

**HEALTH-CARE PRIORITY SETTING DECISIONS IN SAUDI
ARABIA: AN EXPLORATION OF THE CONTEXT, AND
POTENTIAL, FOR USING ECONOMIC EVALUATION**

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Abstract

Recent health care reforms within Saudi Arabia have advocated use of economic evaluation in health care decision making. Little research has, however, considered the use of economic evaluation to set priorities in rentier state settings. This thesis explores the nature of the rentier state and the basis of health care priority setting, and conducts a systematic review of the use of economic evaluation in priority setting.

The thesis uses in-depth qualitative research to explore health care priority setting and use of economic evaluation in Saudi Arabia. Qualitative data comprised 22 in-depth interviews with decision makers at the national and district levels, 3 focus groups, and one meeting observation. Data collection and analysis were conducted iteratively using constant comparison.

Findings show that contextual factors have a great influence on the decision making process and that the use of economic evaluation is still very limited. There appeared to be two types of barriers to the use of economic evaluation: decision context-related barriers and barriers relating to the production of economic evaluation data.

Incorporating economic evaluation into the health care decision making process in Saudi Arabia is proving to be complex and contextual factors have more influence on priority decisions than economic evaluation.

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List of abbreviations	
A4R	Accountability for Reasonableness
ACT	assertive community treatment
AERA	American Educational Research Association
BERA	British Educational Research Association
CBA	Cost Benefit Analysis
CEA	Cost Effectiveness Analysis
CEAC	Cost-Effectiveness Acceptability Curves
CCHI	Council of Cooperative Health Insurance
CCHIS	The Council of Cooperative Health Insurance ()
CHD	Coronary Heart Disease
CHS	Council of Health Services
CUA	Cost Utility Analysis
EBM	Evidence-Based Medicine
ECDS	Eastern Caribbean Drug Service
EED	Economic Evaluation Database
GCC	Gulf Cooperation Council
GCC-DR	Gulf Central Committee for Drug Registration
GCCSG	Gulf Cooperation Council Secretariat General
GDP	Gross Domestic Product
HFA	Health For All
HIMPs	Health Improvement Modernisation Plans
HMC/GCC)	Health Ministers' Council for the GCC stats
HMO	Health Maintenance Organisations
HTA	Health Technology Assessment
HTLV-I	Human T-cell Lymphotropic Virus Types I
ICER	Incremental Cost Effectiveness Ratio
IMF	International Monetary Fund
JCIA	Joint Commission International Accreditation

KFSH&RC	King Faisal Specialist Hospital & Research Centre
LPCM	Local Priority Committee Member
MA	Marginal Analysis
MMA	Macro-Marginal Analysis
MODA	Ministry of Defence and Aviation
MOH	Ministry Of Health in Saudi Arabia
MOI	Ministry of Interior
NGCEBM	National and Gulf Center for Evidence Based Medicine
NGHA	The National Guard Health Affairs
NHS	National Health Service
NICE	National Institute for Health and Clinical Excellence
NPCM	National Priority Committee Member
NSF	National Service Framework
OECD	Organisation for Economic Co-operation and Development countries
OECS	Organisation of Eastern Caribbean States
PAHO	Pan American Health Organization
PB	Programme Budgeting
PBMA	Program Budgeting and Marginal Analysis
PCTs	Primary Care Trusts
PGR	Population Growth Rate
PHCs	Primary Health Care
P&T	Pharmacy and Therapeutics
QALY	Quality-Adjusted Life-Year
RCT	Randomised Controlled Trial
SAGIA	Saudi Arabian General Investment Authority
SANG	Saudi Arabian National Guard
SEC	Supreme Economic Council
SFMS	Security Forces Medical Services
TAC	Tender Award Committee
TOC	Tender Opening Committee
TPC	Tender Preparation Committee
UK	The United Kingdom

USA	United States of America
US \$	United States dollars
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

The health care literature suggests that health care priorities must be set and decisions on what to fund made due to the continuously increasing demand for health care combined with the scarcity of health care resources (Cooksen & Dolan, 2000; Gibson *et al.*, 2004; Mitton & Donaldson, 2003a, 2003b; Mitton *et al.*, 2003a; Wiseman *et al.*, 2003). Therefore, many health organizations worldwide have formulated frameworks and/or tools that could lead to more rational and acceptable priority setting approaches, through provision of protocols for policy-based decision making to assist and guide policy makers and decision makers. However, there is no universal consensus about an optimal priority setting framework that could achieve the right balance between the availability of health care resources and the provision of health care to meet the needs of individual patients.

Many countries around the world are struggling with a rising demand for health care services that exceeds their available health care resources (Abel-Smith and Campling 1994; Duthie *et al.*, 1999). Saudi Arabia, which is the focus for this research, is one of these countries. It is considered a rentier state, deriving the vast majority of its national revenues from oil, with an absence of revenue from domestic taxation (Beblawi 1990; Hertog, 2007). The notion of 'rentier state' was proposed in

1970 by the Iranian economist Mahdavi, who defined a 'rentier state' as '*a country that receives, on a regular basis, substantial amounts of external economic rent*' (Mahdavy, 1970, p. 428).

In the late 1980s and 1990s, limited health care resources in Saudi Arabia raised concerns about the most effective, efficient and equitable use of health care resources to ensure the sustainability of the performance of the Saudi health care system (MOH, 2010; Zawya, 2010). Therefore, many attempts were made to set priorities for health care in Saudi Arabia (Zawya, 2010). These efforts focused on issues such as community involvement in health development (al-Mazroa and al-Shammari 1991). Other research looked at the efficient use of health care resources through health economics studies, for example the cost effectiveness of donor screening for HTLV-I in Saudi Arabia (Bernvil *et al.*, 1997).

A new strategic health plan was recently approved at the Council Meeting of Ministers held on September 7th, 2009 (HSC, 2010; MOI, 2010). This plan outlines the challenges facing the health system in Saudi Arabia through four dimensions: the first is the changes of patterns of disease and demography, for instance urbanization (megacities), which put pressure on urban health care facilities, and contrasts with the low population density in rural areas which results in the absence of adequate and equitable health care services. The second challenge is in the area of health care resources. This includes both financial resources, where a continuous growth of health care expenditure is associated with a rise in demand for health care services, and human resources, particularly as the ratio of health care workforce to total population is lower than in many developed countries, and that there is a low proportion of Saudi health professionals within the health care workforce. The average ratio of doctors to population in the Convention on the Organisation for Economic Co-operation and Development countries (OECD Health Data) is 3.0/1000 (OECD

Health Data, 2010), whereas in Saudi Arabia the ratio is only 2.0/1000 (RSD, 2009), of which Saudi doctors only comprise 22% (MOI, 2010). The third dimension is inequity in the utilization of health care due to the approaches used for setting health care priorities. The fourth challenge is institutional barriers which include lack of co-ordination and co-operation between health care providers, the centralization of the health information system, and weakness in the use of e-government (HSC, 2010).

In relation to these challenges, various objectives and interim objectives have been set for different periods of the plan. For example, interim objectives for the next five years for health care resources require increasing spending on health care as a percentage of GDP from 3.5% to 6% (HSC, 2010). A range of reform objectives, including structural and regulatory, have been set (HSC, 2010). Of particular importance to this research is that, for the first time, the use of economic evaluation has been advocated for setting health care priorities. This issue forms the focus of the research reported in this thesis.

To date, there is little published data on the use of economic evaluation in Saudi Arabia (Alsultan, 2011) or the extent or manner of explicit priority setting in rentier states more generally. The research conducted has been limited both by its use of relatively insensitive quantitative methods and its focus on one particular group of decision makers (Alsultan, 2011). This research therefore uses in-depth qualitative research methods to explore the adoption of the recent strategic plan and its implications for the role of economic evaluation in the process of decision making in Saudi Arabia. It attempts to contribute towards bridging the knowledge gap in this field, in particular as it pertains to rentier-based systems.

Research Aims

The aim of this research is to explore the ‘potential’ role of economic evaluation, and whether this is both acceptable and applicable to health care priority setting in Saudi Arabia. This will involve the following sub-aims:

- 1- To describe health-care priority setting decisions and explore the structure of how health care decisions are made in Saudi Arabia.
- 2- To identify the main actors in the decision making process and their roles in health-care priority setting decisions.
- 3- To describe how contextual factors influence the healthcare decisions in Saudi Arabia.
- 4- To explore the ‘potential’ role of economic evaluation in Saudi Arabia and identify the challenges and barriers that may limit or prohibit the use of economic evaluation.
- 5- To propose a priority setting model that can be applied in Saudi Arabia.

The thesis is structured as follows. The next chapter provides the reader with background of the research setting. The chapter is divided into two parts. The first part introduces and discusses the existing literature on rentier states, and presents the debate about rentier state theories. The second part provides the reader with an overview of the Kingdom of Saudi Arabia as a country and discusses the structure of its health care system.

Chapter three of this thesis provides an overview of priority setting in health care. The first section of the chapter investigates priority setting. In the second section, implicit and explicit approaches to priority setting are explored. The third section examines health economics and economic evaluation. The final section discusses Program budgeting and marginal analysis. Although there is much information on priority setting, there is little that is directly related to the rentier state or Saudi

contexts. Economic evaluation offers one means of priority setting that could be used in Saudi Arabia and has indeed been advocated in the five year plan.

Chapter four focuses on the empirical studies on the use of economic evaluation in decision-making. The chapter begins by presenting the methods of review. Findings are drawn from a systematic review, in the second section, focusing on literature exploring use of economic evaluation at all three levels of decision making. The final section discusses the review findings. The chapter concludes that whilst there are a number of studies on the use of economic evaluation, the literature in relation to Saudi Arabia specifically, and rentier states more generally, is extremely limited.

Chapter five presents the research methodology. The chapter begins by discussing the ontology, epistemology, and methodology of qualitative work. The chapter then considers the specific methods associated with qualitative work used for data collection and analysis, the empirical work process, research ethics and quality of qualitative research. The chapter also highlights the issue of translation which was particularly pertinent in the conduct of this research.

Chapter's six to eight contain the findings from the empirical work. Chapter six is a short chapter focusing on the structure of decision-making as discussed by informants. Three main decision-making bodies were identified and it was suggested that decision making appeared to be relatively formal and structured. Chapter seven investigates the role of contextual factors in decision-making. Four areas were explored in this chapter: political and cultural context; economic context; organisational context; and the public role in decision making. It was suggested that these contextual factors provide important influences on the ways in which decisions are made in Saudi

Arabia. Chapter eight of this thesis explores the focus of this thesis: the use of economic evaluation in decision-making. Barriers to use of economic evaluation were explored in second section. The third section highlights the potential use of economic evaluation.

The final chapter of this thesis discusses the findings of this research in relation to the existing literature. It provides a reflection on the methodology used in the research and considers the implications of the findings for both policy and further research. The chapter concludes by outlining the contributions of the thesis both in relation to the use of economic evaluation in Saudi Arabia and providing a greater understanding of the contextual influences on decision making in this environment. In particular, it highlights evidence of the unexpected role that vested interest, particularly *wasta*, and social media have in the process of decision making. This appears to be consistent with rentier state features that are commonly reported in the literature.

CHAPTER 2: BACKGROUND OF SAUDI HEALTH CARE SYSTEM

In Saudi Arabia, health care is seen as a basic right of Saudi citizens. It is considered the responsibility of the government to provide free universal health care services (Roemer, 1991). Health care in Saudi Arabia has been given a high priority by the government in order to provide all Saudi citizens with a free, high-quality health care service. Although there are many factors that have shaped the demand for health care services, health care in Saudi Arabia has improved over time with the recent reforms of the health care sector (MOH, 2010).

As Saudi Arabia is considered to be a rentier state, this chapter aims to provide the reader with a sufficient background of the broader context for the research, in order to facilitate a better understanding of the particular setting to which the research pertains. Mahdavy who used the term 'rentier state' for the first time in 1970 defines rentier states as 'countries that receive on a regular basis substantial amounts of external economic rent' (Mahdavy, 1970). The implication of a rentier state economy may be unfamiliar to readers and so this chapter is divided into two main sections. The first presents and discusses the existing literature related to rentier states. The second provides a background on the Kingdom of Saudi Arabia and its health care system.

The following section introduces and discusses the existing literature on rentier states, and presents the debate about rentier state theories. The purpose of reviewing the rentier state literature is to introduce and inform the reader of the concept of the rentier state, and its theoretical bases and assumptions. This theoretical part is of particular importance to provide the reader with a basic level of understanding for the subsequent empirical investigations. It establishes the context of the research, and provides a better understanding of that context in which decisions are being made at all levels, and whether and to what extent the regime's context can affect the decision-making process. It would be difficult to interpret the findings of this research without thoroughly understanding the political, social, cultural and economic-contexts within which decisions are made. In addition there is an absence of studies concerned with health priority decisions in rentier states. The rentier state literature has emphasised the political and economic considerations, and is based on selected case studies (Ross, 1999). It is intended that this review will provide a sufficient description of the context of the research, through identifying different aspects and areas of concern to the research topic.

2.1. Rentier States Literature

2.1.1. Rationale for focus on the nature of the state

There is no doubt that providing all possible health care services to everybody everywhere, regardless of cost and no matter how uncertain or trivial the benefits gained, would not be possible due to scarcity of resources (Duthie *et al.*, 1999). Many countries around the world struggle with a rising demand for health care services which exceeds the available health care resources (Abel-Smith & Campling, 1994; Duthie *et al.*, 1999). Therefore, priority setting must occur (Mitton & Donaldson, 2004a, 2004b). Although the health care literature describes different approaches to

prioritization, there is a lack of consensus regarding the basis on which health care resources should be allocated (Sibbald *et al.*, 2009).

Saudi Arabia, which is the country-setting for this research, is one of these countries that struggle with rising demand for health care services. A recent attempt to improve health care provision in Saudi Arabia is that health care system reforms have been formulated and health economics has been used in adopting a priority setting approach (MOH, 2010). An important challenge in this research is the lack of literature on health care priority setting relevant to rentier-based systems. There are many different considerations and factors that need to be taken into account within the priority setting process. One of particular importance to the priority-setting process is the context within which decisions on priority setting take place, with many factors that influence priority setting decisions relating to the political, economic, institutional and organizational contexts (Sibbald *et al.*, 2009); for example, the type of health funding system which plays a key role in how health care resources are allocated in the face of limited resources. The type of health financing system matters (e.g. social insurance financing vs. tax financing) because the way it is funded plays a key role in determining the relationships between health care consumers, payers, providers and regulators/mode of governance (e.g. state hierarchy vs. self-regulation by corporate actors) (Freeman & Moran, 2000; Giaimo & Manow, 1999; Helmert *et al.*, 2005; Wendt & Rothgang, 2005).

2.1.2. The rentier state theory

A rentier state is a political economic term that is used to classify those states that derive all, or the vast majority, of their national revenues from natural resource endowments, with an absence of revenue from domestic taxation (Beblawi 1990; Hertog, 2007). In theoretical terms, there are

several assumptions underlying the rentier state theory. The concept of the rentier state generally implies that, as long as the state receives sufficient levels of 'rent revenues' which enable the governments 'to embark on large public expenditure programs without resorting to taxation', democratization in these states is questionable (Mahdavy, 1970: p.432). Rentier state theorists suggest that there are insufficient incentives for citizen participation in wealth distribution. They suggest that the economic structure of a rentier state tends to promote and maintain authoritarian regimes (Beblawi & Luciani 1987; Beblawi 1990; Ross, 2001).

Following Beblawi and Luciani (1987), Beblawi (1990) and Ross (2001)'s assumptions, the concept of a rentier state makes governments independent from the population they rule, and detaches them from accountability by suppressing any action that citizens would take through paying taxes. Furthermore, they suggest that rent revenues allow the governments to 'buy off' their opposition. As a result, more rent revenues negatively impact both the aspirations for a democratic transition, and economic growth (Auty 1993), mainly through the so-called 'Dutch Disease' or 'resource curse' (Gelb, 1988), and rent-seeking behaviour and corruption (Krueger, 1974). Dutch Disease is named after a period of rapid increased gas revenues in the Netherlands in the late 1950s, and the resulting loss of export markets as a form of the resource curse. Another potential adverse effect of being dependent upon natural resource revenues is the boom and bust cycle (Beblawi & Luciani 1987; Ross, 2001). Oil exporting countries, for example, face the risk of fluctuating and uncertain oil-revenues. Many of these countries expand expenditures during periods of high oil-revenues, and when revenues decline, cuts occur (Hicks & Kubisch, 1984). Ross (2000), adds another two potential effects; first, 'a repression effect' by which governments spend resource wealth to build up strong internal security forces to fend off democratic pressure, and second, 'a

modernisation effect, in which the failure of the population to move into industrial and service sector jobs renders them less likely to push for democracy' (Ross, 2001, pp. 356-357).

The traditional literature on rentier states has emphasised the extent to which the rents play a role in formulating governments' and their regimes' sustainability. Rentier theorists suggest that most of the countries with economies that are primarily dependent on natural resource revenues have two common characteristics. First, countries have a higher propensity to have authoritarian regimes (Beblawi & Luciani 1987; Ross 2001), which is consistent with Huntington and Herb's views that there is '*no representation without taxation*' (Huntington 1991: p. 56; Herb, 2005). Second, rentier states lack fiscal instruments and therefore have limited regulatory capacity. These have hindered economic development and contributed to rampant corruption (Krueger, 1974; Beblawi & Luciani 1987).

Rentier theorists suggest that the formation of rent-based states leads to particular regime structures that secure governments' access to rents and reinforce their grip on power (Beblawi & Luciani 1987; Taylor, 1979; Baram, 1997). Many studies have provided descriptions of the ways in which powers are exercised, and/or the social practices and individuals' manners occupying high power positions within these countries, particularly with respect to political, social and economic stability and the performance of developing countries (Beblawi & Luciani 1987; Taylor, 1979). Several authors have tackled the socio-political norms underlying societies and policies. This is characterised by (i) primordialism/neopatrimonialism (Taylor, 1979; Baram, 1997), and (ii) the patrimonial nature of social interactions, such as clientelism and 'wasta' (Law, 1996).

Firstly, primordialism is an approach to nationalism that submerges cultural and ethnic loyalties (Apter, 1965). From a loyalty perspective, resources are allocated according to social-political criteria, and thereby lead to a reinforcement of loyalty to the regime and resulting bureaucratic behaviour. In developing countries, for example, the leaders use their national and cultural symbols to mobilize their societies to gain political stability (Apter, 1965). In the late 1960s, the concept of “neopatrimonialism” was employed by Eisenstadt (1973), ‘*in order to distinguish between patrimonialism in traditional and modern contexts*’ (Mkandawire, 2013, p7). Although there are many definitions of neopatrimonialism integrating diverse aspects - ethnicity, clientelism, tribalism, and nepotism - it was used to explain ‘*why African societies were not modernising, and the failure of charismatic leaders who were overthrown or whose image had lost the lustre of liberation struggles*’ (Mkandawire, 2013, p7). Neopatrimonialism indicates the style of social hierarchy governance where patrons use state resources to secure citizens’ loyalty (Islam, 2004).

Secondly, and particularly important in this context is the notion of ‘wasta’, the Arabic term for ‘mediation’, which is the social means that plays a role in many types of decisions including resource allocation decisions in society. Wasta is derived from the noun ‘waseet’ which means middleman or intercessor (Barnett *et al.*, 2013; Mohamed & Hamdy, 2008). In English, the term ‘Wasta’ is often loosely used to mean ‘clout, cronyism, nepotism, favouritism and/or connections’ (Mohamed & Hamdy, 2008). Even though they overlap considerably with each other, each of them has a somewhat different meaning and different uses. Wasta therefore is described as a concept that partially overlaps with all of these terms. For instance, wasta is different from cronyism and nepotism, but they do overlap to some degree. As discussed by Mohamed & Hamdy (2008), ‘*While nepotism involves hiring of relatives and friends, wasta is not restricted to such groups and may involve strangers; as such, nepotism constitutes only one part of wasta*’ (Mohamed & Hamdy,

2008, p. 1). Wasta can be defined as the act of seeking assistance from a person who has access to decision makers and stakeholders with the aim of accomplishing or gaining something which would otherwise be impossible to achieve by an ordinary person's own efforts (Mohamed & Hamdy, 2008).

Among many languages, the term wasta has become used in non-Arabic references. However, although the association of the term wasta with some social behaviours surrounding its practice is often considered as being unique to Arab societies, '*the essence of the opportunistic behaviours [that] characterize wasta are not unique*' (Barnett *et al.*, 2013, p. 10). In the United States, for instance, Bellow (2003) describes nepotism in modern American society as that of an invisible hand generating opportunities for profit.

In the relevant literature, most authors who have written on the subject of wasta draw a distinction between what they refer to as benign/good and non-benign/bad wasta. Benign wasta is offering help to those who need it and facilitating access to their legitimate rights, while non-benign wasta is one manifestation of corruption which deprives rights from those who are eligible and gives to those who are not (Mohamed & Hamdy, 2008). Others argue that there is no good or bad wasta. Wasta in itself should be seen as a form of corruption and therefore needs to be eradicated (Kilani & Sakijha, 2002). Bellow (2003) argues that defining behaviour as a good or bad wasta is merely a cultural construct (Bellow, 2003). Nowadays, the practice of wasta permeates almost every institution throughout the Middle East. In a society where it has become a crucial attribute, it is not surprising to know that the practice of wasta is seen as common sense and it '*is practiced openly, without apparent shame, remorse or guilt*' (Barnett *et al.*, 2013, p. 6). In the Arab world, even though wasta manifests itself in different ways depending on the peculiarities of each country, it has started to

sweep into almost all walks of life (Cunningham & Sarayrah, 1993; Kilani & Sakijha, 2002) and it is perceived to provide '*better solutions to a set of social problems and resource allocation issues than could be achieved by alternative institutional arrangements*' (Barnett *et al.*, 2013, p. 4).

In the current literature, much of the discussion has focused on exploring and explaining why *wasta* is widely practiced throughout the Middle Eastern countries (Loewe *et al.*, 2008; Mohamed & Hamdy, 2008; Barnett *et al.*, 2013). In many countries throughout the Arab world, for example, accomplishing a simple task such as applying for a driving licence can become a source of frustration in the absence of *wasta*. Furthermore, *wasta* has become, at some point, a standard practice for employment and career promotion in many institutions in the Arab world. Job applicants may need to seek *wasta* in order to have higher chances of being hired. A less qualified applicant who has *wasta* would be favoured over a more qualified one who does not (Barnett *et al.*, 2013).

With regard to the patrimonial nature of social interactions in the developing countries, some authors have mentioned that social interaction and decisions are determined by informal group structures and neopatrimonialist (Schlumberger, 2000; Schwarz, 2008) '*precedence of personal ties*' (Bill & Springborg 1994: p. 96). The result, therefore, is a reflection of the real capitalist relations between labour and productivity on the one hand, and profit on the other (Schlumberger, 2000). Cunningham & Sarayrah (1993) have further suggested that the patrimonial nature of social interactions should be viewed as directed against formal institutional performance and economic development. However, some authors have argued that these socio-political features are the result of the economic structures of rentierism (Schlumberger, 2000).

2.1.3. Recent Literature

In the last few years, several new studies have appeared in the contemporary literature that provide a critical historical and contemporary understanding of the relationship between the post-colonial state and society, whether in their emphasis on the constitution of state and society or in their emphasis on allocation of resource. The literature on rentier states is about countries that have been created in the 20th Century. Thus it is important to understand to what extent the historical and contextual background of the socio-political, political-cultural, and economic factors may influence the decision-making structure, whether formal (explicit) or informal (implicit). It has been argued that there are several assumptions underlying the rentier states traditional literature:

Historical and contextual factors

It seems that within the traditional literature, theorists have tackled the issue of rentier state formation processes with a focus on experiences of developed countries that have generally formed formal institutions over many years, and have evolved according to their historical (Herbst, 2000) and contextual experiences (Widner, 1995). The focus would include regional ‘across-countries’, historical and contextual factors, in order to fully and adequately understand the research context. The contemporary literature, however, attempts to investigate the momentary and present interactions of societies and the state on one hand, and the macro historical developments and changes on the other, in order to draw conclusions about how those changes have influenced the rentier state formation processes (Schwarz, 2008). However, most rentier state theorists are unfamiliar with culture, social and languages contexts of rentier state. This may lead them to portray phenomena from prior inherent cultural and social perspectives (Baker, 2006). Huntington, for example, in *The Clash of Civilizations and the Remaking of World Order* (1996) classified world civilisations into eight groups: Western, Eastern Orthodox, Latin American, Japanese,

Chinese, Islamic, African, and Hindu. These groups have inherent cultural traits that are *'mostly conflicting with good American values'* (Baker, 2006: p. 6)

The resource curse

The traditional literature suggests that the presence of abundant natural resources negatively impacts economic development (Auty 1993) through rent-seeking behaviour (Krueger, 1974), and the resource curse/Dutch disease effect (Gelb, 1988). However, the rentier state literature fails to explain the observed differences in economic outcomes and development strategies, where different types of rentier states apply different strategies to secure their rents and invest different amounts of resources across different time horizons. The causal relationship between rents and economic development remains subject to both extended debate and opposing views (Gelb, 1988). However, recent studies argue that rents do not have a long-term effect on regime types (Haber & Menaldo, 2011), that they encourage either democracy or authoritarianism through different means (Dunning, 2008), or that rents impact regime types through the structure of the resource endowments (Jones Luong & Weinthal, 2010). Furthermore, having natural resources is not in itself a curse (Ross, 2004). Many countries that experience political, economic and social difficulties do have natural resources, and others do not. Norway, for example, does not experience political, economic or social difficulties due to its natural resource, since it has other incomes (Ross, 2004). Therefore, an important distinction has to be drawn between abundance of natural resource, and full dependence on these natural resource revenues.

Autonomy of rentier state

Ross (2004), argues the claim that presumes there is a direct relationship between democracy and taxation, where a higher tax burden leads to greater democracy which in turn produces a higher tax

burden relative to the services that citizens receive. Ross suggests that *'if taxes are increased in a non-democratic state, it will tend to increase the demand for democracy, which will tend to produce a more democratic government'* (Ross, 2004: p. 234). According to this view, citizens would prefer to minimize their taxes rather than have democracy. Citizens in turn will weigh the benefits of the services. Therefore, a higher tax burden would not lead to higher demands for democracy, since the taxes are offset by greater benefits (Ross, 2004). Huntington has stressed in his book *'The Third Wave: Democratization in the Late Twentieth Century'* that *'no taxation without representation'* was a political demand but that *'no representation without taxation'* is a political reality (Huntington 1991: p. 56).

2.2. An overview of the Kingdom of Saudi Arabia and its health care system.

This second part of the chapter provides the reader with an overview of the Kingdom of Saudi Arabia and the structure of its health care system. It aims to provide information about the Kingdom of Saudi Arabia as a country, where political, economic and geographical aspects play a great role in the provision of health care, and in particular, the Saudi health care system. In relation to the Saudi health care system, four areas are emphasized, each having a significant influence on shaping the demand for health care. These are (i) health care providers, (ii) health care finance and expenditure, (iii) human resources in the health care sector, and (iv) the new government role in the health system.

2.2.1. An overview of the Kingdom of Saudi Arabia

In 1902, King Abdulaziz Al Saud entered Riyadh which later became the capital city of Saudi Arabia. This was the first step taken by the founder king towards unifying the Kingdom of Saudi Arabia, a process completed by the declaration of unification in 1932. Arabic language is the

official language in Saudi Arabia, and English is considered a second language. Islam is the main religion in Saudi Arabia (SAMIRAD, 2010).

Despite the relatively short period of time since the establishment of Saudi Arabia as a State, it occupies an important place amongst the world's countries due to its economic status as the largest exporter of oil (CDSI, 2010). It also has the largest reserves of crude oil in the world. Saudi Arabia has adopted a series of five-year plans for general development. They began in 1980, and the current plan is from 2010 to 2015. The five-year plans have led to the doubling of the Gross Domestic Product (GDP) more than 33 times in 28 years (CDSI, 2010). There has been much achievement in various sectors as a result of carrying out these development plans. For example, in 1993, there were just seven universities in Saudi Arabia. There are now no less than 26 universities and 117 vocational training institutions (CDSI, 2010).

Recently, high oil prices have been associated with reforms and re-organizations of most public sector services and considerable increases in expenditure on these public services. GDP increased from \$214.56 billion in 2003 to \$581.3 billion in 2009 (CDSI, 2010). The education sector accounted for 25% (\$36700 million) of the total spending in 2010. Spending on Health and Social Services increased from \$6.08 billion in 2003 to \$16.32 billion in 2010 (CDSI, 2010).

2.2.1.1 Geography and population of Saudi Arabia

Saudi Arabia occupies the largest volume of the land in the Arabian Peninsula, making it the largest country in the Middle East with approximately 2,250,000 square kilometers. It has boundaries with the Arabian Gulf, Qatar, Bahrain and the United Arab Emirates to the east; Iraq, Jordan and Kuwait to the north; the Sultanate of Oman and Yemen to the south; and the Red Sea to the west (Figure

2.1) (SAMIRAD, 2010). Saudi Arabia consists mainly of desert and semi-arid areas. The climate in Saudi Arabia is hot in the summer with an average daytime temperature of 45° C. In winter it is mainly cold at night where in some areas the temperatures can drop to zero and below (SAMIRAD, 2010).

Figure 2.1: Map of the Kingdom of Saudi Arabia



Source:(MOI, 2010)

The population of Saudi Arabia has increased rapidly in the last few decades from approximately seven million people in 1974, reaching 16.8 million people in 1992 and 29 million people in 2009 (SAMIRAD, 2010). It has a 2.24% average population growth rate (PGR) (UNdata, 2009). Saudi Arabia's population consists of about 22.5 million Saudi nationals and 6.5 million foreign residents.

About 59.4% of the Saudi population are between 14-65 years old, 38.2% are under 14 , and 2.4% are over 65 (SAMIRAD, 2010).

2.2.1.2 Political and administrative structure

Saudi Arabia is run by a traditional monarchy regime where the King is also the Prime Minister and there is a Consultative Council. Saudi Arabia is ruled according to Islamic law commonly known as ‘Al-shari'a’ (Walston *et al.*, 2008). The word ‘Al- shari'a’ means ‘law’. For administrative purposes, Saudi Arabia is divided into thirteen regional health directorates, each headed by a governor, (Figure 2.2) (World-Gazetteer, 2010).

