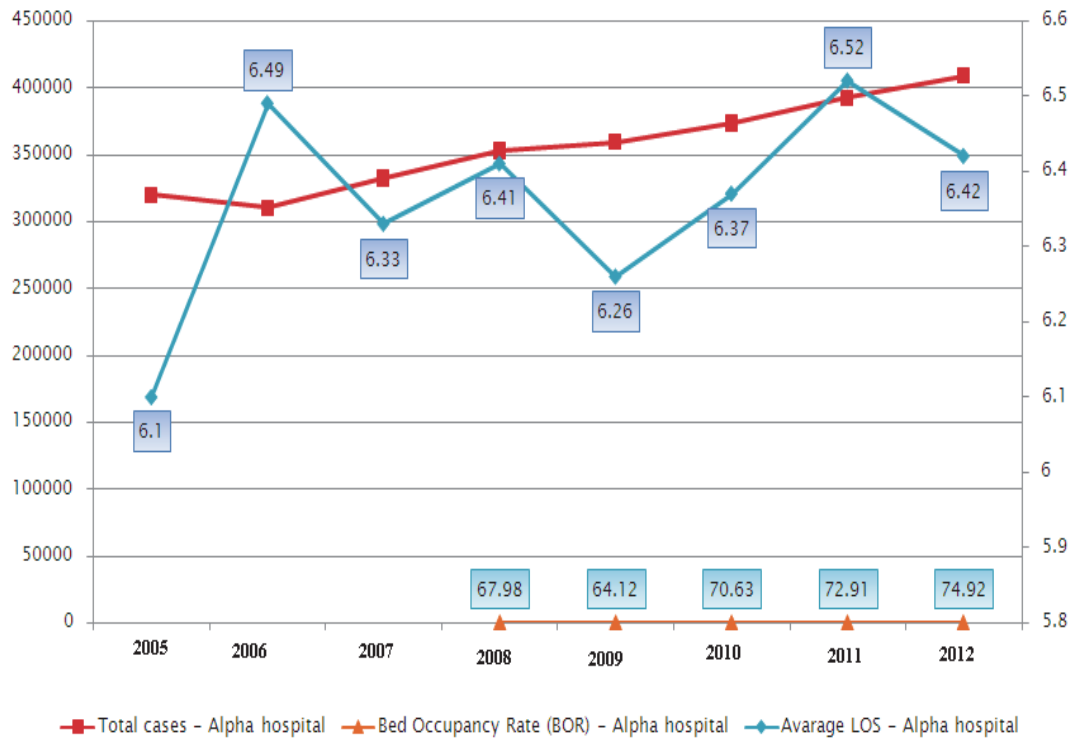


Figure 5.1: ALOS and total cases of Alpha Hospital
 Source: Collected documents from Alpha Hospital (2013)

The above diagram exhibits that the ALOS of Alpha Hospital has increased relatively since 2005. A small fall in ALOS is observed between 2008 and 2009 before it increased again gradually over the next few years. This shows that the adoption of DRGs has not shortened the ALOS of the Alpha Hospital. In fact, the ALOS has increased gradually in the first years of the use of INA-DRGs/CBGs. Meanwhile, the number of cases has increased steadily since 2005. This increase can be mainly linked to the rise of national health insurance coverage rather than the hospital strategy in the DRGs era. This has been confirmed by the head of the accounting department and head of the management accounting unit of the hospital. Moreover, it appears that the management does not have the intention to shorten ALOS as well as to increase cases as the responses to INA-DRGs/CBGs implementation.

“The hospital does not have any special strategy to encounter DRGs impact. The DRGs team which is responsible for this strategy has not been working yet” (Head of Database Management System Department, Alpha Hospital)

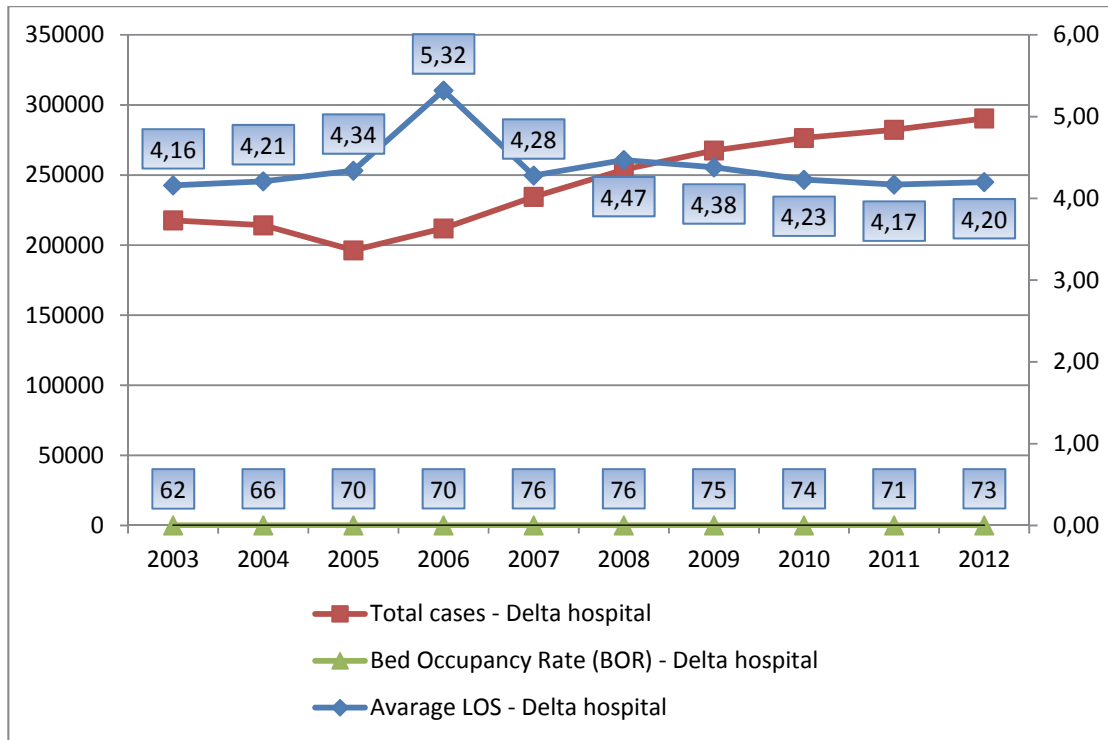


Figure 5.2: ALOS and total cases of Delta Hospital
 Source: Collected documents from Alpha Hospital (2013)

In the same way, the adoption of INA-DRGs/CBGs apparently does not affect ALOS and the number of both the outpatient and inpatient cases in Delta Hospital. According to the managing director, the linkage between DRGs adoption and the hospital ALOS and number of cases in this hospital in barely exists. The above diagram shows that the ALOS after and before INA-DRGs/CBGs are relatively similar and without any significant change. In fact, the vice director for financial affairs of Delta Hospital believes that the ALOS of the hospital is already so low that it cannot be reduced any more. This confirms that the hospital does not have a particular response in term of hospitalization duration after the adoption of INA-DRGs/CBGs.

“We have not initiated any response and strategy regarding DRGs impact. We have not thought about it” (Financial Director, Delta Hospital)

Moreover, the increase of cases is apparently not designed by the hospital management. The marketing staff of Delta Hospital that is also responsible for DRG coding reported that the

adoption of INA-DRGs/CBGs does not encourage the management to propose marketing efforts to increase or decrease any particular DRG cases. This statement was also confirmed by the vice director for the financial affairs of Delta Hospital. She reported that hospital strategies associated with the implications of DRGs have been not proposed until now.

2. Economic incentive to improve efficiency

A DRGs payment system is supposed to stimulate a stronger interest in containing costs. But, this incentive seems to not be provided by the current DRGs system. The interviewees reported that the current main management focus related to financial issue is the liquidity of hospital asset as they need to pay salaries of non-civil servant staffs. These staffs are fully paid by the hospital without any subsidy from the government. In addition, doctors' remuneration (non-salary) also depends on the financial performance of hospitals.

Meanwhile, the expected economic incentives resulting from the INA-DRGs/CBGs systems seem to be weak in both Alpha and Delta Hospitals. It can be mostly associated with the limited scope of DRGs implementation in hospitals and its share on total hospitals' patients and revenues. Consequently, the managements have confirmed that they do not have any specific strategies so far to counter the INA-DRGs/CBGs impacts, although both hospitals have experienced serial loss due to a low cost recovery level.

“In the last four years, there is no significant response of the hospital to DRGs implementation in this hospital. We have experienced loss because of the DRGs adoption. But, until now we do not have such special team whose duty to analyse the impact of DRGs and formulate strategy to it” (Head of Planning and Budgeting department, Alpha Hospital)

Besides, most of the key management staffs in both hospitals reported that they do not fully understand the implication of DRG in relation to the hospital financial performance. Due to this lack of awareness, the anticipation of management is barely found. In addition, the management of both hospitals seems to have more interest in the implementation of BPJS (Law of Social Security Administering Body) in 2014, which leads to the change of patient composition in their hospitals and their daily cash flow.

“We do not have so far a specific strategy to encounter DRG adoption. We have not prepared such a thing. As a financial director, my primary focus is the implementation of BPJS bill in 2014. In 2014, general patients which used to be the biggest portion of total patients will be replaced by patients with insurance. This is our main concern now. As the implication, there will be a lot of non-cash payments” (Financial Director, Delta Hospital)

Further, the other reason behind the absence of specific response of public hospitals to the DRGs system could be the existence of financial guarantees from the owner and unclear a financial performance evaluation. First, the government as the owner of public hospitals views hospitals as a social governmental institution rather than an autonomous economic entity. Based on this view, public hospitals are built merely to cure people, particularly poor people. Subsequently, quality and capacity are far more important than economy. Thus, the owner's main duty is to ensure that all patients are treated at any cost rather than to ensure that hospitals manage their revenues efficiently. This paradigm also been absorbed also by the management that make them not feel guilty if the hospital's operation ends with a deficit.

“There is no such punishment if a hospital has deficit at the end of the year. This hospital is a public service provider. We do not focus only in financial aspect but most important is the hospital benefit for the people” (Financial Director, Alpha Hospital)

Second, an established financial performance evaluation and a strong economic interest do not exist. The financial deficit in Indonesian public hospitals is not a parameter to evaluate hospital financial performance. Even serial deficits will not lead to any financial punishment toward the hospitals (Head of Accounting department, Delta Hospital). In fact, the managements stated that the hospital surplus in some extent can create the owner's curiosity if the quality of services is not achieved.

“Class III tariffs are same for general patients and patients with insurance. For instance, the tariff based on unit cost for a day hospitalization in class III beds is 100,000 IDR. But, the local government which issues local SHI pays only 75,000 IDR. The incurred deficit is considered as a hospital subsidy for poor people” (Head of Accounting Department, Alpha Hospital)

In addition, the hospitals even use the term ‘subsidy’, for any loss due to underpriced tariffs. This might reflect the philosophy of management in delivering hospital care. This could be linked to the main concern of both management and the owner, namely quality. Thus, as long as the quality target is achieved, deficit is not a big problem to be worried about.

“I have been working here for 10 years and we never have surplus in our financial report to the government. The deficits are not a problem. In fact, the government will question us if we gain surplus because this hospital is not for profit but to improved service quality. Thus, we do not need to use full costing in our tariff because part of them is subsidized by the government. If our tariffs are high, the government will not afford to reimburse them all” (Head of Accounting Department, Delta Hospital)

3. Transparency

The DRGs based hospital payment system is supposed to increase transparency of cost, procedure and revenue information in the hospital sector. On one hand, a DRGs system reveals pre-determined and fixed reimbursement fees that enable hospitals to evaluate and control their actual costs of treatment. Such information cannot be found in a retrospective method such as the fee-for-service. On the other hand, a comprehensive and clear documentation of cost and procedure is mandatory in the DRGs system. This requirement increases the motivation to record and produce more accurate unit cost calculation in hospitals. More importantly, armed with the information of the unit cost of each DRGs case, the management will be informed of the hospital's operational efficiency and thus, they can propose a strategy and correct response to the DRGs challenges.

However, the transparency improvement has apparently not occurred in both hospitals. In Alpha and Delta Hospitals, access to the DRGs software and rates are limited and not integrated into the hospital IT and accounting system. In Alpha Hospital, the coding process is performed by a coder who does not work in the same room or team with the doctor. After all medical treatments are performed and all records are collected, the coder will begin the coding process. But, there is no follow up or feedback to the doctors after the coding process. It is considered only as a final process in the DRGs administrative activities rather than a part of the cost controlling phase. Moreover, the doctors do not know and do not want to know which DRGs their patient will be categorized as. This meaningful information is apparently only used in claiming the reimbursement tariff rather than as information for controlling.

Similar to the practice in Alpha Hospital, the interviewees in Delta Hospital also confirmed that the information about DRGs fees is not widely distributed and the access to them is also limited. The coder is a member of staff in the marketing department who rarely communicates with the doctors. The coding process and documentation are performed in this unit. The marketing department staff collected medical records from all doctors and input the information into the DRGs software. After finishing this stage, the staff will know which DRGs that the patient will be categorized as, how much the tariff is, and finally send them for a further costs claim process. Meanwhile, the doctors have no idea how much the DRGs tariff of their patients is, and worse is that they do not know which DRGs the patient will be grouped into). Consequently, they miss an opportunity to evaluate the cost of treatment compared to the tariff. Moreover, doctors do not receive enough information for controlling cost particularly in relation to the DRGs tariff.

In a nutshell, transparency in terms of cost and revenue information in both hospitals has not improved significantly after the adoption of DRGs payment system. DRGs system has been seen

mostly as an administrative tool than as a system to support better controlling. Accordingly, DRGs rates, codes and related information are only available in the coder's room or codification units. It appears, the virtues of DRGs have not been absorbed into hospital managerial activities. Thus, the meaningful information e.g. DRGs rates is therefore not utilized to control and contain costs.

5.2.1.2.3. Accounting innovation in the Indonesian public hospitals

Previous management accounting literatures have documented that environment and organizational characteristics can affect the design and use of cost accounting systems (Hill, 2000). For example, Gordon and Narayanan (1984) found that environmental uncertainty has a positive relation to the need for additional information for planning and control in hospitals (as cited in Hill, 2000). The adoption of DRGs in hospital payment potentially creates uncertainty in hospitals. In the past, the financial uncertainty in hospitals may have been smaller because the hospital payment system (fee-for-service) provides mostly full cost recovery reimbursement fees. This part elaborates the current accounting practices, their changes and the role of accounting in the selected hospitals. Later on, a discussion with regards to the impact of DRGs is conducted on the accounting practices. Finally, the analysis of the hospital accounting practices is linked with the hospital response in order to examine the contribution of hospital accounting practices to the hospital responses to the implications of DRG.

5.2.2.3.1. Change of hospital accounting system and practices

The head of the management accounting unit of Alpha Hospital reported that the role of accounting in the hospital has gradually increased in the past few years. Although accrual accounting has been used since 2000, hospital accounting is currently still used mainly as a reporting tool. Accrual accounting was adopted as a part of the hospital legal form transformation from a budgetary unit to *PERJAN* (a more autonomous and independent legal form). Not until 2011, when hospital cash flow changed due to the increase of in the number of patients with insurance, did the call for more intensive cost controlling emerge.

Similarly, important accounting changes occurred as a change in organizational form took place in the first few years of this century. Accrual accounting approved in the early 2000s as Delta Hospital was transformed to a *Swadana* Hospital. Before this transformation, the hospital was a budgetary unit of the owner in which reporting was less important. Each *Swadana* hospital has to

prepare two financial reports by using different accounting standards. The financial reporting was aimed at the owner/government. These reports used accounting standard for governmental institutions where a cash basis is used. The second financial report is prepared for the management's own purpose, namely to produce more comprehensive accounting information. In addition, the hospital has a strong motivation to adopt accrual accounting due to the second significant change of organizational form. The hospital was transformed as a pure corporate public hospital(PT or corporation) in 2004.

“Before gaining BLU status or PT status, the management duty was only to manage hospital (core) activities, no development at all. The financial reporting was not mandatory because these accounting tasks were done by the local government as the owner. The reporting was centralized because the assets were recognized as the local government's assets rather than the hospital's asset. Our duty was only to report our activities and how much revenues we had generated” (Head of Accounting Department, Delta Hospital)

In this new legal form, the hospital was a separate economic entity and management was responsible for all the hospitals' asset, financial management, strategies, financial viability and staffs recruitment. The management had also had a higher autonomy including the hiring and dismissal of employees based on its needs. As a consequence, economic interest was strong and the management required more valid and comprehensive accounting information. The Delta Hospital was transformed into a local BLU hospital in 2006. In this legal form, the hospital assets were returned to the owner and the hospital was viewed as a part of government infrastructure (autonomous unit). Accounting since then plays a less significant role and mainly acts as a reporting device.

Based on the above discussion, it can be concluded that the adoption of new accounting methods in both hospitals could be seen as the consequences of the changes in organizational form and legal status. The innovation was aimed to fulfil requirements of the new organizational status rather than self-motivated adoption. Meanwhile, DRGs based PPSadoption has not triggered any use of new accounting method in hospitals.

Costing

Before 2012, the quality and validity of unit cost information in Alpha Hospital were questionable as the information was not produced punctually. As an example, the calculation of the unit cost of 2010 was finished in 2011 or in the beginning of 2013 (Management accountant, Alpha Hospital). This information therefore is less meaningful for the users. According to the management accountant, the demand for unit cost information was very low. For example, the

senior management and doctors rarely asked for the cost information. However, this situation has changed gradually after the change in the hospital cash flow due to shift in patient composition. The management has realized that they need more valid and detailed unit cost information to be able to negotiate tariffs with the insurance companies (or the guarantee). Without this information, evaluation and negotiation of reimbursement fees are almost impossible to conduct (Management accountant, Alpha Hospital). Therefore, the hospital has adopted a new costing method, namely Activity Based Costing (ABC) to improve the validity of unit costs. The quality of unit cost has to be enhanced because this information is required by the management to negotiate tariffs with the insurance companies and guarantor⁵⁴.

In Delta Hospital, the unit cost has been calculated since 2002. According to the head of the accounting department, the unit cost information was still very simple and not informative. It used a double distribution method until 2006. After the hospital was changed into a corporation, the ABC method was adopted. The adoption was initiated by the hospital's former managing director as he believed that the existed costing system had many weak points. As it was incorporated unit, the management needed more valid information because the hospital did not receive any subsidy from the government, and thus the management was fully responsible for the survival of the hospital. MoH as the ultimate supervisor of health care did not order the management to adopt certain management accounting techniques. Instead, it issued some alternatives. Hence, ABC has been developed gradually and involved consultations with experts. However, the unit cost information is generally used to determine tariffs for general patients but it is not commonly used for cost controlling.

“Tariffs for class III beds are 50% underpriced compared to their unit costs. For the other classes, (particularly for general patients), hospital management has authority in the tariff determination” (Head of Accounting department, Delta Hospital)

In short, the costing system and practices in Alpha Hospital and DeltaHospital have not been fully developed and utilized. The demand for unit cost information is still limited and the utilization of the information for managerial purposes is still not optimal. Unit cost information is currently used to calculate and negotiate tariffs with the stakeholders. It is not used widely as an important element of cost controlling. However, the need for more quality of unit costs has risen since the number of general patients has reduced gradually and DRGs has been adopted.

⁵⁴ There are patients whose bills are paid directly by their companies. This is not a common health insurance scheme. Many firms have direct agreement to the hospitals regarding the medical bills and rates of their workers. They not put their workers' health insurances in an insurance company, rather they make contract directly with the providers. The tariff for the patients and the type of medication are negotiated between hospital and the companies individually. Therefore, the hospitals need unit costs information.

Budgeting

In the Alpha Hospital, the budget is calculated on an incremental approach. It is assumed that all budget items increase uniformly within an agreed percentage. According to the head of the planning and budgeting department, hospital budget is prepared without any systematic analysis in relation to funds or expenditures based on hospital activities target and planning. Furthermore, the hospital budget is prepared based on cash accounting, although the hospital financial reports have adopted accrual accounting. More importantly, the role of clinicians within budgeting is not significant. They can make requests for materials or new staff in their clinics, but this will be decided by the senior management. Budgeting in Delta Hospital is similar to budgeting in Alpha Hospital. It has only one budget (universal budget) and the budget do not capture case mix information (DRGs cases). Each clinic does not have its own budget and it manages no funds. The head of each clinic can request materials, additional staffs for their clinic in the budgeting meeting. Evaluation is done by comparing hospital budget and its realization. The role of doctors in budgeting is also very limited.

Controlling

Controlling in Delta Hospital can be illustrated as an aggregate perspective and cash flow orientated controlling. The hospital does not have a separate controlling department and thus, it is a part of the accounting department's job description. According to the head of the accounting department, cost controlling does not distinguish patients based on their insurances and payment systems. It is an aggregate controlling practice, rather than case mix based controlling. The accounting department has not performed a systematic analysis on profitability of each DRG case. Besides, the physician-controller corporation to optimize the medical process barely existed in an effort to deliver cheaper treatment in the hospital. More importantly, controlling practices in this hospital mostly aims to ensure that hospital has sufficient cash flow rather than to make sure of an increase in efficiency. It focuses on the balance between revenue and the expenses of each clinic, the tariff and the budget realization. However, this current controlling practice is better than controlling practices before the hospital gained BLU status.

“Before gaining Swadana status, the hospital controlling is centralized that performed by the Ministry of Health” (Head of Accounting Department, Delta Hospital).

Furthermore, the accounting department of Delta Hospital has no access to the DRGs tariff of each patient. They only know what costs have been spent for each patient and their tariffs, whereas the reimbursement fees for each patient can only be found in the marketing department, where the DRGs codification is performed. In fact, the marketing unit has not given any

feedback directly to the accounting unit, which acts as a controller. As a result of such a disintegrated system, the controller is not able to contain the patient costs.

“We do not have unit cost information per DRG case. Now we can only compare between unit cost for each treatment with the agreed tariff” (Head of Accounting Department, Delta Hospital)

“DRG code only can be viewed in the system. I do not have direct access to this software. Only marketing department has the access to the software. I consult and discuss with them if there is a problem. Doctors do not know about DRGs code, they know about how much the fees are but not in detail” (Financial Director, Delta Hospital)

A more advanced and new controlling practice is performed in Alpha Hospital. The financial director uses the DRGs fee as the controlling tool for further treatment of patients. If the doctor's request more treatment and medicines, the finance director who do not have a background in medical education, is informed and her permission is asked for. Following that, she will receive information regarding actual costs and estimated DRGs fee for the patient. Having this information she will inform the doctor, as the final executor, to consider again his or her treatment to the patient.

“We try to control drug costs because they absorb a big portion of the costs. I receive a letter from the medical director asking my approval regarding additional costs for patients whose actual treatment costs have exceeded or almost exceed estimated DRGs reimbursed fee. I told him (the doctor) to consider again about the further treatment or medicines because the actual costs have already become higher than the expected DRG fee. But, the decision is still in the hand of doctors” (Financial Director, Alpha Hospital)

Nevertheless, the role of the doctor in cost controlling in Alpha Hospital is still insignificant. Based on the interviews with both doctors and management, the segregation of function between medical activities and managerial activities is clearly observable. Doctors seem to be absent from hospital managerial activities. On one hand, doctors are not armed with sufficient accounting information for controlling. On the other hand, they mainly do not have any interest in it and in fact they ignore it.

“Cost controlling is still centralized (in management). The doctors are not yet attached to our control system. They supposed to know the DRGs code of their patients. They do not involve in either in managerial activities or controlling efforts ... The system (managerial duties and medical duties) is not integrated” (Head of Accounting Department, Alpha Hospital)

“The relationship between hospital and doctors is like a railway track. We work together but have never been united” (Head of Medical Committee, Delta Hospital)

Lastly, the existing paradigm within both hospitals is that the doctors are responsible only for patients' medication. In a DRGs system, the collaboration of the controller and doctor is the basic requirement in order to improve hospital efficiency. Doctors need to be informed about the costs of their patients and the fees that hospitals generate from the patients. Based on this information, doctors with full support from the controller or accounting management should find alternatives in order to avoid losses due to non cost recovery treatment. This ideal practice is not found in both hospitals.

I do not know also what DRGs code is for my patients. We attend socialization on DRGs system but we do not have their detail tariff. We do not entry into the system. We write only the status of our patients (Senior Doctor, Alpha Hospital)

“After the coding process is done, there is no feedback to the respective doctor. This is the common practice in Indonesian public hospitals. The management only gives information about doctors' service fees to the doctors but they do not receive information about the difference between DRGs fee and unit costs” (Head of Database Management System Department, Alpha Hospital)

To recap, the cost controlling practices in both hospitals are still in their infancy. Controlling activities are primarily performed based on the aggregate approach and cash flow oriented controlling. In fact, the information and assessment toward feasibility and profitability of each DRG case is not available. Meanwhile, physicians do not extensively participate in the controlling effort. However, a demand for a more micro controlling method is noticeable. A new practice of controlling, which compares actual costs and DRG fees per each patient has recently emerged in Alpha Hospital. But, this new practice seems to be the self-initiative of the financial director who has economic education background rather than a part of the controlling system of the hospital.

5.2.1.3. The role of accounting in physician activities

Although the DRGs adoption started in 2008, the role of accounting in physician activities in both Alpha and Delta Hospital is still secondary. Both demand and supply of accounting information in clinics seems to be unchanged. On one hand, the physicians do not have sufficient accounting information to control costs. On the other hand, they are still ignoring, even rejecting dealing with the money issues.

“Doctors are supposed to be concerned with cost controlling. What I see is they are concerned only whether their service fees are reimbursable or not” (Financial Director, Delta Hospital)

Furthermore, it can be clearly seen that accounting information is merely circulated in managerial staffs. The doctors only focus on how to cure patients. Regarding financial information, they only have interest on their medical service fees⁵⁵.

“We “close” our eyes on that (controlling), we do not want to know how much money the hospital receives from our patients or from the guarantee. We rarely discuss it with accountant. We discussed with him only about our service fees. We have also no interest in it. The Head of Physicians (HoPs) is also having the same interest like us. Usually, the nurse manages the financial thing for our medical activities. The head of nurse write down what we need and send it to the depot” (Senior Doctor, Alpha Hospital)

In both hospitals, doctors receive additional income (except salaries from the owners) for their services and treatment of the patients based on the fee-for-service scheme. This information with regards to the fee for service is the main interesting accounting information for the doctors so far. On top of that, they will not receive reward if they can improve hospital efficiency.

“Regarding accounting information, we receive only our pay check. Further accounting information is not accessible. The management does not open this information to us. We receive only our consultation tariff, medical check-up tariff, Rontgen tariff. I think we need information about DRGs tariff to improve efficiency” (Senior Doctor and Head of the Medical Committee, Delta Hospital)

Based on the interview with the doctors, they tend to justify such practices. They argue that this practice is understandable as that have too many patients and they do not have time for other activities. This common situation seems to create a resistance of doctors to involve themselves in other activities that are outside of their expertise.

“We simply do not have time to analyse the patients’ costs. We have to serve 1,400 patients each day and each doctor serves 50-60 patients in a day from 8 to 12. We do not have non-medical staff to help us. I have seen the cost information, but I do not know a lot about it. The point is, we do not have time” (Senior Doctor and Head of the Medical Committee, Delta Hospital).

Additionally, they are allowed by the government to work in three different places at the same time, which makes time a premium. .

“The reason (why they do not care about controlling) could be that the doctors can work in 3 different places. In a private hospital, doctors can be controlled because they are clear reward and punishment. But, in public hospitals, they cannot fire a civil servant doctor, first because there will be no replacement and it does have authority” (Senior Doctor and Head of the Medical Committee, Delta Hospital)

⁵⁵Except salaries, physicians also receive medical service fees that are calculated based on fee-for-service method

In short, the role of accounting in medical physicians daily activities in both hospitals is still very limited. Accounting information has not penetrated into the core activities of the hospital, namely the medical activities. This situation has remained unchanged after the introduction of INA-DRGs/CBGs. The physicians do not receive enough information regarding their patient costs and DRGs files. The reason is that the medical activities and managerial activities have not been coupled. The doctors seem to refuse such additional activities, namely cost controlling. Given these facts, it is hardly possible to propose a strong combination between physicians and controller in controlling costs and improving hospital efficiency.

5.2.2. The German public hospitals

In this research, two selected German public hospitals have been selected, namely Caesar Hospital and King Hospital⁵⁶. Data are collected based mostly on interviews with key hospital officers e.g. CEO, head of the finance department and staffs, head of medical economy, head of accounting and staffs, head of controlling and head of the clinics from April 2012 to October 2012. The interviews were also followed by email correspondence to confirm or ask more detailed questions. Additionally, the supplementary data were also collected e.g. hospital annual reports, hospital profiles and financial plan during the field study.

5.2.2.1. Hospital profiles, structures and characteristics

Caesar Hospital is a maximal health care provider which is located in WestPalatinate. It has been operating since May 1983, but as a district hospital. Initially, it was a state hospital from 1924. Since early 1996, the hospital has operated as a corporation (GmbH). Finally, in August 2002, the hospital amalgamated with other nearby hospitals and has become one of the largest public hospitals in the federal state of Rhineland-Palatinate.

The hospital is headed by a managing director who leads seven managerial departments, namely medical economy, Nursing, Personnel, Finance, IT/construction, Plant and purchase, Marketing. These departments are headed by managers who are responsible directly to the managing director. Furthermore, the hospital is owned collectively by a public university, a county and a district. It is supervised by 28 members of a supervisory board, which consist of mainly

⁵⁶ Not real name. The real names are not published in this research in order to improve quality and quantity of gathered data

politicians. Last but not least, the chairmen are two consecutive district administrators and a Councillor of the consecutive university.

Criteria	Caesar Hospital	King Hospital
Type of provision	Maximal medical care	Basic medical care
Legal form	Corporation (GmbH)	State owned enterprise (<i>Eigenbetrieb</i>)
Specialist unit number	27	5
Owner	University, county and district	County
Number of staffs	2.500 (2012)	350 (2012)
Number of beds	900 (2012)	200

Table 5.11: Comparison of the selected German hospitals profile

Source: Hospitals' websites (accesses in July 2012)

Conversely, the King Hospital is a small communal hospital which provides basic health care provision (*Grundversorgung*). It has been serving the society in the federal state of Rhineland-Palatinate since early 1967. The hospital is owned by a county (*Landkreis*) under the legal form of a state owned enterprise (*Eigenbetrieb*). The hospital board (*Krankenhausausschuss*) consists of politicians that represent some political parties and is headed by the county commissioner. This political committee has the supreme decision power in the hospital. Moreover, it has 5 medical departments, namely internal medicine, surgery, gynaecology and obstetrics, anaesthesia/ intensive medical (pain therapy) and ear, nose, and throat (ENT). In addition, it has a geriatric day clinic that has been operating since 2001. The management of this 200 bed public hospital is undertaken by a managing director who leads 9 departments, namely the human resource department, accounting, controlling, medical controlling, patient administration, Information technology (IT), purchase, maintenance, and operational and supply service department. In addition, there are two directors of medical areas e.g. the medical and nursing directors.

5.2.2.2. Implication of hospital financing reforms for the German public hospitals

This dissertation assumes that hospitals responses to any payment system are determined by both external and internal factors. Thus, this part presents firstly the features of the hospital financing reforms and public hospital characteristics. Following that, it documents the responses of Caesar

Hospital and King Hospital to DRGs systems as well as the impact of the new payment for the hospitals.

5.2.2.2.1. Features of health care reforms and public hospital characteristic

1. Provider payment system (PPS)

In Germany, modifications of the PPS have been started in 1972 through the introduction of the dual financing system. Until 1995, the hospital was financed based on an agreed/negotiated nursing per day tariff (*Pflegesätzen*) between the hospital and the sickness fund (Lungen and Lapsley, 2003). Subsequently, an additional PPS scheme e.g. a limited lump-sum reimbursement (*Fallpauschale*) and special reimbursement schemes had been implemented between 1995 and 2003. Within this period of time, German PPS was a mixed scheme between per-diem and lump-sum reimbursement methods. Hence, the application of lump-sum reimbursement (*Fallpauschale*) can be said as the prototype of G-DRGs based payment system. The latest PPS modification is G-DRGs system was officially proposed in 2000. All interviewees from both hospitals agree that the adoption of G-DRGs is the most significant and important changes in PPS within the last 25 years.

On the contrary, not much change can be found in the outpatient care payment system. Hospitals still do not know how much money they will receive despite the medication process of the outpatient has been completed. They prepare documentation on patient treatment for each item and send the information to consecutive insurance company to be clarified and paid. This scheme is similar to the payment scheme for private clinics operated by individual private practices. Thus, according to the Head of Finance (hereafter HoF) of both hospitals, the calculation of cost and controlling within the outpatient group is more difficult than inpatient care.

2. Professional Management

According to both managing directors of Caesar Hospital and King Hospital, almost all German hospitals are lead by a non-physician managing director. Each of the hospitals has three directors, namely managing director, medical director, and nursing director. The managing directors are the leader of the hospital directories. Furthermore, the hospital's management team consists of professionals who have a business and economic background accompanied by long working experience within the same department in the hospital. These factors enable them to work together in responding to the hospital financing reform. Moreover, most of the managers of

both hospitals do not have any educational background in medicine. They have similar academic backgrounds namely, administration, economy or finance and working experience both in a private company or governmental organizations.

“In my opinion, the general knowledge about medical study is important for the hospital management. They do not need to know all the detail, but they should understand the general service of hospital within the hospital service process” (Vice Managing Director, King Hospital).

Furthermore, it is suggested that the hospital management should be headed by a person who has educational and experience in administrative and management rather than by a medical professional. The reason is that the medical professional has a different perspective that might contradict the managerial decision principle.

“.. I believe that the hospital management will be better if headed by a person who has administrative and business background. The clinicians have another perspective and motivation. A person with business education background aware clearly that he need to stop the deficit. A doctor will not see this need. He sees that he needs more personal and new equipment. He does not always consider costs” (Head of Accounting Department, King Hospital)

Finally, all the hospitals' staffs are not public servants. They are paid by the hospital based on a salary system and thus, responsible for their hospital management. Therefore, it can be said that both hospitals are operated based on a more corporate principle rather than as a bureaucratic organization.

3. Competition

Competition for patients in the German hospital sector existed before the implementation of G-DRGs. Patients can choose the hospital where they want to be treated without a strict referral system. In this context, the G-DRG system has sharpened competition in the area which many hospitals operate. For example, the King Hospital operates in a more competitive environment. Its main competitor is also a small hospital, which provides similar health care provision.

“The competition arises because the hospital has the same clinic units. Other hospital (competitor) provides the same operation like we do. It is located about 15 – 20 km from here and the patients can choose where to go” (Vice Managing Director, King Hospital).

“We need to work better than the others. Mouth propaganda or seminars are the instrument to win the patients. We have always tried to be considered and viewed as a good hospital” (Managing Director, King Hospital).

One point to consider is that the competition for patients in hospitals deals with the quality that they provide. First, the competition in the German hospital sector is not based on price, rather it based on the quality of hospital products. However, the patients have their own definition of hospital quality and may be irrelevant with a common definition of hospital product quality.

“The hospital attractiveness based on patient perspective is “how friendly are the clinicians, how delicious are the hospital foods and do I have my own television?” (Clinical Director, King Hospital)

Second, the hospital quality of health care provision is mostly assessed by private doctors who can recommend their patients for further treatment in hospitals. Their recommendation is apparently one of the main considerations of the patient’s decision in choosing a hospital. Therefore, the management of hospitals invites the surrounding private practicing doctors to have a corporation, to attend a public presentation about hospital services and provides a short course for certain medical expertise in their hospitals. With this strategy, the hospitals expect that the private practicing doctors recommend them to their patients.

Given these circumstances, hospitals have incentives to increase the quality of their health care provision. Their main concentration is how to attract patients as much as possible, particularly those patients whose diagnoses are classified as profitable DRGs cases in order to can gain more profits.

“But, one should consider that not all DRGs rates are well assessed. Thus, we need only to increase the number of good assessed (refers to higher reimbursement value) DRGs cases. However, the hospital cannot reject patients. We (therefore) advertise and make seminars about our treatments which classified as good assessed DRGs and higher value of reimbursement” (Managing Director, King Hospital).