Figure 2.2: The administrative regions of Saudi Arabia

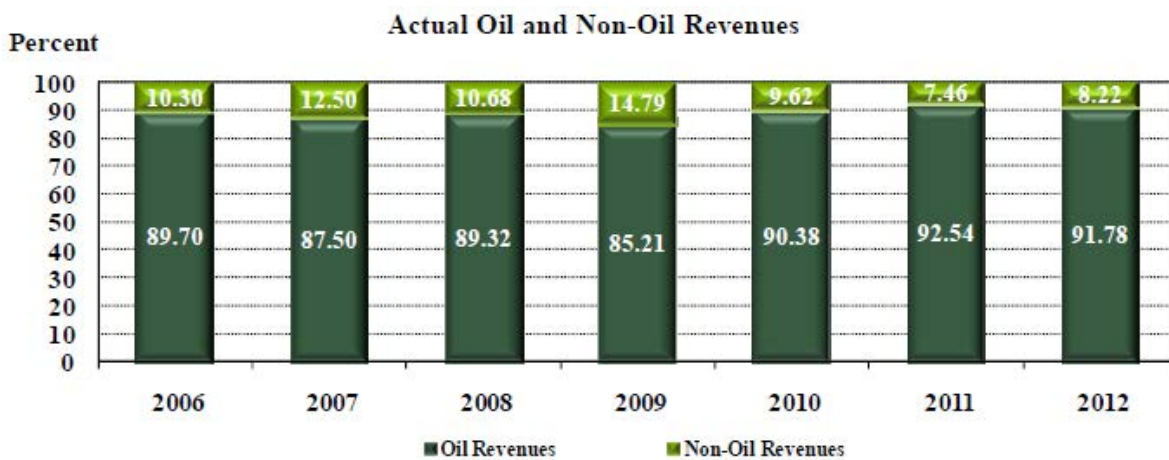


Source:(World-Gazetteer, 2010)

2.2.1.3. The Kingdom's Economic Structure

Saudi Arabia, as a rentier state, obtains a substantial portion of its national revenues from natural resources (Beblawi 1990). The petroleum sector represents about 75-92.5% of the total budget revenues and 45% of Saudi Arabia's GDP (Figure 2.3 and Table 2.1) (RSD, 2009; RSD, 2013). The Saudi economy is an oil-based economy which is highly dependent upon oil demand and pricing (Walston *et al.*, 2008). For example, the GDP per capita income was \$17,000 in 1981 but due to the rapid decreasing in oil prices during the 1990s, decreased to \$7,475 in 1998, rising again to \$24,355 by 2012 (RSD, 2013).

Figure 2.3



Source: adapted from (RSD, 2013).

Table 2.1: Oil and non-oil revenues.

	Oil revenues	%	Non-oil revenues	%
2003	231,000	78,8	62,000	21,2
2004	330,000	84,1	62,291	15,5
2005	504,540	89,4	59,795	10,6
2006	604,470	89,7	69,212	10,3
2007	562,186	87,5	80,614	12,5
2008	983,369	89,3	117,624	10,7
2009	434,420	85,2	75,385	14,8
2010	670,256	90,4	71,351	9,6
2011	1,034,360	92,5	83,432	7,5
2012	1,144,818	91,8	102,580	8,2

Source: Saudi Arabian Monetary Agency (RSD, 2009; RSD, 2013)

2.2.1.4 The General Reform Strategy

In recognition of the decreasing oil revenue in recent years, the Saudi government realized the necessity of lessening the Kingdom's dependence on oil to meet the demands of dramatic population growth. (Zawya, 2010; MOI, 2010). The government set out a comprehensive reform

strategy to increase the GDP of the Kingdom and to provide employment opportunities for the expanding Saudi population (CDSI, 2010; MOI, 2010).

The reform strategy consisted of four main features (MOI, 2010). The first element of the reform strategy related to the nature of the decision making process. The previous approach was based on a traditional ‘cartelized approach’. Therefore, the government set up many specialist bodies which conferred with necessary powers to make decisions. These specialist bodies included, among others, the Council of Health Services (CHS), the Council of Cooperative Health Insurance (CCHI), the Supreme Economic Council (SEC), and the Saudi Arabian General Investment Authority (SAGIA). The second element of the reform strategy was to diversify the economic base of the Kingdom and search for different means of generating income, away from dependence on oil. The third was to increase the private sector share of the GDP by privatizing more than 20 public service sectors such as Electricity companies, Telecommunications, Postal services, Ports, Health care, etc (MOI, 2010; RSD, 2009).

The fourth feature of the reform strategy was to attract foreign investments to bring high and new technologies, and expertise. In order to make Saudi Arabia a strong competitor for attracting foreign investments, the government entrusted the SAGIA to examine the investment climate in the Kingdom and to suggest which changes were needed whether legislative, procedural or any other. After removing most obstacles from foreign investments which previously hindered access to the market of the Kingdom, the results were impressive and the changes have been accepted and well received by the international community (RSD, 2009).

Generous spending on public service sectors (e.g. education, health, transportation) and establishing Economic Cities, have supported this strategy (Table 2.2). For example, in 2005, the World Bank and the International Monetary Fund (IMF) raised the degree of the Kingdom from 67 to 38 as the best investment environment, ahead of France, Portugal and Italy (Zawya, 2010). The health care insurance market in the Kingdom is worth \$5 billion a year and the Saudi pharmaceuticals market \$1.8 billion in 2007, with an annual growth rate of 15% (Zawya, 2010).

Table, 2.2: Economic Cities, and capital investments in Saudi Arabia.

Investment	Investment Value (\$)	Job opportunity
King Abdullah Economic City	27 billion	1,000,000
Prince Abdul Aziz Bin Mousaed Economic City	8 billion	30,000
The Knowledge Economic City	25 billion	20,000
Jazan Economic City	27 billion	100,000
Infrastructure upgrade projects	180 billion	N/A
Housing projects	75 billion	N/A
Expanding the petrochemical industries	112 billion	N/A
Electricity projects	140 billion	N/A
Water desalination projects	100 billion	N/A
Agricultural projects	28 billion	N/A
Telecommunications projects	80 billion	N/A
Tourism	53 billion	N/A
Gas production	150 billion	N/A
Mining	13 billion	N/A

Source: SAGIA <http://www.sagia.gov.sa/en/> (SAGIA, 2010)

2.2.2. An overview of the health care system

Since the establishment of the Ministry of Health in 1951, the health service has expanded. The 'Basic Law of Governance' in Saudi Arabia, a constitution-like document, guarantees the provision of comprehensive health care to all and is also concerned with public health to ensure a healthy environment for all. The Saudi Healthcare System aims to ensure the provision of comprehensive health care for all citizens, which is fair and easily accessible (MOH, 2010).

The Ministry of Health has seven sub-regions rather than the main 13 administrative regions for the purposes of health administration. The sub-regions are; Hafir Al-Baten and Al-Ahsa in Al-Sharqiyah region, Al-Taif, Jeddah and Al-Qunfuthah in Mecca region, Bishah in Asir region, and Al-Qurayat in the Tabuk region. Each directorate has a relative autonomy and lump-sum budget (Zawya, 2010; World-Gazetteer, 2010).

Since the early 1980s, the Saudi health policy has been committed to the concept of primary health care 'Health For All' (HFA). A three-level health care system has been adopted that corresponds to primary, secondary and tertiary health care, respectively (Zawya, 2010). The MOH has implemented a three-level care for the health care service to meet citizens' health needs. Therefore, a network of Primary Health Care (PHCs) and network of general hospital facilities have been established throughout the Kingdom (MOH, 2010).

Each directorate region and sub-region has a network of PHC centres and a number of secondary hospitals (Table, 2.3). The PHC and secondary care are provided by the MOH facilities. The tertiary health care services are provided by specialized/referral hospitals. It is worth noting that the referral

hospitals are independent of the MOH in term of financing and managements structure (MOH, 2010).

Table, 2.3: Hospitals and Beds in All Health Sectors (2008)

Sectors	Hospitals	Beds
M.O.H	225	31420
Other Government Sectors	39	10828
Private Sector	123	11271
Total	387	53519

Source :Ministry Of Health (MOH, 2010)

Primary Health Care

In general, health care policy follows the Alma-Ata declaration 'HFA'. The Saudi citizens are only able to access the PHCs in their residency area. The government defines essential health care services that are to be provided in PHCs as follows (MOH, 2010):

1. Maternal and child health care, including family planning.
2. Immunization programmes against the major infectious diseases.
3. Health care for students, disabled and elderly people.
4. Ensure an adequate supply of safe and suitable water, and basic sanitation.
5. Ensure food safety.
6. Ensure medicines safety, provision of essential drugs, and monitoring their uses.
7. Provision of health education and spreading health awareness among the population.
8. Prevention and control of infectious and epidemic diseases.
9. Provision of essential medicines.
10. Provision of an appropriate treatment for common diseases and injuries.

Secondary and Specialized Care

Health policy 'gatekeeping' has been adopted as a referral system (MOH, 2010). The PHC centres directly refer those patients who need advanced health care which is not covered by the PHC package, to a general hospital (secondary care). Those secondary care patients who need specialized care are referred to tertiary care (specialized /referral hospitals) through the regional health directorate. Here the general hospitals act as a "gatekeeper" for referrals to specialized hospitals (MOH, 2010). Through this "gatekeeping" policy, Saudi citizens can generally access general and specialized hospitals (MOH, 2010).

2.2.2.1 Health care providers in Saudi Arabia

Health care services in Saudi Arabia are provided through three main providers: the Ministry of Health (MOH), other government health sectors and the private sector. Together, these deliver health care services through a network of 387 hospitals (53,519 beds), 3,169 PHCs, and 981 other Medical Facilities Centres (e.g. Rehabilitation, Tuberculosis, dental, Physiotherapy and Polyclinic) (MOH, 2010).

Ministry Of Health

The MOH is considered the main responsible body and the traditional provider for providing health care services to the public in Saudi Arabia (MOH, 2010). It is the biggest health care provider and provides more than 60% of the health care services in the Kingdom. According to the available figures (2008), the MOH operates 225 hospitals (31,420 beds) which makes for 57.5% of the hospitals at all health sectors. It also operates 1,925 PHC centres which make for 53% of all health care centres and clinics in the Kingdom (MOH, 2010). Also, there are a number of specialist centres that are run by the MOH such as 12 rehabilitation centres and two Tuberculosis centres (MOH, 2010).

The other Government Health Sectors

1. The Ministry of Defence and Aviation (MODA)

The General Administration for Medical Services in MODA only provides health services for members of the armed forces and their families, through 30 hospitals and a number of PHC centres (CDSI, 2010). In some emergency and very rare cases of diseases, health services can be provided for non-armed forces members. The Medical Services in MODA operates the Medical Evacuation

Medical evacuation which is the process of transporting a patient by air from a general hospital to a specialist hospital when relevant. This is done with planes especially equipped with suitable medical technologies and facilities (CDSI, 2010).

2. The National Guard Health Affairs (NGHA)

The NGHA relates to the Saudi Arabian National Guard (SANG). It is a highly advanced medical sector which has gained a number of regional and international prizes (e.g. Joint Commission International Accreditation (JCIA), Arab Health Award) (NGHA, 2010). The NGHA is considered one of the most successful medical centres around the world in the surgical separation of conjoined (Siamese) twins (NGHA, 2010). To date, 20 successful separation surgeries have been carried out there. The NGHA has four medical cities composed of several hospitals that provide health care for all National Guard members and their dependents (Table 2.4). There are also five affiliates to the NGHA. These are King Saud bin Abdulaziz University for Health Sciences, King Abdullah International Medical Research Centre, National and Gulf Center for Evidence Based Medicine (NGCEBM), The National Conjoined Twins Portal, and The National Antivenom and Vaccine Production Centre (NGHA, 2010).

Table 2.4: The National Guard Health Affairs Medical Cities.

Medical City	Location	Beds
King Abdulaziz Medical City	Riyadh	650
King Abdulaziz Medical City	Jeddah	350
King Abdulaziz Medical City	Dammam	100
King Abdulaziz Medical City	Al Ahsa	300

Source : The NGHA (NGHA, 2010)

3. Ministry of Interior (MOI)

The General Administration for Medical Services serves the MOI members and their families. It also provides health services to prisoners alongside with the MOH. It operates 500 hospital beds and a network of PHC centres (GAMS, 2010).

4. Specialized Hospitals

The referral hospitals are considered a specialized care facility. There are four specialized hospitals in the Kingdom and every citizen is eligible to be referred to them for specialized care (Table 2.5) (GAMS, 2010).

Table 2.5: Referral Hospitals (2008)

Referral Hospitals	Location	Beds
King Faisal Specialist Hospital & Research Centre	Riyadh	700
King Faisal Specialist Hospital & Research Centre	Jeddah	250
King Khalid Eye Specialist Hospital,	Riyadh	360
Sultan Bin Abdulaziz Humanitarian City	Riyadh	300

Source : Ministry of Health (MOH, 2010)

5. University Hospitals

There are four university hospitals associated with relevant medical schools (MOH, 2010).

University hospitals provide secondary and specialized health care for citizens.

6. The Saudi Red Crescent Society

The Saudi Red Crescent provides emergency medical services and first aid to all (MOH, 2010).

7. Private sectors

The private healthcare sector in the Kingdom has grown rapidly. The private healthcare sector has been encouraged by the government through free interest loans. By 2008, there were 123 private hospitals, and 2,100 private dispensaries and other medical facilities (Table 2.6). All private sector health services are for-Profit (CDSI, 2010). Although the health insurance market was estimated at \$2,653 billion in 2012 (RSD, 2013), there is no available data about how many individuals are covered by health insurance policy.

Table 2.6: Private Sector Hospitals, Dispensaries, Beds and Other Medical

Facilities: 2008

Hospitals	Beds	Dispensaries	Private Clinics	Polyclinic	Physiotherapy Centre	Dental centre
123	11271	1152	380	457	31	80

Source :Ministry Of Health (MOH, 2010)

2.2.2.2 Health Care Finance and Expenditure

All government health care sectors in Saudi Arabia are completely funded by the State's general budget (CDSI, 2010). The total spending on health care in Saudi Arabia fluctuates between 6% and 9% of total government expenditure (WHO, 2010). The budget of the MOH has continued to increase from \$4.5 billion in 2005, to \$6.725 billion in 2008, to more than \$12.5 billion in 2012 (MOH, 2012). Each of the non-MOH government sectors, receive annual allocations directly from the State's general budget (e.g. referral Hospitals – King Faisal Specialist Hospital & Research Centre 'KFSH&RC'), or from respective ministry budgets (e.g. military hospitals and university hospitals) (CDSI, 2010).

According to the available figures in 2001, the total healthcare spending of all health care sectors in the Kingdom was \$7.9 billion (CDSI, 2010). The spending of the MOH was around \$3.5 billion, comprising 44% of the total spending on health services. The other government health sectors' budgets totaled more than \$2.9 billion, which made up 37% of the total spending on health care in 2001. The share of the private sector was 19% which was about \$1.5 billion (CDSI, 2010).

2.2.2.3 Human Resources

In Saudi Arabia, many health professionals are expatriates of various nationalities. The percentage of Saudi health workers has increased over time (Table 2.7). It is difficult to reach a sufficient number of Saudi national health workers, due to continued growing demand for health services (MOH, 2010). In the last ten years, there has been a significant increase in medical and health science schools and institutes. Furthermore, training and scholarship budgets have been allocated for the purpose of providing qualified Saudi health specialists to replace the foreign ones (MOH, 2010).

Table 2.7: Physicians, Nurses and Assistant Health Personnel In K.S.A. (2004-2008)

Sector		2004		2005		2006		2007		2008	
		Total No.	%Saudi	Total No.	%Saudi	Total No.	%Saudi	Total No.	%Saudi	Total No.	%Saudi
Ministry of Health	Physicians	17623	20.1	18621	19	20219	18.7	21265	19.3	22643	20.0
	Nurses	38019	32.6	41356	35.1	42628	40.0	44395	41.5	51188	44.1
	Assistant Health Personnel	23369	62	22969	61.2	24239	69.7	26075	71.4	27958	75.6
Others Governmental Sectors	Physicians	9331	46.1	8856	48.9	9343	47.9	10233	46.5	10808	48.2
	Nurses	20142	15.6	19421	19.2	19913	18.4	20488	17.5	21462	17.2
	Assistant Health Personnel	14041	46.7	13843	46.4	14673	48.2	15192	49.6	16162	50.9
Private Sector	Physicians	11542	5.1	12788	5.4	13786	5.0	14091	4.5	14468	4.1
	Nurses	15953	2.6	17810	3.1	17453	3.0	18985	3.8	21085	3.6
	Assistant Health Personnel	7148	11.5	8041	13.3	7061	12.0	7872	14.9	7168	13.1
Total	Physicians	38496	21.9	40265	21.3	43348	20.6	45589	20.8	47919	21.6
	Nurses	74114	21.5	78587	23.9	79994	26.6	83868	27.1	93735	28.8
	Assistant Health Personnel	44558	49.1	44853	48	45973	54	49139	55.6	51288	59.1

Source :Ministry Of Health (MOH, 2010)

In 2008 there were 192,942 Saudi and foreign health personnel in all health sectors. There are 47,919 physicians, only 21.6% of whom were Saudi nationals. The average ratio of physicians to population is 16.5/10000 (MOH, 2010).

2.2.3 The New Government Role in the Health System

Like many countries around the world, Saudi Arabia has struggled to improve healthcare quality, contain health care costs and provide fair and easily accessible health care for all citizens (MOH, 2010). Although Saudi Arabia is considered a rich country, the reliance on oil and the absence of revenue from domestic taxation has implications for the stability of the State's revenue, and in turn State spending on all the public sector is affected. However, in Saudi Arabia other significant factors also shape demand for health care. The rapid growth of the Saudi population has been the most important factor. The population has increased from around 16 million people in the early 1990s to 29 million people in 2009 (SAMIRAD, 2010). Foreign workers make up about 6.5 million. However, expatriates have not been eligible for free healthcare since the health insurance schemes came into force in 2005 (SAMIRAD, 2010). A unique factor is that every year the Kingdom provides free health services for more than 5 million Mecca pilgrims and visitors. In 2005, The MOH assigned 22 hospitals and 165 PHC centres to cover the health needs of pilgrims during the *Hajj* season (MOH, 2010).

Another significant factor in shaping health care demand is that the other government health sectors (e.g. University hospitals, military hospitals) are directly managed and financed through their respective ministry budgets (Walston *et al.*, 2008). Although all health sectors are supervised by the MOH, the MOH lacks comprehensive authority over other governmental health sectors which seem outside of its purview. These other sectors compete for allocations of the healthcare budget with the

MOH. This can be easily deduced from the wide difference in the funds allocated per bed, which is significantly higher in these sectors. Indeed, it has been reported that ease of access, the quality of service and given technology are much better in the other government hospitals than the hospitals which are managed by the MOH (Walston *et al.*, 2008).

During the last few years, Saudi Arabia has seen a great movement of reforms. It includes most government sectors, including the health care sector. The above factors along with the current reforms have produced new functions within the health system, the most recent of which was the Health Strategy Plan in September 2009 (MOI, 2010). The health system reforms have been formulated by a gradual plan.

Restructuring the Health System

In 2002, the government restructured the whole health system (MOH, 2010). This defined the role of the MOH in terms of health care provision, monitoring, legislation and financing. In the recent past, health care services were completely funded by the State's general budget. Nowadays, additional sources are identified such as health insurance. There is a registration fee for each new health insurance company. Every registered company is also required to pay annual renewal fees (MOH, 2010).

Another type of financial source is the licensing fees imposed on the private health care sector (MOH, 2010). This is a fee required to make it eligible to provide health care services under the cooperative health insurance scheme. These fees differ, depending on the type and size of private facilities, hospitals or clinics. For example, the annual fee for a private hospital is between \$5,300

and \$13,300, according to its capacity. There are other additional sources of funds such as endowments, gifts and contributions (MOH, 2010).

The Council of Health Services

Part of the reform of the health service was the setting up of a regulating body for Saudi health care services. The Council of Health Services (CHS) is the regulating body of health care services in Saudi Arabia (MOH, 2010). Health policies and health strategic plans are formulated by the CHS. It is headed by the Minister of Health and has a panel of deputies who consist of representatives from each health sector in the Kingdom. They are appointed by the Council of Ministers. The CHS aims to regulate all health sector aspects and ensure good integration and co-operation amongst all health care providers ‘the MOH, other government and private health sectors’ (MOH, 2010).

The Co-operative Health Insurance System

The co-operative health insurance system was approved by the Saudi Council of Ministers in 2002 (MOH, 2010). The Council of Cooperative Health Insurance (CCHIS) is responsible for mentoring, implementing, and issuing licenses to insurance companies and participating health care providers. Health insurance laws require only private employers/sponsors to purchase private (cooperative) health insurance for their employees and their dependents (both Saudis and expatriates) (MOH, 2010). This was rolled out across three stages (MOH, 2010). The first stage was in 2005 which included all large private firms (with 500 employees or more). The second stage was in 2007, which covered private companies (with 100 to 499 employees). By the end of 2009, the third stage was completed which covered the rest of the private sector employees. All private sectors employees are now covered by health insurance (MOH, 2010).

The current number of health insured people in the Kingdom is estimated to be 5.5 million (MOH, 2010). All insured people are entitled to receive all levels of health care ‘primary, secondary and tertiary care’ (MOH, 2010). The CCHIS has set a minimum annual value threshold for all health insurance policies. The minimal health insurance cover allows its holder to receive health care costs of up to \$66,666 per year (MOH, 2010).

The Health Strategy Plan

In September 2009, the Health Strategy Plan was approved by the Saudi Council of Ministers (MOI, 2010). It was considered the final stage of health system restructuring. This plan accords with the prior health system reforms in terms of health system objectives. It consists of five strategic pillars (MOH, 2010). The main features of this plan are as follows:

- The first strategic pillar encourages a health economics approach to be adopted as a method of priority setting for health care. This pillar gives primary health care the priority in terms of allocation of health resources, through its role in public health. It also aims to diversify health care resources (MOH, 2010). It suggests some means for additional sources of funds, in addition to those mentioned above in 2.2.2.1, the public health sectors (the MOH and other government health sectors), can participate in health insurance activities, especially in some regions/sub-regions that lack available private health providers (MOH, 2010).
- The second strategic pillar aims to provide a health information system which will comprise all health information, including medical, administrative and financial information, supported by advanced technology.
- The third pillar relates to health human resources. It aims to develop the quality and quantity of the health workforce (MOH, 2010). It provides incentives that aim to attract expertise to this sector.

- The fourth strategic pillar aims to build up a more decentralized management system for secondary care by delegating the greatest possible powers and allocating an independent budget for each region.
- The fifth strategic pillar determines the role of public health providers ‘the MOH and the other government health sectors’ (MOH, 2010). By applying the approach of the decentralized management system, the role of the MOH will be limited to operating the PHC and monitoring the performance of secondary care. The role of the other government health sectors is to participate in the provision of medical services for emergency and disasters, and receive and treat the referred patients who are non-members.

2.3. Conclusion

This chapter has attempted to provide a comprehensive background of the research field context to the reader, in order to facilitate a better understanding of the particular conditions to which the research pertains. The rentier state, as a particular type of economic system where incomes are derived from natural resource endowments, was introduced. Saudi Arabia was understood as being such a state, where national incomes, and thus those available for public services, are derived from oil and thus the funding available is heavily dependent on oil prices. The literature on rentier states was discussed; this has emphasised the political and economic considerations associated with this system, in particular, the tendency towards authoritarian regimes. Cultural concepts within Saudi Arabia that may be unfamiliar to readers from different backgrounds were also discussed and the notion of *wasta* was introduced. The chapter then considered Saudi Arabia more directly, providing a general overview of the kingdom, before discussing the structure of health care provision in more depth. Saudi health care system reforms have recently been implemented in the health care sector

and these were explained and discussed; as yet, there is little evaluation of the impact of these reforms at this early stage.

Having provided this overview of the research context, this thesis now turns towards the topic of the thesis, to consider the literature on setting priorities in health care

CHAPTER 3: OVERVIEW OF PRIORITY SETTING IN HEALTH CARE

"Prioritization due to resource constraints has always existed and will always be necessary in the caring sector. If the issue has risen to the top of the international agenda of debate about health care it is because those resource constraints have become more severe under the twin pressures of governments seeking to restrain the growth of public expenditure and rising demand for health care as the result of demographic and other trends" (Klein et al., 1996, p.100).

Available resources are finite and insufficient to meet unlimited various human needs, therefore, resources are scarce. Under conditions of resource scarcity, choosing between competing existing health care needs to fund is undoubtedly an inescapable task. In this sense, making decisions for allocating scarce health care resources is extremely complex and difficult. Health economists play an important role in aiding public decision-makers through the provision of relevant information and recommendations that can help, particularly, in achieving efficiency within the health sector.

The objective of this chapter is to provide an overview of priority setting in health care. This chapter begins with a definition of priority setting and rationing. In the second section, both implicit and explicit approaches to priority setting are highlighted. The levels of decision-making in priority setting for health care are described in the third section. Following this, the discipline of health

economics is described. The next section discusses program budgeting and marginal analysis (PBMA) as a toolkit to facilitate priority setting. The chapter closes with a brief summary.

3.1 What is priority setting?

Published literature provides wide-ranging definitions of the term “priority setting”. For example, Arvidsson (2013), describes priority setting as the process by which health care institutions make decisions regarding the allocation of resources among different elements of care or various patient groups. Robinson *et al.* (2011), also defines priority setting as an explicit technique used to allocate resources in the context of scarcity. According to Maluka *et al.* (2010), priority setting is a process of devising systematic regulations and rules for the purpose of deciding on the allocation of scarce resources among competing patient groups or programs. This definition is consistent with that provided by Arvidsson (2013). In addition, Gold *et al.* (1996), defines priority setting as the allocation of scarce resources among competing interests such as diseases, services, patients/people, programs, and institutions. This definition is wide-ranging in accounting for priority setting taking place at all levels of a health care system such as between clinical and hospital programs, within pharmaceutical benefits, management, by research agencies, and by both regional health authorities and the national governments.

Priority setting is necessary for most health care institutions because the current healthcare coverage outweighs the available resources (Sabik & Lie, 2008). This situation is worsened by the increasing cost of healthcare and the increasing life expectancy which has increased with the demand for healthcare drugs and services. The terms ‘prioritization, rationing and allocation of resources’ are often used interchangeably with priority setting in the health care literature (and in this thesis as well) (Hamer & Collinson 2005; Addy, 2007; Kafiriri & Norheim, 2004). Some authors make

distinctions between the use of these terms, especially, ‘rationing’ and ‘priority setting’. They argue that rationing is a word that has a negative association, implying memories of wartime, lack of basic needs (Coast *et al.*, 1996), and denial of treatment to patients (Hunter 1997; Addy, 2007). In contrast, the term ‘priority setting’ has a positive semantic orientation (Lindholm *et al.*, 2008), because of focusing on those most in need (Addy, 2007). Others, such as Hamer and Collinson (2005), report that ‘rationing’ is not a popular term, with Klein (1992) stating that ‘*it is invoked to make the flesh creep* rather than *to prompt argument about how best to deal with the inescapable*’ (Hamer & Collinson 2005, p. 199). A further restriction on the use of the term ‘rationing’ is that Klein *et al.*, (1996) also argue that this term should be used to describe how resources are allocated to individual patients (micro level) at the point of delivery (Klein *et al.*, 1996), while priority setting should be used to describe the distribution of resources to health institutions and programs (macro level) (Klein *et al.*, 1996; Mitton *et al.*, 2003a; Mooney, 1998; Wiseman *et al.*, 2003; Mitton & Donaldson, 2003a; Addy, 2007).

In practice, priority setting is defined across the health care literature in various contexts according to the priority setting approach¹. Although these definitions share similarities and contain a degree of consensus that priority setting involves ranking, ordering or rating issues of attention by ‘importance’ or ‘urgency’ of patient health care needs (Mitton & Donaldson, 2003b; Mitton *et al.*, 2003c; Wiseman *et al.*, 2003; Mitton & Donaldson, 2003c; Cooksen & Dolan, 2000; Gibson *et al.*, 2004; Abelson *et al.*, 2003), there is no full consensus about a comprehensive definition of a ‘good or successful’ priority setting approach (Sibbald *et. al.*, 2009, p. 2), and there are also differences in how it is suggested that priority setting should be done (Kenny & Joffres, 2008; Menon *et al.*, 2007).

¹ For example; Accountability for Reasonableness’ (A4R) with legitimacy and fairness (Daniels & Sabin, 1997), a transdisciplinary model of priority setting (Gibson *et al.*, 2002), Macro-Marginal Analysis (MMA) (Mitton *et al.*, 2003c), Program Budgeting and Marginal Analysis (PBMA) (Mitton & Donaldson, 2003a) and Health Technology Assessment (HTA) (Battista & Hodge, 1999).

For the purpose of this study, priority setting will be taken to mean a process of developing organized regulations and rules aimed at deciding on the allocation of scarce resources among competing patient groups or programs.

3.2 Decision making

Decision making, as defined by Carroll and Johnson, is ‘*a process by which a person, group or organisation identifies a choice of judgment to be made; gathers and evaluates information about alternatives; and selects from among alternatives*’ (Carroll & Johnson, 1990, p.19). Under conditions of scarcity, the decision making process in health care has been described as complex and difficult (Weber *et al.*, 2001), because it involves, at different levels of health care services, different levels of decision makers (Weber *et al.*, 2001). Klein (1993b) defines five types of decision (Table 3.1).

3.2.1 The macro level

At this level, decisions are made to distribute health care resources between different health care sectors, geographic areas, groups within the health care system, major services and/or health programs (Klein, 1993a: 1993b). This level of decision is usually made by health policy makers at the national level.

3.2.2 The meso level

According to Martin, the meso level is where much of the allocation of health care resources takes place within the health care system (Martin & Singer, 2003). At this level, decisions are made about the allocation of resources within intermediate bodies such as individual hospitals or institutions

(Martin & Singer, 2003). Decisions are made at this level by the regional or local or community health authorities. Heginbotham and Ham (1994), indicate that health organisations face multiple pressures at the meso level to determine priorities, and to balance the pressures emanating from national governments, local providers and public opinion.

3.2.3 The micro level

This level is at the point of health care delivery where those health care providers decide who is benefiting from the available resources. The micro level of decision making involves an individual based decision. It focuses on the relationship between individual patients and their doctors. Klein (1993b) considers two dimensions at this level of decision making. Initial decisions determine the priority of access of patients for a particular treatment, and further decisions concern how much to allocate to individual patients. Doctors play a great role at this level of decision making which is sometime also known as bedside rationing (Angell, 1985; Ubel, 1999; Abelson *et al.*, 2003).

Table 3.1: Levels of priority setting

1- Macro: the level of funding to be allocated for health services
2- The distribution of the budget based on geographical areas and across whole services
3- Meso: The allocation of resources for particular forms of treatment (within services but across treatments)
4- Micro: The access to treatment choice which patients should receive (within treatments)
5- Decisions on how much to spend on individual patients

Source: Klein (1993b)

3.3 Implicit and explicit approaches to priority setting

The term "implicit" describes the approach that is used to rationing health care, where both decisions themselves and the basis on which these decisions achieved, are not clearly expressed (Coast *et al.*, 1996), while the term 'explicit' describes the approach where both are clearly justified and '*precisely and clearly expressed*' (Coast *et al.*, 1996, p. 9). This thesis will adopt these definitions as they are broader in sense than other available definitions, such as in Redmayne *et al.*, (1993), where explicit is employed narrowly to identify lists or catalogues of health conditions and treatments that will/will not be provided (Redmayne *et al.*, 1993).

However, others propose that rationing can be avoided by devoting enough resources to health care or using the existing budget more efficiently. As Roberts *et al.*, (1995) argue, '*those who passively accept that 'rationing is inevitable' have not thought it through... The main obstacles to change... are the workforce's cultural resistance ..., weak management*' (Roberts *et al.*, 1995: 15). It might be that Roberts *et al.* (1995), base their argument on the explicit rationing concept, where rationing is always part of providing health care, but that implicit rationing is not explicit (Paton, 1996).

The distinction between explicit and implicit approaches to rationing raises the political debate about health care priority setting, and many authors have attempted to illustrate the differences between them. Klein *et al.* (1996), explain the differences between explicit and implicit rationing, as well as who makes the decisions. They distinguish between seven methods of rationing; rationing by denial, selection, deflection, deterrence, delay, dilution, and rationing by termination (Klein *et al.*, 1996).

The main feature of all these forms of rationing is that all but ‘rationing by denial’ can be classified as implicit. The largely implicit nature of the above list helps to understand the methods by which rationing happens in health care systems that are state controlled; for example, the Saudi’s health care system and the NHS. It is clear that some of these forms are used, where, for example, there is the existence of a gatekeeper policy as a method of rationing by deterrence, and waiting lists policy as a method of rationing by delay.