To finish, admission expansion seems problematic in the German hospitals. Firstly, patient numbers has been determined within the preparation of hospital external/revenue budget between the hospital and the sickness fund. The sickness fund only provides a budget based on the hospital estimation of expected patients at the beginning of the year. Thus, hospitals need to be aware of how many patients they want to have in reality. If the hospital has more cases than was planned, the sickness fund will still cover the reimbursement but the hospital has to pay back 60% of the revenue to the sickness fund in the next year’s budget negotiations (Porter and Guth, 2012). Secondly, to increase the patient numbers is not easy as in other industry because illness cannot be created and stimulated. Therefore, many German hospitals particularly small hospitals focus on certain profitable treatments/cases such as cosmetic surgery in order to avoid direct competition with larger hospitals (speciality hospitals).

4. Organizational autonomy and the separation of roles

In Germany, public hospitals can be operated either in the public organization form (*öffentlich-Rechtlicher Form*) or in private form (*privatrechtlicher Form*). German public hospitals can choose their organizational legal form; they can be either a legally autonomous hospital (e.g. Special purpose association, institution, foundation) or legally dependent. Or, as a public hospital in private regulated form such as a corporation (GmbH), which is owned and financed by government or groups (Federal Statistical Office, 2012). Compared to all forms, the corporation (GmbH) form has relatively more autonomy than the others and thus, is more favourable (Assistance of managing director, King Hospital).

Caesar Hospital is a public hospital, which is operated as a corporate form (GmbH). The GmbH status has given the hospital full competency and authority to run an organization without significant intervention from the owner. Owner supervision and intervention could be stronger if the hospital fails to meet expected financial results, e.g. at least break even in its yearly financial reporting (Managing Director of Caesar Hospital). However, it still needs to follow some regulations originating from the public sector regulations. For example, a public hospital cannot negotiate price during the procurement process, rather it should be done by an auction system.

“... We must follow some procedures when we buy something. We must make an offer and then come the firms and we must take the cheapest offer. We cannot negotiate the price. Private hospitals can negotiate and they can save money from it. For us, it is a disadvantage. There are some many reasons why the number of public hospitals in Germany has declined, this is one of the reasons” (Head of Finance Department, Caesar Hospital).

Nevertheless, both the hospitals' managing directors and the HoF of Caesar Hospital believe that the implication of these regulations is not significant. Moreover, both hospitals to some extent are intervened in by political interest. The Caesar Hospital for example has a relatively large amount of the supervisory board and chairmen who are politicians. But, the management still has sufficient authority to manage the hospital both in determining the short and long time strategic objectives. The federal state also has a very limited role in hospital management and operational decisions.

“The GmbH status (corporation) makes our duties easier to fulfil than as a municipal hospital. The decision making process is simpler” (Head of Medical Economy Department, Caesar Hospital).

On the other hand, King Hospital is a communal or state owned enterprise (*Eigenbetrieb*). It has less authority and autonomy level compares to Caesar Hospital. It is classified as part of a county government structure and asset, and thus it is not independent (*Öffentlicher rechtlicher Form betriebenen unselbständig Krankenhaus*). The owner and the supreme decision body are

politicians, who have significant roles in hospital strategic decisions including hospital financial matters. It has the responsibility to cover the hospital deficit. But, since the owner has high debts, the hospital is more likely to be privatized or sold if the hospital fails to end the year by at least break even.

“We do not have such a contract (to gain surplus) with the owner, but it is regulated that if we have deficit for a year or maximal 2 years consecutively, the owner will cover these deficits, if more than two years, this hospital will be sold or given away” (Vice Managing Director, King Hospital).

The supreme decision body in King Hospital is in the hands of the hospital (politician) board (*Beschlussgremium*). The hospital need to have the committee’s consent for important decision about hospital financing and personnel, for example the recruitment of a new head of clinicians. The management can choose the candidates but the political board decides which candidate will be officially hired (Managing Director, King Hospital). In addition, for material purchase or big contracts that are more than 100.000 Euro, the approval of the hospital board is mandatory.

The managing director of King Hospital argues that greater hospital autonomy is an advantage for the hospital management. Hence, a GmbH form is more favourable (Vice Managing Director of King Hospital).

“The reason is that a state owned enterprise-hospital has the politician board that influence hospital daily operational and business decision. The politic influence in our hospital is relatively small. But, in many communal hospitals, the politic feature is very strong in hospital decision making process” (Vice Managing Director of King Hospital).

In financial management, both Caesar and King Hospital can manage the surplus that has been gained within the hospital during the period. The surpluses are used to finance hospital investment projects.

“There is a social contract which allows the management (GmbH) to decide things without any approval from the owner. But, in term of the usage of hospital profit, both GmbH hospital and state owned (Eigenbetrieb) hospitals have the same regulation to be followed. Both are not for profit hospitals. It means that the surplus can be used only for the hospital's sake. The surplus must be remained within the hospital” (Managing Director, King Hospital).

In short, the competency and decision making scope depends on the social contracts of hospitals. For daily purchases, both hospitals do not need approval from their owners. But, for transactions that deal with a significant amount of money, the approval of the hospital committee is necessary. Finally, the doctor salaries of public hospitals have to follow the general tariff that is determined by the local government (HoF of Caesar Hospital). Meanwhile, the private or charity

hospitals have their own self-regulated salary tariff, and they can negotiate with their staffs. Therefore, public hospitals are more likely to have bigger personnel costs than private hospitals.

5.2.2.2. Implications of health care reforms for the hospital

1. ALOS and productivity of hospitals

ALOS is a commonly used indicator to measure or compare hospital efficiency because one can evaluate whether a hospital can successfully heal patients faster than the previous year or compared to other hospital.

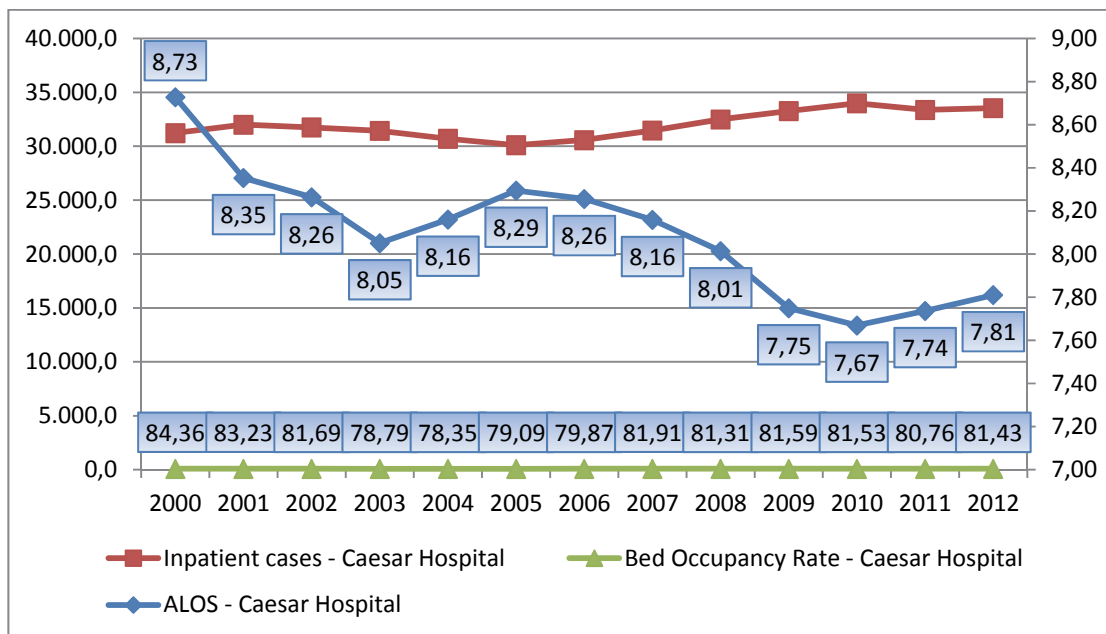


Figure 5.3: Inpatient case number and ALOS of Caesar Hospital (2000-2012)

Source: collected file from Caesar Hospital (2013)

The ALOS of Caesar Hospital and King Hospital had been declining gradually even before the introduction of G-DRGs. The ALOS of Caesar Hospital declined 11% between 2000 and 2011. Meanwhile, the ALOS of King Hospital fell 39% in the same range of time, which is more acute than in the Caesar Hospital. On the contrary, the number of cases in Caesar Hospital has risen from 31.224.5 in 2000 to 33.375 (or 6%) between 2000 and 2011. King Hospital has also experienced the same results in which its case numbers increased more significantly from 7.173 to 8.638 (or 17%).

In an economic perspective, a shorter ALOS could indicate higher efficiency because the number of hospitalizations has a positive relation to the total cost of treatment. However, it becomes debatable if a shorter ALOS is linked to patient satisfaction because hospitals strategies could be divergent among hospitals. Moreover, King Hospital has a lower ALOS and a higher percentage of declines in ALOS than Caesar Hospital. The reason is that Caesar Hospital handles more patients with a higher complexity of problems and severe illness than the King Hospital.

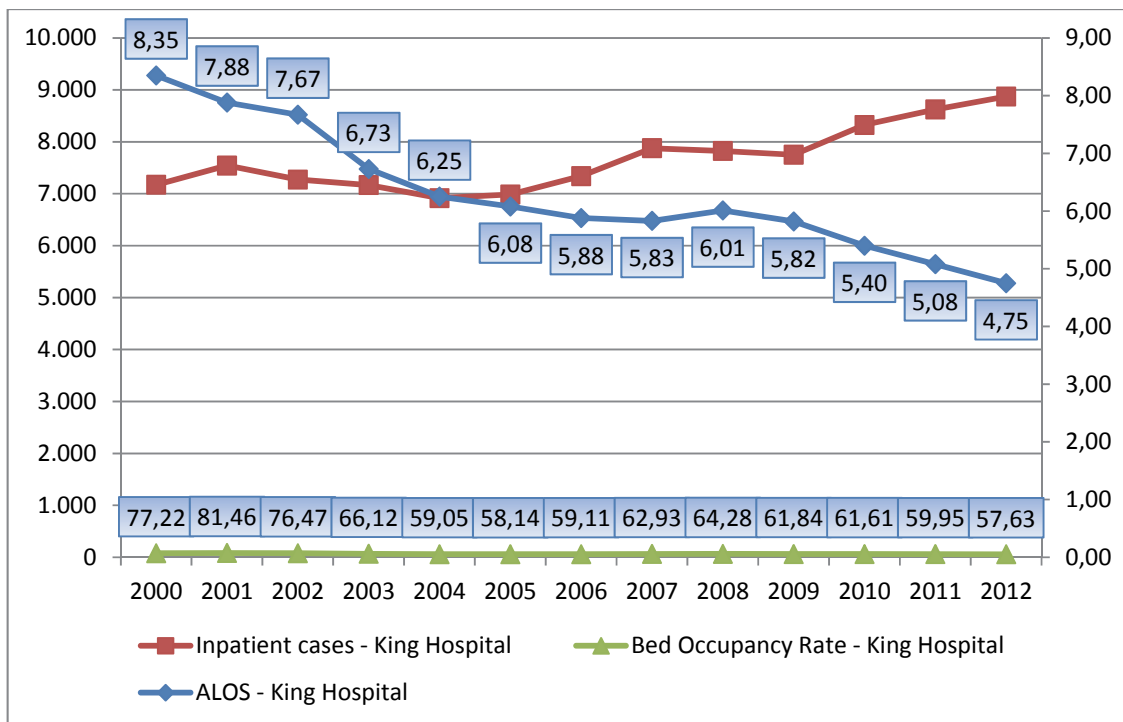


Figure 5.4: Inpatient case numbers and average length of stay at King Hospital

Source: Collected files from King Hospital (2013)

Both hospitals' management argues that G-DRGs adoption is not the main reason behind this ALOS reduction. According to the managing director of King Hospital, the decrease in ALOS can be partly associated with the development of medical technology and science, for example, a better and suitable narcosis procedure that may cut the ALOS numbers to half. In addition, the decline of ALOS started before the introduction of DRGs in King Hospital and Caesar Hospital. Thus, one can conclude that ALOS reduction can be associated with new medical technology and equipment that make a medical examination faster and more accurate than in the past and which contribute to the faster treatment process of the patient. But, it is the DRGs system which has provided a strong incentive for the management to speed up systematically the medical protocol in the hospitals.

2. Economic incentive in the hospitals

The G-DRGs system is expected to create an economic incentive in hospital because the hospitals are paid based on predetermined and fixed lump sum reimbursement fees to cover their patients' cost. This incentive was noticed in both Caesar and King Hospitals. They agree that G-DRGs system is a correct policy in which performance of hospitals is rewarded.

“In general, the performance is rewarded. Meaning that, in the past we had a lot patients but we only received a certain reimbursement. But, now all patients are reimbursement individually. This change honestly gives us financial incentive. It is a motivation” (Head of Finance Department, Caesar Hospital)

This economic incentive has also penetrated into the medical arena. The clinicians have also the same motivation to perform a fast and systematic treatment process within a shorter time period because the hospitals will gain a profit if the patients in good health status are charged as quickly as possible.

“We have an incentive to cure patients as soon as possible. We treat our patient quicker and discharge them within 4 days in healthy condition. Efficient in these days means to heal the patient within a shorter time. To do that, all the medical examination needs to be conducted within no later than two days after the patient coming. Daily check is always performed in order to gain correct condition of the patients. All the medical staffs know what they need to do, and thus it accelerates the healing process.” (Medical director, King Hospital)

In the past, this incentive barely existed, particularly before the introduction of lump-sum reimbursement (*Fallpauchalle*) scheme in 1993. The incentive for cutting ALOS appears to have existed since 1993 when the *Fallpauchalle* scheme was introduced; however, it was relatively weaker. Before the adoption of *Fallpauchalle* or G-DRGs, the dominant incentive was to keep the patients as long as hospitals because the hospital was based on the number of hospitalizations (Assistant of Managing Director, King Hospital).

“In the past, a patient was hospitalized for 14 days and received antibiotic with lower quality. The hospital received the 14 days treatment payment. The best treatment was not necessary mean reimbursed with a high rate. Now, the best treatments are paid by the best reimbursement rate” (Medical director, King Hospital)

“In the past the clinician can tell the patient “Okay, you can come on Monday morning, no problem. On Tuesday we perform medical examination and on Wednesday we do operation”. We cannot do it like this anymore. The patient will have a medical examination and operating plan immediately after they check in to our hospital” (Medical Controller, King Hospital)

As not all DRGs cases are good assessed in term of DRGs group allocation and high reimbursed, further incentive is to disclose or transfer a patient with a low reimbursed DRGs case from inpatient care to output patient care. The objective is to avoid loss due to uncovered treatment costs.

“Chemotherapy is not inpatient care anymore, rather in outpatient care because it is not cost recovery any more. Medicines for chemotherapy are very expensive, and it is not covered in DRGs reimbursement. We use an outpatient scheme to avoid costs due to poorly assess DRGs” (Medical Director, King Hospital)

3. Transparency

Another expected implication of G-DRGs implementation for the hospitals is an improvement in transparency. In G-DRGs system, InEK as the coordinator has provided guidelines for calculating G-DRGs based unit costs. Hospitals need to calculate their actual DRGs costs per case in order to assess the profitability of each DRGs case, and to control costs. This information is also available in an internal information system of hospitals (voluntary) and in InEK’s database. In addition, transparency improvement not only improves cost, but also in reimbursement fees and medical treatment procedures information. InEK has published a reimbursement catalogue that included the reimbursement value per DRGs case and expected ALOS for each DRGs group.

“By now we know how much each patient in hospital costs. Before G-DRGs, we do not know this cost. After DRGs, we know the cost and its reimbursement that we will receive. This analysis/consideration was not existed before” (Head of Finance Department, Caesar Hospital).

Cost transparency has been also improved in the King Hospital. It has participated in the calculation of G-DRGs reimbursement by sending its DRGs actual data to InEK. In fact, the transparency of the King Hospital has increased since the introduction of *Fallpuaschale* and *Sondernentgelte* between 1993 and 2000.

“After this reform, comparison of costs can be done. The first transparent and cost information comparison between German hospitals is after DRGs system. This scheme prevails the different costs of the same treatments of each hospital for the first time. The G-DRGs system has improved transparency in the hospital definitely” (Managing Director, King Hospital)

In short, cost and reimbursement value transparency after the G-DRGs implementation benefit hospitals in two ways. Firstly, the information that was not available before can be used as important controlling information. Secondly, the hospitals can forecast earlier, before the

situation of final year financial results, and they can respond in order to avoid unintended forecasted financial results.

5.2.2.3. Enhanced role of accounting in the German public hospitals

German hospital financing reforms have created a new economic incentive and new financial challenges in German hospitals. Before the introduction of the lump sum payment, hospitals might not need very detailed costs information because the reimbursement values were negotiated locally between the hospital and sickness fund. In addition, hospitals did not know how much payment they would receive before the patient was discharged. But, after the introduction of the prospective lump sum payment system, particularly the G-DRGs adoption, hospitals have information about how much they will receive per case and thus, they need more detailed costs information in order to assess the feasibility of treatment and control costs. Therefore, accounting is necessary if the existing system fails to provide comprehensive information for controlling purposes.

This section elaborates the innovation of the role of accounting in the hospitals after the implementation of G-DRGs system. In this context, accounting innovation is referred to the adoption of new accounting practices or methods, enhanced role of accounting, and improved role of physicians in accounting system. Primarily, the change in the hospital accounting system is elaborated. This includes elaboration of current accounting systems at Caesar and King Hospitals, the adoption of new accounting techniques and demand of accounting information. Secondly, it provides a description of the role of accounting information in medical activities e.g. the medical unit and its change after the adoption of G-DRGs payment system.

5.2.2.3.1. Change of hospital accounting system

Both Caesar Hospital and King Hospital have adopted accrual accounting since 1970s. It was a part of the health care reform package together with the implementation of the dual hospital financing system. This reform aims to create a better, transparent, professional health care system in which cameralistic accounting is argued cannot serve the need of the more comprehensive accounting information in this new system (Head of Finance, Caesar Hospital). Therefore, the adoption of accrual accounting is mandatory based on government regulation, rather self-initiative implementation

“With accrual accounting, one can calculate the real costs. In the past, there were no depreciation and allocation of fixed assets” (Head of Accounting Department, King Hospitals)

Furthermore, the change in the accounting system in Caesar Hospital included the introduction of new accounting software. In 1998, the hospital installed a complete EDV (*Elektronische Datenverarbeitung* or IT system) and hospital information system called KIS (*Krankenhausinformationssystem*), where all accounts and medical systems were integrated. This software was a significant contribution in the preparation of complex accounting data. Similarly, King Hospital also installed a new IT system under the project called ORBIS (*Global Klinikinformations- und Managementsystem*). Both software packages were developed by private companies. The next important and significant change in the hospitals occurred between 2002 and 2004 in which the DRGs learning phase taken place. During this period, the hospital accounting system needs to adapt the DRGs based budgeting (budget neutral phase).

It can be seen that the main changes have occurred in the hospitals internal accounting/controlling system. After the G-DRGs adoption, controlling (internal accounting) plays a more significant role than before. The reason is that the calculation of patients' costs and their reimbursement are more complex in the DRG system. It includes the severity level of patients in the calculation (Head of Caesar Hospital finance department). In the earlier PPS, such detailed information was not required as hospitals were paid based on a daily based lump sum and an insurance company paid all the bills based on the number of LOS of the patient individually. Thus, cost controlling was less complicated compared to the current day.

Moreover, Caesar Hospital has adopted Activity Based Costing before the approval of G-DRGs (Head of Caesar Hospital finance department). Only the Clinical Pathway was adopted together with G-DRGs implementation (Head of Medical Economy of Caesar Hospital). These methods were introduced based on the initiative of the hospital management. ABC is adopted to ensure that each case absorbs all relevant costs. Meanwhile, the adoption of the Clinical Pathway aims to manage the process of medical treatment more systematically and efficiently. The implementation of new accounting instruments indicates that the hospital needs more detailed and comprehensive accounting information than it used to use.

On the other hand, the King Hospital has not adopted new accounting or controlling instruments after the G-DRGs adoption. Both the information providers and users of the King Hospital believe that the existing accounting and controlling system are sufficient. In fact, the concept of ABC is not recognized by the controlling staff.

“We have adopted not much new accounting method. We do not adopt BSC and case mix accounting. And I do not know what you mean by Activity based costing method” (Head of Controlling Department, King Hospital)

In addition, the controller of the King Hospital argues that the adoption of the new accounting method, recruitment for new staffs or procurement of new software may not be economically feasible. The existed accounting and controlling methods are still capable to fulfil the needs of information, although the accounting staffs believes that their duties are more complicated than before. In addition, they argue that the complexity of the hospitals activities is relatively low because it is a small hospital and thus, the uses of new accounting methods or software were not necessary.

“The other hospitals may suffer facing competition because their cost information is not detailed and comprehensive like what we have here. We can know what costs are higher than the target in earlier times than other hospitals which may not have such information. Based on the seminar where we exchange our experience with another hospital, we conclude that our accounting system is better” (Head of Accounting Department, King Hospital).

Furthermore, King Hospital has a strong motivation to keep its balance sheet with a positive result. This is the ultimate reason why the accounting system has the capability to provide necessary information. Thus, one can say that the owner plays a significant role in motivating the utilization and improvement of the hospital accounting system.

“The owner plays a significant role in the quality of accounting system in the hospital. The hospital owner monitors our financial performance regularly. We need to end the year with a surplus, because the owner will sell this hospital if we have a deficit in respective two years. The other hospital may be corporation form hospitals might not have such pressure (that the hospital will be sold)” (Head of Accounting Department, King Hospital)

Costing

Before the application of G-DRGs, the hospitals had already a well-established costing system. The accounting departments are responsible for the costs and expenditures of whole hospitals. They provide target costs for each cost type and expenditure. Meanwhile, costing information for controlling is provided by the controlling department. The costing methods follow the common cost accounting that can be also found in other private business under accrual accounting methods. In addition, Caesar hospital adopted ABC as an instrument to allocate fixed costs. Thus, the purpose of ABC implementation is to improve the quality of cost information of each patient and enable a more valid DRGs feasibility assessment. Alternatively, King Hospital does not take up any new costing instrument method after the adoption of G-DRGs.

Further, changes in hospital costing have been executed generally to capture the need of DRGs actual cost calculation. Before the DRGs, the hospitals did not calculate the cost per patient (*Kostenträgerrechnung*) because patient LOS was not strictly limited and determined as a part of reimbursement scheme. InEK provides a guideline for unit cost calculation based on the G - DRGs system. The cost per-patient (case) information is used as a benchmarking tool to compare the hospitals costs with other similar type of hospitals as well as DRGs fees, and also as basic information for DRGs catalogue updates and the assessment of the new DRGs groups.

Budgeting

The hospitals have two types of budgets, namely internal and external budget. Internal budget is a budget that is used for internal purposes such as planning and controlling. Meanwhile, the external budget is a revenue budget which is calculated and approved in negotiation with the sickness fund/insurance companies. The hospital internal budget of Caesar Hospital and King Hospital are centralized and thus, the budget of each medical unit does not exist.

“For the whole hospital we have a whole/general budget, but we do not have department budget or clinic budget and no profit centre structure. Settlement of revenue between departments is not existed” (Head of Medical Economy, Caesar Hospital)

The internal budget is calculated and provided by the accounting department. The basic information of budget calculation is the previous actual costs and revenue and the estimation of future need based on the hospital program or policy. The hospitals have one internal budget e.g. the general budget. This centralized budget mirrors the philosophy of hospitals that the hospital is a community instead of a group of smaller organizations (clinics, institutes).

The role of physicians, particularly the head of physicians (*Chefärzte*) in budgeting seems to be limited. The general budget is prepared by the accounting department considering information from the head of physicians (hereafter HoP) regarding the future need and activities of the clinics. However, the HoP is not the executor of the budget.

“The HoP receives information regarding their department: they see their department position/ status based on DRGs-revenue, number of patients, LOS, occupancy status. From this information, they can assess how good they are. But, they do not budget XY Euro, (only information), therefore they can do the controlling, but they cannot say that I have now 200.000 Euro and I hire more physicians, personnel, or buy something. They cannot do that. These budget things are done by the management” (Head of Medical Economy, Caesar Hospital)

Based on the above findings, hospital budgets have become both planning and controlling tools. Although the role of clinicians in budget calculation has not improved, they particularly play a very dominant role in the budget execution.

Controlling

Compared to other accounting practices, the innovation of hospital controlling practices after the reforms are more visible. Although old evaluation methods, namely variance cost analysis are still used as the main controlling method, hospitals now have more alternatives regarding cost benchmarks or cost comparison for the controlling purpose. In G-DRGs system, hospital controller can compare their actual costs not only with previous actual costs, but also with the DRGs reimbursement value and actual DRGs of other hospitals.

“Therefore, nowadays controlling process is better because we have two instruments namely department costs and patient’s costs” (Head of Finance Department, Caesar Hospital)

Further, the hospital has new information that resulted from the new system called cost per patient (*Kostenträgerrechnung*). There was already an adequate controlling system in both hospitals but the hospitals used different cost comparisons, namely the department costs (*Kostenstellenebene*) for each cost type. The new type of cost e.g. unit cost per patient enables the management to use additional approach in controlling cost.

“After DRGs I can do controlling more effective by comparing my DRGs data with InEK data that include upper, middle and lower LOS and InEK cost calculation for each the DRGs case. In the past, I cannot do that. We had 8.000 patients and these patients are incomparable. I cannot compare patient with a different number of LOS. Today I can explain why two DRGs cases have different number of LOS. The possibility and alternative to compare costs is higher than before DRGs. In addition, I can also compare total LOS in our medical clinic with the same medical clinic of other small hospitals” (Controller of King Hospital)

Further, the DRGs actual cost data per case (*Kostenträgerrechnung*) and DRGs reimbursement revenue are compared in order to evaluate the efficiency of cases and their feasibility. In fact, both data are the most important information for the head of clinic/physicians and doctors who perform surgeries (Head of Caesar Hospital’s Finance department). This comparison is very meaningful because the management can control the cost for each case/patient. In the past, this comparison method had not existed; rather cost variance analysis can only be carried out between the previous year and current year cost data.

“Current cost evaluation surely is not existed in the past. But now there is more information available. “Differentiated” is the perfect word to explain the difference between old and the new system” (Head of Medical Economy, Caesar Hospital)

Similar to Caesar Hospital, cost controlling in King Hospital used variance analysis as the main controlling method. The controlling department provides monthly reports and semester reports to the head of physicians (HoP) that consists of target costs (*Sollkosten*), actual costs (*Istkosten*) and negative or positive variances for each type of costs. This information is sent to the (HoP) who are the leaders of each medical unit. Each HoP can see where they have overspent and where they have made savings.

Although there is no such sanction for the overspent costs (actual costs higher than the target costs) these overspend costs are considered as negative results of the respective medical units. Therefore, the related HoPs should explain and discuss why overspends exist and find solutions to reduce this issue. However, the controller cannot force the HoPs to cut overspend costs; rather he can only encourage the HoP to reduce them. Thus, the role of the controller is to justify or explain why an overspending exists and assist HoPs to find the cheapest alternative.

“I prepare the monthly report of cost evaluation based on the type and group of the costs for the HoPs and management. If there are overspent, I will discuss them with related HoPs and senior physician to find the cause. I can clarify one reason of overspent namely, the increase of patient, however I cannot explain the other reason that related to medical treatment. Thus, the related HoP needs to give the explanation. For example, why this month the medical unit spend more plaster than it should. I can explain one of the reason for example cases increase butt the rest need to be explained by the HoPs” (Head of Controlling Department of King Hospital).

Further, space for efficiency improvement within medication process seems to be limited. The head of the medical unit of King Hospital as the key player cannot directly stop the overspend costs on items because the patients’ need them. Thus, they can only evaluate why and when patients need certain materials or examinations.

“I cannot stop the patients to receive blood pouches, but I can check whether the patient too early to receive blood pouches. This is one of the things I can do to control costs. We do not have so many alternatives for that” (Medical director of King Hospital)

The King Hospital does not perform patient or case cost evaluation on a regular basis. The reason is that the required information (calculated full actual costs per each patient) is not available until the end of the period. The management needs this information only if they want to evaluate the feasibility of the DRGs case. Thus, the valuation of DRGs feasibility is done by using the previous year’s DRGs actual costs. Additionally, due to the small size of the accounting and controlling department make this patient cost evaluation scarcely possible to

perform. As additional accounting information, the accounting department also provides monthly information about how much the hospital has earned in order to decide whether the medical units need to increase certain case numbers.

“We prepare unit cost per patient only within the final year calculation (balance sheet) based on consecutive year data. Or we calculate this cost if we want to know the feasibility of certain DRGs, whether these DRGs profitable or not, worth it to be sold or not based on the comparison of the actual cost of the patients and their reimbursement. We do this not every month or every semester” (Assistant of Managing Director, King Hospital)

This controlling practice has been used before the introduction of DRGs particularly after the hospital used special accounting software in 1999. It focuses only on inpatient cases. The controller of the King Hospital does not believe that the hospital needs to adopt new management accounting techniques or software because their implementation might not be economically feasible. Thus, the controller of the King Hospital reported that the G-DRGs adoption has not created many changes within the hospital controlling system; rather he considers that the implementation of accounting software in 1999, as the most significant change in hospital accounting within the last few decades.

5.2.2.3.1. The role of accounting in physician daily activity

G-DRGs have apparently shifted economic incentive in hospital medical units. Before the implementation of G-DRGs, the head of physicians (hereafter HoPs) needed to ensure that all hospital beds were occupied because hospitals were paid based on the duration of patient hospitalization (Medical director of King Hospital). On the other hand, G-DRGs have stimulated a reverse incentive, namely to accelerate the medical process in order to shorten patients' ALOS. Additionally, HoPs has information with regards to how much reimbursement is required for the hospital for each DGRs case. These changes indicate an economic incentive penetration in hospital core activities i.e. medical activities.

First, the physicians, particularly HoPs and senior physicians receive more accounting information than before. The accounting department provides information about how much money is available for the medical units and per DRGs case. Meanwhile, the controlling department delivers information related to medical unit costs for each cost type as well as unit costs of each DRGs case. The HoPs need this information to evaluate their medical unit and to assess the feasibility of the DRGs case. The reason is that all medical decisions that are strongly connected with cost controlling are in the hands of the doctor.

“We have full access to the cost information and other accounting information. We receive month report that consists of budget control. We compare the cost monthly and yearly. We receive statistical information, previous costs, how many we have been spent, how much is should be” (Medical Director of King Hospital)

Second, the role of accounting information has improved because many calculations and billing processes are carried out in medical units after G-DRGs adoption. All cases need to be documented and need to be coded based on G - DRGs guidelines; otherwise the hospitals will not receive the correct reimbursement value. The HoPs and their staffs are involved with this process. In this process, they need accounting information to know how much collected revenues in the case and how many LOS the cases are entitled to.

“No doubt that accounting information is more important for the doctors now compared to before DRGs. After DRGs they have more activity namely they must document more than before, more administrative tasks than before” (Head of Finance Department, Caesar Hospital)

Third, the HoPs utilize more accounting information than before as they have to know the economic feasibility of their services. The reason is not all G-DRGs are well assessed or the costs recovered. Therefore, feasibility assessments are needed to ensure that the cases are at least cost recovered if they are categorized as inpatient cases. If not, they need to be transferred to outpatient care. These assessments involve the participation of physicians particularly the HoPs and senior physicians.

“We perform no more chemotherapy because it is paid poorly (assessed poorly). It is not inpatient care anymore, rather in outpatient because it is not cost recovery any more. Medicines for Chemotherapy are very expensive and it is not covered in DRGs reimbursement. We use an outpatient scheme to avoid costs due to poorly assessed (underpriced) DRGs” (Medical Director of King Hospital)

Fourth, physicians have a central role in controlling. They are the controller’s partner in controlling strategies. Without their participation, cost controlling will not be the most favourable measure. Thus, they have received more information than before. The decision of treatment choice is fully in the hand of physicians. Although the treatment is not profitable, if it is mandatory and it will still be performed. In other words, the physicians cannot cancel a required medical treatment due to the costs. However, they can discuss with the management about the problem and work together to find the solution.

“The management cannot intervene in any clinician’s medical decision. The management can give information and recommendations, for example a cheaper alternative, but if the clinicians say no, then the strategy to control costs in this regard failed. It is the clinicians’ decision” (Medical Controller of King Hospital)

“The HoPs play a significant role in cost controlling. They support us to analyse the costs and to find solutions for overspends and as a speaker for communication and implementation of innovation (optimal process) in and out of the medical unit” (Finance department staff Caesar Hospital)

Last of all, the HoPs have the self-motivation to contribute to hospital financial stability. This incentive encourages them to assist the hospital to achieve a sound financial performance. In this term, they need to improve hospital efficiency, namely to collect more revenue than is being consumed within the hospital. This motivation encourages their engagement in hospital controlling.

“The physicians are motivated with the calculation (DRGs). When they receive the information, they are engaged” (Head of Medical Economy, Caesar Hospital)

Furthermore, monetary incentive plays an insignificant role in physicians’ participation in cost controlling. King Hospital provides a relatively small bonus if the HoPs are able to work within the budget. Meanwhile, the monetary incentive does not exist in the Caesar Hospital.

“It is also stated in their contract that they need to ensure efficiency in their clinic. We do not have such bonus scheme for clinics that can maintain high financial performance. The most important thing is the financial situation of this hospital as a whole, rather than each clinic and each clinic must contribute for that” (Head of Finance Department, Caesar Hospital)

The head of the medical economy of Caesar Hospital highlights some incentives and motivations for the physicians to reduce their clinic costs as follow:

1. The good reputation status of hospital and clinic: One of the doctor’s motivations to control cost is to gain and maintain a good reputation for the hospital. If the doctors can increase their clinic’s efficiency, the hospital will gain more profit and this achievement can increase the reputation of the hospital. Moreover, a profitable hospital ensures the improvement of the clinics capacity in delivering health care provision that can increase the prestige of the doctors who work in the hospital. Additionally, having a good financial performance, the hospital can avoid criticism from the owner and stakeholders. Thus, status as a public hospital can be held (status quo), given the privatization trend in the German hospital sector for the last 10 years. The physicians want to keep public status because they do not know what will happen after privatization.

“One cannot say that privatization is a bad method. In this region we are united and we have been helped by the community, local government and the federal state. We want to keep this situation. Therefore, it is necessary to always break even” (Medical Economy, Caesar Hospital)

Additionally, a higher transparency within the internal hospital leads to direct evaluation and comparison of clinics. Clinic financial status (poor or good) can be seen in the internal information system of hospitals. Thus, the HoPs would not be happy if their clinic has a poor financial performance and therefore, this becomes the motivation to increase the efficiency of the clinic.

2. The opportunity to develop clinic infrastructures. Another reason behind the active participation and motivation of medical staffs in improving their clinical efficiency is to remain innovative. If they can reduce costs, they will receive surplus from the DRGs reimbursement. This surplus can be used to improve clinic facilities with new modern technology and thus, it gives an opportunity for physicians to be innovative in their medical activities. Moreover, they may be able to increase the number of patients in their clinics because they have more advanced facilities.

5.3. Summary and Conclusion

This chapter has tried to narrate the collected data and has attempted to provide a link to further discussion in the next chapters. Most data are collected through individual and group interviews and direct quotations are used, followed by personal interpretations to ensure that the main findings of the research are clearly understandable. The first section illustrates the performance of hospital sector and the outcome of serial hospital financing reforms to health sector expenditure and hospital sector performance in both countries. Thus, these findings are compared and confirmed with the second section which presents results of case studies in selected hospitals. It appears that the macro level findings and micro level findings have a strong connecting line and support each other.