Although explicit rationing is criticised because it can often evoke emotional reactions, it is usually an effort to improve on the implicit forms (ECONEX, 2010). A criticism of the explicit approaches has emerged from the concept of political acceptability. Where rationing is explicit and provides a path to follow, the political acceptability will become a concern to decision-makers. Robinson outlines an unacceptable situation when: *‘the proposed course of action is sufficiently unpopular and widespread among those who are expected to suffer from the decision (and among their supporters) that their resultant political actions (e.g. lobbying, press campaigns, protest meetings, demonstrations) are likely to cause considerable social unrest. In the limit, this may lead to the decision-makers losing office’* (Robinson, 1999, p. 23).

The political acceptability considerations have led some scholars to advocate an implicit based approach, such as Hunter’s (1997), notion of ‘muddling through elegantly’ (Hunter, 1997). Hunter (1993), also links the explicitness of decision making with the possibility for conflict between decision makers themselves (Hunter, 1993). Mechanic (1995), supposes that at the micro level, explicit rationing will increase tensions, instability, conflict, costs, and that ‘explicit rationing’ will not lead to rational analysis, particularly when individuals’ lives are at risk, while implicit rationing

is ‘*more conducive to stable social relations and a lower level of conflict*’ (Mechanic, 1995, p. 1658).

Calabresi and Bobbit have exposed ‘*a social virtue in the hidden nature of tragic choices*’ which explains the desirability of implicit over explicit rationing (Hall, 1994, p. 96). They argue that implicit rationing forms (e.g. deception, disguising, temporising), are means that ‘*artfully chosen allocation methods can avoid the appearance of failing to reconcile values in conflict... averting the eyes enables us to save some lives even when we will not save all*’ (Calabresi & Bobbit, 1978, p. 22, 26). As a consequence, Hall (1994), states that explicitness will only raise the public ‘tragic nature’ and then ‘*inflict greater social grief in the process*’ (Hall, 1994, p. 325).

Coast, (1997) considers these issues within an economic framework, noting that regardless of what rationing scheme is applied, some patients will effectively be denied, but that explicit rationing may be more likely to result in two forms of disutility. Denial disutility may result for health professionals who feel responsibility for denying care to patients; deprivation disutility may result for those patients who know that they have been deprived of care that others may receive (Coast, 1997).

Callahan emphasises the inherent difficulties in explicit rationing which includes the explicit choice of treating some individuals rather than others; *The greatest source of anguish in the implementation of the plan will come in learning how to live with, and to rationalise, its failure to cover some people whose condition will pull at our sympathies. This anguish will be all the greater when the victims are visible and when the accountability for their condition cannot be evaded. This*

is the logical and emotional problem created by any set of priorities that set limits (Callahan, 1988, p.85).

As a result of the fact that the allocation of health care resources is inevitable and with the absence of the free market in health care towards the end of the 20th century, many scholars suggest that health care priority setting should be based on explicit approaches (Klein, 1995; Maynard, 1996; Ham, 1997). Explicit approaches can involve political methods, which are often less explicit, and/or technical methods such as cost-effectiveness analysis (Coast & Donovan, 1996). Such political methods include:

- Long waiting times and lists to deal with the difference between demand and means to provide (Martin *et al.*, 2003a)
- Limiting of treatment relating to certain ailment areas and populations or groups, (Rosen *et al.*, 2005), for instance, those of a specific age or gender or profession (often called age-based-rationing) (Williams, 1997)

One of the most widely supported approaches to priority setting in health care is accountability for reasonableness (A4R) (Nunes *et al.*, 2011). The idea of accountability for reasonableness is founded on the arguments of justice and places great importance in democratic justification and legitimacy (Daniels & Sabin, 1997). It helps shape how people's values should be included in deciding priorities (Daniels & Sabin, 2002). From the perspective of maintaining the most utility, the decision should be for the greatest benefit overall (that is a balance between number and extent) (Kelly, 1990), while an egalitarian view would set a standard that is to be adopted by all regardless of their situation, similar to a 'lottery' scenario (Harris, 1999). According to Daniels and Sabin, (2002) public accountability implies a strong disclosure of benefits and performance information

about benefits and procedures (Daniels & Sabin, 2002) ‘as well as a demand for a due process’ (Nunes & Rego, 2014, p. 295), therefore, the process of priority setting should comply with four conditions: publicity, relevance, appeals and enforcement (Table 3.2) (Daniels & Sabin, 1997; Nunes & Rego, 2014; Mitton & Donaldson 2004a).

Table 3.2: Conditions of Accountability for Reasonableness

Condition	Description
Publicity	Limit-setting decisions and their rationales must be publicly accessible.
Relevance	These rationales must rest on evidence, reasons, and principles that fair-minded parties (managers, clinicians, patients, and consumers in general) can agree are relevant to deciding how to meet the diverse needs of a covered population under necessary resource constraints.
Appeals	There is a mechanism for challenge and dispute resolution regarding limit-setting decisions, including the opportunity for revising decisions in light of further evidence or arguments.
Enforcement	There is either voluntary or public regulation of the process to ensure that the first three conditions are met.
Source: Mitton & Donaldson. <i>Cost Eff Resour Alloc.</i> 2004; 2: 3	

These sorts of notions are also supported by others. For example, Ubel suggests that the extent to which a choice is fair will be partially legitimised by public opinion and consensus. A broader and fairer set of principles are held by those who are members of the public than those of a specialist professional group (Ubel *et al.*, 1997). Ubel also argues that the community as a phenomenon has a significant effect on health care priority setting (Ubel, 1996).

Public involvement in priority setting decision-making and its importance therein have been broadly discussed (Wiseman *et al.*, 2003), however there is no consensus on when this involvement should be sought (Mitton *et al.*, 2009), from whom and using what methods? (Donovan & Coast, 1994).

The contemporary movement that seeks to include more and more of the public into decisions that are to be made in health care has been explained in extant literature, a concern among providers that they become more accountable to the people that they serve. In the USA, the Health Maintenance Organisations (HMO's) are trying to remove their element of accountability by trying to export their decision-related liability to customers and away from providers (Weber *et al.*, 2001). Mossialos and King argue that the shifting of responsibility to the public could see an increased level of transparency in health care (Mossialos & King, 1999). Charles and DeMaio support this view with another argument; namely that patients and public may help to provide a new perspective into the decision making process (Charles & DeMaio 1993), and they are privy to different values and methods of thinking than healthcare professionals (Bowling, 1993; Bowling, 1996; Mooney & Blackwell, 2004).

It has been commonly noted in the literature of high, middle and low-income countries that governments recognize benefits in consulting multiple public groups using a range of methods.

Public participation is generally acknowledged as being a vital part of the priority-setting processes

(Kenny & Joffres, 2008; Werntoft & Edberg, 2009; Vuorenkoski *et al.*, 2008; Roth *et al.*, 2003; Abelson *et al.*, 2003; Youngkong *et al.*, 2010; Mitton *et al.*, 2009; McKie *et al.*, 2008; Madi *et al.*, 2007; Sibbald *et al.*, 2009; Litva *et al.*, 2002; Stafinski *et al.*, 2011; Mitton and Donaldson, 2004a; Mitton and Donaldson, 2002; Peacock *et al.*, 2009; Gibson *et al.*, 2006; Urquhart *et al.*, 2008; Martin *et al.*, 2002; Maluka *et al.*, 2010; Kapiriri & Martin, 2010; Abelson *et al.*, 2007; Hoedemaekers & Dekkers, 2003). However, public involvement has failed to achieve the effective contribution as intended (Kenny & Joffres, 2008, Sabik & Lie, 2008). Although a substantial number of priority-setting processes combine public engagement and an appeals process, the majority appear to depend upon expert opinion. Also, insufficient attention is paid towards both the monetary costs and the time required to succeed with such public engagement (Abu-Madi *et al.*, 2001). Recently, Mitton *et al.* (2009), conducted a literature review of priority setting with public participation being the main focus of the review (Mitton *et al.*, 2009) and found that whilst most authors commended the processes used to involve local communities in priority-setting, they were extremely cautious in addressing the outcomes of public involvement as well as the feasibility of such action (Jimenez-Soto *et al.*, 2012). Only 32% of the 175 articles reviewed actually reported appraisal of the public participation process. This review was restricted to high-income countries.

In low-income countries, a substantial number of barriers are in place preventing the elicitation and integration of public opinion into health care priority. In less open and resource-poor societies such as Tanzania, Kenya and Ugandan, none of the reviewed attempts at public involvement in priority setting at the meso-level were successful according to the beliefs of the public participant (Maluka *et al.*, 2011a; Maluka *et al.*, 2011b; O'Meara *et al.*, 2011; Kapiriri *et al.*, 2003; Kapiriri & Martin, 2006). Perhaps predictably, the main issues were found to be a combination of practical, economic and cultural obstacles that thwarted people from willingly participating or dismissing any

contributory efforts made – this appears to be more commonly seen within low- -income countries (Jimenez-Soto *et al.*, 2012). Although public participation has the effect of strengthening the transparency and legitimacy of any decisions made by the government, the actual process of including public input is not always appropriate and objective; rather, it can be extremely political (Jimenez-Soto *et al.*, 2012).

In contrast to the largely political approaches suggested by accountability for reasonableness, or the making of choices through the use of public involvement, there are also approaches that develop specific technical criteria for priority setting (Coast *et al.*, 1996). These are largely associated with health economics and will be discussed in section 3.4, but one such criterion that tends not to be associated with economists is the use of need, interpreted as the extent of burden. Many explicit approaches attempt to address the issue of 'need' through the measurement of the number of ill health for each disease, and distributing assets and treatment in proportion to this 'need' (Donaldson, 1995). However, need generally remains merely one aspect of decision-making amongst a number of criteria. In Sweden, for example, with the exception of the need for health intervention, the criteria for cardiothoracic surgeons included; patient satisfaction, risk assessment, benefits to the patient, quality of life and the severity of their illness on admission (Ridderstolpe *et al.*, 2003).

Some authors have asserted that the decision-making process is founded on the requirement of need via 'needs assessment' and that this forms a "*systematic means of guaranteeing that the healthcare service utilised its resources to enhance the health of the population in the most useful and expedient means*" (Wright *et al.*, 1998, p1310). Despite this, the approach may only be used to inform the decision maker of whether a single issue is more or less important than another, and does

not inform resource allocation by assessing the needs of the community overall (Petrou, 1998). Consequently this approach has little support among economists. The fact that the approach ignores certain elements that need to be thought of was suggested by Donaldson (1995), who stated that: "a) *it is not the magnitude of the ailment that is to be counted but rather what should be done with regards to the effectiveness of the potential and proposed interventions*" (Donaldson, 1995, p81), and b) the importance of determining the interventions' costs (Donaldson, 1995). For example, in an attempt to make priority setting more transparent in Oxfordshire and Berkshire, clear explicit criteria was applied that was linked with effectiveness and costs to avoid making choices purely on the basis of need (Hope *et al.*, 1998).

Although explicitness appears desirable in term of openness, equitability and democracy in making decisions about allocation of health care resources, it has been met with legitimate problems. Many economists² have offered different approaches to priority setting associated with economic evaluation, which have played a key role in meeting this requirement to connect priority setting to effectiveness and costs. This will now be discussed.

3.4 Health Economics

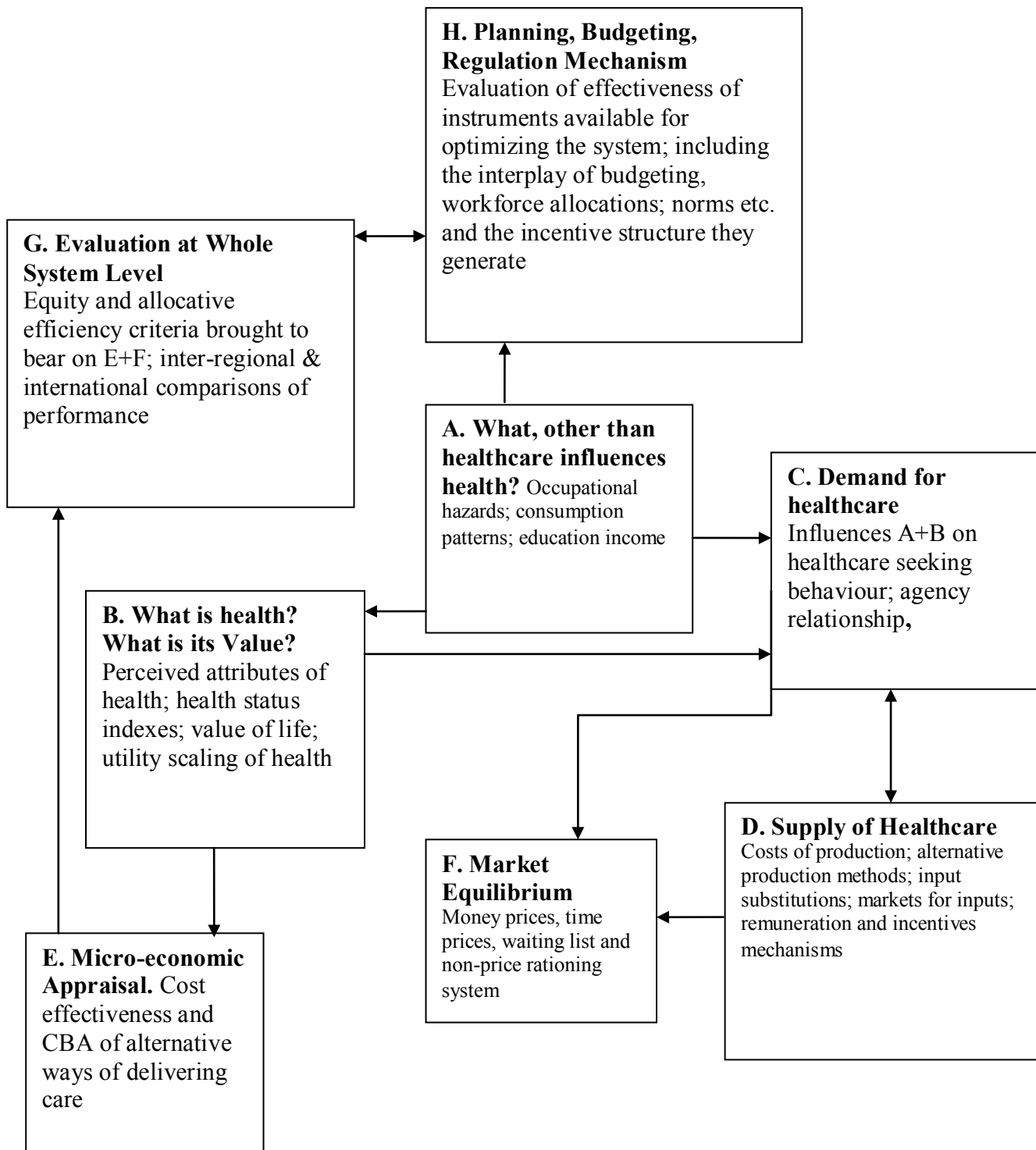
Economics is '*the study of the use of scarce resources which have alternative uses*' (Sowell, 2007, p. 1). It consists of three elements which are important for understanding the economic perspective: choice, scarce resources, and alternative uses (Sowell, 2007). Firstly, 'choosing' or decision-making is basically what the discipline of economics is about. For this reason, economics has been labelled as the 'science of choosing' (Smith, 2011). Its goal is to create a framework for choice so that all of the consequences of the choices can clearly be seen and understood before any decisions are made

² For example, (Coast and Donovan 1996; Maynard, 1996; Drummond *et al.*, 1997; Nord, 1999; Richardson *et al.*, 1999).

(Sowell, 2007). Secondly, scarcity in resources is seen as the fundamental problem: needs, wants, demands, and desires will always outweigh the resources available at present (Sowell, 2007). Thirdly, economists have to consider alternative uses of all resources available – this is what economists refer to as ‘opportunity cost’ (Sowell, 2007).

Health economics directly addresses the problem of scarcity as it occurs with respect to health and health care (Drummond *et al.*, 1997). Scarcity inevitably becomes problematic when making priority-setting decisions in health care (Mooney, 2003). Thus health economists look at how people and societies approach the fact that, although the resources available to us are limited, there are unlimited alternative uses for them.

Figure 3.1 Williams Plumbing Diagram. Adapted from (Edwards, 2001).



The discipline of health economics has a number of different aspects to it and includes the study of different topics. A sense of the breadth of what health economists might study is given by the so-called ‘plumbing diagram’ generated by Alan Williams that has been subsequently adapted by others.

Based on Figure 3.1, Alan Williams provided a simple but effective scheme for health economics which portrays the main topics of interest within health economics. The figure includes boundaries that exist between the topics and the directions of the arrows indicate the logical linkages between the boxes.

Box A describes the health production function and explores the factors that influence the provision of health to individuals and the contribution of factors such as education, level of income, and wealth to decision-making. This box describes the importance of initial investments in health capital and the dangers of depreciation which may result in discounted benefits.

Box B involves the assessment of the determinants of health, health status indexes, life value and health utility scaling (Edwards, 2001). These determinants of health are important when assessing the system boundary issues in the health care system. According to Suvanto and Vartiainen (2007), the determinants of health economics are key to making informed decisions on priority setting in that they promote efficiency studies which facilitate the valuation of patient, organizational, society, and system outputs.

Boxes C and D explore health care demand and supply respectively. While Box C covers the demand for healthcare derived from the patients' expectations that healthcare improves their health and increases life expectancy, Box D describes various supply issues including: behaviour of healthcare institutions, client group needs, and the nature of the suppliers (Suvanto & Vartiainen, 2007). Therefore, the allocation of healthcare resources is driven by forces of demand from patients seeking improved health, and supply of care services by healthcare institutions through alternative production techniques, input substitutions, and improving remuneration methods and incentives. However, the major challenge arises in the management of the funding systems and ensuring the supply of care to patient groups with specific needs such as the elderly and the mentally ill (Edwards, 2001).

Box E involves micro evaluation of healthcare based on the methods of providing care (Edwards, 2001). This involves the use of techniques such as Cost-effectiveness and Cost Benefit Analysis in the allocation of resources to healthcare institutions and to groups of patients and will be described in more detail in later sections. According to Suvanto and Vartiainen, (2007), the involvement of economic techniques for assisting with clinical decision-making can provide useful information that can be used for modelling health care.

Box F explores the health care market equilibrium. It describes how markets balance the demand for and supply of health care services and products such as pharmaceuticals. Private and public funded healthcare institutions balance the forces of demand and supply of health care resources differently (Edwards, 2001). For example, public-funded health care institutions use priority setting and waiting lists to arrive at the equilibrium point while private health care institutions depend on money prices and benefit restriction packages.

Box G evaluates systems that are responsible for the creation of health care resources and improved health of the patients (Edwards, 2001). The micro and macro level have variations in the allocation of resources. Box H examines the mechanisms employed during budgeting, planning, and monitoring of health care resources and how these mechanisms influence equity and efficient priority setting (Edwards, 2001). Box H also describes how to employ coordinating planning, market incentives and, workforce management to optimize performance in systems (Suvanto & Vartiainen, 2007).

Within health economics a number of approaches have been developed to assist in allocating the available resources within the health care system with the aim of improving the efficiency with which healthcare is provided. Despite the existence of various economic approaches to priority setting, there is no single method that is applicable worldwide. This according to Gold *et al.* (1996) is attributed to the fact that different societies have different perceptions about the quality of healthcare. Therefore, since the optimization process requires the setting of objectives, there is a possibility that both objectives and methods for priority setting may vary between regions and countries. However, there are two critical objectives that have received worldwide recognition: reduction of inequalities in health and maximization of health. Maximization of health seeks to promote the highest health status in the entire population using a given level of resources while reduction of inequalities in health is aimed at discouraging the existing differences in health status among individuals.

3.4.1 Economic Principles used in Priority Setting

According to Mitton and Donaldson (2004a), there exist two principles of economics that are associated with priority setting in the healthcare industry. These are the principles of opportunity cost and the principle of margin. Russell (1992) defines the opportunity cost of devoting resources to a particular use as “*the loss of the benefits the resources could have produced had they been put to their next-best use– the lost opportunity to invest in that alternative*”(p. 162). The principle of the margin involves altering or shifting the resource mix (Mitton & Donaldson, 2004a). For example, if organizational managers decide to increase the budget, they should have a clear plan of how the extra budget would be spent and the benefits that would result. In contrast if the managers decide to reduce the budget, they should concentrate all the resources on the areas that generate the most benefit. Further, if the budget is neither decreased nor increased, then some resources will be shifted from one area to another with the aim of improving returns.

3.4.2 Economic Evaluation

Economic evaluation has been used differently in various countries. However, the extent to which it has been used or the purposes for its use are dependent on the country’s dominant health system, whether it is private insurance based, public or social insurance based. In developing countries, the use of economic evaluation may also be dependent on the conditions associated with the aid that a country receives from international bodies. According to Morris, Devlin and Parkin (2007), economic evaluation is employed as a decision making tool in health care in order to maximize the returns from healthcare spending, manage costs and demand, improve bargaining power for healthcare products, and minimize regional variation in access to healthcare.

The aim of any economic evaluation of a healthcare intervention is to assist decision-makers in coming to an agreement in respect of the allocation of limited healthcare resources. However, it could be said that this is merely an intermediary goal. The main objective of economic evaluation is to improve efficiency – how inputs (e.g. money, labour, and capital) are efficiently converted into outputs (for example, improving health and quality of lives, saving people from dying, protecting them from disease). Therefore, an economic evaluation is critical for any healthcare programme so that it can reap the most benefits out of the resources it has at its disposal. Economic evaluation is “*the comparative analysis of alternative courses of action in terms of both their costs and consequences*” (Drummond *et al.*, 1997, p.8-9), thus involving the two parameters: cost and outcome.

Economic evaluation provides an important economic approach to priority setting in healthcare. Therefore, this process requires the choice of various parameters including; the discount rate applicable to future years, the disability weights that indicate the severity of diseases based on the health losses they cause and the life expectancy which determines the number of years that can be salvaged by prevention, aversion or treatment of a long term health condition (Airoldi *et al.*, 2014). The non-health benefits that result from a health intervention should also be considered.

There are various methods that are used by healthcare economists to set priorities and determine how effectively to distribute the available resources. They include; marginal analysis, programme budgeting, and economic evaluation approaches such as cost-effectiveness analysis (CEA). However, no agreement exists on priority setting for publicly funded health care institutions in Saudi Arabia because the decisions involve value-based judgments which are potentially controversial. As a result, it is difficult to develop a culture that allows the rejection of funding for

some pharmaceuticals. Such a culture requires fairness and legitimacy which in turn requires the incorporation of a mixture of transparency, pertinent values and inclusion of all the stakeholders in decision making (Schansberg, 2014).

Economic evaluations are not merely focussed on the costs, but also the consequences, as the health intervention or programme may prove to show poor outcomes even though it is cheap; in this case it would then represent poor value for money (Goodacre and McCabe 2002). The notion of opportunity-cost is founded on the concept of scarcity of resources and thus the opportunity cost of taking a specific course of action is the advantages that are lost by not taking the next optional course of action (Mooney, 2003). Opportunity cost is dependent upon the perspective that is assumed (such as the patient or the society as whole) (Donaldson *et al.*, 2002), thus the opportunity cost of extending a local check-in clinic will therefore be dependent on the benefits that would be obtained from the second best option for using that resource, such as purchasing a new machine for a local hospital. Despite this, if the wider viewpoint than the local area and the local hospital is taken, such as the whole healthcare system, then opportunity costs may be altered, for example, lessening of community care as a result of hospital expenditure.

Economic evaluations, and indeed economics overall are mainly concerned with the policy of efficiency. This involves acquiring the most benefit from a particular amount of resources (Donaldson *et al.*, 2002). The idea of efficiency can be further broken down into two types; technical and allocative (Gold *et al.*, 1996). The former is concentrated toward achieving a specific goal with the minimum possible exertion. In an example of this, the most technically efficient way of obtaining the goal of reduced hospital waiting times would be to do so at the lowest cost, all else being equal (Goodacre & McCabe, 2002). Allocative efficiency is concerned with achieving the

form and level of care that the community itself requests. This differs from technical efficiency as value judgements must be made about which intervention is to be pursued, rather than the best way of pursuing an intervention (Goodacre & McCabe, 2002). For example, allocative efficiency questions would involve deciding whether to treat accident victims or infectious disease patients, whereas technical efficiency questions would involve how best to treat each of these groups.

There are a variety of ways to examine benefits when they are combined with cost, and these form the different methods of economic evaluation: Cost-Effectiveness Analysis (CEA), Cost Utility Analysis (CUA) and Cost Benefit Analysis (CBA). These differ according to their underlying theoretical principle which result in their measuring output in different ways. CBA is generally seen as dealing with allocative efficiency questions whereby both costs and outcomes are measured in monetary units. Outcomes are measured in monetary units using methods such as 'willingness to pay' to value health care (Oliver *et al.*, 2002). The advantage of measuring value in monetary units means that all aspects of health care can be incorporated into that value (not just the health outcome), for example, process of care or staff attitudes. By assigning a monetary value to both costs and outcomes, the net-benefit of comparative programmes can be estimated and used to compare alternatives both within and outside the health care sector.

Cost-effectiveness analysis (CEA) is an analytical tool which compares the cost of an intervention with the known or anticipated health outcomes (Jamison *et al.*, 2006). The result is usually summarized in the form of the Incremental Cost-effectiveness Ratio (ICER), which corresponds to the concept of value for money in health care, i.e. prioritising activities that are more cost effective is consistent with the economist's view that the allocation of the limited resources in healthcare should be done for the sole purpose of maximizing health benefits for the population involved

(Jamison *et al.*, 2006). Cost-effectiveness analysis, according to Jamison *et al.* (2006), provides the simplest method of improving value for money in health. This is because it allows health economists to compare costs and benefits not only for the same health outcomes but throughout the health care system. However, CEA does not generally facilitate the comparison of non-health outcomes and therefore the ICER is restricted to a health-focused perspective. Therefore, when using the ICER for priority setting, decision-makers need to determine what the individual's or society's willingness to pay for health benefits is, unless other criteria are justified in purchasing products or services that do not offer the best value for money. In addition, CEA compared to Cost-benefit analysis does not account for societal benefits since the impacts of the interventions are only valued in terms of health. Cost-effectiveness however has been associated with problems with integrating the intrinsic uncertainties about model structure, relationships and parameters into the estimated ICER. In addition, variation in the price of healthcare resources has also been found to affect ICER (Gold *et al.*, 1996). For example, despite all drugs having positive health effects, drugs with reduced side effects and greater efficiency are usually provided at a better value for money in countries with high costs of healthcare services. In developing countries, the cost of healthcare services is lower due to low technological intensity and lower costs.

Welfare economics dictates that individuals strive to maximise happiness and utility so that the whole of society becomes a conglomerate of individual wants and needs (Drummond *et al.*, 1997; Gold *et al.*, 1996). In the case of Paretian welfare economics, the best state for a society to operate at is at a point where the benefit of an individual does not necessitate the detriment of another (Tsuchiya & Williams, 2001). It is problematic to discern whether this would be the case in a real-life scenario, thus, the compensation principle was devised in which the prospective 'losers'; can be compensated from the prospective 'gainers' (this may be hypothetical in nature) (Kaldor, 1939).

This principle based on potential gains and losses facilitates an assessment of comparative programmes with respect to the overall distribution of gains and losses across society, the transfers of compensation are hypothetical in nature and this is referred to as the Kaldor-Hicks criterion.

Though CBA is one of the methods used in evaluation of health benefits, there are certain concerns about the use of CBA because some economists believe that it can only take into account fiscal values (Drummond *et al.*, 1997). For this reason, therefore, the non-welfarist approach permits the measurement of repercussions of differing policies via a means that is not linked to the means by which person's value them. A non-welfarist perspective often measures the health gains (Tsuchiya & Williams, 2001), on the grounds that decision-makers wish to get the most from a budget to benefit their particular area (Brouwer & Koopmanschap, 2000). The value of outcomes of different interventions is not viewed in the same way by health care economists and the community.

However, welfarist and non-welfarist perspectives to health economics have been expounded extensively in the literature, with some health economists believing that non-welfarist approaches in which health, rather than utility, should be the final outcome of concern (Culyer & Newhouse, 2000).

In CEA, the emphasis is placed on a single physical outcome measure (Drummond *et al.*, 1997), for example, the number of life-years that have been saved (Drummond *et al.*, 1997), or the lowering of average blood pressure values across a community (Oliver *et al.*, 2002). This means that it is only possible to compare across interventions that employ the same outcome measures. The comparison is made using the Incremental Cost Effectiveness Ratio (ICER) that provides '*the incremental price of obtaining a unit health effect*' (Gold *et al.* 1996, P. 27). An example for two different treatments is provided below (Oliver *et al.*, 2002):

$$\text{ICER} = (C_A - C_B) / (E_A - E_B)$$

Here, C represents the cost and E represents the outcome of the alternative interventions (A + B) (Oliver *et al.*, 2002). Evidently there is no requirement to work out this ratio if an alternative is both more effective and less expensive, (in which it is said to 'dominate' current practice) (Gold *et al.* 1996). A theoretical assumption underlying the approach is that programmes are able to be divided with continuous return on the same scale (Johannesson & Weinstein 1993). This means that they are able to be enacted in part and this cost and effect become proportional to one another and the scale of implementation. This may not be the case where there are indivisible aspects and thus the best combination of two or more programmes might be achieved through the use of integer programming (Johannesson & Weinstein 1993). Furthermore, the growth of returns relative to the scale may prove that the combination of A and B is superior to each of them alone.

CUA is an adaptation of CEA. With a CUA, outcomes are combined into one compensate measure that combines both the length of life and the quality of life (Oliver *et al.*, 2002). The Quality Adjusted Life Year (QALY) is measured by combining information on quality of life measured on a 0-1 utility scale (where 1 represents full health and 0 represents death) and information on length of life. A key advantage of the QALY is that it allows comparisons of cost-effectiveness across different interventions and treatment areas (Drummond *et al.*, 1997).

There are methodological and ethical considerations when using QALYs as an outcome measure such as:

- It assumes that length of life can be traded off to gain improvements in quality of life and thus an individual can view 12 years of 'full health' as equivalent to 15 years in an impaired

health state and that this ‘trade-off’ can be automatically transferred to variable years of timing. (Loomes & McKenzie 1989).

- It assumes a constant attitude to risk with respect to length of treatment and time (Loomes & McKenzie 1989).
- It assumes full-knowledge and complete certainty in the future and thus the value assigned to a health state is not dependent upon when that health state will occur across a persons’ lifetime (Harris, 1991).
- Finally, there are issues associated with equity that QALYs do not adequately address. The maximisation of QALYS may discount certain population groups such as the elderly (Harris, 1991). Evidence also suggests that individuals have a tendency to give up their quality of life for the sake of the very ill (also known as 'rule of rescue principle') (Dolan *et al.*, 2005).

There are some areas of research that have revealed different attitudes towards how QALYs are used, particularly with respect to the assumptions around age (Dolan *et al.*, 2005). Other studies have researched how QALYs are used for decisions on organ transplants (Ubel & Loewenstein 1995; Ubel & Loewenstein 1996) and this has revealed that there are some circumstances where individuals are more likely to accept rationing, however future research is required.

There are two methods on how QALYs are used for decision making: the QALY league table approach and the threshold approach (Ryan & Farrar 2000). A league table presents a hierarchical listing of all programmes ordered by increasing ICER (Lord *et al.*, 2004). The aim is to fund all programmes, from the top to the bottom of the table, until the money, essentially is exhausted (Lord *et al.*, 2004). There are several issues with the employment of league tables, as studies have shed light on the variable methods for calculating the ICERs (time horizon, discount rate etc) thereby

making comparisons between programmes questionable (Mauskopf *et al.*, 2003). Furthermore, the league table method also assumes that there is a possibility of perfect visibility and continuous returns to scale that may not be seen in real practice. At the margin, it could be useful in that the QALYs that are obtained in order to generate a linear combination of programmes, rather than a single one (Birch and Gafni 2004). The use of tables is therefore cautionary (Gerard & Mooney 1993; Mason *et al.*, 1993).

One of the first and sole examples of explicit priority setting using QALY tables was seen in the US state of Oregon that listed a priority table that did not count some categories of treatment of funding (Blumstein, 1997). Despite this, the state realised that the use of economic methods in order to compare expenditure was unreliable as a result of the incompatibility of efficiency and finances, therefore it did not use them in practice (also issues regarding data limitations) (Blumstein, 1997). The league tables also did not assimilate equity into their calculations, (though the attributes remain the same no matter who obtains them) (Mooney, 2003).

An alternative to league-tables, is threshold analysis (also referred to as benchmarks) that are used to assess the worth of programmes on the basis of pre-determined cost-effectiveness (Ryan & Farrar, 2000; Lord *et al.*, 2004). This is how NICE utilises information on CUA in decision making. Theoretically, however, thresholds are the same as the league tables, though they include a cut-off point in which the programmes that have a negative rather than positive effect are discounted. The threshold rule can be said to be a calculation of the net benefits of the cost effectiveness (Phelps & Mushlin, 1991).

A useful way of presenting the uncertainty associated with cost-effectiveness in relation to the threshold value is known as a CEAC (Cost-Effectiveness Acceptability Curves). This curve presents the *probability* of the study dropping below the threshold level — especially with regards to the treatment outcome uncertainty (Mays & Pope, 2000).

3.4.3 Generalisability in economic evaluation studies

Many reasons exist as to why the findings of an economic evaluation study may not always be applicable to different times and different settings (Sculpher *et al.*, 2004).

Variation in methods

One reason explaining why the results of economic evaluations show dissimilarities is that the techniques employed to obtain the results can be different – this is due to an absence of standardisation of methods along with a lack of acceptance of established standards (Drummond, 2012). The costs and resources used can be different between countries and regions, as well as changing over periods of time. Differences in unit costs is the major reason for dissimilarities between nations, while differing inflation levels affect prices over time (Sculpher *et al.*, 2004). The type of intervention may also have a dramatic result on the amount and kinds of resources that are required in health care practices; for example, incomparable clinical grades or different mean lengths of hospital stay for admitted care. The different healthcare settings should also be taken into consideration – the local health care that people receive from GPs (primary care) compared to the healthcare that people receive in hospital (secondary, or acute, care) may differ across settings. All of these issues can affect the variability of cost-effectiveness estimates e.g. absolute/relative costs, economies of scale, exchange rates, healthcare resources, financial motivations, and opportunity cost (Sculpher *et al.*, 2004).

How beneficial a health intervention is greatly depends upon a variety of factors; its overall success is markedly affected by place and time (Farrow *et al.*, 2005). Birch and Gafni have revealed that contextual factors can have a significant influence on both the ‘technical component’ of economic results (i.e. the way in which an intervention affects the interaction between the source and the end result) and the ‘subjective component’ (i.e. how a particular culture regards the importance of health in contrast with the value placed on materialistic commodities) (Birch & Gafni, 2004). The type of healthcare system or service provided is also considered to be fundamental in deciding whether an intervention or the provision of various monetary funds will be triumphant or not (Kristiansen & Gosden, 2003). In recent times, health economists have outlined the difficulties which arise when assessing public health interventions, particularly as they arbitrate systems of a complicated nature; some economists have repeatedly argued for a deeper understanding of the varying relationships between the input of resources and the level, types, and timing of outcomes (Shiell *et al.*, 2008).

Context of the decision

Along with the above factors that are involved within an intervention, the majority of economic evaluations will have a ‘decision context’, which will either be openly stated or embedded somewhere within the main body of the results. For one thing, this will reveal the treatment presently being used or service comparator, which may differ from the content published in other economic evaluations. On the other hand, the prioritising context will also show what resource use has and does not have an opportunity cost (Craig *et al.*, 1998). In several circumstances, for example when a materialistic resource (such as an operating theatre) is lacking in space, there will be another use for any space currently free. However, some hospitals working below-capacity may not be able to use this space in another productive way.

Likewise, varying limits to the budget would change the opportunity costs of the utilisation of the same resources (Birch & Gafni, 2004). For this reason, the cost-effectiveness of two identical interventions in two select locations may vary, even if the resources used and the health of the population treated in both interventions are closely related, because of the decision-making context.

The significance of any changes made to the service and to the budget can also be whether new services were meant to expand current service territory (i.e. supplement), or move to a different location (i.e. substitute). This can affect opportunity costs. The overall significance of such contextual factors was explored in Coast and colleagues' assessment of four economic evaluations of hospital at home programmes (Coast *et al.*, 2000).

3.5 Program budgeting and marginal analysis (PBMA)

Programme Budgeting (PB) and Marginal Analysis (MA) are two tools employed by healthcare economists to plan for allocation of resources through the Programme Budgeting and Marginal Analysis approach. This approach to resource allocation aims to divide decision making on healthcare resources into a manageable set of activities (Parkin, 2009). Programme budgeting concentrates on using and setting budgets on the benefits of health care services as opposed to purchasing health care resources. It is also concerned with allocating costs to health care programmes and deciding on the terms for the outputs to be produced. This allows for assessment of the current budgets rather than the cost of the services that have been purchased. On the other hand, Marginal Analysis (MA) is a general economic approach to resource allocation. However, in the context of the PBMA, it is based on the idea that programme budgets have to be developed first before decision makers aim to maximize the achievement of the objectives of an intervention based

on the resources allocated to it. Marginal analysis is therefore an economic appraisal of the benefits and costs of a proposed normative investment in healthcare. The principle of margin is an important component when devising an economic approach to priority setting in the healthcare industry (Mitton & Donaldson, 2004a). For example, a healthcare institution achieves the aim of increasing patient outcomes only at the point where no additional re-allocation of resources from one department to another will lead to increase in total benefits. This point, according to Mitton and Donaldson (2003b), is the point where the ratio of marginal benefits to marginal costs across the services is equal. Therefore, if health care leaders overlook the principle of opportunity cost, and the principle of margin, the organization's resources may not be allocated and utilized to the maximum.

PBMA itself arose from the two different planning techniques of Programme Budgeting (PB) and Marginal Analysis (MA), which were combined into PBMA as a more consistent approach (Mitton & Donaldson 2001). Programme Budgeting and Marginal Analysis (PBMA) is an adaptable approach by which to distribute resources on the basis of the decision-making process. PBMA is undertaken by allocating the various priorities of the decision making process into a smaller and more comprehensible plan of action (Mitton & Donaldson 2001).

In the case of PB, the focus is placed on the outputs of health services rather than the inputs of health care, which have traditionally been seen as more important. As a technique, PB focuses on attributing costs to health care programmes in lieu of their produced output, something that is often arbitrated by disease or client consortiums (Mitton & Donaldson 2001). Consequently, one is able to determine what projects the budgets are being allocated to, as opposed to merely seeing the services that are being bought or hired. Everything that has been expended by the programme within a particular time frame — often a year — is included in the budget, capital and revenue

inclusive. PB can be employed at the larger, or macro level, so that it incorporates the entire scope of expenditure and divides this expenditure into major groupings or programmes — for instance, in the case of different settings for care within a particular disease group, the PB will include more specific detail regarding the services used or bought (Mitton & Donaldson 2001).

In theory, PB is an element of a broader means of planning the decision-making process with regards to the intervention that has been given. Despite this, practically speaking, PB merely relates to the information that has been given, in addition to any arguments made regarding how it is to be used (Mitton & Donaldson 2001; Morris *et al.*, 2007).

The PB approach has been undertaken on a national level and a local level, as well as being used in many individual countries and even globally, in the case of such organisations as the WHO, which operates internationally. The *National Programme Budget Project* was launched in the UK by the Department of Health in the year 2002, in which all PCT and SHA expenditure on services including primary care services, community services and hospitals were transferred to separate programmes regarding care, based on various medical conditions (Morris *et al.*, 2007).

However, MA refers to something different and something more exacting. After the programme budgets have been created, decision-makers will wish to ensure that they have achieved the maximum level of attainment possible with regards to the budgets that have been assigned. Consequently, the appraisal and approval of health care at the level of service provision itself is needed (Morris *et al.*, 2007). Thus, MA is a means of evaluating a particular investment in health care or the repercussions such as the loss of benefits and reduced costs of disinvesting in a particular type of health care. Therefore, the use of MA is not a comparison between the costs and

the losses, the benefits and the drawbacks of an investment, but the assessment of the margin of the difference between two alternative means of utilising resources. MA can, therefore, be used to assess the differences in marginal alterations of a particular programme or programmes, however, it is generally used in application within rather than between programmes (Mitton & Donaldson 2001). A standard approach is used within MA for the purposes of appraisal, economically speaking, though there are various facets that distinguish themselves from this simplistic approach such as the assessment of prospective services for future investment and use of extant services that may be relieved of their investment, usually through the advice of an expert group. Mitton and Donaldson outline seven stages in a PBMA priority setting process (Table 3.3) (Mitton & Donaldson 2004a).

Table 3.3: Stages in a PBMA priority setting process

PBMA Stages
1) Determine the aim and scope of the priority setting exercise
2) Compile a program budget (i.e. map of current activity and expenditure)
3) Form marginal analysis advisory panel
4) Determine locally relevant decision making criteria <ul style="list-style-type: none"> a. Decision maker input b. Board of Director input c. Public input
5) Advisory panel to identify options in terms of: <ul style="list-style-type: none"> a. areas for service growth b. areas for resource release through producing same level of output (or outcomes) but with less resources c. areas for resource release through scaling back or stopping some services
6) Advisory panel to make recommendations in terms of: <ul style="list-style-type: none"> a. funding growth areas with new resources b. decisions to move resources from (5b) into (5a) c. trade-off decisions to move resources from (5c) to (5a) if relative value in (5c) is deemed greater than that in (5a)
7) Validity checks with additional stakeholders and final decisions to inform budget planning process

Source: Mitton and Donaldson . *Cost Eff Resour Alloc.* 2004; 2: 3

The contribution which PBMA has made towards assisting decision-makers in setting priorities has been assessed as one of few approaches on a large-scale (Dionne *et al.*, 2009, Mitton and Donaldson, 2002, Mitton and Donaldson, 2003c, Mitton and Donaldson, 2003a, Mitton and Donaldson, 2003b, Mitton and Donaldson, 2004a, Tsourapas and Frew, 2011). In high-income countries (such as UK, Canada, Australia and New Zealand), PBMA has been somewhat influential in the prioritisation process at the micro, macro, and meso levels. Based on the notion of allocative efficiency, the role of PBMA is to aid health care managers in their decisions about

resource allocation at a local level so that they make the most of the resources available. PBMA also focuses on the benefits and costs of any changes being considered to the budget using a clear and concise approach, as well as structured engagement with stakeholders who are at the core of the PBMA approach.

PBMA has had an impact upon both the priority setting process and the outcomes in terms of influencing plans and allocation of resource. Tsourapas and Frew (2011), for instance, demonstrated that in 52% of cases, stakeholders developed a more comprehensive view of the priority setting process when PBMA was used for priority-setting. Furthermore, the recommendations of the advisory panel were implemented in 65% of cases, while in 48% of cases disinvestment occurred, and in 22% of cases, authorities intended to further use the PBMA approach. Based upon the evaluative results, PBMA has proven to be highly beneficial in setting priorities and allocating resources. However, PBMA and its extensions have mostly been introduced and assessed primarily in high-income countries.

There is a lack of knowledge about how influential PBMA is in a low-income country. It has been reported that very few evidence-based approaches for priority setting have been assessed in either high or low-income country (Jimenez *et al.*, 2012), and that “there is no clear guidance from the literature on how to evaluate the success of a priority-setting exercise” (Tsourapas & Frew, 2011, p.178). Therefore, in low-income settings, it is important to take into account the context-related factors such as political, organisational, cultural and economic factors, when considering how much of an impact PBMA will make upon planning, improving, and re-allocating resources (Bolszewicz *et al.*, 2013).

3.5.1 Linear Programming

The standard decision rules of CEA requires health economists to either set a threshold of willingness to pay for extra health care or to operate from an overall fixed budget (Parkin, 2009). This has led economists to employ linear programming with an aim of generalizing standard decision tools. Linear programming allows for the incorporation of important features of the decision into a model that are not available if decisions are made using budgeted values of CER alone (Epstein *et al.*, 2005). Therefore, it is possible to examine alternative budgets on the duration of the incurred expenditure and the opportunity cost of each budgetary rule. However, linear models have been found to both aim at the micro-level and lack a dynamic structure that can incorporate the effects of health care on the distribution of demand for health.

3.6. Conclusion

Priority setting decision-making in healthcare is complex as a result of the organisation of the sector as a whole and the attitudes of decision makers within. Comprehending the behavioural actions and thoughts of the decision makers is labyrinthine and difficult, and there remains little clarity with regard to the processes involved in allocating resources at the meso-level. Authors have suggested a series of theoretical models (such as the political model) but the number of applications of any one of these models is small and it is difficult to draw clear conclusions about the methods in a priority setting context.

Despite the fact that most explicit approaches comply with a broad concept of classic rationality, economic evaluation can take several forms that possess a different theoretical foundation. One of the most prominent debates within health economics is whether an economic evaluation should be conducted from a welfarist or a non-welfarist perspective. For example, in the case of a non-

welfarist approach, if a programme is funded on the basis of the ICER then there is uncertainty about whether the decision maker threshold value is the same as society's threshold value. Furthermore, the use of the ICER as a decision making tool also does not provide any guidance on allocative efficiency, for example if resources could be more efficiently transferred from the education sector to fund health-care programmes. The use of the ICER threshold has a focus on technical and not allocative efficiency.

It is also clear that the priority setting literature that currently exists is largely divorced from the rentier state context discussed in chapter one. Whilst there are aspects of theory that could be applied in the rentier state context generally, and Saudi Arabia specifically, it is less clear how the particular context of these countries is likely to interact with specific issues such as public involvement in the priority setting process.

Overall, the broad area of economic evaluation appears to offer a technically sophisticated set of methods for use in priority setting, and, as indicated in chapter one, this method has been advocated for use in Saudi Arabia. The example considered here of Oregon, however, suggests that these technical methods may not always be acceptable in practice. It is to the detailed evidence on this issue that the thesis now turns.

CHAPTER 4: ECONOMIC EVALUATION IN PRACTICE

As discussed in the previous chapter, the complexity of decision-making and the surrounding factors are likely to affect the use of evidence. The main purpose of this chapter is to systematically review and discuss the published studies on the use of economic evaluation in decision-making, in order to identify the role of economic evaluation in priority setting decisions for healthcare. To this end, a systematic approach to the literature review was used to help to ensure that all existing literature on the use of health economic evaluation in decision making was identified. Systematic reviews have been defined as ‘*concise summaries of the best available evidence that address defined clinical questions*’ (Mulrow *et al.*, 1998, p.1). Reviewing the literature using a systematic approach enables researchers to gain a comprehensive overview of the existing knowledge on a particular topic. A systematic literature review is considered a research methodology in its own right comprising a well-defined research question, explicit and rigorous methods to identify information, explicit inclusion/exclusion criteria, critical appraisal, and a full discussion of the findings (Pope *et al.*, 2007)

The purpose of conducting this systematic review was to identify, analyse, evaluate and amalgamate all the relevant literature on the use of economic evaluation in health care decision making. The intention was to use the findings from the literature review to help to focus the empirical research question and so to maximise its academic contribution. It was also expected that

conducting the systematic review would enable later examination of the extent to which the findings of the empirical research conducted within this thesis were consistent with existing literature.

This review, therefore, aims to identify all published empirical studies, and existing reviews on the use of health economic evaluation in the process of decision-making. In order to specify the methods in advance to reduce the risk of bias, a review protocol was developed prior to undertaking the review (Appendix 1). The protocol is based on the general principles outlined in the Centre for Reviews and Dissemination (CRD)'s guidance for undertaking reviews in health care (CRD, 2009). The first section of this chapter describes the systematic review methods. The second section of the chapter presents the results of the review in two parts: part one which is a review of existing reviews, and part two which presents the findings of the empirical literature review.

4.1. Methods of review

This section describes the aims of the review and the review scope, the literature review methodology, its search strategy including the inclusion and exclusion criteria, and the data extraction method. The review was designed to address two questions:

- To what extent are findings from economic evaluation studies used in health decision-making processes?
- What factors affect the utilisation of the findings from economic evaluations in health decision-making processes?

The main aim of the review was to assimilate and contextualise the empirical evidence on the use of economic evaluation in priority setting decisions. There were five specific objectives of the review:

- 1- To identify the empirical work concerned with the use of economic evaluation in decision making in all health policy-levels.

- 2- To explore the use of economic evaluation findings within resource allocation decisions.
- 3- To examine differences and similarities between these studies over time and across countries.
- 4- To discuss the main findings/evidence in the existing reviews of literature relating to the use of economic evaluation in decision making.
- 5- To identify challenges or barriers that may impact the use of economic evaluation, and what opportunities there are to overcome these obstacles.

The review was carried out in two stages:

1st stage: to review existing reviews on the use of economic evaluations in decision-making.

2nd stage: to systematically review all existing empirical studies on the use of economic evaluations in decision-making.

4.1.1. Search strategy

Searches of electronic databases were run by using a combination of index terms and free text terms such as economic evaluation, health care costs, cost analysis, priority-setting, resource allocation, policy-making, and decision-making. The search strategy for electronic databases is documented and presented in the review (Appendix 1). The following electronic databases were searched: MEDLINE (Ovid) for the time period 1948 to March 2013, EMBASE (Ovid), and EconLIT (EBSCO) for the time period 1980 to March 2013. A citation search was undertaken for publications included in the review to identify any additional publications which might not have been previously identified.

4.1.2. Selection

All the titles and abstracts retrieved were checked. If there was uncertainty regarding the rejection of the article then the full text was requested. The inclusion criteria were defined as follows:

1st stage: Inclusion criteria for ‘review of existing reviews’:

- Review design: reviews with a systematic approach.
- Sampled health care policy-makers and/or decision-makers.
- Studies attempting to:
 - (a) assess the use/role of economic evaluation in decision making or
 - (b) determine barriers and constraints to the use of economic evaluation in decision making.
- Language: English.

2nd stage: Inclusion criteria for ‘review of empirical studies’:

- Full papers reporting empirical research
- Sampled health care policy-makers and/or decision-makers.
- Explicit focus on measuring the use or lack of use of economic evaluation in decision making.
- Studies that attempt to assess the barriers to the use of economic evaluation in decision making.
- Language: English.

Where the abstract appeared to meet the inclusion criteria, the full manuscript was requested. Final decisions about inclusion were made based on the full paper. Where there was uncertainty regarding the inclusion of articles, this was resolved by discussion with the PhD supervisors.

4.1.3 Data extraction

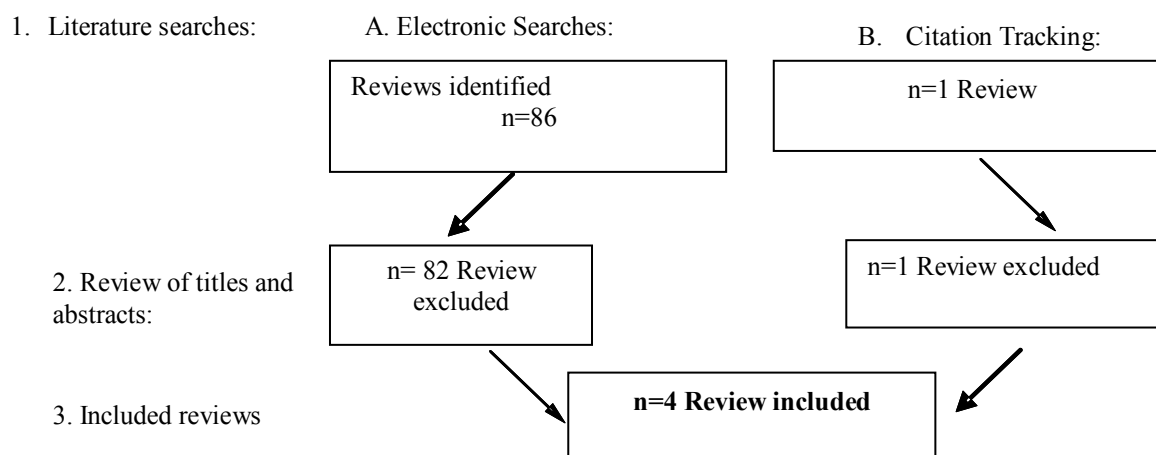
A data extraction form was designed by the author and tested on a small sample (n=9) of studies before data extraction began. The author was responsible for all data extraction and the PhD supervisors were consulted to audit and review the search process. Data were recorded relating to the author(s), year of the study, methods used to conduct the empirical work, nature (i.e. type of decision maker) and size of sample, study focus, and the main findings.

4.2. Review Results

4.2.1. Part one: Review of existing reviews

The searches for reviews in healthcare identified 86 articles (Figure 4.1). On application of the inclusion criteria, four articles met the inclusion criteria (Eddama & Coast, 2008, van Velden *et al.*, 2005, Williams *et al.*, 2008, and Erntoft, 2011). All articles are systematic reviews specifically investigating the use of economic evaluation in decision-making.

Figure 4.1: Number of reviews retrieved in systematic literature review search



The four articles that were selected (van Velden *et al.*, 2005; Erntoft, 2011; Eddama & Coast, 2008; Williams *et al.*, 2008) explored the factors that affect priority setting and decision-making at the micro, meso, and macro levels of health care. Van Velden *et al.* (2005), studied the impact of economic evaluation on the micro, meso and macro health care levels of decision making, Erntoft (2011) investigated the factors and criteria used in the allocation of pharmaceutical spending, the context of economic evaluation use, and the barriers facing the use of economic evaluation in the micro, meso and macro levels of health care, Eddama and Coast (2008) reviewed empirical evidence on the uses of economic evaluation for priority setting in healthcare while Williams *et al.* (2008) assessed evidence regarding the use of economic analysis for decision making in health care. The findings of these studies unanimously demonstrate that the use of economic evaluation is still underdeveloped at the local level, therefore, more research should be aimed at understanding why this is the case and what can be done to encourage more use of economic evidence. However,

although economic evaluation is regarded as important in the decision making process, its direct influence as the dominant decision criterion for decision makers within the healthcare organisations is still moderate, particularly at micro and macro levels (Eddama and Coast (2008), Erntoft, 2011; van Velden *et al.*, 2005).

The overall findings from the review shows a discrepancy between the attitudes and interest in the potential role of economic evaluation, and the actual practice. Although these reviews have indicated that decision-makers have generally recognized that economic evaluations should be taken into account in allocation decisions, they have also revealed that the actual role of economic evaluations in decision-making is rather limited (Eddama & Coast, 2008; Erntoft, 2011; van Velden *et al.*, 2005; Williams *et al.*, 2008). However, despite this, the findings show that economic evaluation is increasingly being used, especially within the pharmaceutical industry (Erntoft 2011), and at the policy level (Eddama & Coast, 2008; van Velden *et al.*, 2005). Yet the extent of use of economic evaluation at the micro (clinical) level (Erntoft, 2011), and the local decision-making level remains limited (Eddama & Coast, 2008; Williams *et al.*, 2008). Although an increasing number of jurisdictions are adopting economic evaluation findings to inform decisions (Eddama & Coast, 2008), the implementation of the recommendations from economic evaluations at the local decision-making and clinical levels was identified in two reviews as remaining problematic (Eddama & Coast, 2008; Williams *et al.*, 2008). There was one review however that was more positive about the use of economic evaluation at the micro level with van-Velden *et al.*, suggesting that economic evaluations had a role in 63% of decisions at micro level, 45% at the meso level and 32% at the macro level (van Velden *et al.*, 2005).

Barriers to the utilisation of economic evaluation in healthcare decision-making have been linked to methodological, cultural, political, and institutional factors (Eddama & Coast, 2008; Erntoft, 2011). Other scholars have cited lack of economic analysis and time constraints as some of the barriers to the use of economic evaluation in the decision-making process (Williams *et al.*, 2008). Further barriers to the use of economic evaluation among healthcare decision-makers include disinvestment in medical technologies, the absence of clarity over aims and function of local decision-makers, constraints on decision makers, and problems with adoption of economic evaluation approaches to priority setting (van Velden *et al.*, 2005). Eddama and Coast (2008), Erntoft (2011), and van Velden *et al.* (2005), also identify pressure from the public, limited evidence of economic evaluation effectiveness, reliance on assumptions, industrial bias, measurement of benefits and cost, difficulty in understanding economic evaluation information, absence of experience in searching for data in economic databases, and switches between local rationale and scientific rationale as some of the barriers to the use of economic evaluation.

Though the authors of these articles agree that economic evaluation is an important decision-making criterion in all of the healthcare levels and that there is no exact proof of the influence of economic evaluation, Eddama and Coast (2008) claim that the wider institutional, political, cultural and methodological factors linked with economic evaluation are also associated with the obstacles to effective priority setting in healthcare.

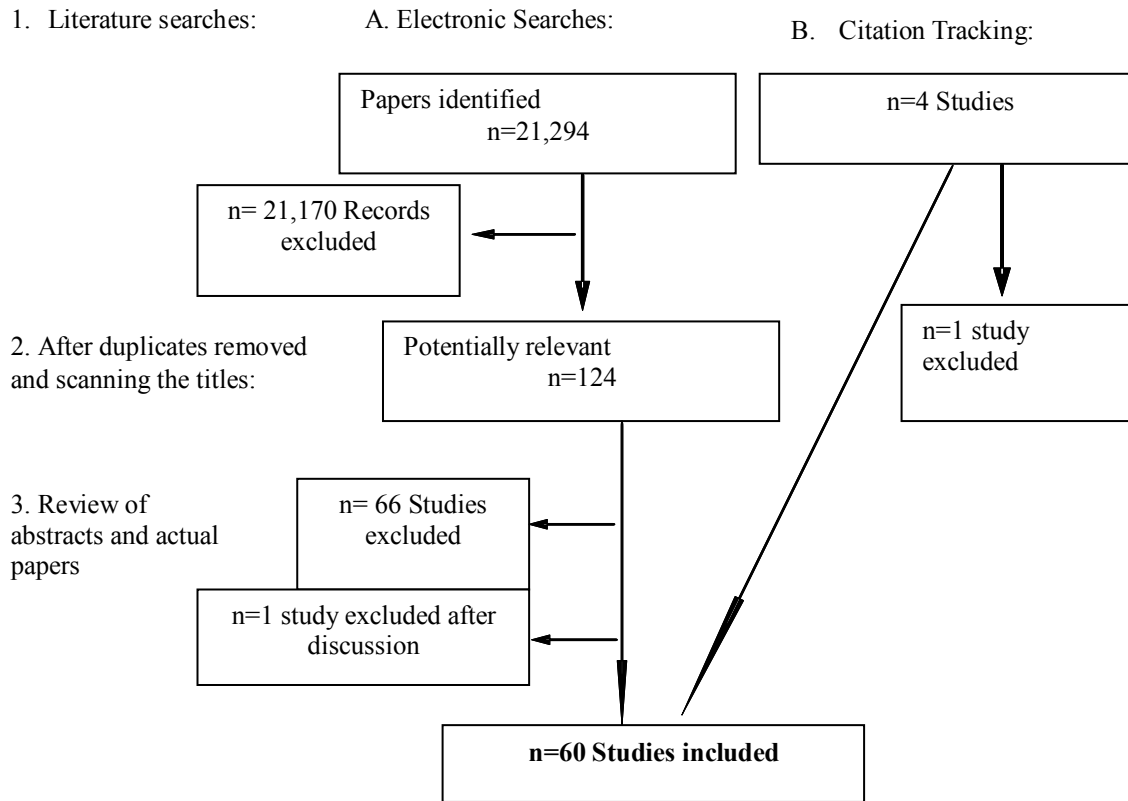
4.2.2. Review of empirical studies

The initial search provided 21,294 citations. After scanning the titles and duplicates removed, the studies that potentially met the inclusion criteria were selected initially (n=128) (Figure 4.2).

Studies whose title and/or abstract did not offer sufficient information for exclusion, were retrieved

and reviewed against an a priori form which was constructed for the inclusion criteria. On the basis of this full text, all the selected studies were reviewed initially to determine whether they met the inclusion criteria. Finally, a total of 60 studies met these inclusion criteria. One study where there was uncertainty (De Vito *et al.*, 2009) was excluded after discussion with the PhD supervisors. Although the title of this study suggested that the study investigated the use of economic evaluation, the study was actually about assessing physicians' knowledge of economic evaluation. Table 1, Appendix 1, lists all the included papers, by the year of the study.

Figure 4.2: Number of studies retrieved in systematic literature review search



4.2.3. Characteristics of Studies

The results of the review are presented according to whether the included papers reported findings in relation to the macro-, meso- or micro-level of decision making.

The macro level represents decision making at the regional, national or international policy level. At the meso level, resource allocation decisions are made by decision makers or health bodies within health care organisations for groups of patients with the same health condition. The micro level pertains to decisions made by individual health care professionals about treatment for individual patients (Yeo, 1993; Van Velden *et al.*, 2005).

Macro level

Seventeen studies were identified as being at the macro level. The majority of studies were conducted in the US, UK and Canada (Table 4.2A). Four studies were conducted in each of the US and the UK. Three studies were carried out in Canada while one study was conducted in each of the Netherlands, Thailand, Argentina and Jordan. Another paper was primarily based on results of work carried out in Latin American and included European participants from the NEVALAT project (12 countries including Argentina, Brazil, Colombia, Cuba, Mexico, Nicaragua, Peru, Portugal, Spain, the UK, Uruguay and Venezuela).