It can be clearly seen that total expenditure on health (THE) is still rising although hospital reforms have been implemented in Indonesia and Germany. In fact, THE in Indonesia has been increased more than five times over the last 13 years. Similarly, the contribution of government (GGHE) to this expenditure has increased by 230%. These can be associated with the government's ambition to implement universal health insurances for its people. Thus, the INA-DRGs/CBGs adoption apparently does not slow down the THE growth. Meanwhile, Germany has a smaller increase of THE and GGHE compared to Indonesia. The THE has increased more than 100%, whereas GGHE has increased by 93% between (2001-2011). These data could indicate the absence of DRGs outcome on efficiency at the macro level.

Selected important statistical data	$\Delta\%$ (range of time)	$\Delta\%$ (range of time)
	Indonesia	Germany
Total expenditure on health (THE)	↑ 542% (2001-2011)	↑ 102% (2001-2011)
General government expenditure on health (GGHE)	↑ 230% (2001-2011)	↑ 93% (2001-2011)
National ALOS	↑ 7.5% (2003-2010)	↓ 21% (2000-2011)
Number of beds	↑ 26.8 (2003-2010)	↓ 9.16% (2001-2011)
Total number of cases in hospital sector	↑ 183% (2006-2010)	↑ 6.26% (2000-2011)
Number of public hospitals	↑ 82 (2000-2012)	↓ 7.7% (2001-2011)

Table 5.12: Change in selected statistical data (in the last 13 years or latest available data)

Source: WHO (2013), Indonesian MoH (2013), Federal statistical office (2013)

Furthermore, a divergent result of hospital sector performance has been also documented between both countries. In Indonesia, the adoption of the DRGs system is not followed by a reduction in national ALOS. In fact, the number has slightly increased compared to national ALOS before DRGs adoption. Moreover, the case number has increased in Indonesia, but it cannot be linked to DRGs adoption. This increase is apparently triggered by the increase of citizen access to hospital care through the SHI program. Following the DRGs adoption, in contrast, the national ALOS in Germany has fallen significantly between 2000 and 2011 (21%). It is also accompanied by the reduction of BOR and increase in case numbers in German hospital sector. In addition, the number of hospitals has declined gradually, particularly the number of German public hospitals. These changes might indicate that G-DRGs payment system does work and expected common hospitals' responses have taken place.

Meanwhile, the micro level findings have provided more comprehensive and clearer results. On the one hand, the common hospitals' responses e.g. ALOS reduction and rise of case number cases were not found in both the Alpha Hospital and the Delta hospital. Besides, the management have not yet formulated any specific strategies to respond to new payment system, although the hospitals have experienced significant loss in the early years of DRGs adoption. In fact, the management do not fully understand how INA-DRGs/CBGs works and their effect on hospital financial viability.

Selected criteria	Alpha Hospital (AH) & Delta Hospital (DH)	Caesar Hospital (CH) & King Hospital (KH)
ALOS after DRGs	Relatively increase (AH), slightly decline (DH)	Gradually decline (CH & KH)
(Inpatient) Case number after DRGs	Increase (CH & KH)	Increase (CH & KH)
Strategies in DRGs era	Not specific strategies (AH & DH)	Reducing ALOS, increasing profitable DRGs cases (CH & KH)
(Pre-existed) economic interest	Weak and limited (AH & DH)	Strong and complete (CH & KH)
DRG-resulted-incentive	Weak (AH & DH)	Strong (CH & KH)
Scope of DRGs adoption	4.5% (AH), 17,8% (DH)	More than 50% (CH & KH)
Penetration of accounting in medical units and activities	Limited (AH & DH)	Wide (CH & KH)
The role of accounting	Mainly reporting (AH & DH)	Reporting and controlling (CH & KH)
Accounting innovation associated with DRGs	Not occur (AH & DH)	Occur (CH & KH)
Hospital capacity to accelerate medical process	Limited (AH & DH)	Sufficient (CH & KH)

Table 5.13: Summary of multiple case studies in 4 selected public hospitals
Source: Author's description

Both the ALOS of the Caesar Hospital and the King Hospital have fallen gradually after the G-DRGs adoption. In contrast, the numbers of cases in both hospitals have been rising steadily. These findings demonstrate common responses of hospitals to the DRGs system. But, they cannot be fully associated with G-DRGs adoption because the declining ALOS has started before the reforms took place. Nevertheless, the new payment system has successfully created the required incentive to contain costs in the hospitals. It has shifted the hospitals' incentive from keeping patients (during the previous per diem era) to reduce ALOS. Accordingly, the managements have also confirmed the hospitals strategies in DRGs era e.g. ALOS reduction and increase of profitable DRGs cases through marketing efforts.

Moreover, this research also found a linkage between accounting innovation and hospitals' responses to DRGs system. In Indonesian case studies, a significant accounting innovation has not taken place after the adoption of DRGs in both Alpha Hospital and Delta Hospital. Accounting is still viewed more as a reporting device, rather than a controlling tool. This absence of significant accounting innovation could be linked to the passive hospitals' responses to the DRGs system. On the contrary, anticipated innovation of costing and controlling practices is found in both the Caesar Hospital and King Hospital. The controlling practices seem to have captured the DRGs virtues in these hospitals. Cost controlling has been more case based approach rather than a department and aggregate based approach. Additionally, both hospitals have used the DRGs rate as the benchmarking for efficiency and more importantly, tried to evaluate their actual DRGs costs in order to increase their efficiency.

In short, such polarized responses of the public hospitals can be linked to the existence of economic interests in the hospitals, scale of incentives resulted from DRGs system and the capability of hospitals to plan and more importantly, to implement their strategies. On one side, the Indonesian public hospitals do not have both economic interest and the capacity to respond to the DRGs system, more importantly, the DRGs itself do not create a strong incentive to improve hospital performances. On the other hand, the German public hospitals have not only pre-established economic interest, but also received a strong economic incentive resulting from the DRG system, and more importantly, the capacity to respond appropriately to the new system. Thus, these research findings are consistent with Christianson and Conrad's (2011) view. They argue that the change in provider's behaviour is not merely caused by the new adopted hospital payment system. The divergent hospitals' response could be the result of differing providers' characteristics, competition or even the implementation and scope of the impact of the DRG itself. The determinants of the public hospitals' responses as well as the linkage between the role of accounting, hospital responses and DRGs system can be elaborated upon and discussed later in chapter six.

Chapter 6: Lessons Learned and Recommendations for DRGs Design

The previous chapters have uncovered not only divergent features of INA-DRGs/CBGs and G-DRGs systems and distinctive hospital sectors where the systems operate, but also polarized responses of the public hospitals to DRGs systems. The chapters have also uncovered the linkage between accounting and hospitals' behaviours in a DRGs-based provider payment system (PPS). This section discusses the reasons behind such divergent responses and more importantly, presents lessons learned that can be gathered through head-to-head comparison between both case studies. The employed multiple-site case studies in this research have provided an ample opportunity to do a cross-comparison (Webster and Hoque, 2005). Furthermore, the role of accounting within the hospitals' responses and DRGs system are also discussed profoundly in this part as a DRGs system adoption requires more detailed accounting information.

6.1. Determinants of public hospitals' responses – what can we learn?

It is generally believed amongst policy makers that the level and structure of provider payments are a vital element for influencing hospitals' behaviour (WHO, 2007). Thus, efficiency improvement and cost containment in the hospital sector through switching hospital payment system is aimed to stimulate expected hospitals' responses. A large amount of literature documents hospitals' responses to the introduction of DRGs system, but few studies have explored the determinants of the responses. This study has found divergent hospitals' responses to DRGs payment system. On the one side, passive and unclear responses have been shown in the selected Indonesian hospitals. On the other side, the German hospitals have demonstrated anticipated and immediate responses to the new payment system. Hence, the next questions that need to be addressed are “why are their responses divergent?”, and “which factors determine their responses?”. This part attempts to elaborate the answer for the above questions.

6.1.1. Determinants of the Indonesian public hospitals' responses

The serial interviews with the key officers of Alpha Hospital and Delta Hospital have unveiled reasons and explanations behind their distinctive responses to the INA-DRGs/CBGs payment system. The determinants of such hospitals' responses can be classified into three main categories, namely a feeble economic interest, powerless DRGs-created incentive, and hindering hospital's internal factors.

The first and most decisive determinant is the power of existing economic interest in the public hospital. It appears that both Alpha Hospital and Delta Hospital do not have a strong economic interest to avoid loss or to gain surplus. In fact, the managements might not be required to do so. This circumstance can be linked to mixed factors, namely a vague principal agent relationship, limited management autonomy, unclear financial evaluation in public hospitals and restricted competition in the hospital sector.

Firstly, both hospitals are still not fully separated from the owners in term of financial dependency and staffing decision, although the hospitals have been transformed into BLU hospitals for several years. This situation leads to a vague principal-agent relationship between the owner and the management. On one hand, the gained BLU status allows the hospitals' managements to manage their own collected revenue. On the other hand, other vital decisions are still under the owners' control. For instance, bed composition and class III tariffs are still determined by the owners. Hence, the BLU status has given management of the public hospitals an incomplete autonomy.

More importantly, both owners and managements of Alpha Hospital and Delta Hospitals are still following the traditional mind-set of public service provision. They believe that public hospitals are not profit-oriented organizations, but cost-centres of a government. Such mind-set shapes priority of the healthcare sector. The owner's ultimate priority apparently is not cost-efficiency, but quality, capacity, and productivity of hospitals, particularly after the unprecedented increase of patient numbers due to the free SHI policy.

Furthermore, management of Alpha Hospital and Delta Hospital perceive a low financial uncertainty and financial default risk since the owners act as a 'financial guarantor' for the hospitals. Instead of scrutinizing or evaluating public hospitals due to their deficits, the owners of both public hospitals cover any incurred deficit of hospitals based on a retrospective approach. Consequently, there seems to be no reason for the management to put financial pressure on their departments. Also, the financial evaluation mechanism is not clear cut. As the hospital deficits are mainly caused by the owner intervention in hospitals tariffs and bed structures, deficits in public hospitals seems to be tolerable and justified by the owners. In fact, the hospital managements view and recognize any deficits originated from underpriced and unrecovered tariffs, for example class III tariffs, as 'hospital's subsidies' for poor people rather than financial loss. The managements believe that such financial losses are acceptable in public hospitals.

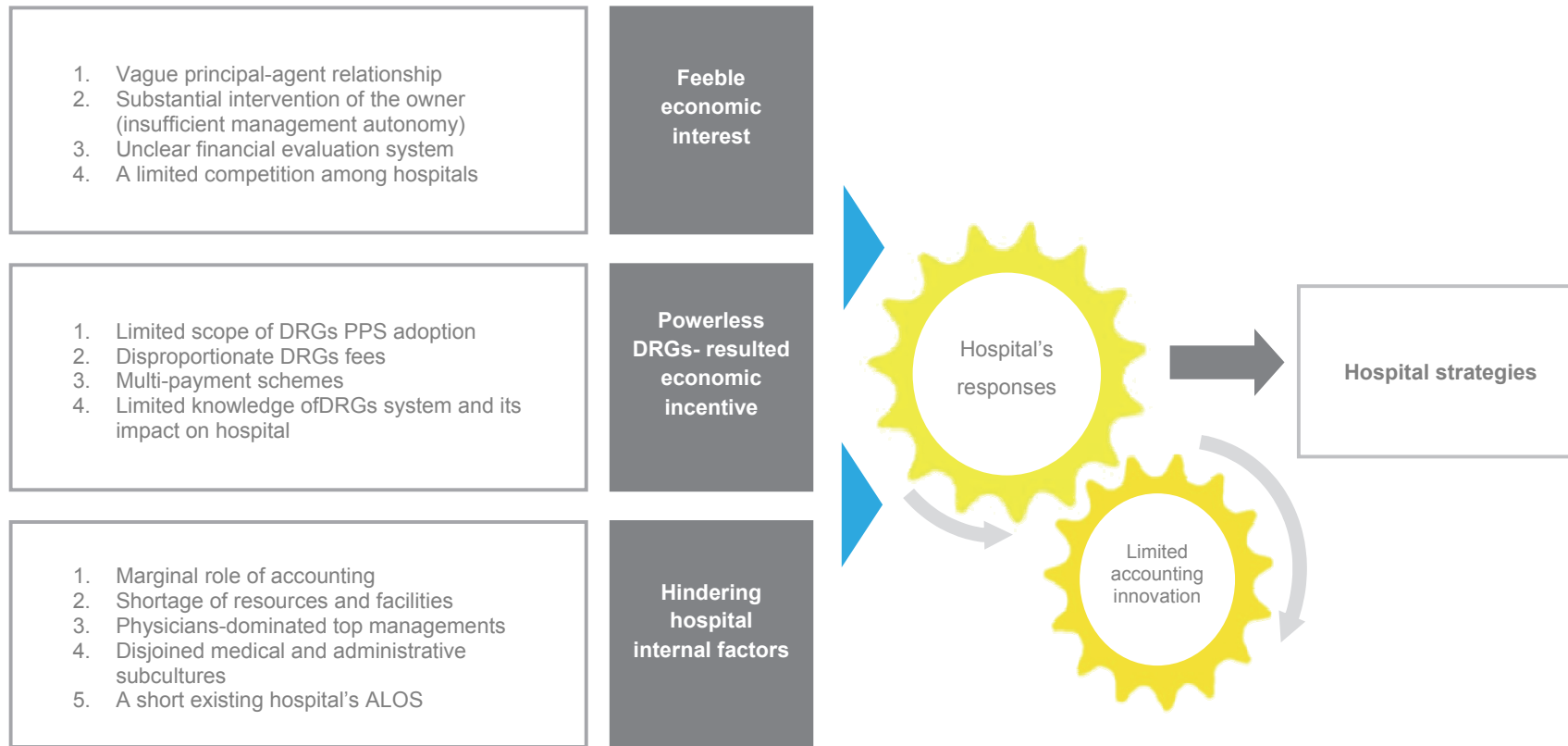


Figure 6.1: Determinants of the Indonesian public hospitals' responses

Source: Authors' illustration

On the contrary, hospitals surplus in many cases could lead to the owners' scrutiny because the owners believe that public hospitals are supposed to be non-profit oriented entities. Furthermore, the managements' primary concern is apparently cash liquidity (positive cash flow) as they have to pay the non-civil servant staff. Such partial economic interest seems to be insufficient to stimulate efficiency improvement in the hospitals. Besides, the Indonesian public hospitals are also protected from competition among providers. This circumstance can be linked to the strict patient referral system and low hospital density, particularly among private hospitals in Indonesia. Thus, the Indonesian public hospitals do not need to worry about patient deficiency before and after the adoption of DRGs-PPS.

The second determinant is powerless DRGs-resulted economic incentive. In Alpha Hospital and Delta Hospital, the DRGs payment system is used currently for a small group of patients, and thus, it is responsible for a small portion of hospital total revenues. In 2012, the numbers of patient-related DRGs was not more than 15% of the total patients. With such small scope of adoption, the hospitals might respond in the same way even if they have a strong economic interest to respond to the payment system. Moreover, the existing multi-schemes payment makes it difficult for the managements to decide which strategies to apply. A single response or tactic, for example ALOS reduction, might be inappropriate for other payment schemes such as per-diem payment. Thus, managements may need to propose different strategies for each patient group and payment scheme. Moreover, the management complained that the current DRGs fees are too small to cover their actual costs. These tariffs discourage hospitals to contain costs because they believe that it is almost impossible to deliver medical services at the given rates. Besides, the concept of DRGs system and its consequence to hospital daily activities have not been widely understood, especially by physicians.

Finally, the third determinant is hindering the hospitals internal factors. Even if the hospitals have both economic interest, and the DRGs system has created powerful incentive to contain costs in hospitals, anticipated responses still might not be seen as they do not have capacity to do so. For example, hospitals accounting systems in the hospitals do not have the required capacity to provide case-mix based cost information in order to assess the profitability of each of the DRGs cases. The current accounting infrastructure and practices in both Indonesian public hospitals are still conventionally used for reporting purposes. Moreover, as the key players, the physicians are still ignoring, or even rejecting to participate in cost controlling efforts in spite of their significant role in hospital resource management. Besides, they also do not receive sufficient cost information from the management. Hence, the penetration of accounting logic within medical activities does not occur in both Indonesian hospitals.

Furthermore, inadequate medical facilities hinder acceleration of medication procedures and progress in both hospitals. For example, the patients in both hospitals must follow a long waiting list only for having a CT (Computed Tomography) scan or other supporting medical facilities. As a result, the targeted patients' ALOS of each DRGs case cannot be realized and the number of cases is not easy to expand. Besides, the hospitals have already a low ALOS and high case numbers that make the space to reduce ALOS and to expand admission even more difficult.

6.1.2. Determinants of the German public hospitals' responses

Unlike the Indonesian public hospitals, Caesar Hospital and King Hospital have shown more anticipated responses that have been well documented in prior studies. Such immediate and active responses can be explained by using the same scheme that has been applied in the Indonesian case. Here, the determinants of such responses are strong economic incentives, powerful DRGs resulted incentives and supporting hospital's internal factors.

Firstly, Caesar Hospital and King Hospital have already an established economic interest and logic even before the G-DRGs system is implemented. According to the interviewees from both hospitals, they used to have incentives to extend patients' hospitalization in order to optimize collected reimbursement fees during the per-diem payment era. With the same purpose, the DRGs system has created a reverse incentive, namely to discharge patients as soon as possible. The presence of such economic interest can be associated with a clear principal agent relationship in the public hospitals. The owners have delegated both sufficient authorities and responsibilities to management to direct the hospitals. The management is allowed not only to manage their own financial resources, but also to make other crucial decisions e.g. budget revenue negotiation, staff recruitment, marketing campaigns and setting tariffs for outpatient cases with other related parties. There are still regulations that are proposed by the owners, but the management still has much more autonomy compared to the management of Alpha Hospital and Delta Hospital.