Table 4.2A: Summary of studies included at the macro level (chronological order)					
	Author(s) and (year)	Setting	Sample	sample size	Methods used
1	Steiner <i>et al.</i> , (1996)	US	Physician at private health plans	159	Postal survey
2	Drummond <i>et al.</i> , (1997)	UK	Medical and pharmaceutical advisors, hospital directors of pharmacy, directors of public health	446	Postal survey
3	Duthie <i>et al.</i> , (1999)	UK	GPs, hospital doctors, Trust business managers, hospital pharmacists, HA personnel	17 duo interviews	Duo interviews
4	Evans <i>et al.</i> , (2000)	US	Medical and Pharmacy Directors.	41	Telephone survey
5	Cox <i>et al.</i> , (2000)	US	Pharmacists	16	Telephone survey
6	Grizzle <i>et al.</i> , (2000)	US	Managed care decision makers	31	Telephone survey
7	Zwart-van <i>et al.</i> , (2000)	The Netherlands	Interviews with 9 physicians, 6 senior regulators and 4 politicians. Fifteen hospital Pharmacists surveyed by a postal questionnaire	19 15	Semi-structured interview Postal survey
8	Martin <i>et al.</i> , (2001)	Canada	A priority setting committee members (Cancer Care Ontario Policy Advisory Committee consisted of administrators, oncologists, oncology researchers, a pharmacist, an ethicist, patients, and members of the public)	12 11	Document analysis, Observation of committee meetings, Semi- structured interviews with 11 of 15 committee members
9	West <i>et al.</i> , (2002)	Canada	Senior bureaucrats in the 5 provincial governments	N/S	Postal survey
10	Iglesias <i>et al.</i> , (2005)	Latin American and European participants in the NEVALAT project (Argentina, Brazil, Colombia, Cuba, Mexico, Nicaragua, Peru, Portugal Spain, United Kingdom, Uruguay and Venezuela.)	Health decision makers (in Colombia, Cuba, and Mexico, the answers reflect the views of representatives from the Ministry of Health, and local So-cial Security Institutions).	N/S	Postal survey

11	Bryan <i>et al.</i> , (2007)	UK	Appraisals Committee Members (GPs, Consultant physician, Public Health physician, Investigational physician, Consultant surgeon , Clinical pharmacologist, Paediatrician, Health economists, Statisticians, Nurses, Clinical pharmacists, PAM, NHS Managers, Patient advocates, Device manufacturer Representatives, and Pharmaceutical company Representatives)	30	Semi-structured interviews, non-participant observation and documentary analysis
12	Williams & Bryan (2007)	UK (England and Wales)	Committee members (NICE formulary decisions)	N/S	Documentary analysis Observation of deliberations Semi-structured interviews
13	Rubinstein <i>et al.</i> (2007)	Argentina	Decision makers from public and private sectors at all decision levels	6 3	Semi-structured interviews and focus groups
14	Teerawattananon, & Russell (2008)	Thailand	Policy makers (senior policymakers at the national level, hospital directors, health professionals, academics)	36	Semi-structured interviews
15	Rocchi <i>et al.</i> (2008)	Canada	13 individuals from across Canada (included 3oncologists, 3 pharmacists, 2 provincial drug plan advisory board members , 2 health economics/health policy specialists, an ethicist, and 2 patients)	One meeting discussion	One-day informant Roundtable, and documentary analysis
16	Chaikledkaew <i>et al.</i> , (2009)	Thailand.	Members from the Management Committees of Provincial Health Offices, and from public and private hospital formulary drug committees throughout Thailand	758	Postal survey
17	Lafi <i>et al.</i> , (2012)	Jordan	Health decision makers, economists, health economists, pharmacoeconomists, clinicians, pharmacologists.	10	semi-structured interviews by telephone
N/S = Not specified					

Pharmaceutical advisors and/or pharmacists were the most frequently sampled groups (9 studies) (see Table 4.2B). Only one study employed pharmaceutical advisors and/or pharmacists alone as sampled groups (Cox *et al.*, 2000), whilst eight studies included pharmaceutical advisors and/or pharmacists as part of a wider sample group. The second most frequently sampled group were physicians, including internists and GPs/ family doctors, and public health managers (9 studies each). Insurers of medical care, medical directors/hospital managers, and (senior) managers responsible for purchasing items of expenditure were recruited in 4 studies each. Three sample groups were employed as sole sampled groups: physicians in one study (Steiner *et al.*, 1996), insurers of medical care (Grizzle *et al.*, 2000), and senior managers (West *et al.*, 2002).

Table 4.2B: Summary of sampled groups in empirical studies at the macro level			Total
sampled groups	Number of studies employed only one sampled group	Number of studies employed as part of a wider sample groups	
Pharmaceutical advisors or pharmacists	1	8	9
Physicians, including internists and GPs/ family doctors	1	6	7
Insurers of medical care (US only)	1	3	4
Medical directors/ hospital managers	0	4	4
(Senior) managers responsible for purchasing items of expenditure	1	3	4
Public health managers	0	9	9

The most popular research methods used were postal survey (6 studies), semi-structured interviews (5 studies), and documentary analysis and participant observation (4 studies) (see Table 4.2C). Ten of the identified studies at the macro level used a single method of data collection, whereas seven studies used multiple methods. Four studies used a postal survey as the only method for data collection (Steiner *et al.*, 1996; Drummond *et al.*, 1997; West *et al.*, 2002; Iglesias *et al.*, 2005), three studies used a telephone survey (Evans *et al.*, 2000; Cox *et al.*, 2000; Grizzle *et al.*, 2000), and one study each used duo interviews (Duthie *et al.*, 1999), semi-structured interviews (Teerawattananon & Russell, 2008), and semi-structured interviews by telephone (Lafi *et al.*, 2012).

Table 4.2C: Summary of methods used in empirical studies at the macro level			Total
sampled groups	Number of studies used only one method	Number of studies used method as part of multiple methods used	
Postal survey	4	2	6
Telephone survey	3	0	3
Interviews (face-to-face: structured)	0	0	0
Interviews (face-to-face: semi-structured)	1	4	5
In depth interviews (unstructured)	0	0	0
Interviews (by telephone: semi-structured)	1	0	1
Duo interviews	1	0	1
Review of documents (documentary analysis)	0	4	4
Focus groups	0	1	1
Participant observation	0	4	4
Researchers own experiences'	0	0	0
One-day informant Roundtable	0	1	1

Meso level

A total of fifty-one empirical studies (Table 4.3A) reported the use of economic evaluation at the local level and these were from a range of countries. Nine of these studies investigated the use of economic evaluation at the meso level along with assessing the use of economic evaluation at the macro level (Steiner *et al.*, 1996; Duthie *et al.*, 1999; Evans *et al.*, 2000;

Cox *et al.*, 2000; Grizzle *et al.*, 2000; West *et al.*, 2002; Iglesias *et al.*, 2005; Williams & Bryan 2007; Chaikledkaew *et al.*, 2009), whilst two further studies investigated use at the meso level alongside use of economic evaluation at the micro level (Brody *et al.*, 1991; Walley *et al.*, 1997).

In spite of the fact that economic evaluation is regarded by Williams and Bryan (2007), West *et al.* (2002), and Cox *et al.* (2000) as useful, its direct influence as the main criterion for decision makers in the health care organisations is still low (Iglesias *et al.*, 2005; Chaikledkaew *et al.*, 2009; Evans *et al.*, 2000; Steiner *et al.*, 1996). However, other studies have indicated that there is a high level of awareness among health care decision makers regarding the use of economic evaluation in the decision making process (Evans *et al.*, 2000; Cox *et al.*, 2000). Across these reviews, economic evaluation was found generally to be a useful tool for healthcare decision-making and priority setting but the extent of its use varied.

Table 4.3A: Summary of meso level studies included (chronological order)

	Author(s) and (year)	Setting	Sample	Sample size	Methods used
1	Alban (1982)	Scandinavia and UK	Researchers involved in economic evaluation	11	Postal survey
2	Alban (1987)	Scandinavia and UK	Researchers involved in economic evaluation	28	Postal survey
3	Ludbrook (1986)	UK	National Health Service staff who had undertaken a correspondence course in health economics.	46	Postal survey
4	Brody <i>et al.</i> , (1991)	US	Hospital physicians	2200	Postal survey
5	Davies <i>et al.</i> , (1994)	8 European countries	N/S	87	Postal survey
6	McNamee & Godber (1995)	UK	Two HA's	N/S	Researchers personal experiences
7	Luce & Brown (1995)	US	Decision-makers from hospitals, HMOs, third-party payers, and self-insured employers.	48	Semi-structured interviews
8	Ross (1995)	Australia	Health expenditure managers	34	Structured interviews
9	Steiner <i>et al.</i> , (1996)	US	Physician at private health plans	159	Postal survey
10	Steiner <i>et al.</i> , (1997)	US	Medical directors at private health plans	231	Postal survey
12	Lyles <i>et al.</i> , (1997)	US	Managed care organizations	51	Telephone survey
13	Sloan <i>et al.</i> , (1997)	US	Directors of hospital pharmacies and pharmacists	103	Telephone survey
14	Walley <i>et al.</i> , (1997)	UK	Pharmaceutical advisors	178	Postal survey

15	Drummond <i>et al.</i> , (1997)	UK	Medical and pharmaceutical advisors, hospital directors of pharmacy, directors of public health	446	Postal survey
16	Duthie <i>et al.</i> , (1999)	UK	GPs, hospital doctors, Trust business managers, hospital pharmacists, HA personnel	17 duo interviews	Duo interviews
17	Burns (2000)	UK and US	Purchasers of health care (in UK, 14 nonmedical Health Authority purchasers, 7 public health physicians, and 9 general practitioners) and (in US, 13 public officials, 4 private-sector purchasers, 5 representatives of private purchasing coalitions, and 3 consultants)	55 (30 in UK and 25 in US)	Semi-structured interviews
18	Rosen (2000)	UK	Hospital clinicians, hospital managers, purchaser managers, public health consultants, nurse managers	51	Semi-structured interviews and Documentary analysis
19	Anell, & Svarvar, (2000)	Sweden	Members of formulary committees	210	Postal survey
20	Evans <i>et al.</i> , (2000)	US	Medical and Pharmacy Directors.	41	Telephone survey
21	Cox <i>et al.</i> , (2000)	US	Pharmacists	16	Telephone survey
22	Ginsburg <i>et al.</i> , (2000)	US	Family doctors at hospitals	1000	Postal survey
23	Grizzle <i>et al.</i> , (2000)	US	Managed care decision makers	31	Telephone survey
24	Motheral <i>et al.</i> , (2000)	US	Pharmacists and physicians	409	Postal survey
25	Hoffmann & von der Schulenburg (2000)	Austria, Ireland, France, Germany, Netherlands, Norway, Portugal, Spain and UK	government agencies and physicians (GPs and specialists), (hospital pharmacists or hospital administrators)	968 53 20	Postal survey. semi-structured interviews. focus group
26	Kulsomboon <i>et al.</i> , (2001)	US	Pharmacy directors of teaching hospitals	166	Postal survey
27	McDonald & Baughan (2001)	UK	Health authorities (economists)	9	Semi-structured interview
28	McDonald (2002)	UK	One Health authority	N/S	Documentary analysis and Participant observation

29	Nixon <i>et al.</i> , (2002)	UK	One Health authority	N/S	Documentary analysis
30	Johnstone & Lacey (2002)	UK	One Health authority	N/S	Documentary analysis
31	Odedina <i>et al.</i> , (2002)	US	Hospital pharmacists	204	Telephone survey
32	West <i>et al.</i> , (2002)	Canada	Senior bureaucrats in the 5 provincial governments	N/S	Postal survey
33	Weatherly <i>et al.</i> , (2002)	UK	Health Improvement Programme Leaders in 102 Health authorities	102 10	Postal survey Telephone interviews and Documentary analysis
34	Hoffmann <i>et al.</i> , (2002)	UK	Health authorities	2	Focus group
35	Drummond <i>et al.</i> , (2003)	US	leaders in managed care pharmacy	10	Focus group
36	Martin <i>et al.</i> , (2003b)	Canada (Toronto)	Minutes of Pharmacy & Therapeutics Committee (P&T) meetings, key informants of P&T committee	20 doc. 3 18	Document analysis Observation of P&T deliberations Semi-structured interviews
37	Späth <i>et al.</i> , (2003)	French	Pharmacists in 13 public hospitals and 6 private clinics	19	Semi-structured interviews
38	Ubel <i>et al.</i> , (2003)	US	Family doctors at hospitals.	560	Postal survey
39	IJzerman <i>et al.</i> , (2003).	The Netherlands	GPs, representatives of health insurance companies, the Health Care Insurance Board (CvZ), and medical guidelines committees.	N/S	Semi-structured interviews .
40	Sheldon <i>et al.</i> , (2004)	UK	primary care prescribing, hospital pharmacies, senior clinicians and managers.	68	Semi-structured
41	Wu O <i>et al.</i> (2004)	UK and Scotland	GPs	27	Survey by post and by email
42	Iglesias <i>et al.</i> , (2005)	Latin American and European participants in the NEVALAT project (Argentina, Brazil,	Health decision makers (in Colombia, Cuba, and Mexico, the answers reflect the views of representatives from the Ministry of Health, and local So-cial Security Institutions).	N/S	Postal survey

		Colombia, Cuba, Mexico, Nicaragua, Peru, Portugal Spain, United Kingdom, Uruguay and Venezuela.)			
43	Hasl'e-Pham <i>et al.</i> , (2005)	France, Germany, The Netherlands, UK	143 doctors and 169 pharmacists	312	Postal survey
44	Jansson, & Anell (2006)	Sweden	GPs and specialists	738	Postal survey
45	Fattore & Torbica (2006)	Italy	Health professionals with a background in management and economics	175	Postal survey
46	Williams & Bryan (2007)	UK	Local committee members.	N/S	Documentary analysis Observation of deliberations Semi-structured interviews
47	Williams <i>et al.</i> (2007)	UK	Trusts, county-wide priorities network, primary care area medicines management, hospital medicine management committee, interface medicines management committee	101 trusts	Postal survey, documentary analysis, observation of committee meetings, semi-structured interviews
48	Chen <i>et al.</i> (2007)	UK	Pharmacists (in Hospital medicine management committees)	10	Semi-structured interviews, Observation of committee meetings,
49	Eddama & Coast (2009)	UK	PCT managers, hospital managers, palliative care managers, cancer network managers, GPs, nurse, clinician, and SHA manager.	20 13	in-depth interviews observations Meetings
50	Chaikledkaew <i>et al.</i> , (2009)	Thailand.	Members from the Management Committees of Provincial Health Offices, and from public and private hospital formulary drug committees throughout Thailand	758	Postal survey
51	Alsultan (2011)	Saudi Arabia	Medical doctors and pharmacists (Member from the Pharmacy and Therapeutics committees in 11 hospitals in Riyadh)	48	Postal survey
N/S = Not specified					

The majority of the studies were conducted in the UK (n=18) and the US (n=15). The UK was included in another four studies along with another country, including two studies with Scandinavian countries (Alban, 1982; Alban, 1987), and one study with the US (Burns, 2000). In addition, the UK was included in another three studies along with a number of other countries (US, Austria, Finland, France, Germany, the Netherlands, Norway, Scotland, and Portugal) (Davies *et al.*, 1994; Hoffmann & von der Schulenburg, 2000; Iglesias *et al.*, 2005). Two studies were conducted in Sweden (Anell & Svarvar, 2000; Jansson & Anell, 2006), and Canada (Martin *et al.*, 2003b; West *et al.*, 2002), while one study was carried out in each of France (Späth *et al.*, 2003), Australia (Ross, 1995), Italy (Fattore & Torbica, 2006), the Netherlands (IJzerman *et al.*, 2003), Thailand (Chaikledkaew *et al.*, 2009) and Saudi Arabia (Alsultan, 2011).

Earlier studies tended to evaluate researchers' and health economists' perceptions of the use of economic evaluation (Alban, 1982; Alban, 1987; Ludbrook, 1986; Davies *et al.*, 1994) whereas studies after the year 1995 tended to focus on the views of potential decision makers (e.g. a range of local decision maker groups shown in Table 3B). As can be seen from Table 3B, pharmaceutical advisors and/or pharmacists have been the most frequently sampled group of decision makers, generally in the UK or the US, (Drummond *et al.*, 1997; Walley *et al.*, 1997; Sloan *et al.*, 1997; Duthie *et al.*, 1999; Cox *et al.*, 2000; Motheral *et al.*, 2000; Anell and Svarvar, 2000; Hoffmann & von der Schulenburg, 2000; Drummond *et al.*, 2003; Sheldon *et al.*, 2004; Hasl'e-Pham *et al.*, 2005; Bryan *et al.*, 2007; Chen *et al.*, 2007; Eddama & Coast, 2009; Alsultan, 2011). However, five of these studies included pharmacists in the sample as part of a wider sample of decision makers (Hasl'e-Pham *et al.*, 2005; Bryan *et al.*, 2007; Chen *et al.*, 2007; Eddama & Coast, 2009; Alsultan, 2011). The second most frequently sampled group were physicians, including internists and GPs/family doctors

(Duthie *et al.*, 1999; Motheral, *et al.*, 2000; Hoffmann & von der Schulenburg, 2000; Rosen, 2000; Ginsburg *et al.*, 2000; Burns, 2000; Ubel *et al.*, 2003; Wu *et al.*, 2004; Hasl'e-Pham *et al.*, 2005; Jansson & Anell, 2006; Bryan *et al.*, 2007; Eddama & Coast, 2009; Alsultan, 2011). All of these studies included physicians in the sample as part of a wider sample of decision makers, except for four studies which surveyed only physicians (Ginsburg *et al.*, 2000; Ubel *et al.*, 2003; Wu *et al.*, 2004; Jansson & Anell, 2006). Three studies involved insurers of medical care (Luce & Brown, 1995; Steiner *et al.*, 1997; Steiner *et al.*, 1996), senior managers (Hoffmann & von der Schulenburg, 2000; Rosen, 2000; Sheldon *et al.*, 2004; Eddama & Coast, 2009;) and public health managers (Drummond *et al.*, 1997; Rosen, 2000; Burns, 2000) medical directors/hospital managers (Luce & Brown, 1995; Duthie *et al.*, 1999; Hoffmann & von der Schulenburg, 2000; Rosen, 2000; Alsultan, 2011). Some of these studies involved an organisation delivering care (for example, a Primary Care Trust (PCT) or Trust) and the different decision makers within that organisation (Johnstone & Lacey, 2002; Nixon *et al.*, 2002; Hoffmann *et al.*, 2002; Eddama & Coast, 2009).

Table 4.3B: Summary of sampled groups in empirical studies at the meso level			Total
sampled groups	Number of studies employed only one sampled group	Number of studies employed sampled group as part of a wider sample groups	
Pharmaceutical advisors or pharmacists	8	11	19
Physicians, including internists and GPs/ family doctors	5	13	18
Insurers of medical care (US only)	3	3	6
Medical directors/ hospital managers	1	10	11
(Senior) managers responsible for purchasing items of expenditure	1	5	6
Public health managers	0	10	10

In order of most commonly used, the methods reported were postal survey (24 studies), semi-structured interviews (12 studies), documentary analysis (8 studies), participant observation (6 studies), telephone survey (5 studies), focus groups (3 studies), with structured interviews, in depth interviews, semi-structured interviews by telephone, duo interviews, and researchers' own experiences (one study each) (see Table 3C). Thirty nine of the identified studies at the meso level used one method for data collection, whereas twelve studies used multiple methods. The most common methods used as the sole method for data collection were postal survey (21 studies), semi-structured interviews (6 studies), telephone survey (5 studies) documentary analysis and focus groups (2 studies), and structured interviews, duo interviews and researchers own experience (one study each).

Table 4.3C: Summary of methods used in empirical studies at the meso level			Total
sampled groups	Number of studies used only one method	Number of studies used method as part of multiple methods used	
Postal survey	21	3	24
Telephone survey	5	0	5
Interviews (face-to-face: structured)	1	0	1
Interviews (face-to-face: semi-structured)	6	6	12
In depth interviews (unstructured)	0	1	1
Interviews (by telephone: semi-structured)	0	1	1
Duo interviews	1	0	1
Review of documents (documentary analysis)	2	6	8
Focus groups	2	1	3
Participant observation	0	6	6
Researchers own experiences	1	0	1
One-day informant Roundtable	0	0	0

It appeared that earlier studies in the US tended to investigate the views of senior managers responsible for purchasing health services, pharmacists/pharmaceutical advisers and insurers of health care service (Luce & Brown, 1995; Steiner *et al.*, 1997; Steiner *et al.*, 1996; Lyles *et al.*, 1997; Sloan *et al.*, 1997). The first use of qualitative methods for data collection was in the US by Luce and Brown (1995), and in Australia by Ross (1995). Earlier studies that were conducted in the UK were concerned with health economist's views (Alban, 1982; Alban, 1987; Ludbrook, 1986). Drummond *et al.* (1997), was the first study in the UK to assess the use of economic evaluation among a variety of decision makers. Qualitative methods of data

collection were first used in the US (Luce & Brown, 1995), and in Australia (Ross, 1995). In the UK, the first use of qualitative methods was in the European Network on Methodology and Application of Economic Evaluation Techniques (EUROMET) project (Rosen, 2000; Hoffmann & von der Schulenburg, 2000; Burns, 2000).

Micro level

Six studies were found concerning the use of economic evaluation at the micro level in the review (Table 4.4A). Two of these studies were conducted in the US (Brody *et al.*, 1991; Erkan *et al.*, 2002), and one each in the UK (Walley *et al.*, 1997), Greece (Kangis & van der Geer, 1996), Sweden (Jansson & Anell, 2006), and Italy (Torbica & Fattore, 2010). The most frequently sampled group of decision makers was physicians, including internists and GPs/family doctors (5 studies).

Table 4.4A: Summary of micro level studies included (chronological order)					
	Author(s) and (year)	Setting	Sample	Sample size	Methods used
1	Brody <i>et al.</i> , (1991)	US	Hospital physicians	2200	Postal survey
2	Kangis & van der Geer (1996)	Greece	GPs and specialists	60	Face-to-face questionnaire-based survey
3	Walley <i>et al.</i> , (1997)	UK	Pharmaceutical advisors	178	Postal survey
4	Erkan <i>et al.</i> , (2002)	US	Specialists (rheumatologists)	375	Postal survey
5	Jansson, & Anell (2006)	Sweden	GPs and specialists	738	Postal survey
6	Torbica & Fattore (2010)	Italy	Cardiologists	129	Postal survey and Observation

Three studies that were conducted in the US and Italy sampled only specialists, and the Greek and Swedish studies sampled GPs and specialists. One study that was conducted in the UK sampled pharmaceutical advisors (Table 4.4B). In line with the macro and meso levels, postal surveys were the most popular method of data collection. (Brody *et al.*, 1991; Erkan *et al.*, 2002; Walley *et al.*, 1997; Jansson & Anell, 2006; Torbica & Fattore, 2010), and one study used a face-to-face questionnaire-based survey (Kangis & van der Geer, 1996).

Table 4.4B: Summary of sampled groups in empirical studies at the micro level			Total
sampled groups	Number of studies employed only one sampled group	Number of studies employed sampled group as part of a wider sample groups	
Pharmaceutical advisors or pharmacists	1	0	1
Physicians, including internists and GPs/ family doctors	5	0	5
Insurers of medical care (US only)	0	0	0
Medical directors/ hospital managers	0	0	0
(Senior) managers responsible for purchasing items of expenditure	0	0	0
Public health managers	0	0	0

Table 4.4C: Summary of methods used in empirical studies at the micro level			Total
sampled groups	Number of studies used only one method	Number of studies used method as part of multiple methods used	
Postal survey	4	1	5
Telephone survey	0	0	0
Interviews (face-to-face: structured)	0	0	0
Interviews (face-to-face: semi-structured)	0	0	0
In depth interviews (unstructured)	0	0	0
Interviews (by telephone: semi-structured)	0	0	0
Duo interviews	0	0	0
Review of documents (documentary analysis)	0	0	0
Focus groups	0	0	0
Participant observation	0	1	1
Researchers own experiences	0	0	0
Face-to-face questionnaire-based survey	1	0	1

4.2.4 The use of economic evaluation

The macro level

At the macro level, there appeared to be large variations in the reported use of economic evaluation among the decision makers. The review suggests that there is positive evidence of the utilisation of economic evaluation in national health care decision making, particularly at the macro level, as many institutions request economic evaluations for drugs, or for making decisions about, national use (Drummond *et al.*, 1997; Chaikledkaew *et al.*, 2009; Gallego *et al.*, 2009). This has emphasised the increasing importance attached to economic evaluation over time in countries such as the UK, Australia and Canada, where the requirements for economic evaluation alongside reimbursement applications for technologies have been the main facilitator of the use of economic evaluation at the national level. For instance, pharmaceutical companies in Australia and Canada (Ontario) are formally requested to support reimbursement for pharmaceuticals with economic evaluation data (Drummond *et al.*, 1997; Martin *et al.*, 2003b). It was reported that the Pharmaceutical Benefits Advisory Committee (PBAC) uses economic evaluation in making recommendations to the Ministry of Health about which medicines should be available on the pharmaceutical listing (Drummond *et al.*, 1997).

In the UK, there is clear evidence that the National Institute for Health and Care Excellence (NICE) in England and Wales requests data about the cost effectiveness of new health technologies and drugs and this appears to have played a large part in advancing the role of economic evaluation. In addition, there are health agencies such as the Health Technology Assessment (HTA) agency which provide evaluations of technologies through review of the scientific evidence, which again enhances the use of economic evaluation (Bryan *et al.*, 2007;

Williams & Bryan, 2007). In other settings, such as the US and some European countries, economic evaluation seems to be used more informally (Evans *et al.*, 2000; Martin *et al.*, 2001). However, economic evaluation has been influential in specific government policies (IJzerman *et al.*, 2003), in particular screening policies (Alban, 1982), for example in heart disease/transplantation in countries including the UK (Davies *et al.*, 1994; Drummond *et al.*, 1997).

Some of the factors cited as leading to increased use of economic evaluation within healthcare organisations include explicit priority-setting process, the availability of health economic skills, and well developed models for evaluation (Bryan *et al.*, 2007; Williams & Bryan, 2007; Martin *et al.*, 2001). Attitudes, experience, and knowledge regarding economic evaluation among healthcare decision makers have also been highlighted. The majority of studies found that decision makers in healthcare organisations are often not familiar with technical terms employed in health economic evaluation such as sensitivity analysis, discounting, and incremental cost-effectiveness (Chaikledkaew *et al.*, 2009). Consequently, there is a need for economic evaluation training among healthcare decision makers (Chaikledkaew *et al.*, 2009; Williams & Bryan, 2007). The cost-effectiveness criterion has been found by Bryan *et al.* (2007), and Chaikledkaew *et al.* (2009), to be most significant at the macro healthcare level and is alternatively termed as cost per dose, informal cost-effectiveness, and budget impact.

The meso level

There were some differences across setting in terms of the use of economic evaluation in decision making. Various studies have suggested that only around a third of decision makers have used economic evaluation in their decision making (Davies *et al.*, 1994; Ross, 1995;

Hoffmann & von der Schulenburg, 2000). The use of economic evaluation is not restricted to one particular type of decision-maker, but includes pharmacists (Sloan *et al.*, 1997; Anell, & Svarvar, 2000; Cox *et al.*, 2000), doctors and managers within hospitals (Rosen, 2000) and medical directors or GPs (Ross, 1995). However, there appears to have been no studies assessing whether evidence from economic evaluation has actually stopped something from happening.

From the US perspective, economic evaluation was most likely to be used by pharmacists to justify adding a drug to the formulary (Grizzle *et al.*, 2000). However, although a substantial number (90%) of pharmacists apparently thought about using economic evaluation, two-thirds (approximately 60%) occasionally acted on this information and few (20%) rarely or never did so (Motheral *et al.*, 2000). Furthermore, although it might be thought that pharmacists under the pressure of managed care would be more likely to use cost-effectiveness information, no supporting evidence for this claim has been found (Sloan *et al.*, 1997). In the UK, use of economic evaluation was also found to be limited and there is mixed evidence as to the use of option appraisal (performed for public services, considering costs as well as benefits, to determine value for money) (Williams & Bryan, 2007). Whereas Drummond *et al.* (1997), claim that option appraisal is a form of economic evaluation, McDonald (2002), discovered in her study that appraising the benefits of alternative use of resources were a weaker form of such appraisals.

In Saudi Arabia, which is the setting for the research that is reported in this thesis, only one study was identified (Alsultan, 2011). This study aimed to assess the trend in the use of pharmaco-economic data by Pharmacy and Therapeutics (P&T) committees when making formulary decisions. A cross-sectional study design was used. A postal survey was

distributed to members of the P&T committees in eleven hospitals in Riyadh city. Out of 100 questionnaires, 48 were completed and returned. 58% of the respondents were medical doctors and 17% were pharmacists. The study established that 75% of the respondents indicated they had used economic evaluation in their decision making process and 53% of the respondents had found pharmacoeconomic data to be influential in the process of decision making. The majority of the subjects (80%) also indicated that they had a fair knowledge of pharmacoeconomics while the same percentage (80%) of respondents agreed that pharmacoeconomics should be employed by healthcare professionals in their decision making process. In addition, 95% of the research participants expressed interests in attending seminars and workshops to gain pharmacoeconomic skills. In general, the study demonstrated that pharmacoeconomics can be employed by Pharmacy and Therapeutics committees when making formulary decisions. Nevertheless, the study noted that additional education to hospital administrators and healthcare professionals in Saudi Arabia should be conducted to facilitate the use of pharmacoeconomics. The study also recommended that in order to manage scarce health resources in the best way, health care centres should employ healthcare professionals with pharmacoeconomic knowledge.

In general, Al-Sultan (2011) attempted to provide Saudi's Pharmacy and Therapeutics committees and decision makers with a precise set of excellent methodological recommendations to assist in improving the use of pharmacoeconomics knowledge in making formulary decisions. Al-Sultan (2011) acknowledges that Saudi Arabia lacks formal guidelines on pharmacoeconomic evaluations and recommended that there is the need to establish a national agency that will be tasked with the responsibility of funding and commissioning pharmacoeconomic evaluations. Al-Sultan (2011) also recommended that investment should be made in the gathering of demographic and epidemiological information,

information on health state descriptions, costs, resource use, and clinical practice patterns. Al-Sultan (2011) identified various challenges associated with the adaptation of pharmacoeconomic concepts in Saudi Arabia. These obstacles include lack of a pharmacoeconomic advisory forum, lack of comprehension of economic evaluation techniques among healthcare professionals, and the presence of the fixed annual pharmaceutical budget allocation in the majority of Saudi's hospitals.

The research by Al-Sultan (2011) is significant in this study because it attempts to provide a critical review of the state of the use of pharmacoeconomics in Saudi Arabia. Traditionally, Saudi's formulary decisions were made on the basis of drug acquisition costs, pharmacokinetics, drug interactions, safety, and clinical efficacy. The study found that there was little consideration for the entire health-systems costs in Saudi Arabia. In particular, economic evaluation was not important and useful in informing healthcare decision making with respect to the allocation of healthcare resources. It is apparent however that this study failed to consider the problem of lack of training of healthcare professionals and administrators on methods to facilitate the effective allocation of limited resources. Lack of staff training was not mentioned in the review.

Despite the study being a useful addition to the literature on priority setting, it is limited by its focus on just one type of decision maker, as well as the relatively small sample size. This potentially affects the reliability of the results because the use of a small sample leads to a high variability of data which may lead to biased results. The relatively low response rate of 48% also inhibits the ability to generalize the research findings as it may be that those who are more positive about economic evaluation are more likely to respond to the survey. It should also be noted that the depth of exploration with these type of data is limited relative to what could be achieved with qualitative data such as in-depth interviews or focus groups.

Micro level

Two out of six included studies in the review reported evidence of the use of economic evaluation at the micro-level (Walley *et al.*, 1997; Torbica & Fattore, 2010). Torbica and Fattore suggested that Italian cardiologists valued more highly economic considerations and took cost-effectiveness data into account when deciding whether to use new treatments (Torbica & Fattore, 2010). In the case of British pharmaceutical advisors, Walley *et al.*, suggested that there were alterations in the obstacles that were seen to be relevant to the use of economic evaluations between that of prescribing physicians and that of advisors in the pharmaceutical industry (Walley *et al.*, 1997). The common barriers as seen by advisors were seen to be the lack of flexibility in the NHS's structures and institutions as well as the lack of credibility of the evaluations that had been conducted (Walley *et al.*, 1997). Furthermore a Swedish survey also looked into the obstacles present but found that cost effectiveness analysis itself was one of the main considerations that should have been taken into account (Jansson & Anell, 2006).

4.2.5 Methodological issues

Although the studies reviewed had a number of strengths, there were also a number of weaknesses. In terms of strengths, there was a diverse range of definitions of the use of economic evaluation and the exploration of the users' perspectives. Economic evaluation can be used to influence the amount of funding available to a specific health area; to justify existing health policy; to inform planning of health services; to contribute to changing health policy or practice. Some studies have attempted to explore potential uses of economic evaluation, and these can be considered as positive attempts at exploring this topic from different decision makers' perspectives, rather than to evaluate the researchers' perspectives,

as in earlier studies (Alban, 1982; Alban, 1987; Ludbrook, 1986; Davies *et al.*, 1994). After 1995, the studies carried out with potential users of findings of economic evaluation studies were more likely to reflect their actual attitudes towards the use of economic evaluation in the decision making process. The second strength is that many studies sampled a range of decision maker groups, such as pharmacists, physicians, hospital managers, as shown in Tables 2B, 3B and 4B. The third is that some studies provided descriptions of the context of decision making at the local level in terms of the process of decision making and the actors involved (McDonald, 2002; Chen *et al.*, 2007; Williams *et al.*, 2007; Rocchi *et al.*, 2008; Eddama & Coast, 2009). Thirdly, many studies employed several methods, whether qualitative, quantitative or mixed methods, enabling greater depth in understanding to be generated. Finally, the studies were conducted in twenty eight countries, which meant that they covered a variety of health systems in different contexts. This may have helped, to some extent, to explore the impact of the context on the use of economic evaluation, and in turn assure the generalizability of the research findings. Studies also, however, had some methodological weaknesses. These can be related to three main issues: the lack of description of the decision making process, the use of different research methods among these studies, and the samples of research respondents included in the studies.

There appeared to be a lack of description of the decision making process in most studies, particularly the context of decision making at the local level. The majority of empirical studies did not provide an adequate description of the context of decision making, whether these studies were concerned with the use of economic evaluation at the national level or at the local level; for example, earlier studies in the UK and USA, and in some countries including Canada, Italy, France, Austria, the Netherlands, Latin American countries, and developing countries like Thailand and Saudi Arabia, lacked such descriptions. This lack of

description of local level decision making may, however, be a consequence of the implementation of economic evaluation being largely seen at the national level (Drummond *et al.*, 2003).

There were methodological weaknesses in a number of the studies included in this review.

The methods used could influence the findings of these studies. Most studies that employed the postal survey approach may have limited the freedom of respondents to speak fully about their experience. The respondents gave their opinions based on predetermined questions.

However, although studies using only interview methods may have allowed respondents more freedom in response, the findings may appear controversial. For instance,

Teerawattananon and Russell (2008), used semi-structured interview methods. Only four out of fourteen informants described as ‘policymakers’ were able to define the concept of economic evaluation correctly, nonetheless informants expressed concern about the transfer of economic evaluation results, particularly from North America or Europe to Thailand. This may raise a question of how informants could analyse the eligibility of published economic evaluations, since most of them (10) failed to define the concept of economic evaluation itself. The authors did not provide an explanation on how the informants could argue against the transfer of economic evaluation results, when only four out of fourteen defined the concept of economic evaluation correctly.

Survey and interview techniques can only provide information about what respondents claim they do. It has been suggested that what people say might be different to what they actually do (Eddama & Coast, 2008). Furthermore, studies combining postal survey and interview methods may provide unclear findings. For instance, Zwart-van *et al.* (2000), used both postal survey and interview methods. According to the survey, one informant out of the four

politicians claimed that he had used economic evaluations in decision making, but he failed to come up with an example when he was asked during the interview. Among the studies included in this review, only one study used unstructured in-depth interview methods (Eddama & Coast, 2009), which theoretically could produce detailed information and insights into decision makers' opinions and experiences (May, 2001). Further, it has been reported that although the use of interview methods can produce detailed information, it can be difficult to recruit large numbers of decision makers for interview-based research. In a study by McDonald and Baughan (2001), for example, only nine respondents were interviewed.

The results of the studies may appear similar despite involving different samples. For example, many studies reported a lack of knowledge and understanding of economic evaluation (Cox *et al.*, 2000; Grizzle *et al.*, 2000 ; Bryan *et al.*, 2007; Williams *et al.*, 2007; Rubinstein *et al.*, 2007; Teerawattananon & Russell, 2008; Eddama & Coast, 2009; Chaikledkaew *et al.*, 2009; Lafi *et al.*, 2012). However, there were still differences in the levels of knowledge and understanding of economic evaluation reported among these studies. As an example of lack of understanding of economic evaluation, Bryan *et al.* (2007), reported that there was variability in the understanding of uncertainty among committee members, which is a relatively detailed specific issue. On the other hand, Chaikledkaew *et al.* (2009), indicated that the majority of researchers and decision makers were not familiar with general concepts and common terms used in economic evaluation, such as incremental cost-effectiveness ratio and sensitivity analysis, and 71% of decision-makers and 50% of researchers had not received training in economic evaluation.

4.2.6 Barriers to the use of economic evaluation

The majority of the empirical studies supposed that there were obstacles to using economic evaluation in the decision-making process. These barriers were grouped into three categories: institutional factors, cultural and political factors, and methodological factors.

Institutional factors

At the institutional level, where the PCT or Trust as a whole is affected, because of the context or environment of health care decision-making, there appeared to be two constraining factors on the use of economic evaluation: inflexibility of health care budgets; and a lack of time in the decision-making process.

Inflexibility of health care budgets

Inflexibility with health care budgets, associated with the difficulty in releasing money from one budget to another, has been associated with a lack of use of economic evaluation, since financial resources are not easily accessible or transferable. This barrier was found particularly, but not only, for hospital pharmacists in the UK (Walley *et al.*, 1997; Drummond *et al.*, 1997; Duthie *et al.*, 1999)

In the EUROMET study by Hoffmann *et al.* (2002), inflexibility of health care budgets was ranked as the most important barrier from a potential list of five, across all countries involved. Inflexibility of budgets seemed to be particularly relevant to the UK for two reasons. Firstly, traditionally there is a financial divide between primary and secondary care, meaning that (financial) resources do not often flow freely between the two (McDonald, 2002), where more than 80% of the National Health Service (NHS) budget is controlled by PCTs (Eddama & Coast, 2009). Due to this inflexibility, efficient programme developments

might not be implemented. Drummond *et al.* (1997), and Walley *et al.* (1997), revealed that decision makers ranked difficulties in reallocating resources from secondary care to primary care as the highest barrier to the use of economic evaluation.

Secondly, the type of regulation and financing systems play a role in budget cycles, whether these are short-term or long-term. In the UK, finances have tended to be fixed and allocated annually, so it is not possible to borrow against future resources (McDonald, 2002). This might result in a reluctance among decision makers to take a long-term view (Walley *et al.*, 1997). Due to budgetary inflexibility, it is likely that immediate costs are particularly important to decision makers in the NHS. Drummond *et al.* (1997), found that among UK pharmacists, the acquisition cost of medicine was the most important criterion in the formulary listing, although a large proportion of pharmacists (85%) claimed that they would weigh better outcomes against higher cost.

Similar findings have been reported in the US among insurers of medical care who have focused on the immediate costs of acquiring technologies rather than any future savings or long-term benefits that might be made (Luce and Brown, 1995; Steiner *et al.*, 1996; Drummond *et al.*, 2003). In Canada, differences in regional decision-making may produce different outcomes in health status; such variation raises concerns relating to equity and equality in access to healthcare across the country (West *et al.*, 2002).

Lack of time

Lack of time in the decision-making process, leading to restrictions in the ability to gain access to economic evaluation or conduct economic evaluation, has been highlighted as a

barrier to use in some countries, particularly the UK, US, and Australia (Ludbrook, 1986; Luce & Brown, 1995; Ross, 1995; Weatherly *et al.*, 2002).

Often health care decisions need to be made quickly (Ross, 1995), in reaction to immediate situations or unexpected requests for additional funding (McDonald & Baughan, 2001), whereas time is needed to conduct economic evaluations or for economic evidence to become available (Ludbrook, 1986; Wu *et al.*, 2004). It is difficult to deduce from these findings, however, whether lack of time is a more general barrier to using research evidence or whether it is particularly pertinent in the case of economic evaluation.

Political and cultural factors

Political and cultural factors may be more important in decision making than the results of economic evaluation. Several studies have suggested that the requirement to comply with national objectives could restrict the use of economic evaluation in decision making (Ludbrook, 1986; Ross, 1995; McDonald, 2002; Weatherly *et al.*, 2002). Specifically, government directives might be of greater importance compared to evidence from economic evaluation. For instance, Weatherly *et al.* (2002), found that, for decisions relating to Coronary Heart Disease (CHD) or cancer, the majority of respondents ranked National Service Framework (NSF) guidelines as a very important source of external empirical evidence (78%), followed by government publications (40%) and NICE guidance (37%). Only a third of respondents were aware of economic evaluation being used in the production of Health Improvement Modernisation Plans (HIMPs) and the survey found that cost-effectiveness analyses were ranked as very important by only 15% of respondents, quite important by 35%, and of limited importance by 29%. About a quarter (24%) felt that economic evaluation should influence the design of HIMPs "very much so", 15% thought it

should be of influence "only marginally" and most believed that it should be of influence "quite a bit". On the other hand, where economic evaluation has agreed with national policy it seems likely that the research will be adopted. For example, whilst Nixon *et al.* (2002), found that structured abstracts from NHS Economic Evaluation Database (EED), which claimed that assertive community treatment (ACT) for those with mental health problems was more effective and also less costly, resulted in the introduction of two ACT teams, there was, in this case, also a recommendation from the government to provide ACT.

Lack of understanding

Issues around lack of understanding appear to affect both user's understanding of economic evaluation, and researcher's/evaluator's understanding of the context in which decisions are being made. It could be that economic evaluation itself is too complex for decision makers to comprehend. Technical concepts or jargon typically used in economic evaluation might not facilitate understanding among local decision makers (Ross, 1995; Duthie *et al.*, 1999).

Duthie *et al.* (1999), found that, for statements commonly generated in economic evaluation, those related to QALYs in particular were not understood, as has also been reported in other studies (Evans *et al.*, 2000; Cox *et al.*, 2000). McDonald (2002), presented to the local level an economic analysis (for an open access echocardiography service for the diagnosis of heart failure), consisting of a crude estimate of costs and benefits, but it was not used because it was felt to be too convoluted.

The EUROMET study defined the extent of training in health economics as being "low": only around a third of decision makers surveyed had previously received training (Hoffmann & von der Schulenburg, 2000). This lack of training in health economics might explain why decision makers were found to have a limited understanding of the techniques of economic

evaluation (Hoffmann & von der Schulenburg, 2000). Similarly, De Vito *et al.* (2009), found that most Italian doctors did not include the use of economic evaluation in their practice because they rarely read economic evaluation reports. Further, some decision makers appeared to be prone to mistakenly associating cost-effectiveness with cost reduction (Rosen, 2000). On the other hand, the perception of some respondents was that economic evaluations often did not readily lend themselves to being used. For example, in an interview conducted by McDonald and Baughan, respondents believed that health economists were ‘*somewhat out of touch with real-world constraints*’ (2001, p. 324).

Evidence of effectiveness

Decision makers might attach importance to other objectives besides efficiency, so this becomes only one of several inputs in decision-making (Drummond *et al.*, 1997). A large number of studies have found that evidence of effectiveness is more important to decision makers than evidence about cost-effectiveness, particularly among decision makers with clinical responsibility or those in a pharmacy role (Lyles *et al.*, 1997; Walley *et al.*, 1997; Duthie *et al.*, 1999; Evans *et al.*, 2000; Kulsomboon *et al.*, 2001; Odedina *et al.*, 2002; IJzerman *et al.*, 2003; Williams *et al.*, 2007; Chen *et al.*, 2007; Eddama & Coast, 2009; Drummond *et al.*, 2003; Teerawattananon & Russell, 2008).

Individual patient vs. population perspective

Physicians, including GPs and hospital doctors, typically based their decisions on the individual patient and were therefore prone to be reluctant to take a population perspective (Duthie *et al.*, 1999; Ginsburg *et al.*, 2000; IJzerman *et al.*, 2003, Ubel *et al.*, 2003; Williams *et al.*, 2007). Thus, the use of economic evaluation appeared to enter into a decision-making process constrained by the doctor-patient relationship. In a survey of one thousand physicians

in the US, Ginsburg *et al.* (2000), found that 72% thought that the physician and patient alone were responsible for deciding what was cost-effective.

Physicians might also tend to underestimate their role in allocating resources. Eddama and Coast (2009) reported that some were unable to consider denying care in their specialty and would not be responsible for rationing care, and did not consider a wider population ‘*Politicians need to... be a bit more upfront*’ (Eddama & Coast, 2009, p268).

Methodological factors

At the research level, constraining factors are related to the studies themselves, including perceived bias and lack of quality in existing economic evaluations, as well as a lack of relevant studies.

Bias and quality of economic evaluation

As a result of the methodology of economic evaluation studies which based their research on a number of assumptions, most participants across the different studies, were deterred from using the findings of economic evaluation in decision-making for three methodological reasons: the first was due to studies being badly conducted or biased. Most participants viewed economic evaluation studies as badly conducted or biased (Drummond *et al.*, 1997; Williams *et al.*, 2008). Fears of bias in studies were found to be the second most important barrier in one study (Walley *et al.*, 1997), specifically among UK primary care prescribing advisors (Walley *et al.*, 1997). The second reason was a lack of confidence in results due to how the evaluation had been funded. Decision makers in several countries claimed that they were reluctant to use economic evaluations funded by the pharmaceutical industry (Drummond *et al.*, 1997; Sloan *et al.*, 1997; Walley *et al.*, 1997). Finally, the quality of

economic evaluation may be viewed as being questionable (Ross, 1995) or variable (McNamee & Godber, 1995). Spath *et al.* (2003), also indicating that the lack of methodological quality of economic evaluations was an important barrier (Spath *et al.*, 2003).

Economic evaluation might be perceived as being biased because of the use of various data sources that were based on estimations and assumptions, for example, clinical data (e.g. meta-analyses of Randomised Controlled Trials (RCTs) and economic data (the discount rate) (Evans *et al.*, 2000; Weatherly *et al.*, 2002). One UK study (Walley *et al.*, 1997) found that studies being viewed as badly conducted or biased was an important obstacle to over half of decision makers sampled, although it was the most important obstacle to only 12% of respondents (Drummond *et al.*, 1997). Although this was a common reason why most participants in these studies did not trust economic evaluation studies, methodological guidelines aim to assist economic evaluation analysts, therefore, this help the ‘doers’, to produce reliable, credible, timely and integrated economic information to help decision-makers (Sorenson *et al.*, 2008). Williams *et al.* (2008), reported that some decision-makers, who were the subjects of these studies, reported that lack of credibility and transparency in economic evaluation studies deterred them from using the findings (Williams *et al.*, 2008).

Lack of relevant economic evaluation

A number of studies indicated that economic evaluation studies may not have been available when decisions had to be made. In the study conducted by Lessard *et al.* (2009), many participants explained their non-use of economic evaluation studies as being due to the difficulty in generalising or transferring the findings (Sloan *et al.*, 1997; Grizzle *et al.*, 2000; Martin *et al.*, 2001; McDonald & Baughan, 2001; Williams *et al.*, 2007). Generalizability of studies might be low because of differences in health systems across the settings, although

there are potentially other reasons limiting usefulness, such as differences in costs and patient populations in the local setting compared to the wider society (Brinsmead *et al.*, 2004).

4.3. Discussion

In this review, attempts were made to report decision-makers' attitudes towards the use of economic evaluation findings in a health decision making context; from a macro, meso, and micro level particularly with respect to which factors are used, in which situations and contexts these factors are used, and what are the barriers to their use. In this review, the literature searches were not limited to specific countries and therefore were intended to investigate in what contexts health economic evaluations are used (or not used if specified), and what are the barriers to the use of health economic evaluations at all decision making levels (micro, meso, and macro health-care levels).

The review had both strengths and limitations. In terms of strengths, this review updates the existing published reviews and takes a broader perspective than the most recent published review, which considered only pharmaceutical priority setting. This review was not restricted to a specific sample of decision makers and covered a long period of time across different settings. Furthermore, all processes of the review were supported and reviewed by the PhD supervisors, and differences in opinion regarding the inclusion of studies were resolved by discussion. In terms of limitations, the literature searches were limited to studies written in the English language. It was considered whether to extend the review to search Arabic sources, however, although the Arabic language is the official language in Arabic countries, English is the international language of science and technology and electronic databases do not support the Arabic language. This is evidenced within this review as the two studies

identified from two Arabic countries, Saudi Arabia and Jordan, were published in the English language (Alsultan, 2011; Lafi et al., 2012).

The findings from this review can be considered in light of the four existing reviews on the use of health economic evaluation in decision-making. Based on a systematic review of the literature, Eddama and Coast (2008) suggest that there is limited use of economic evaluation in a local decision making context where, local decision making was defined as being at both the “meso” and “micro” levels. At the meso level, health institutions or health decision makers within healthcare organisations make broad decisions about the allocation of care to certain patients’ groups of or diseases. At the micro level, local decision making is where decisions concerning the patient are made directly by healthcare providers. The barriers to the use of economic evaluation by the local decision makers in the Eddama and Coast study were linked to three factors: institutional and political factors; cultural factors; and methodological factors. Despite the evidence suggesting that there are many barriers to the use of economic evaluation, the authors report an increase in the use of economic evaluation over time, particularly in the UK, Australia and Canada. This increase was less pronounced in the US. Eddama and Coast conclude that not enough is known about the exact use of economic evaluation in a local decision making context and that further qualitative work is needed to enrich and explain the results from their systematic review.

Van Velden *et al.* (2005), conducted a literature review to determine the extent to which economic evaluations influence healthcare decision making at the macro (national or regional), meso (administrative) and micro (provider) levels. Thirty-six empirical studies on the effects of economic evaluation at these levels were included in the review. Studies were sorted into six groups based on their underlying arguments: healthcare

programme/manufacturer; costs/economics; patient/disease; political/policy; administration/user; and legal/regulatory. The authors found that economic evaluations have a limited influence on decision making at the macro and micro levels, and at the macro level political and regulatory factors are major determinants of decisions. Their review suggested that economic evaluations have the most influence at the meso level. The authors conclude that this influence is most pronounced for healthcare organisations. However, they note that economic evaluations are important factors in decision making, but cannot be considered the most important determinants of healthcare decisions at any of these decision making levels. Although Van Velden *et al.* (2005)'s recommendations are applicable to population and public health researchers, GPs and decision makers, the review does not explicitly mention economic evaluation in relation to population or public health. The authors note that researchers should explicitly consider the decision making level when designing and undertaking economic evaluations, and that healthcare decision makers should improve their understanding of economic evaluations to use them more often and more effectively.

Erntoft (2011), conducted a systematic review of the healthcare literature to investigate which factors and criteria are used in priority setting of pharmaceuticals, in what contexts health economic evaluations were used, and the barriers to the use of health economic evaluations at the micro, meso, and macro health-care levels. Thirty-one empirical studies were included in the review. Included studies' characteristics are described according to the role of economic evaluation on decisions at three decision making levels (macro, meso and micro levels) in three countries (the US, UK and Sweden). The authors identify a number of contextual uses of health economic evaluations, such as the legitimising of decisions, structuring the priority-setting process, and requesting additional budgets to finance expensive pharmaceuticals. The author suggests that there are factors that could support the increase of the use of health

economic evaluations such as well-developed frameworks for evaluations, the presence of health economic skills, and an explicit priority-setting process. The authors suggest that differences in how economic evaluations are used at the macro, meso, and micro levels are attributed to differences in the above factors at each level.

Williams *et al.* (2008), address how, and to what extent, health economic information is used in health policy decision making in the UK, and what factors are associated with the use or non-use of the research evidence. Electronic databases were used (up to 2004) to undertake a systematic review of literature on the use of economic evaluation in decision making and barriers to the use of economic evaluation. The authors include only one past review from sixty identified relevant reviews. They also mention that a number of previous studies on the use of economic evaluation in decision making have problematic methodological approaches. They call for more qualitative research on the spectrum of policy decision-making levels.

4.4 Conclusion

This review has shown the extent to which economic evaluation has been used in decision-making across a number of settings. Although there is variation between countries in terms of the use of economic evaluation in decision-making, it is generally minimal. However, there has been an increase over time in the awareness of stakeholders about using economic evaluation. In most settings economic evaluation tends to be constrained largely to use at the national level, rather than at the local level. There appear to be barriers relating to the context, the organization, and the actors involved.

As the focus of this PhD is on the use of economic evaluation in decision making within a Saudi Arabian health care system that is financed by a rentier state, it is interesting to note

that only one paper was identified in this review from a similar context. This paper used postal survey methods to elicit views from medical doctors (65%) and pharmacists (17%), among others, and the focus of the question was on whether pharmacoeconomic data had *ever* been used to facilitate decisions. The focus on *ever* means that there is no information reported on the extent of use, and the attitudes towards the use of pharmacoeconomic data to facilitate decision making. This represents a major limitation of this study. Thus this finding, along with the paucity of studies reported from a rentier state, highlight that there is a considerable gap in the literature with respect to the use, and the barriers to use, of economic evaluation in decision making within a Saudi Arabia context. The empirical research reported in this thesis will seek to address this absence, by providing a critical examination of whether the context could play a similar role in the process of health priority setting decision making as in the literature (e.g. social, political, cultural and organizational concepts).

Overall, the studies reviewed have limitations making it difficult to draw conclusions about the use of economic evaluation in decision making. In particular, it is important to be able to evaluate in what way evidence from economic evaluation are being used (directly or indirectly), and how and whether they are influencing the decision-making process. It is apparent from this review that the use of qualitative methodology produces a deeper, richer understanding of decision makers' views on the use of economic evaluation and this is lacking in the limited research published from a Saudi Arabian context. Thus, it is most probable that the employment of qualitative techniques, including in-depth interviews, which have not been used to address the use of economic evaluation in Saudi Arabia, would be extremely helpful and this argument is expounded in the following chapter.

CHAPTER 5: RESEARCH METHODOLOGY

The previous chapter 4 suggests that further investigation is required to explore the use of economic evaluation in health care decision-making in Saudi Arabia. Only one directly relevant study was identified in the systematic literature review, evaluating the use of pharmacoeconomic data in formulary decision making in Saudi Arabia (Alsultan, 2011), and this was limited both in scope (focusing only on the actions of Pharmacy and Therapeutics committees) and in methodology (comprising only a structured survey). Thus, there is really very little knowledge about the extent to which economic evaluation is used in Saudi Arabia, particularly as the only existing study employed relatively insensitive quantitative techniques. The choice of an appropriate methodology is crucial in further contributing to the body of knowledge in this area.

This chapter explains the rationale for selecting a qualitative research methodology. The chapter begins by investigating the basis of qualitative research, in terms of ontology, epistemology, and methodology. The second section then presents the methods used within this research to explore the views of decision makers. The third section discusses quality of qualitative research. The chapter concludes with a brief summary.

5.1 Ontology, epistemology and methodology

Before commencing fieldwork, it was first essential to make an informed decision about which methodological approach to apply. As the purpose of this research was to explore the

role of economic evaluation, and whether it is acceptable and applicable for setting health care priorities, a rigorous methodological approach was required. In order to frame the research ontologically, epistemologically, and methodologically, the research aims were revisited, the researcher worldview reconsidered, an investigation made into research approaches relevant to the priority setting literature, and advice sought from academic supervisors.

5.1.1 Ontology

Ontology can be defined as the study of being and *'is concerned with 'what is', with the nature of existence, with the structure of reality as such'* (Crotty, 1998, p.10). Ernest (1994) provides a simpler definition in which ontology is seen as *'a theory of existence concerning the status of the world and what populates it'* (Ernest 1994, p. 20). In terms of ontological and epistemological considerations, research is commonly classified as positivist, interpretivist or critical (Benton & Craib, 2001; Bryman & Bell, 2001). However, other researchers, such as Denzin and Lincoln (1994), set two types (i) positivist and (ii) alternatives to positivism which include critical theory, phenomenology, hermeneutics, ethnomethodology and constructivism (Denzin & Lindholn, 1994). The following discussion will therefore focus on positivism and interpretivism, through which reality is often discussed in health care priority setting research. The label 'qualitative research' hides important variations in the ontological and epistemological features behind complex qualitative research designs.

The scientific, or positivist, assumption states that reality consists of objects that exist in physical space outside the mind. This type of knowledge is referred to as realism and is often associated with objectivism (see section 5.1.2). Thus, the ontology of health care

priority setting research has traditionally held a philosophical assumption of the scientific, 'positivist', approach (Small & Mannion, 2005; Veenstra, 1999). For example, health economics research seeks to assist decision makers in the allocation of limited resources among competing needs through offering tools for making decisions (e.g. cost effectiveness analyses) which have a 'quantitative' positivist basis. This quantitative research work assumes that the decision making process for allocating health care priorities resources is independent of relativistic aspects, for instance, institutional, cultural and historical aspects.

An alternative view of the world is interpretivism, also referred to as constructivism, which *'looks for culturally derived and historically situated interpretations of the social life-world'* (Crotty, 1998, p. 67). It assumes that reality is dependent on the meanings held by people in society, and that socially constructed truth is ungoverned by any natural laws, causal or otherwise (Anderson & Biddle 1991; Schwandt, 1994). Thus, for an interpretive stance, *'human beings cannot be the objects of science'* (Pring, 2000, p. 56). Interpretivists argue that there are multiple constructed realities; hence rejecting the scientific view of an objective reality, though absolutism argues that there is only one factual or true view (Baghrarian, 2004). However, some distinguish carefully between interpretivism and constructivism in relation to ontology and epistemology. Interpretivists suppose that knowledge and truth are considered as acts of interpretation, hence objectivity is rejected, which therefore addresses essential characteristics of understanding and shared meaning, while constructivism goes beyond *'this concern with knowledge as interpreted and produced to an anti-essentialist level'* (Schwandt, 1994, p. 125). Constructivists assume that knowledge and meaning are the consequence of one's perspective; hence truths are relative to perspective or the context of meaning (Schwandt, 1994).

5.1.2 Epistemology

Epistemology deals with '*the nature of knowledge, its possibility, scope and general basis*' (Hamlyn, 1995, p.242 quoted in Crotty,1998, p.8). It is '*a way of understanding and explaining how we know what we know*' (Crotty, 1998, p. 3). According to positivist epistemology, a scientific approach is seen as the way to obtain truth, to understand the world, and that all things must be ultimately verifiable to be meaningful (Audi, 1995; Bullock *et al.*, 2000).

In contrast, Pring (2000), argues that epistemology can be seen as a concept on which researchers can take a different logical stance. In this sense, he defines epistemology as '*different underlying theories of explanation, of truth and of verification*' (Pring, 2000, p. 45). A range of epistemologies emerge from such a distinction. Constructivist epistemology rejects the view of objectivist epistemology simply because truth or meaningful reality does not exist independently of our thinking but '*comes into existence in and out of our engagement with the realities in our world*' (Crotty, 1998, p. 8). Subjectivism is another epistemology which contradicts constructivism on the premise that meaning does not come out of an interaction between the subject and the object but '*is imposed on the object by the subject*' (Crotty, 1998, p. 9). Another important distinction exists between subjectivism and objectivism. As an objectivist, Popper strongly rejects subjectivism on the grounds that nothing can be direct or immediate in our experience and adds that:

'We have to *learn* that we have a self, extended in time and continuing to exist even during sleep and total unconsciousness, and we have to learn about our own and others' bodies. It is all decoding and interpretation' (Popper, 1972, p. 36) (Original emphasis).

Both platforms of positivist epistemology and interpretivist epistemology have been employed in research into health economics and health care priority setting to assess knowledge claims. However, the dominant research in health economics and health care priority setting has been based on positivist epistemology (Jordanova, 1995; Osborn, 1996). Positivist research in health care priority setting is considered as a highly '*resource-intensive*' tool that is unlikely to compare all choices available to decision makers (Smith *et al.*, 2009, p. 1165). From an economics perspective, the basic principle in situations where the choice between competing options has to be made is the opportunity cost (Mitton & Donaldson 2003b; Smith *et al.*, 2009). Priority setting activity aims '*to maximize benefits and, conversely, minimize opportunity costs*' (Mitton & Donaldson 2003b, p. 97).

Despite much positivist research having been conducted to guide the decision making process, it is commonly noted that there are barriers that inhibit the findings of this research being translated into real health care practices (Smith *et al.*, 2009). The difference between what should be obtained based on the results of research and what occurs in real practice, is called the research-practice 'gap' (Buchanan, 1994; Davis & Howden-Chapman 1996; Haynes *et al.*, 1995; Rafferty & Traynor, 1999). As this gap has been discussed in relation to different health topics, some health economists attribute its existence, in part, to a lack of understanding of economic analysis by decision makers (Bate *et al.*, 2007; Coast, 2004; Drummond, 2004; Eddama & Coast, 2008; Lindholm *et al.*, 2008; Williams & Bryan, 2007).

In another context, there have been attempts to assist policy analysts in the exploration of health policies in a more systematic manner, such as the concept of the policy analysis triangle (Walt & Gilson, 1994), and other new paradigms of health policy analysis frameworks (Glassman *et al.*, 1999; Pitayarangsarit, 2004). While the objective of such

policy analysis is to explore how well a particular policy does, these frameworks were unable to describe the actual attitudes, feelings, values and/or experiences of the decision makers concerned, and even more importantly, were unable to explain why a particular policy was adopted ‘often at the expense of technically more efficient alternatives’ (Smith-Merry *et al.*, 2007).

By way of contrast, calling for research in health care priority setting to be based on non-positivist paradigms diverts attention from positivist research epistemology into alternative interpretive, constructionist and critical postmodernist research epistemologies. These alternatives allow researchers to address issues (e.g. cultural, social, and political), that positivism has tended not to tackle. Therefore, these alternatives are likely to allow researchers to better understand and explore human behaviour and experience, or to interpret their ‘reality’, the meanings they give to things or the attitudes they hold (Coast, 1999; Coast *et al.*, 2004; Smith *et al.*, 2009). Coast, (1999) suggest that health economics research should emphasise the use of qualitative methods and the employment of alternatives to the positivist approach (Coast, 1999; Coast *et al.*, 2004; Smith *et al.*, 2009). Consequently, alternatives to positivist research are becoming more widely accepted in health economics and health care priority setting, and a number of qualitative studies have subsequently been published.

Some research questions regarding health care priority setting do not lend themselves to the kinds of questions that can be answered through the lens of positivist epistemology. This provides grounds for using interpretivist research in health care priority setting (Smith, *et al.*, 2009). Priority setting decision making in health care involve a variety of actors (e.g. stakeholders, legislations, decision-makers’ behaviour, interest groups who may gain or lose, and how decisions can be influenced by national social, cultural or political concepts), and

interpretivist epistemology allows a researcher to study the truth that creates the world, through interpreting these acts, including the relationships and interactions among them.

In this sense, the ontology and epistemology of research in health care priority setting also holds an interpretive stance. Interpretivism relies on the idea that *'researcher and reality are inseparable'*, and in term of epistemology, *'knowledge of the world is intentionally constituted through a person's lived experience'* (Weber, 2004, p. 4). For example, in qualitative research work to investigate the use of economic evaluation in local health care decision-making in England (Eddama & Coast, 2009), and qualitative work to explore the use of economic evaluation in health care in Australia (Ross, 1995), the researchers attempted to explore and understand perceptions, opinions, experiences and knowledge of decision makers, and other factors that may influence the use of economic evaluation. According to Cohen *et al.*, (2000), the central endeavor underpinning the interpretive approach is *'to understand the subjective world of human experience'* (Cohen *et al.* 2000, p. 22).