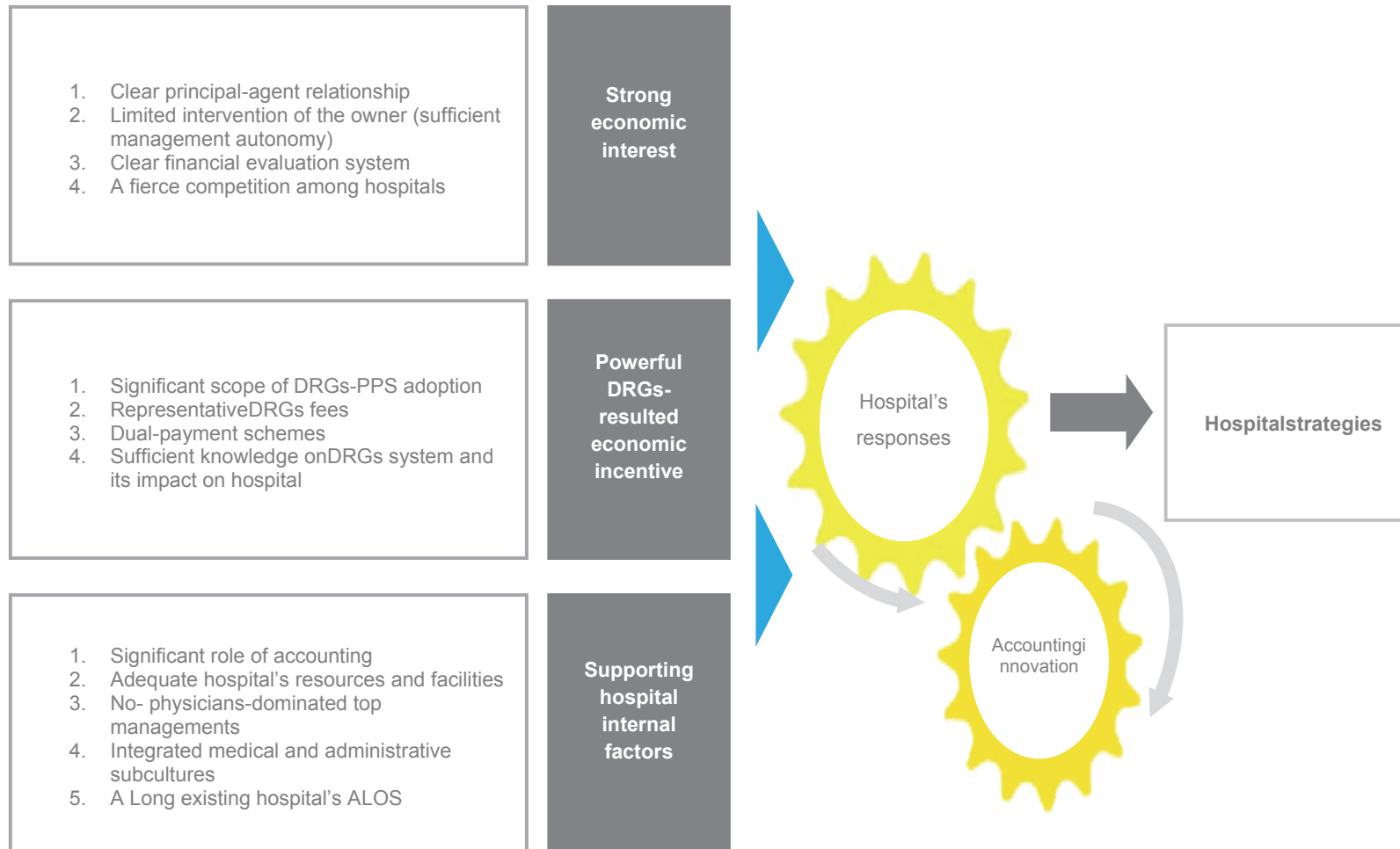


Figure 6.2: Determinants of selected German public hospitals' responses

Source: Author's illustration

More importantly, the owners concern on both on quality and efficiency of their hospitals since the owners have problems with their financial capacity. The owners have set a clearer financial performance standard. For example, the public hospitals will be sold or privatized if they have deficits in a two consecutive years. This appears to be the main motivation of the management and staff to contain costs, to avoid losses and earn a sufficient profit. Thus, the economic interest of Caesar Hospital and King Hospital seems to be more comprehensive, strong and complex because the consequence of a poor financial performance (e.g. privatization) can affect all employers in the hospitals. Such ‘financial intimidation’ has successfully encouraged not only the management, but also the hospitals’ staff to maintain a surplus, or at least avoid a deficit.

Furthermore, the hospitals’ environment is also more competitive, particularly in the G-DRGs era. Such competition is shaped by the facts that (1) patients are free to choose hospitals regardless of their insurance scheme and ownership of the hospitals, (2) both private and public hospitals can be subsidized by the government as long as they are listed in the government hospital plan, and (3) higher hospital density of both private and public hospitals. These conditions in many cases create a face-to-face competition among hospitals. As a result, the German hospitals have to compete for patients, and the implementation of G-DRGs system seems to sharpen the competition as hospitals need to have a certain amount of admissions in order to survive.

The second determinant is a powerful economic incentive created by the G-DRGs system. The G-DRGs system is used for most of inpatient cases in the German public hospitals, whereas outpatient care cases are reimbursed by using fee-for-service. This is consistent with Cots et al. (2011) argument e.g. number of DRGs patients can affect the scale of expected economic incentives. In addition, such relatively mono inpatient care payment system enables the management to propose a single universal strategy for all inpatient cases. Besides, the G-DRGs fees seem to be more representative and fair because the fees’ calculation have involved not only public hospitals but also private hospitals and have been regularly updated. Thus, the management is incentivized to contain costs because the fees are reasonable and more importantly, can be achieved as the target of actual cost reduction. Additionally, the implementation of G-DRGs has been used as a stepwise approach, and in fact a prototype of G-DRGs system has been used since 1993 (*Fallpauchale* system). Such route of implementation has given the hospitals a sufficient time to adapt the DRGs virtues, and more importantly, to socialize the system with medical staff. Moreover, both Caesar Hospital and King Hospital have a medical controlling unit which bridges the managerial interest with medical interest. This unit supports and supervise the DRGs documentation process, and more importantly promotes the DRGs economic benefits to medical staff.

Third are supporting hospitals' internal factors. The two selected German hospitals have not only the incentive, but also the capacity to respond to the DRGs payment system. First, accounting has been playing a more significant role in both hospitals, even before DRGs payment era. In fact, the DRGs principles have been absorbed into the accounting and controlling practices. More importantly, accounting information has penetrated clinical units and the physicians are willing to cooperate with controller in controlling costs of their clinic. The head of physicians (HoPs) receives a monthly report of the department budget and discuss overspending of in their budget with the controller. In short, the loose-coupling between managerial activities and medical activities is less noticed in the German hospitals.

Moreover, the interviewees in both hospitals did not report any problems with hospital facilities and human resources. The acceleration of patient medication can be performed as is planned and expected. In addition, the hospital managing directors who have administrative and business education backgrounds can balance medical interests proposed by doctors. The managing director of both Caesar Hospital and King Hospital always have motivation and mission to ensure the adoption of economic logic e.g. efficiency improvement in hospitals' daily activities. They seem to be more cost conscious and efficiency-oriented than managing directors in the two Indonesian selected hospitals. Ultimately, the hospitals have a longer ALOS before G-DRG adoption that provide a space for ALOS reduction in the DRGs based PPS era.

6.2. The role of accounting in DRGs payment systems

This part discusses the linkage between the roles of accounting and the hospitals' responses to DRGs systems. It elaborate also on ideal management accounting practices in public hospital under the new reimbursement system. First, it describes the role of current accounting in the hospitals and its changes during the last ten years. Second, it evaluates how accounting practices shape the hospitals' reactions to DRGs system, and vice versa. Finally, it elaborates which information is required by management to anticipate DRGs system challenges, and how DRGs systems have been/should be used to enhance cost controlling in hospitals.

6.2.1. The role of management accounting and hospital accounting practices

According to Nyland et al. (2009: 38), the role of management accounting (MA) in hospitals can be both a legitimating role and instrumental role. This is consistent with Kurunmaki et al.'s (2003) study that successfully highlights distinctive characteristics of both types of the role of management accounting in a hospital unit. Based on their study, a legitimating role of

MA can be indicated with an observable separation between management framework and physician clinical practices. This circumstance is referred to decoupling phenomenon (Kurunmaki et al., 2003). In such circumstance, physicians acknowledge the importance of budgets, costs and price information for efficiency improvement, but they reject to use and adopt management accounting principles in their clinical actions (Kurunmaki et al., 2003). Meanwhile, management accountant acts not as a controller, rather as a ‘historian’, that is:

“[...] the accountant follows in the wake of clinical spending, documenting his account, after the event. Thus, the management accountants fulfil a legitimating function in intensive care, but of a distinct kind. This manifest itself in two ways: (I) the nature of the budgets is historical and incremental and (ii) there is ex post justification of creeping developments in clinical care” (Kurunmaki et al., 2003: 121)

Furthermore, an instrumental role of MA, on the contrary, is represented as the acceptance of clinicians to management accounting principles, and thus, they are willing to involve, or even absorb the role of management accountant in their daily work activities (Kurunmaki et al., 2003). Here, management accountant mostly acts as cost controller, and accounting information, practices and procedures have penetrated deeply into physician medical activities (Kurunmaki et al., 2003). Moreover, the instrument role of MA is indicated by so called ‘*accountingsation*’, that is, “[...] the introduction of ever more explicit cost categorization into areas where costs were previously aggregated, pooled or undefined” (Hood, 1995: 93).

Accordingly, the current role of management accounting in Alpha Hospital and Delta Hospital can be classified as a legitimating role. This can be seen from the main duties of their management accountants, accounting practices and the involvement of physicians in cost controlling. In general, the main activities of the accounting departments in both hospitals are financial reporting preparation, physicians’ fees calculation, receivable and payable position update, cost calculation and cash management. Their management accounting activities deal only with unit cost and physician medical service fees calculation. Besides, the management accountants serve mainly as a provider rather than as a controller of costs. In fact, the hospitals do not have a special department which is fully responsible for cost controlling in hospitals. Additionally, physicians are still detached from the cost controlling mechanism. They barely receive cost information on a monthly basis, including the information about their patients’ costs and the reimbursement fees for the patients. Meanwhile, the individual communications between the management accountant and the physicians mostly deal with the physicians’ fees rather than controlling issues.

MA practices related to DRG payment	Alpha Hospital	Delta Hospital	Caesar Hospital	King Hospital
Average unit cost per each DRGs case	Not available	Not available	Available	Available
Analysis of most expensive/most frequent DRGs cases	Not available	Not available	Available	Available
DRGs codification	Special staff (coder)	Marketing staff	Medical controlling unit	Medical controlling unit
DRGs feedback for physicians	No	No	Yes	Yes
DRGs fees for benchmarking tool	No	No	Yes	Yes
Accounting information for clinicians	Limited	Limited	Sufficient and updated	Sufficient and updated
Controller and Physicians corporation in controlling	Rarely	Rarely	Partnership in controlling	Partnership in controlling

Table 6.1: Management accounting practices related to DRG system

Source: Author's description

On the contrary, an instrumental role of management accounting is demonstrated by both Caesar Hospital and King Hospital. Their controlling systems have taken into account the DRGs principles, namely case mix controlling practices. For example, the controllers now provide information about the ten most expensive and frequently used DRGs cases in each clinic and how much DRGs revenue has been earned and should be earned, and case mix index (CIM) comparison in monthly basis. This information is sent to the Head of Physicians (HoPs) and senior doctors to encourage and help them in containing patient's costs. The controllers meet the respective HoP to discuss any budget overspending and find solutions together to reduce overspending. In fact, revenue budgets that are negotiated with the purchasers are also prepared based on targeted DRGs cases. More importantly, the HoPs do not resist costing data as they understand that the financial performance of hospitals can affect their job directly. Such active involvement of physicians has emerged even before DRGs era.

Lastly, the controller of King Hospital and financial director of Caesar Hospital have reported that DRGs system facilitate a better cost controlling in hospitals. After DRGs adoption, they have two types of controlling devices, namely department costs (*Kostenstellenebene*) and unit cost per case (*Kostenträgerebene*). The patient cost (DRGs case cost) is a new controlling device that has not existed or been defined before. This signals the occurrence of

'accountingsation' in both hospitals which reflects a functional role of accounting in German hospitals.

In short, the role of MA and its practices in the Indonesian hospitals and German hospitals are significantly. In one hand, a traditional role of accounting and its practices are demonstrated by the Indonesian hospitals. On the other hand, an enhanced role of accounting can be seen in the German hospitals. Subsequently, these differences have determined their responses to the hospital financing reform.

6.2.2. The absence of accounting innovation

The proponents of DRGs payment system argue that this case base payment system provides the required economic incentive; more than that, it can force the hospital management to develop and utilize their management accounting system (Sanford et al., 1987). The fixed and preset rates within the payment system are supposed to encourage the management to seek a cheaper way in hospital care provision; otherwise the earned reimbursement fees cannot cover the occurred costs. As a requirement, detailed cost information is needed as the controlling focus has been shifted from aggregate costs to unit costs of each treated patient. Consequently, accounting innovation is expected in public hospitals in which accounting and controlling system are mostly underdeveloped. In this study, accounting innovation is not only defined as “[...] the development of new accounting techniques and practices” (Jackson and Lapsley, 2003:359), but also an enhanced role of accounting in daily hospital activities, particularly in medical decision-making process.

Although the new payment system requires a more accurate and comprehensive cost accounting, accounting innovation has not been documented in Alpha Hospital and Delta Hospital. Besides, accounting information is still playing a limited role in the physicians' daily activities. The absence of accounting innovation can be explained by using contingency theory. The theory postulates that contingent factors e.g. technology, culture and the external environment have influenced the organizations design and function (Islam and Hu, 2012). Thus, innovation of accounting could be seen as a response to the changing environment resulting from DRGs based PPS adoption. In the Indonesian case, however, the DRGs adoption do not substantially change public hospitals' environment and do not create a significant financial uncertainty because such financial protection from the owners still exists.

Furthermore, a new controlling practice change has been observed in Alpha Hospital. The financial director used DRGs fees information to evaluate doctor requests for further medicines and treatments of certain patients. She persuades the respective doctors to consider again any treatments and medicines for their patients if the incurred costs of their patient have been exceeded fees of predicted patients DRGs code. However, this new controlling practice

is apparently the financial director own initiative rather than a part of controlling procedure in the hospitals.

Meanwhile, the adoption of G-DRGs apparently has intensified the existed competition in the German healthcare sector and thus created a powerful economic incentive to control costs. However, the environment change has not caused the need of new accounting methods adoption or more accounting staffs in Caesar Hospital and King Hospital. The main reason is that they are still satisfied with their current accounting system.

Therefore, these findings do not support Hoque's (2011) study on relationship between competition, hospital performance and change of management accounting and control system (MASC). According to his study, existing MASC are no longer appropriate or outdated as competition and level of delegation increase. On the contrary, the existing accounting practices and the accounting as a system in Caesar Hospital and King Hospital are still able to provide required information for managerial decisions. The accounting systems seem to be ready for DRGs payment systems as crucial accounting changes had been occurred in the past. For example, accrual accounting has been adopted and the existing cost controlling mechanism has existed since the early 1970s. In fact, ABC has been adopted in Caesar Hospital before DRGs era.

The only new method that has been adopted is the clinical pathway which is used to standardize medical treatments and facilitate case mix accounting in hospital. These findings confirmed the previous study conducted by Berens et al. (2011). They documented a significant increase in the utilization of management accounting instruments in German hospitals over the years. But, they found only few hospitals have adopted or used new controlling instruments, such as balanced scorecard or clinical pathways (Berens et al., 2011).

Nevertheless, new controlling practices have been emerged in both German hospitals in DRGs era as cost controlling system are required to focus on the micro unit rather than the department unit. Accordingly, both Caesar Hospital and King Hospital have developed case mix based cost accounting, namely to calculate, evaluate and control each DRGs cases/codes. In fact, this case mix cost information is required by InEK to determine DRGs fees. Additionally, the actual costs and rates information of each DRGs case have been used by controller to evaluate profitability and efficiency of each DRGs case/ group. This information also enables cost benchmarking with other hospitals. As the new practice is developed based on the own initiative of the hospitals' management, the institutional theory views that such new controlling practices are developed to facilitate efficiency improvement rather than to gain legitimacy of external stakeholders (Kurunmaki, et al., 2003). Similarly, the adoption of accrual accounting, ABC and clinical pathway could be linked to management efforts to

increase financial visibility in their hospitals, rather than to gain legitimacy from the stakeholders.

6.2.3. Accounting practices in DRGs system – learning from the German hospitals

Based on the above discussion, substantial differences have been found in the role of accounting as well as management accounting practices between the Indonesian hospitals and German hospitals. These differences have contributed and explained why their responses to DRGs are not similar. One of the reasons behind such responses is the proper and supportive accounting and controlling practices. Therefore, this part discusses best practice of hospital accounting in DRGs payment system.

One point to consider that DRGs system was developed originally not for the hospital payment system, but to classify and identify the output of hospitals based on the similarity of diagnoses and resource consumption (Fetter, 1991). According to Fetter et al. (1991), this patient classification system was invented to enable the implementation of industrial management techniques e.g. flexible budgeting, cost and quality control in hospital sector. In fact, they stated that the original objective of DRGs invention was to enhance cost accounting and management control system in hospital sector (as cited in Sanford et al., 1987). Therefore, an adoption of DRGs based PPS should be accompanied with the development of DRGs based patient classification system in each hospital.

Caesar Hospital and King Hospital have more favourable accounting and controlling systems in which DRGs principles have been absorbed. Such practices result from well-established accounting practice and infrastructures prior DRGs adoption and proper innovation of accounting practices as a response to the DRGs payment system adoption. The hospitals have used accrual accounting for more than twenty five years. In addition, the accounting systems have been integrated with the hospitals' information technology (IT) system since 1998. More importantly, accounting logic has penetrated in the medical units of the hospitals. For example, HoPs have sufficient access to cost information and are willing to cooperate with controller and accounting departments. These situations enable the hospitals to initiate a development of DRGs based accounting practices. In the accounting literature, the absorption of DRGs in hospital accounting is commonly known as case-mix accounting in management accounting studies (see for instance Covaleski et al., 1993).