Hence, research on health care priority setting involves the exploration of human experiences, perceptions and knowledge, and the context involved in the setting of health care priorities, meaning that it can be argued that the research is ontologically and epistemologically consistent with interpretivism. This research will attempt to construct meaning through interpretation of the views of decision makers. These interpretations and explanations will only be obtained with the engagement of the researcher and decision makers. In other words, better understanding of the situation (meaningful reality) can be constructed through understanding the views of decision makers about the issues that determine the use of economic evaluation findings in the process of decision making.

5.1.3 Research Methodology

According to Crotty, (1998), methodology is '*the research design that shapes our choice and use of particular methods and links them to the desired outcomes*' (Crotty, 1998, p. 7).

Wellington (2000), states that methodology is concerned with '*choosing, reflecting upon, evaluating and justifying the methods you use*' (Wellington, 2000, p. 22). It also throws light on the limitations and resources of these methods, '*clarifying their presuppositions and consequences, relating their potentialities to the twilight zone at the frontiers of knowledge*' (Kaplan, 1973, quoted in Cohen *et al.*, 2000:45).

The choice of research methodology depends on the research question or what the researcher intends to investigate. Dreher (1994), states that '*the single most important element in constructing a research design is the consistency of the method with the research questions being asked*' (Dreher, 1994, p. 293). Prior to this research, there had been no empirical research conducted on the role of economic evaluation in health care decision making in Saudi Arabia following adoption of the strategic plan, or the extent to which this approach would be acceptable and applicable to the Saudi context. Therefore, the aim of this research is to generate theoretical propositions rather than to test *a priori* hypotheses or existing theory, and the research position will be purposefully kept open and flexible. This means that the required research methodology must be complementary with the proposition that premature categorization of new thoughts can impede their growth (de Bono, 1967).

Another rationale for the choice of research methodology is that it should be based on an awareness of prevailing and existing norms and trends and in this case, health care priority

setting research, and potentially important aspects in the process of decision making. Dreher (1994), adds that:

‘Providing a rationale for using a specific method should not be a treatise on the relative merits of phenomena ... but rather the clearest explanation possible for why the proposed strategy has the potential for answering the specific research question ... this explanation should be grounded in an analysis of the existing research literature’ (Dreher, 1994, p.293).

Therefore, with the aim of obtaining coherence between theoretical and empirical work, the literature review of priority setting presented in earlier chapters (3 and 4) was based on three key objectives: to provide a holistic overview of the context of the research topic; to indicate an appropriate research strategy; and to define trends in research and practice in the use of economic evaluation to facilitate meaningful data collection.

The research questions defined require an exploratory and qualitative approach, so the methodology of this research rests on grounded theory. Grounded theory as defined by Goulding (2000), is a method that *‘moves through various levels of theory building, from description through abstraction to conceptual categorisation, in order to probe underlying conditions, consequences and actions’* (Goulding, 2000, p.36). The nature of theory is that of a set of relationships that provide a credible explanation of the researched phenomenon (Strauss & Corbin, 1994). Morse (1994), adds that:

‘[A] theory provides the best comprehensive, coherent and simplest model for linking diverse and unrelated facts in a useful and pragmatic way. It is a way of revealing the obvious, the implicit, the unrecognized and the unknown. Theorizing is the process of constructing alternative explanations until a ‘best fit’ that explains the data most simply is

obtained. This involves asking questions of the data that will create links to established theory' (Morse, 1994, p. 25-6).

Therefore, grounded theory, as a methodology, functions to develop theory or theoretical propositions that are grounded in systematically collected and analysed data (Glaser & Strauss, 2008; Goulding, 2000; Goulding, 2002; Strauss & Corbin, 1994).

There are three basic stages that need to be addressed in grounded theory (Goulding, 2000).

The first stage is concerned with data collection and interpretation; this, involves demonstrating and explaining how, why and from where initial concepts and categories have been derived. The principles of this method state that any emerging theory should be traceable back to the data, meaning that relationships between concepts and categories need to be provided by evidence. In the second stage, the researcher has to 'abstract' the concepts and to think of theoretical meanings, essentially ensuring that concepts are sufficiently developed to ensure 'an extensive re-evaluation of compatible literature in order to demonstrate the 'fit', relationship and, where applicable, the extension of that literature through the research findings' (Goulding, 2000, p. 265). In the final stage, theory should be presented, concepts united and then 'integrated into categories which have explanatory power within the specific context of the research' (Goulding, 2000, p. 265).

Applying approaches based on grounded theory in this research will be consistent with the steps required for analysing empirical data in a systematic and explicit manner, and will allow this research to:

- Derive the key components underpinning the complex topic of priority setting decision making from empirical data;

- Identify recurring patterns, interactions and relationships between the key conceptual components systematically and transparently;
- Develop and improve understanding of the topic at theoretical and conceptual levels.

5.2. Data collection methods and sampling

Two methods of data collection are used in this research: interviews and focus groups. The combination of methods was intended not only to help address the research topics, but also to enhance the interpretation of collected data.

5.2.1 Interviews

The interview is a common tool for data collection in interpretive research. According to Bloch, (1996):

'[I]n social research the language of conversation, including that of the interview, remains one of the most important tools of social analysis, a means whereby insight is gained into everyday life, as well as the social and cultural dimensions of our own and other societies' (Bloch, 1996, p.323).

In-depth face to face interviews were the main source of data collection in this research, as these have the potential to provide a researcher with rich and detailed accounts of the participants' experiences, motivations and knowledge. In-depth interviews allow participants to demonstrate their experiences, thoughts, views and perceptions regarding the complex issue of the phenomenon, in this case health care decision making. Interview flexibility also allows the discussion to lead into areas that may not have been considered *a priori* (Murphy & Dingwall, 2003).

5.2.2 Focus group

The focus group is a group interview or a group conversation which is potentially able to play a valuable role at various stages of data collection. A focus group differs from an interview in being dependent upon interaction between participants (Kvigne *et al.*, 2002; Murphy *et al.*, 1998). Focus groups can help ‘bring out subconscious reasons for behaviour’ (Goulding, 2000, p. 113), making them not only helpful in providing understanding and insights, but also for sound justification of participants’ behaviour (Hedges, 1993). Focus groups also may allow researchers to explore issues that were hidden, not mentioned or not yet explored through the interviews (Hedges, 1993) and which the researcher may not have the knowledge to introduce as a topic.

5.2.3 Sampling

A theoretical sampling method was used in this research (Glaser & Strauss 2008; Strauss & Corbin, 1994). The sample size was determined according to progress in the analysis, where interviews and focus groups were taped, *transcribed*, and analysed simultaneously with the aim of achieving ‘theoretical saturation’, where no new information can be obtained from the data (Glaser & Strauss 2008; Strauss & Corbin, 1994).

As this research employed theoretical sampling to recruit the participants and settings that were relevant to the research topic, initial sampling was determined on the basis of relevance to the research area. Therefore, prior to conducting empirical work, potential informants were approached to participate in the study. Twenty two interviews were conducted with twenty two different decision makers, and another eleven decision makers participated in three focus group discussions. All informants were Saudi males from Riyadh.

The research was intended to illuminate both policy generation and policy implementation and so two levels of decision makers were recruited to participate in this study: national level health decision makers who are authorized to adopt particular health policies at the national or regional levels; and local level health decision makers (Table 5.1 in appendix 2). Interviews and focus groups with national level decision makers reflected policy-makers' backgrounds and their outlooks for the future in terms of the implementation of economic evaluation in Saudi health care decision making. At the local level, health decision makers reflected on the practical implementation of the policies arrived at through the use of economic evaluation.

5.2.4 The Use of Memos

Memos were used throughout the empirical work. Memos as defined by Goulding are '*ideas which have been noted during the data collection process and which help to reorient the researcher at a later date*' (Goulding, 2000, p. 65). Memos are considered as a vital method that can provide the researcher with a bank of ideas and enable them to revisit these ideas during the research journey. Glaser (1992), suggests guidelines for producing and using memos to identify concepts, and to underpin emerging theory (Glaser, 1992). He proposes that without using memos theoretically to write up ideas, grounded theory is not achieved. Memos are directed throughout the research process by the developing theory. However, it is important to be aware of the differences between data and memos. Therefore, the researcher should keep data separate from memos, writing memos down as the ideas strike. Nevertheless, memos can be used to demonstrate a particular case (Goulding, 2000). In terms of using memos, Miles and Huberman (1994) introduce guidelines which include their own experiences, and the work of Glaser (1978), and Strauss and Corbin (1990) (Table 5.2).

Table 5.2: Guidelines for using memos

- ‘Always give priority to memoing. When an idea strikes, STOP whatever else you are doing and write the memo. Your audience is yourself. Get it down. Don’t worry about prose elegance or even grammar. Include your musings of all sorts, even the fuzzy and foggy ones. Give yourself the freedom to think. Don’t self censure.
- Memoing should begin as soon as the first field data starts coming in, and usually should continue right up the production of the final report.
- Keep memos “sortable.” Caption them by basic concept and mark or underline other concepts discussed in the text of the memo.
- Once again, memos are about ideas. Simply recounting data examples is not enough. By the same token, memos are not chiefly about people or events or interactions; these are all used as indicators for an analysis that is set in a conceptual frame.
- Don’t standardize memo formats or types, especially in a multi-researcher study. Memoing styles are distinctive, and memo types are as various as the imagination can reach.
- Memo writing is fun. And it often provides sharp, sunlit moments of clarity or insight – little conceptual epiphanies’.

Source: (Miles and Huberman 1994, p. 74)

5.3 Conducting empirical work

Prior to conducting empirical work, a detailed guidance notes was developed to assist in data collection, analysis and interpretation (see appendix 2). As the researcher belongs to the same setting as that in which the research was taking place, the language and culture of the respondents was not expected to be a major issue. All interviews and focus group discussions were conducted in Arabic (with some English terms). The researcher had been a health employee for more than 12 years, which was helpful in identifying key informants to guide the research. As Goulding (2000), reports, *‘the idea of key informants is particularly valuable during the early stages of grounded theory research when sampling is open and data*

collection is conducted with the objective of generating ideas for more focused work'
(Goulding, 2000, p. 60).

After obtaining ethical approval, the task of *data* collection started through three fieldwork trips. The first and the second lasted between 6-7 weeks, where the third lasted two weeks. Collecting data through three fieldwork trips gave the researcher the opportunity to discuss the work directly with the research supervisors, and to ensure that theoretical saturation was achieved when no new information or themes emerged.

The first fieldwork trip started on 12th of March 2011 continued until 18th of April 2011. While this study uses theoretical sampling to recruit the participants and/or settings that are relevant to the research topic, initial sampling was determined on the basis of relevance to the research area. Therefore, eight one-to-one interviews, one focus group and one meeting observation were conducted with decision makers at both national and local levels.

The second fieldwork trip was conducted from 30 Apr - 5 Jun 2011. During this phase eleven one-to-one interviews and two focus groups were conducted. All interviews and focus group were taped, transcribed, and analysed simultaneously. The tapes were transcribed, with each transcript having been extensively compared with the tape recording and corrected to ensure it was an accurate record of the conversation. Memos for each interview or focus group discussion were written in three stages: during and following the interview, during listening to the interview, and comments and notes were added on the memo when the next interviews were conducted 'if relevant'.

Prior to conducting empirical work, potential informants were approached to participate in the study by letter of invitation (for invitation letters, please see Appendix 2). However, most potential informants were unfamiliar with the qualitative data collection methods of interviews and focus groups. In the first stage, for example, out of 57 potential informants that were invited, only 11 informants consented to participate: 8 in interviews and 3 in a focus group discussion. The most common reason given for non-participation was lack of time to take part. Although all potential informants received an information sheet and a copy of the consent form, some consented to respond only if the research was conducted using a quantitative 'questionnaire' method (for the information sheet and the consent form, please see Appendix 2). Furthermore, other informants refused to be taped, despite having consented to participate. It was particularly important in this setting, given the cultural background, that confidentiality and trust were established from the very beginning of interviews. Whilst these issues are important for every interview situation (Goulding, 2000) and although the research was not of a personally sensitive nature, in this setting there could have been fear or concern that data collected could be used against the informants, meaning that achieving rapport was vital to obtain strong interview data.

During the interview process, the researcher and participants had active roles that '*eschew the image of the vessel waiting to be tapped in favour of the notion that the subject's interpretative capabilities must be activated, stimulated and cultivated*' (Holstein & Gubrium, 1997, p.122). At the first stage of the research, it is important that the interviewer does not hold preconceived perceptions that may colour the investigation (Glaser, 1992; Glaser & Strauss, 2008). Therefore, here, the researcher used in-depth interviews in an open and unstructured format to allow participants to determine the direction of the interviews.

This aimed to allow concepts to emerge rather than coercing them into pre-defined categories.

The exploratory nature of the research was highlighted in the introduction to each interview. At this stage, the researcher's role was limited to setting the scene to promote freedom of expression and then encouraging participants to explain and elaborate. For example, since there is/are no 'correct' answer(s) as to the extent of the role of economic evaluation in the decision making process, the researcher was seeking a theoretical understanding of the considerations that influence the decision making process, not evaluating the participant's choices and views. The interviews, therefore, began with broad questions such as:

- *If we start broadly, what are the current approaches to priority setting?*
- *How should priorities be implemented?*
- *What do you think could be the role of economic evaluation in the process of decision making?'*

The purpose of these very open questions was to allow participants to choose the starting point and direction of the interview. The role of the researcher became more active as the interview progressed, and direct questions were then asked to acquire in-depth details. However, the researcher worked on the basis that his contribution should be flexible and fluctuate between asking direct questions, providing more gentle prompts and/or holding back, depending on the particular interview situation (Glaser & Strauss 2008; Goulding, 2000). There were, for example, some issues that were often raised across interviews that did not require direct questions and/or prompting. Sometimes humour was required to make some areas of discussion acceptable; a genuine willingness to investigate the topic was also required in some areas where the researcher had to prompt strongly for a response.

The third fieldwork trip was conducted from 19-30 Aug 2011. Although saturation of information was achieved after nineteen interviews and three focus groups (1st and 2nd fieldwork trips), three further in-depth one-to-one interviews were performed to ensure that full data saturation was reached. However, although these additional three interviews were conducted with health professionals with expertise in health economics and health decision makers, no new information emerged. Consequently, this further confirms the conclusions as regards theoretical saturation.

5.4 Data analysis

The constant comparative method was used to identify and construct codes and themes that emerged from the data (Glaser & Strauss 2008). The constant comparative method involves comparing like with like, exploring similarities and differences across individual incidents within and during data collection both to guide collection of additional data, and to generate emerging patterns and themes from the data already obtained. The analysis process explicitly compares every code with other codes appearing to fit with the same concept. This facilitates the classification of concepts, repeating these comparison processes with each concept and category (Goulding, 2000).

Data collection and analysis occurred alongside one another, allowing a continuous interplay, where there was comparison of data with the initial researcher questions and with the developing theory. For this it was essential that the researcher showed theoretical sensitivity (Glaser & Strauss 2008), where this is concerned with continually observing what data are needed for the theory and the important features of the data (Goulding, 2000). For

maintaining balance and consistency between detailed coding of pieces of data, the data analysis stages that were used in this research can be summarised as:

- Thorough reading of the transcripts: data from each interview were analysed line by line, in order to identify a full range of codes representing the data (Goulding, 2000). Therefore, every individual transcript was summarised into broad thoughts (in an open coding stage). At the same time, memos were used for identifying patterns within the data.
- During the process of coding, *inter-rater checking* (between the researcher and supervisors) was used in detailed analytical coding (Creswell, 1998).
- Descriptive patterns were developed from the same data source (e.g. interviews or focus groups). At this stage of the data analysis process, data were analysed separately according to the method of data collection, i.e. interviews and focus groups were considered separately. For the purpose of establishing and developing a series of descriptive accounts of the informants' experiences, knowledge and attitudes, data were divided into five sets. These descriptions were combined and compared; considering similarities and differences (e.g. one piece of data to another, and data relevant to each category), and looking for coherence and incoherence within categories. The comparisons involved pattern-matching and explanation building to provide more sophisticated and detailed descriptions and more powerful explanations based on a vigorous and systematic analytic approach (as conceptualised in Figures 5.1 and 5.2). At the beginning of the analysis process, the researcher's accounts were largely descriptive, clarifying the main features of the data. As the analysis progressed, the accounts moved to more conceptual and interpretative levels, providing constructions around the meaning of the data. At the descriptive stage, a very tentative language was used (e.g. it seemed, it appeared) to describe incidents, emerging themes, tentative categories (Glaser & Strauss 2008).

- Supplementing these concepts with other data sources, and investigating the dimensions of the main concepts and categories and exploring their consistency with other data sources, and against their subsequent data (Glaser & Strauss, 2008;Goulding, 2000).
- The final stage was to concentrate on a full critical review for the purposes of exploring and shaping theoretical bonds between categories, and through their integration with existing literature to enhance theoretical focus. This required a process of abstraction which shifted the analysis from the descriptive stage to a theoretical interpretative stage (Glaser & Strauss 2008;Goulding, 2000).
- Summarising “the story so far” to develop theoretical propositions

Figure 5.1: Outline codes identification grouping

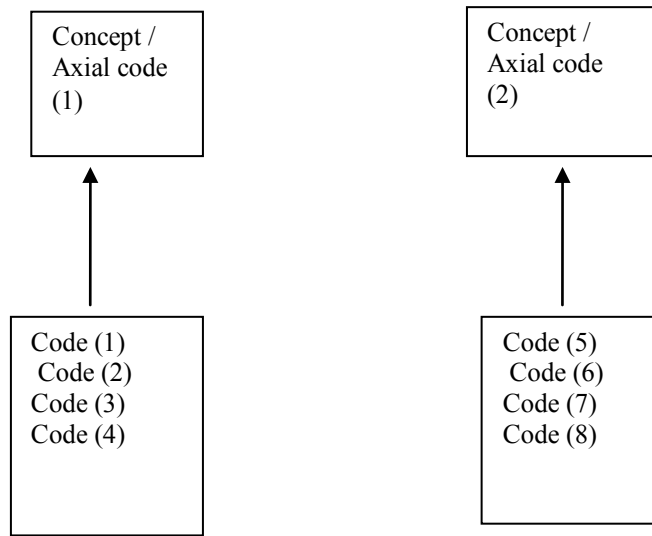
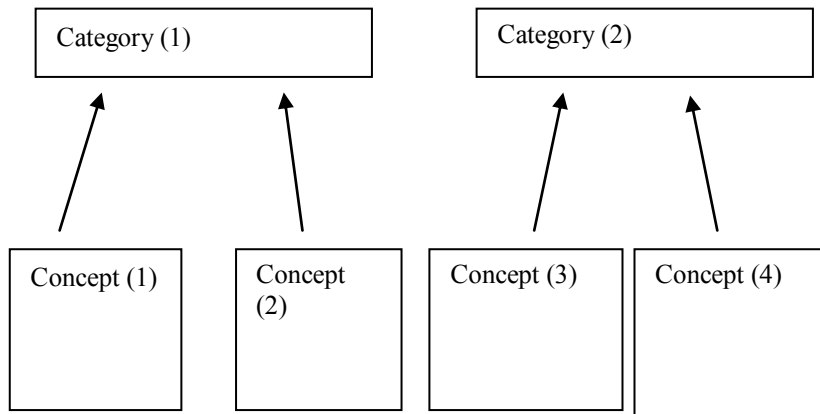


Figure 5.2: Outline concepts identification



5.5 Ethical Issues

Research ethics is an important issue that has often been overlooked. There has recently been a growing body of literature on research ethics which points out the importance of establishing clear ethical guidance Wellington (2000), states that '*ethical concerns should be at the forefront of any research project and should continue through to the write-up and dissemination stages*' (Wellington, 2000, p. 3). A number of codes of ethical conduct in research have also been established, such as those of the American Educational Research Association (AERA) and the British Educational Research Association (BERA).

According to Sieber (1993:14 quoted in Wellington *et al.*, 2005:104) '*ethics has to do with the application of moral principles to prevent harming or wronging others, to promote the good, to be respectful and to be fair*'. Meanwhile, Pring (2000), contends that a discussion of ethics should not focus on making any particular moral judgment but rather on '*the meaning and justification of moral considerations which underlie research*' (Pring, 2000, p.142). In support of this, Fraenkel and Wallen (2003) state that there are three key issues that every researcher should account for: '*the protection of the participants from harm, the ensuring of confidentiality of research data, and the knowing deception of research subjects*' (Fraenkel & Wallen, 2003, p. 57).

In this research, procedures were clearly stated in order to assure ethical practice. Before conducting empirical work, ethical approval was obtained from both (i) the University of Birmingham ethical committee (number: ERN_10-1040 on 07/03/2011), and (ii) from the ethical committee at the Security Forces Medical Services (SFMS) in Saudi Arabia (number: 758/201/7/21 on 19/1/2011). The researcher orally explained the purpose of the research to

all participants and obtained written consent. Research participants were fully aware of all purposes for the research, and there was no deception of participants involved. Names of subjects were anonymised throughout all stages of the research. All interviews and focus group discussions were taped by digital recorder which was password protected; further, all written transcripts were stored in a locked filing cabinet and password protected computer. Furthermore, to avoid any potential risk resulting from travelling between Saudi Arabia and the UK, research officially obtained a space on the University of Birmingham server to store all recorded materials and transcripts (both software and hardware). All materials, therefore, were uploaded to the University of Birmingham server directly from fieldwork in Saudi Arabia.

5.6 Quality of qualitative research

The quality of qualitative research is very important, however, how to assess this in practice is a debated issue and there are conflicting opinions between authors in the *methodological* literature (Hammersley & Atkinson, 1995; Mays & Pope, 2000). There are those who suggest that criteria that are applied to quantitative research should also be applied to qualitative research, such as validity and reliability (Boaz & Ashby 2003). Those who believe this often presume that the existence of an underlying reality can be examined (Mays & Pope, 2000). Conversely, those who are oppose to this argument ('antirealists') suggest that qualitative research is an alternative approach to quantitative research and thus should be assessed by different criteria. Hammersley suggests that the criteria that are important to both quantitative and qualitative research are 'truth' (validity) and 'relevance' (Hammersley, 1992; Hammersley & Atkinson, 1995). Hammersley proposes 'subtle realism' which is a weaker version of realism, with regards to 'truth', he believes that it remains impossible to have access to knowledge or reality or knowledge of whether an account is true, and thus he

considers that the validity of the assertions should be founded on the evidence that supports them. It remains crucial to maintain a level of evidence in support of claims at all times, and what is involved in judging the validity of a claim differs according to explanation or theory (Hammersley & Atkinson, 1995). Relevance is concerned with the significance and consequence of the topic and so the contribution of the results of the research can be seen as an appropriate criteria for considering relevance (Hammersley & Atkinson, 1995).

Hammersley does not support an aim of seeking generalisability in qualitative research, but he does argue that reflecting on the extent to which a case can be typical to the population as a whole is important (Hammersley, 1992).

These authors thus suggest that the quality of qualitative research should be assessed in terms of (Hammersley & Atkinson, 1995); the originality of the claims that are being made; the extent of the development of the theory itself; the possibility of the account being true; the level of transferability of the conclusions to another setting; the consistency of the claims being made; and the extent of the assessment of the repercussions of the research wither themselves along with the volume of the information of the research process. Such criteria are akin to, and furthermore concur with, the medical sociological group criteria as stated by Boaz and Ashby (Boaz & Ashby 2003), and criteria suggested by Mays and Pope (Mays & Pope, 2000).

In general, it is considered to be important that researchers document their methods and data so that they can be examined by other researchers to see whether they would reach similar conclusions to the original research (Mays & Pope, 1995). Specific criteria for determining the quality of qualitative research may remain more contentious, however, given different approaches and a questioning as to whether all research is concerned with the development of

theory (Hammersley & Atkinson, 1995). Additionally, the assessment of qualitative research may change as *'the whole subject of qualitative or interpretive inquiry is arising as a field and becoming more tangibly definable'*, as asserted by Lincoln (Lincoln, 1995, p.275).

As this is qualitative research, however, reflexivity is considered essential (Glesne, 1999; Merriam, 1988). As Laurel Richardson considers *'writing as a method of inquiry, a way of finding out about yourself and your topic'* (Richardson, 2000; p. 923). The researcher belongs to the research setting, and had been a public health administrator managing a hospitals department in the Ministry of the Interior (that provides health services for Ministry of Interior employees and prisoners) for more than 12 years, having taken a first degree in public health at King Saud University in Riyadh and a masters degree in health economics at the University of Birmingham. This gave the researcher some familiarity with the health care system in Saudi Arabia, but, because the work conducted here was focused on the main population health provider in Saudi Arabia, the Ministry of Health, he was not directly involved in the research setting investigated here.

Recently, a new strategic health plan was approved in September 2009 (HSC 2010; MOI, 2010). This plan outlines key challenges facing the health system in Saudi Arabia, including the growth of health care expenditure, inequity in health care, and certain institutional barriers. In relation to these challenges, the plan sets various objectives and policies to implement these objectives into the practice. Of particular importance to this research, is the use of economic evaluation for setting health care priorities. The researcher, therefore, had an interest, pursued within this thesis, to explore the *'potential'* role of economic evaluation, and whether this is both acceptable and applicable to health care priority setting in Saudi Arabia. However, as Ellis and Bochner,(2000) suggest that reflexivity is a *'personal tale of what went on in the backstage of doing research'* (Ellis & Bochner, 2000, p. 741), the researcher has

reported the research journey as shown in the above section (5.4), and in the empirical work guidance (see guidance notes for conducting empirical work in Appendix 2, an example in section 3.6).

Issue of accuracy of translation

In this research, all interviews and focus groups were conducted in the Arabic language.

There is much discussion about the influence of language translation on analysis of qualitative data (Esposito, 2001; Thorne, 1994; Corti *et al.*, 2005; Temple *et al.*, 2006).

Brislin, (1970) suggests a translation technique called back translation technique to minimize translation errors (Brislin, 1970). Back translation technique includes three steps to minimize translation errors: translating the original transcript to the target language, back translating this to the original language again, and then checking the back translated version for its ability to give similar meaning to original transcript (Brislin, 1970). In this research, therefore, the researcher followed a robust process for the purpose of limiting any potential influence of translation on the process of analysis, including the use of the back translation technique (Brislin, 1970). All interviews and focus groups were transcribed and analysed in the Arabic language. At the stage of reporting the findings, cited quotations were translated from Arabic to the English language from the original transcripts by the researcher who conducted data collection and thus understood the context within which they had been undertaken. Then all quotations were translated back from English to Arabic language by an independent interpreter. Back-translated quotations were checked by the researcher to ensure that they gave similar meaning to the original text as in the transcript, and any differences were discussed with the interpreter.

5.7 Conclusion

The qualitative methods, located within a constructivist/interpretative paradigm, proposed for use in this doctoral work differ from those most commonly used in exploring the use of economic evaluation in health care decision-making. They are in contrast, particularly, to the one piece of existing qualitative research that has been conducted in the same country setting of Saudi Arabia.

The thesis now moves to reporting the findings from the empirical work. It does this in three chapters, first exploring the structure of decision making, then the contextual influences on decision making, and finally the use of economic evaluation in decision making. In presenting the findings, extensive use of quotes is made, so that the reader is provided with evidence for the analytical findings.

CHAPTER 6: STRUCTURE OF DECISION-MAKING

The findings of the thesis are presented in three chapters (Chapter 6, 7 and 8). The findings emerged from the data that were collected during three separate field trips to Saudi Arabia in 2011. Data collection comprised twenty two in-depth interviews, three focus groups and one meeting observation. The interviews were unstructured and ranged in length from 55 to 90 minutes. All informants in this study were health care decision-makers at the national or local levels, and some of them were members of the national priority committees (NPCM) and/or a local priority committee (LPCM) (Table 6.1). All of the research participants worked in the public health sector in Riyadh, which is where both the Ministry of Health and a local health authority is based. All interviews (apart from three where the informants did not give consent to record) were audio taped, transcribed, while ethical considerations were maintained throughout the study. Detailed notes were taken where audio-recording was not possible. Quotes are presented to illustrate particular findings; informants are identified by their unique study code. This code comprises (a) letter(s) denoting whether the informant was an interviewee at the national level (N), an interviewee at the local level (L) or a focus group participant (Fg) taking part in one of the three focus groups (A, B, C) and (b) a number indicating the precise participant within each of these categories.

Although the findings are presented in three chapters, these chapters should not be viewed as mutually exclusive, as there are clear connections between them. The first results chapter investigates the structure of decision-making, and the second chapter explores the role of the

context in health care decisions, according to the informants' views, providing a contextual basis for the findings in the third chapter. This third chapter examines the use of economic evaluation in decision-making.

Table 6.1: Characteristics of informants

Code	Sex	Role*	Reasons for selection	Place of interview	Comments on setting	Approx length of interview	Interview audio-recorded?	Comments on interview *
N1	Male	Decision maker at the national level (senior manager)	Key informant	Informant's office	comfortable	60 minutes	Yes	First interview; a health care administrator
N2	Male	Decision maker at the national level	Key informant	Informant's office	comfortable	55 minutes	Yes	A medical doctor, informant was a national priority committee member
N3	Male	Decision maker at the national level (senior manager)	Key informant	Informant's office	comfortable	60 minutes	Yes	A medical doctor, informant was a national priority committee member
N4	Male	Decision maker at the national level	Suggested by another local level informant	Informant's office	Comfortable but interrupted when the informant received visitors in his office	55 minutes	Yes	A health care administrator, data from the first 22 minutes were used (before interruption)
N5	Male	Decision maker at the national level	Key informant	Informant's office	comfortable	65 minutes	Yes	A health professional in medical devices
N6	Male	Decision maker at the national level	Suggested by another local level informant	Informant's office	comfortable	90 minutes	Yes	A medical doctor
N7	Male	Decision maker at the national level	Key informant	Meeting room	comfortable	75 minutes	Yes	A pharmacist
N8	Male	Decision maker at the national level	Key informant	Meeting room	comfortable	90 minutes	Yes	A pharmacist

N9	Male	Decision maker at the national level	Key informant	Meeting room	comfortable	55 minutes	No	Informant refused to be taped, extensive notes were taken (interview at first fieldwork); A pharmacist
N10	Male	Decision maker at the national level	Suggested by another national level informant	Informant's office	comfortable	55 minutes	No	Informant refused to be taped, extensive notes were taken (interview at first fieldwork); A medical doctor
N11	Male	Decision maker at the national level	Key informant	Informant's office	comfortable	50 minutes	No	Informant refused to be taped, extensive notes were taken (interview at second fieldwork); A health care administrator
L1	Male	Decision maker at local level	Suggested by another local level informant	Interviewer's office	comfortable	50 minutes	Yes	A professional in financing
L2	Male	Decision maker at local level	Suggested by another national level informant	Interviewer's office	comfortable	50 minutes	Yes	A medical doctor
L3	Male	Decision maker at local level	Key informant	Informant's office	comfortable	60 minutes	Yes	A medical doctor
L4	Male	Decision maker at local level	Key informant	Interviewer's office	comfortable	60 minutes	Yes	A health care administrator
L5	Male	Decision maker at local level	Key informant	Interviewer's office	comfortable	55 minutes	Yes	A pharmacist
L6	Male	Decision maker at local level (senior manager)	Suggested by another local level informant	Informant's office	comfortable	75 minutes	Yes	A medical doctor
L7	Male	Decision maker at local level	Key informant	Interviewer's office	comfortable	60 minutes	Yes	A pharmacist
L8	Male	Decision maker at local level	Key informant	Interviewer's office	comfortable	70 minutes	Yes	A professional in medical devices; local priority committee member

L9	Male	Decision maker at local level (senior manager)	Key informant	Interviewer's office	comfortable	80 minutes	Yes	A medical doctor
L10	Male	Decision maker at local level	Suggested by another local level informant	Informant's office	comfortable	70 minutes	Yes	A health care administrator
L11	Male	Decision maker at local level	Key informant	Informant's office	comfortable	55 minutes	Yes	A health care administrator
Fg:A1	Male	Decision maker at the national level	Suggested by another local level informant	Meeting room	comfortable but background noise	75 minutes	Yes	A medical doctor participated in a focus group
Fg:A2	Male	Decision maker at local level	Suggested by another local level informant	Meeting room	comfortable but background noise	75 minutes	Yes	A pharmacist participated in a focus group
Fg:A3	Male	Decision maker at local level	Suggested by another local level informant	Meeting room	comfortable but background noise	75 minutes	Yes	A health care administrator participated in a focus group
Fg:B1	Male	Decision maker at the national level	Key informant	Meeting room	comfortable	85 minutes	Yes	A medical doctor participated in a focus group
Fg:B2	Male	Decision maker at local level	Suggested by another local level informant	Meeting room	comfortable	85 minutes	Yes	A medical doctor at a hospital participated in a focus group
Fg:B3	Male	Decision maker at local level	Key informant	Meeting room	comfortable	85 minutes	Yes	A pharmacist participated in a focus group
Fg:B4	Male	Decision maker at local level	Key informant	Meeting room	comfortable	85 minutes	Yes	A pharmacist participated in a focus group
Fg:C1	Male	Decision maker at the national level	Suggested by another local level informant	Meeting room	comfortable	85 minutes	Yes	A health care administrator participated in a focus group
Fg:C2	Male	Decision maker at local level	Suggested by another local	Meeting room	comfortable	85 minutes	Yes	A medical doctor participated in a focus group

			level informant					
Fg:C3	Male	Decision maker at local level	Suggested by another local level informant	Meeting room	comfortable	85 minutes	Yes	A medical doctor participated in a focus group
Fg:C4	Male	Decision maker at local level	Key informant	Meeting room	comfortable	85 minutes	Yes	A medical doctor participated in a focus group

* Only broad roles are given to avoid the possibility of identification of individual informants.