The emergence of case-mix accounting in the German hospitals has improved the financial visibility into clinical activities that used to be untouchable and uncontrollable. The case-mix accounting that is shaped from unit cost per DRGs case enables the decision makers to see an integrated picture of the financial consequences of providing each DRG case (Webster and Hoque, 2005). In other words, it provides the management an opportunity to assess and

evaluate profitability of each DRGs case, and thus, formulate proper strategies. Moreover, the adoption of case mix accounting in both hospitals has been also facilitated by InEK which responsible for establishment of DRGs cases and rates. This independent institution has published a guideline to calculate actual cost of each DRG cases in hospitals.

Finally, based on comparison of accounting and controlling practices between the German hospitals and Indonesian hospitals, three required hospital accounting features in DRGs based PPS era can be concluded. Firstly, role of management accountant in public hospitals has to be expanded widely into controlling purposes. In fact, a separated cost controlling department should be established in public hospitals as controlling activities play the same vital role like reporting activities in DRGs era. Secondly, the successful hospital responses to DRGs e.g. efficiency improvement can only be achieved through an active role of physicians. Accounting logic need to be penetrated into the clinics and physicians should be involved directly in the effort to control costs. The reason is that the optimization of medical protocols and the use of more effective drugs only can be performed by clinicians. Thirdly, management accounting system in hospitals should capture and absorb the DRGs features. The DRGs system should not be seen merely as a part of the patient costs' reimbursement procedures, but also a new tool of cost controlling. Later on, it should be utilized to facilitate the development of case-mix accounting system in hospitals because cost controlling should be done at a micro level unit e.g. each DRGs case rather than at aggregate levels e.g. department cost. In fact, the DRGs system itself provides a great opportunity to do so.

6.3. Preconditions and prerequisites of an effective DRGs payment system adoption

An effective DRGs system means here as a payment system that successfully stimulates greater interest on cost consciousness and cost containment in public hospitals that can be viewed from the hospitals' responses. The preconditions and prerequisites in this section are constructed based on learned lessons provided by the Indonesian and German case.

6.3.1. The existence of economic interest in public hospitals

The change of government paradigm in healthcare provision has contributed to the emergence of economic interest in public hospitals. Accordingly, public hospitals have been gradually viewed as economic entities and self-managed which operate in a competitive environment rather than as cost centres. These three features seem to be the basic ingredients in the construction of economic interest in public hospitals. The features are introduced by organizational reforms of public hospitals which aim to reconfigure the distribution of

decision making control, revenue rights, and thus, risks through autonomization, corporatization and privatization of public hospitals (Harding and Preker, 2000).

Due to their significant role, Harding and Preker (2000) believe that a hospital payment reform will succeed to achieve their objectives if they are accompanied by a proper organizational reform. However, not all organizational reforms aim to fully establish economic interest in public hospitals. The reason is that each organizational reform could create a different change of management autonomy level, revenue rights and financial risk. Thus, it creates diverse scale of economic interests, or even fails to construct economic logic in public hospitals.

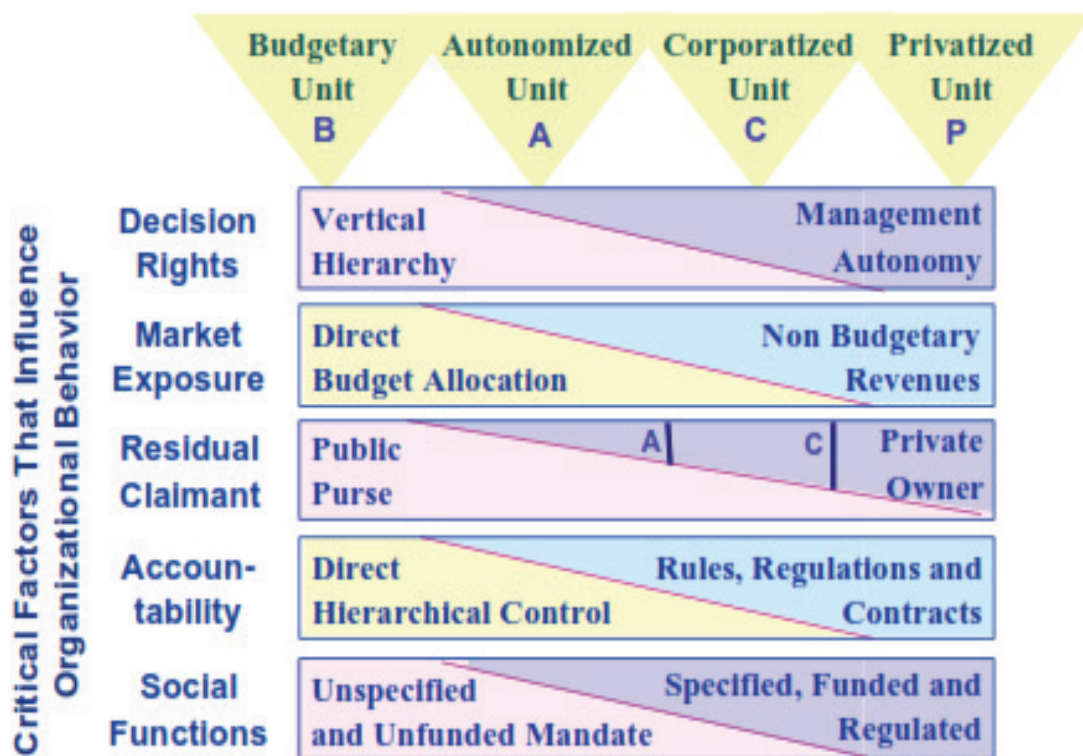


Figure 6.3: Types of organizational form in public hospitals

Source: Harding and Preker (2000: 12)

Both INA-DRGs/CBGs and G-DRGs adoption are preceded by an organizational reform. In Indonesian, the latest organizational reform includes the public hospitals autonomization through BLU status. Meanwhile, the German policymakers have decided to implement a more organizational wide reform, namely corporatization, in fact, allowed privatization of public hospitals'. Subsequently, resulted power of economic interest between the Indonesian public hospitals and the German public hospitals are different. Alpha Hospital and Delta Hospital are autonomous units, whereas Caesar Hospital and King Hospital are corporatized units. The former have lower level of decision making control, revenue rights, and risk than the latter (see Harding and Preker, 2000).

The German cases have demonstrated how public hospitals have a similar scale of economic interest with private hospitals. The owners have delegated a full mandate to run hospitals to management, and they consider the hospitals as separated and self-managed economic entities. The adoption of DRGs, in turn, is seen as a threat as well as an opportunity for their existence, and thus, they have to respond to the DRGs system appropriately. In fact, the hospitals had also responded to the previous PPS with different tactic but similar purposes.

In contrast, Alpha Hospital and Delta Hospital have limited economic interest although the prior organizational reform has aimed to create more business-like hospitals. The management is still viewing the hospitals as cost centres and the hospitals are still significantly controlled by their owners. The only embedded economic interest can be linked to the obligation of management to pay the salary of the non-civil servant staff. As the result, any economic incentive inspired-payment system e.g. DRG cannot fully incentivize the hospitals to respond like it is expected.

In short, a DRGs system is an economic rational based payment system than provide an economic incentive to control costs. Subsequently, it can work as it is expected in (public) hospitals where economic interest has existed. Therefore, an organizational reform of public hospitals that creates powerful economic interest should be preceded with the adoption of a DRGs based PPS adoption.

6.3.2. Adequate hospital facilities and resources

In DRGs payment system, hospitals are incentivized to accelerate medication process in order to contain costs and enable admission expansion. Subsequently, physicians need to set an effective medical protocol plan of each patient, and more importantly, to execute the protocol as it is planned. To do so, hospitals are required to have sufficient resources and facilities.

In the German cases, the physicians are able to establish the patient diagnose followed by planned medical treatments within the first days of hospitalization. More importantly, the planned treatments can be performed based on their schedule as the hospitals have adequate facilities and resources. Thus, the treatment and medication process can be accelerated. On the contrary, the Indonesian public hospitals have resource and capacity shortage. Even if they are incentivized to accelerate medication process and expand admission, the physicians cannot speed up the patients' medication process since there is long waiting list for using medical supporting equipment and a human resource deficit. Consequently, the physicians cannot plan and perform medical treatments for their patient effectively, and in turn, hospitals cannot react as it is anticipated.

Based on these requirements, classical hospitals' responses to DRGs based PPS might not occur in Indonesian public hospitals or other countries which still have problems with hospital capacity, and more importantly existing short ALOS. On the other words, space for cost containment efforts seems to be very limited in both hospitals. Thus, Alpha Hospital and Delta Hospital should seek other tactics to contain patients' costs. In addition, another point to concern that such circumstance might stimulate unexpected hospitals' responses and strategies e.g. up-coding, earlier patients discharges and cost sharing with patients because the hospitals do not have opportunity and space to properly contain the patients' costs.

6.3.3. Powerful DRGs-created economic incentive

This study has found the association between DRGs-resulted economic incentive and hospitals' responses. Power of the economic incentive is mainly determined by the portion of DRGs-patients compared to total patients' number in hospitals. In other words, the higher portion of DRGs-patients to total patients is the more powerful incentive resulting from a DRGs payment system. Moreover, the power has a positive correlation with DRGs impact of hospital revenue. In Alpha hospital and Delta Hospital, the percentage of DRGs-related patients in total hospital patients was not more than 15%. Consequently, the management of both hospitals have currently less concern on the DRGs system. Meanwhile, Caesar Hospital and King Hospital have a bigger portion of DRGs-related patients, namely more than 50%. Consequently, the financial performance of the German public hospitals could be affected substantially if they fail to set and implement proper strategies in the DRGs system.

Furthermore, the power of the incentive is apparently also correlated with understanding of management and medical staffs on DRGs based PPS and more importantly, its impact on hospital financial viability. If the key actors in hospitals are not aware of the consequences and challenges of DRGs system, the resulted incentive from the new payment systems could be not recognized, or even ignored. Therefore, a stepwise DRGs adaptation approach and continue and systematic DRGs socialization seems to be a requirement of an effective DRGs based PPS.

6.3.4. An instrumental role of accounting in hospitals

In a DRGs based PPS era, hospital accounting system needs to have the capacity to provide more detailed cost information. The accounting system needs to calculate total actual cost of each patient in regular basis in order to assess the profitability and feasibility of each DRGs case. Fail to do that, the controllers cannot inform management which cases are economically feasible and which are not. Moreover, this detail cost information is also needed to evaluate

each episode of treatment, and to discuss with physicians in order to find cheaper medical procedures. The adoption of ABC and case mix accounting practice seems to be necessary in producing more case based cost information. On top of that, physicians should be actively involved both in costing and controlling. Physicians should not become an impediment to the hospital strategies because of their role in hospital resource management. In fact, the partnership between accountant/controller with physicians seems to be the core feature of a functional role of accounting in hospitals.

Caesar Hospital and King Hospital have shown a more significant role of physicians in cost controlling. This practice is consistent with Jacobs et al. (2004) study. They found that German physicians confirmed the relevancy of cost information to their clinical decisions. The main reason seems to be the absence of explicit distinction and conflict between clinical and managerial responsibilities in German hospitals (Jacobs et al., 2004). More importantly, their study also uncovered the readiness of German clinicians to take responsibility for cost controlling (Jacobs et al., 2004).

In Alpha Hospital and Delta Hospital, in contrast, physicians do not have an interest in participating in cost containment efforts. Besides, they do not have access to costing data, particularly the patients' actual costs. Such loosely-coupled practices between accountant and physicians lead to a greater challenge in producing more detailed information as well as controlling each DRGs case. Consequently, it is more difficult for the managements to implement their strategies e.g. to cut costs of inefficient DRGs cases. This finding is consistent with Lehtonen's (2007) study. He found that successful implementation of DRGs system and case-mix accounting is significantly dependent on the involvement of hospitals' physicians in the process.

6.3.5. A wide autonomy and authority of hospital management.

Fair DRGs fees can be used as a standard to distinguish between profitable and non-profitable DRGs cases. Based on this information, managements can propose different strategies e.g. reducing the admission of non-profitable DRGs and expanding the number of profitable DRGs cases. Although public hospitals cannot directly reject patients, they can stimulate the increase of profitable DRGs cases through marketing efforts. Moreover, they can invest more on the profitable DRG-cases related clinics in order to gain scale advantage and accelerate the medication process. To do that, the managements needs full authority to decide which strategies they will apply as well as autonomy in procurement of modern medical equipment to accelerate the medication process.

Moreover, a full authority and autonomy should be given also to the physicians regarding the use of medicines or treatments. For example, respondents of Indonesian cases reported that

they need to use cheaper medicines that have been prescribed in catalogue published by the payer although the expensive drugs can lead to shorter ALOS and less total costs of treatments.

6.3.6. Competition and integration of private hospitals

In DRGs system, competition serves as additional pressure for hospitals to improve not only efficiency but also to maintain service quality. In fact, competition can be used as a device to mitigate quality reduction resulting from unintended hospital tactics to reduce costs. Competition can be created by allowing patients to choose hospitals themselves and loosening patient referral system by giving a more significant role for private hospitals. Private hospitals might be more efficient than public hospitals. Thus, the integration would increase public sector efficiency as the tariff also takes into account the actual costs of private hospitals.

The German case has demonstrated how a more representative and fair DRGs fees can be gained through the inclusion of private hospitals in sample hospital of DRGs fees calculation. More importantly, the integration of private hospitals in DRGs system is expected can increase efficiency of a whole hospital sector, rather than only of public hospitals.

6.4. Research limitations and recommendations

This part attempts to highlights some research limitations and recommendations for further investigation. The first part acknowledges weaknesses of this research that range from research design, collected data and research sites. The second part proposes several recommendations that consist of further potential research questions and research design.

6.4.1. Limitations of the research

Due to certain limitations of this research, these research findings cannot be generalized and be used as the main conclusion on the impact of DRGs systems and public hospitals' responses in Indonesia and Germany. Firstly, this study was conducted in four public hospitals within a certain time framework. Thus, the results of the study cannot be statistically generalized (Yin, 2003). Besides, the results are constrained by frame of time, thus, it depicted only the hospital' responses within the timeframe. Secondly, the selection of research sites (public hospitals) was based on the size of hospitals and accessibility of data. Due to limited time frame, the author has selected hospitals that operate in the same region. More factors and explanations could be gathered if the study was conducted in different type,

financial performance and location of public hospitals, for instance local specialist hospitals or local public hospitals.

Thirdly, the lack of prior research studies in public hospital accounting, particularly in Indonesia. This leads to difficulty in deciding which theory should be used in the preparation of research instruments, although a pilot study in other Indonesian public hospitals have been conducted in the early research phase. Fourthly, statistical analysis in this research is limited. A longitudinal statistical data, particularly of cost and expenditures data of Indonesia and German health care sector are required to assess comprehensively the influence of hospital financing reforms on hospital performances and behaviours at macro level. However, the availability and access to these data, particularly Indonesian data, is limited. In fact, many of the required Indonesian data are not publicly accessible and need further validation.

Finally, this research relies mainly on self-reported data of the researcher. This method is constrained because mostly it is cannot be independently verified and might involve some potential sources of bias (Labaree, 2013). However, the bias is could be reduced since this study use more than one source and interviews different people with similar questions. This step enables data confirmation and validation before the data is used in the research.

6.4.2. Recommendations for future research

Based on above research limitations, several suggestions can be proposed for further investigations. Firstly, this research has found the determinants of public hospitals' responses' to DRGs system. The determinants can be further tested by using a quantitative research approach that involves sample of both public and private hospitals. In addition, questionnaires can be prepared based on the result of this case study in order to gain a more general conclusion and to confirm this research result.

Secondly, another case study research can be conducted, but in a longer time framework (longitudinal study) in different types of hospitals (e.g. public hospitals in rural areas). The aim is to enable more analytic replications (Yin, 2009) and to gain comprehensive understanding of hospitals' responses and tactics in DRGs based PPS. Thirdly, further investigations are required to address some research questions that are not addressed in this research e.g. why physicians in Indonesian public hospitals do not have interest in cost controlling, why accounting has not played a significant role in Indonesian public hospital, how hospitals reduce costs of patients and how hospitals' respond to DRGs system in other developing countries.

Lastly, research on how government utilizes collected cost case mix information from DRGs system for hospital sector efficiency is required. This information has not existed before

DRGs system is adopted. Thus, further studies on government policy to increase health care sector and hospital sector efficiency after DRGs system is worthwhile as the persistent growth of health care expenditure remains to be seen.

6.5. Summary and conclusion

This chapter is designed to elaborate on the determinants of the public hospitals' responses to DRGs system and more importantly, to gain learned lessons from the four case studies. Based on the above illustrations, public hospitals' responses are not affected by a single dominant factor, rather a set of mixed factors. This study defines three core determinants that are responsible for the hospitals responses' to the new payment system. These determinants are the power of economic interests in public hospitals, scale of DRGs-resulted incentives and internal hospital factors.

The Indonesia public hospitals have demonstrated divergent responses to the DRGs based PPS. Their responses are shaped by a partial and not powerful economic interest, powerless DRGs-resulted incentive and capacity problems. It appears that both Alpha Hospital and DeltaHospitals do not have both required economic interest and capacity to follow-up on the new payment system. Besides, DRGs payment system has not created a powerful incentive for the hospital administrators to contain costs. Meanwhile, DRGs payment has arrived in German hospital sector at the right time. Caesar Hospital and King Hospital have not only strong economic interests, but also capacity to encounter DRGs payment impact. More importantly, the DRGs system itself has finally provided a correct economic stimulus to contain costs in hospitals. Moreover, this chapter also discuss how management accounting practices and the role of accounting in hospitals play a significant role in hospitals' responses.

In summary, hospital financing reform through payment system change should not only focus on how the new system creates a correct incentive, but also taken into account existing economic interest, and more importantly, the ability of the providers to respond to the resulting incentive (Harding and Preker, 2000). Thus, an adopter of DRGs system should first make sure that hospitals have required economic incentive and capability to follow-up resulted incentive from DRGs based provider payment system.

Chapter 7: Summary and Conclusion

7.1. Research summary

Hospital financing reforms have been widely used to overcome poor performance within the hospital sector, particularly in public hospitals (Harding and Preker, 2000). The adoption of the DRGs based provider payment system (PPS), which aims primarily at remedying inefficient practices within the hospital sector appears to be a recent worldwide trend that is being utilised in both Germany and Indonesia. Having similar purposes, both countries have adopted DRGs as the basis of their hospital payment system. As Indonesia only approved the system in the last few years, it is apparently still struggling to make the INA-DRGs/CBGs, the Indonesian version of DRGs system, works as it is expected. Meanwhile, the unintended consequences of the G-DRGs payment systems on performance and expenditure in the German hospital sector have recently become a new focus for academic and professional discussion.

This study attempts to provide a head to head comparison between the Indonesian and German financing reforms with emphasis placed on the implementation of the DRGs systems. In addition, it aims to evaluate innovation in the role of accounting in the responses of selected public hospitals towards the new adopted payment system. The main purpose is to provide a comprehensive understanding in the relation between DRGs payment system, the role of accounting and responses of the public hospitals in two different healthcare settings.

In order to do so, a multiple-case study that involved two selected Indonesian hospitals (Alpha Hospital and Delta Hospital) and two selected German public hospitals (Caesar Hospital and King Hospital) was chosen as the research method. Having a better understanding of the hospitals' responses to the DRGs system, it is expected that this study can facilitate an improvement in and adjustment of both DRGs systems and the public hospitals' attributes, in order to achieve the original objectives of the hospital financing reforms.

7.1.1. Comparison of the two DRGs payment systems – communalities and divergences

Both the INA-DRGs/CBGs and the G-DRGs system have several similar features and are adopted to fulfil the same core objectives, which are specifically to improve the performance of hospital and to contain costs. The first similarity is that the DRGs adoptions were preceded by organizational reforms. In Germany, public hospitals were transformed into corporatized units in the 1970s. Meanwhile, Indonesian public hospitals have gradually been converted into autonomous units from 2005. Secondly, they have some similar basic features. Both

DRGs systems use the Australian-DRGs as a foundation for their own systems and were meant to become the primary hospital payment system. Thirdly, the calculation of DRGs weight in both DRGs systems involves a hospital sample, rather than being imported from other DRG systems.

However, some features of these DRGs systems are different, and more importantly, the DRGs systems operate in divergent hospital settings, environments and regulations. Firstly, both payment systems have followed different implementation routes. On the one hand, the INA-DRGs/CBGs system appears to have been implemented hastily and through a big bang approach. Its adoption had started with a one year pilot project in 15 vertical hospitals, and subsequently, it was adopted in all Indonesian public hospitals over the following years. At the same time, the hospital sector faced a change in patient compositions due to the implementation of universal health coverage. As a consequence, Indonesian providers and the physicians apparently did not have sufficient time to learn and adapt to the new PPS.

On the other hand, the G-DRGs system has been implemented in a stepwise and incremental approach. In fact, such a packet based system had been partly introduced since 1993 (*Fallpauschale*), but in different names and used for payment of certain inpatient cases. The government also provided two years of a learning phase (budget-neutral phase) to ensure the readiness of hospitals for the new system and to avoid potential financial disadvantages in hospitals.

Secondly, the INA-DRGs/CBGs system was approved in a different hospital setting from the G-DRGs system. The former operates in a hospital sector where the hospital density and ratio of medical professionals are relatively low and the management are dominated by civil-servants and physicians, and competition amongst hospitals is limited. Moreover, public hospitals are viewed as cost centres (traditional mind-set) and as part of the government's budget rather than separate independent economic entities. On the contrary, the G-DRGs system is implemented in a hospital sector in which the ratio of hospital medical professionals is high. In fact, Germany is one of countries with the highest hospital density of medical professionals. In addition, the management in public hospitals is dominated by non-physicians and non-civil servant professionals and a strong competition amongst hospitals have existed even before the adoption of DRGs. More importantly, public hospitals have been infiltrated by economic logic and viewed as separate accounting and economic entities.

Thirdly, the range of implementation of the INA-CBGs/DRGs and G-DRGs is also divergent. The extent of the adoption of INA-DRGs/CBGs is currently limited, although it is used both in inpatient and outpatient care. This payment system is used only for the payment of a small group of patients (*Jamkesmas* and *Jampersal* patients). Moreover, hospitals' revenue budgets are not formulated on DRGs principles, rather these budgets are based on an incremental

method and on a historical budget. Unlike the INA-DRGs/CBGs payment system, the amount of G-DRGs adoption is more significant. It is used to reimburse most inpatient cases in all German hospitals. Its impact is more powerful, as revenue budgets in German hospitals are formulated and negotiated based on the number of estimated DRGs cases. Finally, the INA-DRGs/CBGs system is not a single payment system in hospitals, but it is used together with a number of other payment methods whereas the G-DRGs system could be said to be the primary PPS in German inpatient care.

7.1.2. The polarized responses of the public hospitals

Given the above differences, the divergent responses from both the Indonesian and the German public hospitals are understandable and explainable. On the one hand, common and classical responses e.g. ALOS reduction and case number improvement are not documented in Alpha and Delta Hospitals. In fact, the managements seem to disregard the new PPS and its consequences, although it has caused financial losses for the hospitals. On the other hand, common and classic hospital responses to the DRGs system are observed in the German hospitals. In fact, since its inception a gradual and persistent ALOS reduction and admission expansion has been documented in both the Caesar and King Hospitals.

Based on further investigation, this study found three core determinants that explain the hospitals' distinctive responses. First, public hospitals will respond to DRGs in an expected manner if the economic interest and logic have been established in the hospitals. In the Indonesian case, both Alpha and Delta Hospitals are still financially dependent on government/owner subsidies. In fact, the owners are serving as '*financial guarantors*' by covering the hospitals' deficits. As a result, the managements do not have sufficient reason and motivation to gain a surplus or at least to avoid deficits. In contrast, Caesar and King Hospitals are more autonomous and fully responsible for their financial viability. Besides, the owners have demanded a sound financial performance from each of the hospitals or at least that they should break even; otherwise the hospitals will be privatized. Moreover, Caesar and King Hospitals have the additional incentive to achieve a superior financial performance as the surplus can be used to cover investment costs. These circumstances provide the managements with a strong economic interest and thus, they are more reactive to the change of the payment system.

The second determinant is how significant the impact of DRGs system on hospital revenues. In Alpha and Delta Hospitals, the portion of DRGs-related patients is currently less significant than in Caesar and King Hospitals. In Caesar and King Hospitals, the percentage of DRGs-related patients accounts for approximately 50% of the total patients. Meanwhile, DRGs base PSS is used for less than 18% of Alpha and Delta Hospital's patients. Such a low

scope of DRGs adoption has reduced the power of the DRGs resulted incentive. Additionally, the limited power of DRGs resulted incentive is also determined by the existing multi-payment system in Alpha and Delta Hospitals, where per diem and fee-for-service based PPS are also used in the hospitals.

Thirdly, internal factors of the hospitals have influence in their responses to the DRGs based PPS. These internal factors can either facilitate or detain the implementation of hospital strategies. In the Indonesian hospitals, these internal factors seem to impede the construction and implementation of appropriate strategies within the hospitals. For example, a loosely-coupled structure between medical activities and administrative activities disables assessment of DRGs case actual costs, and more importantly, cost containment of medical treatments. In Alpha and Delta Hospitals such separation of responsibility between doctors and controller/accountants can be clearly seen. In contrast, Caesar and King Hospitals have demonstrated an improved cooperation between the physicians and controllers in cost controlling and implementation of the hospitals' strategies.

Taken together, the Indonesian hospitals have not only limited economic motivation but also limited capacity to respond appropriately to the DRGs system. Besides, the existing DRGs system does not create a required economic incentive for the hospitals. Meanwhile, the German hospitals have not only the required economic interest to follow up the economic incentive provided by the DRGs system, but also the ability to respond appropriately to the new circumstances which has resulted from the new payment system.

7.1.3. Accounting management innovations in DRGs based PPS era

Although both DRGs system have introduced a more hostile environment and financial constraint in divergent intensity, significant changes in accounting have not been observed in all the selected public hospitals. It appears that the hospitals' responses and strategies have a substantial influence on accounting practices. In the Alpha and Delta Hospitals, accounting still plays a marginal role in both managerial systems, particularly in medical activities, although DRGs implementation has taken place. In fact, the DRGs adoption has not triggered significant accounting innovations in the accounting practice in both the Indonesian hospitals. In fact, the last accounting innovation can be linked to hospital organizational reform. For example, accrual accounting was adopted after hospitals gain *Swadana* status. Similarly, accrual accounting was adopted as one of the requirements for the BLU status, whereas ABC was adopted to improve unit cost quality in an effort to increase hospitals' bargaining power in tariff negotiations with the payers.

Similarly, the interviewees in Caesar Hospital and King Hospital have reported an absence in the application of new accounting methods in the DRGs era. The latest new accounting

agreement was the ABC method in the Caesar Hospital that was adopted before the implementation of the DRGs. Both methods were implemented in an initiative to improve controlling and costing methods. This absence of new accounting method adoptions could be attributed to the existing significant role of accounting and business-like practices in the hospitals that require no further changes after DRGs based PPS adoption.

However, cost controlling practices have improved as DRGs systems enable a more case based controlling (case mix) practice to be achieved. Additionally, a phenomenon called '*accountingisation*' has been demonstrated in both Caesar and King Hospitals through the calculation of the unit costs of each DRGs group (*Kostenträgerrechnung*), as additional costing information to the department cost data. Such case-mix cost information is used to assess the profitability of the DRGs case as well as to control costs in the unit level.

Moreover, the DRGs system has also created a new controlling tool, namely the analysis of the most frequent DRGs cases in both German hospitals. This analysis facilitates more in depth cost controlling which was not existed in the past. Both the Head of Finance at the Caesar Hospital and Controller of the King Hospital state that the DRGs system has facilitated case based cost controlling and has made the controlling task easier and more detailed than before. This is consistent with the virtue of the DRGs system, which offered the managements not only the incentive, but also the management tools required to gain control over resource use in hospitals (Sanford et al., 1987).

Based on these findings, this study confirms that accounting innovations are dependent on hospitals' responses to the DRGs system, existing accounting practices and infrastructures, and how managements' perceive financial uncertainty resulting from changes in the environment. In the other words, a link between the hospitals' responses and innovation in accounting has been observed. This is consistent with the postulation in the contingency theory. Accounting innovation in this case can be viewed as organizational adaption to the change of contingent variables to remain effective (Jones, 1985).

Furthermore, in the Alpha Hospital and Delta Hospital, an enhanced accounting role and new management accounting techniques have not occurred because the new payment system has not substantially changed their contingent variables. The hospitals' deficits are still tolerable and covered by the owners. Such financial protection has created poor incentives and limited economic interest inherent in the public hospitals. Additionally, the traditional mind-set of both managements and owners that views public hospitals as cost-centers of a governmental system rather than separate economic entities have made the role of (management) accounting remains marginal in the hospitals. This condition cannot be changed by the adoption of a new payment system, rather by an organizational reform that aims to release the financial protection that has been provided by the owners.

On the contrary, the Caesar and Alpha Hospitals have developed case-mix accounting and controlling practices in the DRGs based PPS era. Based on the contingency theory, this accounting innovation can be viewed as an adaptation of accounting practice to changes in hospitals' strategies. The managements have a strategy to optimize resource consumption and evaluate the cost efficiency of each DRGs case in order to avoid loss and gain profit. Accordingly, the managements need case-mix cost information of each DRGs case in the hospitals. Nevertheless, the use of new accounting techniques is not required in the hospitals because the existing accounting systems have the capability to provide the required case-mix information for the management.

Finally, the development of case-mix accounting in Caesar and King Hospitals are inspired by an instrumental reason rather than a legitimating reason. According to institutional theory, the instrumental reason based accounting innovation can be linked to the managements' needs for more valid and detailed accounting information, in order to improve efficiency (see for instance e.g. Arnaboldi and Lapsley, 2004; and Järvinen, 2006). Therefore, based on the accounting innovation in both hospitals, it can be concluded that the G-DRGs system has incentivized the managements of both Caesar and King Hospitals to improve their operational efficiency.

7.1.4. Learned lessons – How to make sure the DRGs payment system works?

The application of multiple-case studies in this research has provided an opportunity to learn lessons and allow analytic generalization (Yin, 2009). Firstly, the DRGs payment system is an economic incentive based system that relies on the existence of economic interest in public hospitals. Thus, a powerful economic interest within public hospitals is required before the implementation of a DRGs system. The DRGs system does not intend to establish economic interest in public hospitals. Rather, the DRGs system aims to provide a correct incentive to contain costs. Therefore, it is necessary to ensure that public hospitals have the required economic interest before the DRGs method is accepted.

Secondly, public hospitals' responses can be also influenced by the power of the DRGs-resulted incentive. This power is mostly determined by the percentage of DRGs patients compared to total patients and its effect on the total revenue of the hospital. The implementation of DRGs in the Indonesian case (less than 18%) has led to a powerless DRGs-resulted incentive and ignorance in relation to its impact by certain managers and their teams. On the other hand, a significant number of DRGs-related patients (around 50%) in the German case have attracted the full attention of the management in both hospitals.

Thirdly, an effective DRGs system is determined by the capability of hospitals to respond properly and implement their strategies. As hospitals are incentivized in order to increase

efficiency, they need sufficient resources to implement their strategies and space to achieve it. For example, hospitals cannot accelerate treatment processes in order to contain costs if medical infrastructures are limited. Ultimately, this study uncovered a vital role for accounting both in the hospitals and the DRGs system.

Although several factors can affect hospitals' responses to the DRGs system, hospital accounting is still able to play a significant role in this prospective payment system. An instrumental role of accounting in public hospital is required to facilitate hospital strategies planning and implementation. Additionally, cost accounting data can also affect the quality of DRGs rates, which affect the mechanism of the DRGs system in improving efficiency in the hospital sector. More importantly, the willingness and cooperation of physicians in the implementation of hospital strategies are also a crucial element in appropriate hospital responses. They should take a part in cost controlling efforts and optimization of resource management in the patients' medical protocol.

7.2. Research conclusions

In the literature, it has been suggested that DRGs based PPS could contribute to ALOS reduction and a rise in case numbers (Sanford et al., 1987, Theurl and Winner, 2007). More importantly, this prospective payment system could increase the role of accountants and trigger the acceptance of more sophisticated controlling method in hospitals (Rayburn and Rayburn, 1991, Hill, 2001). However, this study found divergent results and has uncovered reasons and determinants behind the different public hospitals' responses.

A DRGs based PPS tries to influence the hospitals' behaviours by restricting reimbursement fees and assumes that hospitals wish to maximize their profit, or at least be deficit averse. Thus, this payment system can only incentivize hospitals which already have an inherent economic interest. Therefore, such a passive response that has been demonstrated by the Indonesian public hospitals towards the DRGs system can be understood. On the other hand, immediate and expected responses have been seen in the German public hospitals because they already have the required economic interest to follow-up the incentive that results from the DRGs system. Therefore, a pre-established economic interest within public hospitals seems to be the first pre-condition in the adoption of the DRGs based PPS.

This study also found a mutual connection between hospitals' responses and accounting innovation in the DRGs system. Hospitals are required to absorb the virtues of DRGs in their controlling system as managements need to calculate and control costs at a micro level, namely the unit costs per DRGs case. This case-mix accounting has not existed and been required in the previous payment system era. Moreover, consistent with Lehtonen's (2007) argument, this study found that an active and systematic cooperation between controllers and

physicians is the key to successful hospital strategies in the DRGs based PPS era. Physicians should not become an impediment of cost controlling efforts in hospitals, rather a partner of the controllers.

Nevertheless, the current INA-DRGs/CBGs system has been used so far as a pure payment system, rather than as a centralized controlling tool in Alpha Hospital and Delta Hospital. The new payment system seems able to replace the existing multi-scheme payment system and thus, to make the payment procedures less complicated. This is apparently what the government expects from the INA-DRGs/CBGs system in its current implementation. On the other hand, the G-DRGs system has been used not only as payment system but also as a tool for centralized controlling within the hospital sector (Mattei et al., 2013).

This is a result of the institutional approach to the adoption of DRGs by the InEK. This independent body has not only determined fairer and more representative DRGs rates, but also facilitates cost accounting improvements in German hospitals. As a result, the G-DRGs system has been captured in the accounting system and stimulated case mix accounting practices in Caesar and King Hospitals. On the other hand, the NCC, which is responsible for DRGs rates determination in Indonesia has focused only on the DRGs rates determination and gives the impression of ignoring the quality of collected cost data and the diversity of cost accounting standards from the sample hospitals.

Moreover, this study suggests that an enhanced role of accounting in public hospitals is more likely occur in organizational reforms rather than in hospital payment reforms. The reason is that the former can affect principal agency relationship between the owner and management of public hospitals. For example, a marginal role of accounting is still observed in Alpha and Delta Hospitals because the last organizational reform fails to create economic logic in the hospitals. On the contrary, the adoption of corporatist principle in German public hospitals has stimulated enhancement of the role of accounting in Caesar and King Hospitals. Meanwhile, the adoption of new payment system e.g. may trigger the adoption of new controlling techniques because each payment system provides different incentive and required cost information (Langenbrunner et al, 2009). In this study, for example, the development of case-mix accounting seems to be the first hospitals' responses to DRGs based PSS. This adoption is apparently imperative as such case-mix cost information is not existed and even required in the last PPS regime.

Finally, the policy-makers in Indonesia seem to be required to reconfigure the principal agency relationship between the owners and the management of public hospitals through a further organizational change. Moving towards corporatization of public hospitals could be a potential alternative, in order to construct the required economic interest in public hospitals. However, it should be accompanied by an improvement in the INA-DRGs/CBGs system,

particularly the fairness of the DRGs reimbursement fees, and more importantly an enhancement in the capacity of public hospitals.

Conversely, the German public hospitals have all required elements to respond to the incentives resulting from the DRGs system, including the space and capacity to accelerate their medical protocols. However, they have several disadvantages that are a result of stricter regulations and reduction of subsidies for investment costs. Lastly, as a result of the fierce competition, the German public hospitals need to improve their medical equipment, in order to enable the acceleration in medical protocols and more importantly, to attract more patients. Subsequently, public hospitals that perform poorly may find it difficult to improve their facilities and succeed against the competition, as the required facilities are not affordable. As a result, privatization seems to be the best possible way forwards for these hospitals, and thus, the number of public hospitals in Germany will still be in decline.

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