6. Structure of decision-making

This results chapter, presented now, explores the formal structure of decision-making.

Informants talked about the organisation of health care and the structure of decision making in the context of the services that needed to provide for a society that is dispersed unevenly in geographical terms and where there are many challenges in implementing health policy in a country of that size, with regional differences in population density, character and infrastructure.

N3: 'The country's area is about 2.5 million square kilometres, with 25 million people spread over it; that's why covering all this area with health care services is not helpful, especially as the population density differs from one place to another. Some big cities are occupied by about 4 million, the capital for example, whereas other small cities are occupied by only a few thousands. Therefore founding hospitals to provide advanced health care is not helpful and is a waste of resources; moreover it will be hard to run these hospitals....'

This chapter considers the formal and explicit process of decision making as it was discussed by the research informants. One of the important objectives to be explored using the empirical data in this thesis is to identify the main actors and their roles in priority setting decisions at the national and local levels. Almost all informants talked about decision-making bodies that had a formal role in priority setting at both the national and local levels. They suggested that there are three decision-making bodies; 1) the Health Services Council; 2) the Ministry of Health; and 3) regional 'local' authorities.

6.1 The Health Services Council (Council of Health Services)

Around one quarter of interviewees talked about the role of the Health Services Council (or Council of Health Services, the regulating body for health care in Saudi Arabia (MOH, 2010), see chapter 2) in priority setting decisions at the national level. There was one informant (N3), in particular, however, who was both knowledgeable about the Health Services Council, and willing to discuss its role in priority setting, and this section thus relies quite heavily on the views of this informant. This informant specified the role or tasks of the Health Services Council as being four-fold.

N3: 'The first is to develop a national strategic plan; the second is to make regulations and legislation needed to achieve integration between all health care providers, governmental and private; the third is to set an appropriate regulation to operate hospitals run by the Ministry ..., and to separate hospitals from government sectors so that the Ministry of Health and these government agencies remain responsible for providing primary health care only. Finally, the Council should develop and improve health system performance through research, seminars, workshops ... the board should establish the appropriate mechanism to ensure implementation of the decisions'.

One view suggested that the Health Services Council is the health institution where health policy and strategic priorities are decided. The informants, from both national and local levels, emphasised the manner in which the Health Services Council sets out the strategy for decision making.

N1: 'All strategic decisions that are long-term priority setting are formulated at the Health Services Council; it consists of representatives from all health providers and key ministries.'

N3: 'This Council's first task, which was clearly stated, is to prepare health care strategies...'

N5: 'Regarding strategic priority setting decisions, the crucial question is not merely who make the priority setting decisions, but more importantly who formed the basis on which these decisions should be made? ... The strategic priority setting decisions are made by different levels of decision-makers...but all these priority setting decisions follow the strategic health objectives that are adopted by the Health Services Council'.

L2: 'The Health Services Council does not make priority setting decisions, but it sets broad strategic priorities to guide allocation decisions in health care for a given period (5 -10 years).'

L4: 'I would say that the present function of the Council is to promote a national strategic direction for health policy by an institutional framework which promotes coordination and cooperation within and between the governmental and private health services providers'.

Although informants appeared to be in agreement that the Health Service Council regulates and guides the priority setting process, some informants were equivocal about the actual role and expected role of the Health Services Council in priority setting decisions. These views suggested that the actual role of the Health Services Council was only advisory and that it has no authority to fulfil its expected role as the primary rule-making institution for the health care services.

L4: 'The Health Services Council is still considered as a consultative body for the Ministry of Health rather than an independent and powerful regulatory body that has the primary responsibility for regulating the health care system and its responsibilities and duties'.

Some informants explored reasons for why they felt the Health Services Council was only achieving this advisory role and not having the expected impact on decision making. The reason most often stated was the lack of independence of the Health Services Council from the Ministry of Health:

N3: 'There are three or four main factors preventing the Council from having the desired effect. I don't really rely much on that Council if these factors are not considered... Most important one is the Council's independence... The head of the Council is the Minister of Health, and the members of the Council are representative of the governmental health sectors.... private health sector... that means most of the Council members are the heads of the sectors who are responsible for providing health care'.

L4: 'It [the Health Services Council] does not specify the inclusion or exclusion of health projects or health care services. It only discusses the health plans and health projects that are proposed by the Ministry of Health.'

Other reasons for the advisory nature of the Health Services Council's role were suggested by the informants. It appeared that most of these concentrated on institutional issues, including the institutional capacity, and conflicts of interest, where the council members play a dual role as both health care providers and legislators. Informants indicated how these factors affected the

expected role of the Health Service Council. As N3 had an opportunity to talk about the Health Service Council at length, he became more critical about the current role of the Health Service Council.

N3 : 'The second [reason] is that when the Council's members conduct a meeting in the Health Services Council to issue regulations and legislation, do they express their point of view as independent legislators, health care providers, services council providers, or from the beneficiary's point of view?... Do you expect that the Council will make regulations and legislation that contradicts their own interests as they are the ones responsible for providing these services? Of course there is a conflict of interest if the legislator is the same one responsible for providing the health care and at the same time he is the one responsible for monitoring and observing the implementation of the laws'.

N3: 'The third [reason] is that the Council members are part-timers. All the Council members and committee members are part-timers; they are obligated with other official jobs. The Council is held once a month; the related committees are held according to its establishment act; permanent committees are held periodically; specialised committees with specific goals are held according their purpose and work nature; none of the members works full-time except the Council General Secretary who is administratively linked to the Council head, but he is not allowed to vote'.

L4: 'The actual role of the council is not as visible as it should be, because of the council's lack of initiative to draft, review and rescind health policies.'

N3: 'I believe that the Council's role is centred according to the Council General Secretary. The Council General Secretary prepares the meeting agenda, deciding what is to be presented before the Council meetings and what not to be.... The General Secretary

is only responsible for following the decisions made. This is where the defect is: how can the Council General Secretary who is administratively linked to the Minister of Health be the one monitoring the Ministry headed by the same Minister?’

N3 discussed the reasons and motivations behind the development of the Health Service Council, which appeared to relate to the desire to generate strategy independently of changing health ministers.

N3: ‘The previous health strategies used to be proposed by the Ministry of Health..., and had not been deeply studied or discussed with relevant ministries such as the Ministry of Finance and other authorities. Therefore, this cannot be considered a national strategic plan that must be adopted by relevant governmental sectors... Every health minister used to completely change what the previous minister did, and start again from the beginning with a new strategy’.

The informant suggested that after the establishment of the Health Service Council, health strategic decision-making was transferred from the ministry organisational level to a more independent state level, with the aim of maintaining stability for strategic planning:

N3: ‘After approving the last strategic plan, which was developed by the Health Services Council, with the participation of related governmental and private sectors, it is more likely to be applicable. Further, if a new minister came and didn’t implement this plan, at least he cannot change it’.

Although this informant thought that the main role of the Council is to have the leading role in health priority setting and the power to regulate all health care in the country, he felt that the Council would not be able to fulfil these functions due to its lack of independence.

N3: 'Although I have a concern about the mechanism of action of the Health Service Council, the In principle, the idea of establishing the Health Services Council is great, as an independent legislative body that is separated from the providers of health care, but this idea was incomplete...'

Essentially, therefore, there was concern that, although the formal role of the Health Service Council is to provide legislative leadership and set health care priorities, the role of the Council was limited:

N3: 'The Health Services Council, theoretically, is the legislative authority for all health care issues. ... but, in reality, it is not true, because of the Council's establishment act itself.'

6.2 The Ministry of Health

Most informants talked about the role of the Ministry of Health and the permanent committees at the Ministry of Health as national actors in the decision-making process. As indicated in chapter 2, the Ministry of Health is the main body providing health care services to the public in Saudi Arabia (MOH, 2010). In practice, it appeared that informants generally saw allocation decisions as being made by the Ministry of Health.

N5: 'All priority setting decisions are made at the Ministry of Health...'

L3: 'The Ministry [the Ministry of Health] proposed the annual budget project ... After approving the annual budget, the Ministry of Health disburses on the basis of approved items in the annual budget project...'

N3: 'On a national level, I believe the Ministry of Health holds all decision making authority related to health care priorities, despite the presence of the Council of Health Care services'.

L4: '...Still the most important priority setting decisions made are centralised at the Ministry of Health'.

It was suggested that the priorities of the Ministry of Health had shifted to focus both on health gain and the patient, and away from focus on illness.

N3: 'The Ministry of Health is now transferring from the concept of the absolute therapeutic health system to the general concept. This includes transferring from health care centred on illness to health care centred on the patient. ... It is a national goal before being a global one, and it is a solid base for the greatest health gains'.

Informants suggested that the Ministry of Health works by establishing an annual comprehensive budget exercise which means that budget allocation was undertaken from a holistic perspective. Therefore, the Ministry of Health views all regional and departmental requirements with reference to their internal and national contexts. Given this, informants indicated that the ultimate decision-making power remained largely at the national level.

L4: 'The ministry [the Ministry of Health] also determines what should be funded and at what level in self-operation programmes (hospitals) according to each self-operation programmes responsibilities.'

N4: 'The ministry reviews and approves annual budgets of the health system and it also allocates budgets to health authorities and health activities.'

L9 'Health Affairs in all Saudi regions [regional health authorities] submit their budget proposals to the Ministry of Health that compile the various proposals and submit an overall budget proposal to the Ministry of Finance.'

N8: 'I believe that, in general, the permanent committees at the Ministry of Health are the ones who have the final say in determining the health care service that may be provided in primary health care and in the general hospitals'.

The process by which decisions appear to be made is through a member of permanent committees, who use research evidence and other information to make decisions about which services should be prioritised.

N6: 'The relevant committees [permanent committees at the Ministry of Health] are the ones who make the decisions. We [researchers] provide them with the research which may assist decision-making but it is these committees who have the final decision... This gives every committee [permanent committee] its own say and final decision in terms of what should be provided or not provided'.

N7: 'When the permanent committees are provided with information from all the health services providers of every region, this enables them to determine the scope and the type

of the required services and evaluate... the relevant funds for it. As well as put in place criteria for monitoring those services’.

N6: ‘Therefore every committee operates according to particular policy and agendas and within the range of the level of finance assigned to it’.

6.3 Local authorities

Around two-thirds of informants spoke about the role of regional authorities at the ‘local level’ of the decision-making process. Local authorities were perceived to have a relatively minor role in decision making relative to that of the Ministry of Health. Overall, findings suggested that regional health authorities had little importance, or a context-dependent role, in the process of allocation decisions.

Some informants described the structure of formal decision making, and how the national and local authorities were involved in the decision-making process. The informants stated that there were local committees at the local level corresponding to the permanent committees existing at the national level through the Ministry of Health. These local level committees were largely perceived by informants as having a relatively minor or intermediate role, in which they were not able to make decisions – although it is notable that all those who spoke about this lack of a local decision making role were informants from the national level.

N8: ‘There are local committees in every region equivalent to those permanent committees at the Ministry of Health’.

N3: ‘On the regional level, local health affairs have been authorized to some extent in each region in order to address issues exclusively special to its region. For instance,

some regions concentrate on providing health services more according to incidence of diseases.'

N7: 'The role of the local committees in decision-making is to provide guidance for allocating resources at the local level. They do not have power in the decision-making process....'

N6: 'The local committees do not have authority to make decisions. Furthermore, the local authorities do not have full authority over all the local health care providers, such as the self-operational hospitals who enjoy financial and administrative independence in line with the national health policy'.

N8: 'Local committees play a mediator role between the providers of the health care services in those regions and the permanent committees'.

There appeared to be two forms of local committee activity. Firstly, despite the above, it appeared that the local authorities were, in practice, able to reallocate part of the existing of health resources in light of the national 'permanent committees' directives, although this influence was seen as partial or marginal:

N8: 'The permanent committees at the Ministry determine the health care to be provided but the local authorities have a margin of freedom in terms of the size of the health care provided, such as bed count, number of medical staff in specific medical departments'.

L1: '... the regional health authorities can reallocate part of existing health resources which makes the health system more flexible and responsive to the health needs of local communities.'

Secondly, local authorities could provide the permanent committees with local health care needs, and with feedback on the extent to which the national committees' decisions contributed to aggregate population health:

N7: 'It [local committee] just gathers information from various health care providers across the region, so that it can produce appropriate recommendations for the local decision makers... The local committees submit their recommendations to the permanent committees at the Ministry of Health'.

N8: 'Part of the local committees' task is to carry out the role of giving the permanent committees information about local health needs as well monitoring the services provided in the regions and assess the level of contribution and effectiveness of those decisions in meeting the goals of the health system in terms of improving the health and wellbeing of society'.

6.4 Working in partnership through the new health policy

It was clear from the comments of some informants that partnership working between the different levels and sectors was perceived an important element of decision making. This included the partnership working between the local and national committees, but also other aspects of partnership working.

Some informants saw clear benefits from cooperation, with this being seen as both necessary and helpful in facilitating a partnership between different local providers within a region and across the country in order to provide the full range of health care services:

N7: 'When the permanent committees are provided with information from all the health service providers of every region, this enables them to determine the scope and the type

of the required services ... as well as putting in place criteria for monitoring those services. Although this process is described as central, it really is advantageous in providing the health services through the various health care providers in every region and throughout the country’.

N7: ‘The local committees aim to make information available to assist the decision maker. They may provide information about the continuity or the quality of a particular health care among the various health care providers in the region, or they can provide information about the health care services in general on a local level related to achieving a health care objective such as the quality of the health care services’.

Establishing partnerships between various health care providers was also seen as important, and consistent with the “path” of new health policy.

N6: ‘... integration between the various service providers is a key goal in order to facilitate and ease access to health services and to improve their quality...’

One informant indicated that recent health policy suggests that establishing partnerships with various health care providers, public and private, within a region and across the country permits connection of health care users with a complete range of services to meet their needs. This policy aims to avoid duality among health care providers, and benefits from the flexibility that the private sector enjoys:

N3: ‘Populations [in small cities] are served by public hospitals and, at the same time, some people in those cities are covered by health insurance.... The private health sector response is more flexible and faster than the public one, which helps to provide quicker

health care that might not be available in the public health sector, as it is obliged to provide health care to insured persons. Health care service exchange is not limited to the small cities, but also big cities. The private health sector benefits from the advanced diagnostic facilities available in the specialised hospitals [public hospitals], and the specialised hospitals could benefit the private sector by referring patients who need health care such as rehabilitation’.

Although one of the main tasks for the Health Service Council was establishing partnerships between various health care providers, this desire to achieve partnership and co-operation was, however, seen by some informants as being subject to a number of difficulties, resulting in a continued lack of cooperation between health care providers.

N6: ‘The variation in the regulations between the health institutions in any one region is an obstacle in achieving the above mentioned key goal [of integration].... The major hospitals in the regions benefit from a high level of financial and management independence from the region’s health administration. This limits the ability of the region’s health administration to monitor the contributions of these hospitals to the achievement of the health service goals whether on a local or national level.... In contrast the health centres and the general hospitals completely follow the local health administration which makes it operate purely according to the centralised system’.

It is notable that, in this concern about the achievement of co-operation and partnership working, the independence of major hospitals appears to be a key factor. Indeed, a number of informants noted that, in contrast to the dominant trends in local decision making, central hospitals (self-

operating hospitals) appeared to have a decisive role in priority setting decisions. Some informants indicated that central hospitals were totally responsible for the budget process, and had greater flexibility to reallocate their existing resources:

L6: 'All departments submit information to budget departments that can build a hospital budget proposal. It includes hospital's requirements including staff, supplies, and equipments.'

L1: '...self-operation programmes have a full administrative and financial autonomy. The statute confers on them a moral responsibility and a financial autonomy.'

L1: 'This type of operation [self-operation programmes] is flexible, in terms of its resource allocation, whether the level and quantity of health care services that will be provided, and/or the recruitment processes to attract highly qualified and experienced staff. Each programme receives its independent budget from the Ministry of Finance.'

L9 '... each self-operating hospital prepares its own annual budget proposal with detailed estimates and then each submits its own proposal to the Ministry of Finance'.

5.5 Conclusion

Overall, it appears that, whilst the Health Services Council has the formal strategic role in decision making in Saudi Arabia, the main decision making power resides in the permanent committees of the Ministry of Health. Local committees are responsible for implementing the decisions of the permanent committees and have a small amount of flexibility to alter these decisions in line with population needs. Local committees are also required to provide information to the permanent committees for the permanent committees to build into their decision making process. Whilst partnership and integration between the different levels and

sectors appears to be valued, there are some concerns about how well it works in practice.

Further, the major hospitals appear to have a high degree of independence, and thus are able to work outside of the general decision making system.

CHAPTER 7: CONTEXTUAL INFLUENCES ON DECISION MAKING

This chapter explores the role of the context in health care decisions, according to the informants' views, providing a contextual basis for the findings in the next chapter. It is important to understand the overall context to be able to gain insight into the structure in which decision-making takes place. Four categories fall into this theme of 'context': political and cultural context; economic context; organisational context; and the public role in decision making. All respondents discussed various aspects of context.

7.1 Political and Cultural Context

There appeared to be five political factors influencing priority setting decisions in health care: allocation decisions, an imbalance of power, complying with national agenda, personal reasons, and transparency and accountability.

7.1.1 Allocation decisions

It appeared that the process for budget allocation to the health care sector and within the health care sector was highly political and all informants talked about these resource allocation decisions. It was suggested that allocation decisions may not necessarily be in line with the

priorities of health authorities, and may not be taken in isolation from other non-health sector considerations. Some informants described the process of budget approval. Although there was no consensus about who had the final approval for decisions about the allocation of the health budget, informants thought that the Ministry of Finance played the main role in budget approval. Overall, although informants had varied views as to how health budgets were approved, the findings from the interviews suggested that the final decision making about allocation decisions to the health sector and within the health sector were made during discussions between the Ministry of Health and the Ministry of Finance, and, from the perspective on these informants did not appear to be based on explicit criteria.

L3: 'The Ministry proposed the annual budget project and discussed it with the Ministry of Finance... after a discussion meeting, budget is approved.'

L5: 'The budget project is approved according to a discussion meeting with the Ministry of Finance.... Although the annual budget project is discussed with the Ministry of Finance, the ultimate approval decision is made by the Ministry of Finance.'

N5: 'Although the proposed budget project is discussed, the Ministry of Finance may approve a different budget than what we [the Ministry of Health] proposed and discussed during the budget approval meeting.'

L9: 'The approved budget often does not include everything that has been proposed by every regional Health Affairs.'

One informant, L9, attempted to describe the process of budget preparation in more detail, in order to illustrate how the budget was prepared based on explicit criteria 'citizens' health care needs', but with other, more implicit, criteria then being brought into the decision making

process. It was his view the approved budget did not sufficiently follow the proposed budget. The informant offered an example of how the process of preparing and approving budgets works ‘in brief’. The informant was unable to identify, however, how the final decision was made or who had made the final decision.

L9: ‘For example, the Ministry of Health and each self-operating hospital prepares its own annual budget proposal with detailed estimates and then each submits its own proposal to the Ministry of Finance. Budget proposals will then be adopted after discussion and negotiation with the Ministry of Finance. This is the process in brief.. On this basis I would say that these budget proposals ought to address the health care needs of citizens, but in reality they do not... The process of budget approval is complex and includes complicated stages.... for several reasons, some were known and some were not ... such as that the Ministry of Health does not necessarily include everything in the overall budget proposal during the review process, or they were excluded through the budget negotiation process.’

Other informants saw perceived failures in the allocation process not so much in terms of the introduction of implicit criteria into the process, but as an issue of lack of co-operation. They suggested that there was a lack of institutional cooperation and compliance between the Ministry of Health and other governmental organisations at the national level and within the Ministry of Health at local level.

N2: ‘The Ministry of Finance, for example, should fulfil the government commitments for implementing health projects which have been adopted by committees from different governmental organisations, including the Ministry of Finance itself.’

N2: there is no commitment of the other ministries to fulfil their duties and responsibilities.'

For some informants there was clearly a lack of clarity about the criteria in which these funds were allocated to the health care sector.

L8: '...allocating budget for more hospitals to be built. But the question is- what about the operating budgets for these hospitals, and can an economic boom be assured?... and are these funds different from the funding requirements for our strategic plans?'

Around one third of informants spoke about inequity and inequality in the allocation of resources for the health care sector.

N1: 'Most of non-major regions suffer from a lack of secondary and tertiary health care services ...'

Some informants offered reasons for inequity and inequality in allocation of resources. Personal factors were the most frequently cited reason for why there was an inequitable distribution of allocation of resources, whether between different national sectors or within health sector.

L5: 'Wasta is one of the main reasons behind the inequity and inequality of health resources' distribution between regions... decision makers who made these decisions are from those regions.'

N3: '... some decisions were not based on objective or evidence, but only because persons who had the authority...'

A number of informants were of the view, however, that inequities were a focus of current decision making and that practical actions were being put in place to tackle these inequities

N2: 'About 750 new primary health care centres will take place over the next three years to bridge the gap in health provision and to achieve fair distribution'

N3: '... stage which is to fill the gap in distribution of the health facilities, or of the type of service that should be provided by the ministry for all citizens in a way that is fair and easily accessed...'

N2: 'Fairness in the distribution of health resources has been one of the main subjects during the process of recent plan'.

There was concern that the public was aware of these inequities.

L1: '...of course yes, they [the public] know that there are inequity, inequality...'

National level informants, in particular, discussed several objectives of the health system. It seemed that these objectives were intended for political rhetoric rather than for actual health priority setting criteria. One informant, for example, thought that the mission of the Ministry of Health is to provide health care services for all in an *'equal and equitable manner'*, *'putting patients first'*,

N1: 'We aim to achieve the best possible overall level of population health by providing integrated healthcare to all citizens and facilitating fair access in the provision of high quality and safe health care services'.

N2: 'Our mission is to provide health care services to all citizens in an equal and equitable manner, regardless of differences in geographical, social or other'

considerations... We put the patients at the centre of everything we do, attending to what the patient believes is most important for their health conditions’.

N3: ‘A goal of the health system reform is to determine the basic health interventions for each health care level; primary, secondary and specialized’.

However, these broad policy objectives, seemed be able to tolerate wide interpretations. For instance, the informants who talked about the ‘*Patients First or Putting Patients First*’ attempted to offer definitions and outline underlying principles. Although there were no significant differences between the informants in terms of the overall meaning of the ‘*Patients First*’, there were differences in how informants talked about the operationalization of the approach, for example, with Fg:A2 interpreting this a set of particular activities and N1 interpreting it in terms of funding allocations.

N2: ‘...the patient at the centre of everything we do, attending to what the patient believes is most important for their health conditions.’

Fg:A1: ‘...the needs of the patient is always the top priority of the health care services’.

N1: ‘Patients’ needs are the focus of the health care system... Putting patients first means that the funding should follow those receiving health care services rather than funding health institutions.’

Fg.A2: ‘Putting patients first is a practical concept that consists of a set of coherent activities to build on what we already have and move us towards a better health system’.

L1 ‘The proposed approach is the transformation of the current health care system ... to a Health Needs of Rostered Population system’.

The notion of *'patients first'* seemed at odds with the problem of scarcity of health resources and continuous growth in the demand for health care services. It seemed that the approach of *'patients first'* might be a marketing slogan rather than a public health approach. It therefore seemed important to explore the underlying theoretical assumptions behind both the practical implementation of the concept and the rationale behind the concept. In fact, it seemed that the informants who talked about the *'patients first'* were in general using the term to indicate prioritisation on the basis of *'health needs'* or *'patients' needs'*. It seemed that the both terms indicate a 'basis/condition' for providing and delivering health care services that are being sought within the confines of medical-based services.

N1: '...patients' needs are the focus of the health care system'.

L1 'Our approach focuses on patient needs on the basis of the most clinical benefit in terms of life-saving is given the first priority'.

N4 '...health resources are allocated according to both national and local health needs, so you may find a particular health care in some region but not in other on basis of incidence rate..... (Other regions' patients) can access to nearest health care services that provide their needs'.

It was clear that *'patients first'* did not mean that decision makers were unaware of the need to make choices or that they believed that all health care services provided would meet all patients' needs.

N1: 'It is not exactly that [the patient getting what they want]but the patients first implies a number of features in order to establish a developed and dynamic health care system

that saves lives at the first, improves the quality of life and contributes in saving medical costs’.

N4: ‘Health needs... helps us to allocate health resources according to measures of disease burden and prevalence which does not mean providing everything everywhere’.

Indeed, health needs were not seen by all informants as being the only priority.

N4: ‘Health needs is only one indicator of several indicators’.

Furthermore, the notion of health needs appeared to be interpreted widely, and thus to extend beyond the borders of the medical-based services to include patient preferences, education and training supports, alternative medicine services and advice and information about treatment abroad.

Fg.A2: ‘...some hospitals provide also alternative medicine services’.

L1: ‘...patient preference ... play role such as the need to provide some health care services by females only’.

N1: ‘Patients who require using mechanical aids receive education and training supports’.

Fg.A1: ‘All primary health care centres provide health education for all patients especially those with chronic conditions’.

L1: ‘If treatment of the patient is available outside Saudi Arabiathe cost of treatment of the patient plus 2 flight tickets for the patient and a companion, as well as pocket expenses is financed by the ministry of health’.

L1: ‘...there is an available care or treatment for their health condition, even abroad, public doctors will recommend it’.

7.1.2 An imbalance of power

A small number of informants spoke about issues of power within different areas of health care and the impact on funding decisions. There appeared to be power asymmetries across the national level and within health care organisations. Around one half of informants talked about power imbalances. Findings from interviews suggested that there is a power imbalance between different governmental organizations, in which some governmental organizations have power over others or are given higher priority than others. Power imbalances could be a further reason for the inequitable distribution of allocation of resources to the health care sector or within the health care sector. One informant indicated that different government sectors are treated differently in terms of funding and that this results from differences in power between different ministries.

N1: ‘Look how much resources have been allocated to other governmental health sectors and compare them with what is allocated to the Ministry of Health, or simply compare between two similar hospitals, a Ministry of Health’s hospital and another ministry hospital.’

N1: ‘I think this reflects the power imbalance between different ministries, so I don’t think ministry of health or the minister has similar power of these ministries’.

The particular political system in Saudi Arabia also seems to contribute to this perception of power imbalance, with informants suggesting that decisions were made based on the personal capacity of individual leaders or upon Royal authority and directives.

N3: ‘... some decisions were not based on objective or evidence, but only because persons who had the authority, or upon sovereign orders.’

N5: ‘The budget of the Ministry of Health has increased significantly since the current minister was appointed.’

N5: ‘The minister is favoured by the King and he has courage to discuss the needs of resources for the Ministry of Health directly with the King.’

7.1.3 Complying with the national agenda

It appeared that some priority-setting decisions were influenced by the overall national context (non-health). For instance, one informant talked about a decision to construct 50-bed hospitals and then a later decision to convert them into primary health centres. The informant suggested that one reason for this decision was the ‘Saudization’ of the workforce³.

N3: ‘Bearing in mind it was well known to the ministry before building these hospitals that the cost of the health care given in it is higher than those in main cities, and yet the decision of building it was taken because of other factors such as the need to employ citizens instead of foreigners’.

³ Saudization is a term commonly used by the Saudi government, which means replacing the foreign workforce in the country with local ones (Bashir, 2005).

At the level of the national health organisation, it appeared that formal health decision making was structured to comply with the national targets through the national committees at the Ministry of Health.

N8: 'Part of the local committees' task is to carry out the role of giving the national committees information about local health needs as well monitoring the services provided in the regions and assess the level of contribution and effectiveness of those decisions in meeting the goals of the health system in terms of improving the health and wellbeing of society'.

N6: 'Furthermore, the local authorities do not have full authority over all the local health care providers, such as the self-operational hospitals who enjoy financial and administrative independence in line with the national health policy'.

This compliance with the national agenda was also evident in the section on 'formal decision making' reported earlier in this chapter.

7.1.4 Vested interest

It appeared that vested interests played a significant role in priority setting decisions at both the ministerial and organizational levels. Most informants talked about different types of vested interest or personal reasons that influenced decisions in priority setting. These reasons have been grouped into three categories: *wasta*, personal motivations, and personal preference.

7.1.4.1 Wasta

This section explores the wasta concept in terms of its influence on health care decision making. A number of informants talked about the wasta concept, and all these informants were local decision makers, suggesting that the role of wasta was particularly noticeable at the local level.

There appeared to be two views about the extent to which wasta played a role in health priority setting decisions. The first view was that wasta played an important role in the decision making process.

L3: ‘...wasta plays an important role in the decision of who receives a certain type of health care service earlier than others, or gets over utilisation of health care services, such as unnecessary tests or simply jumping waiting lists.’

L5: ‘...wasta is one of the main reasons behind the inequity and inequality of health resources’ distribution between regions... decision makers who made these decisions are from those regions

L9: ‘... there is an acknowledged role for wasta, not only in the process of decision making in the health care sector, but in the process of decision making across other governmental sectors...’.

L9: ‘No one can deny the existence of wasta. It has always existed and will continue to exist...’

The alternative view was expressed by only one informant. This informant suggested that *wasta* did not have a role in priority setting decisions, that *wasta* attracted more attention than it should have, and that it is against the principles of Islam.

L6: 'I do not think wasta has a vital role in the process of decision making... It [wasta] violates the principles of Islam.'

As an example of how *wasta* might appear, one informant saw its role in issues such as enabling access. The informant thought that a '*help*' for jumping the queue was a '*small issue*', and it might be needed for either making an appointment or '*getting a quick appointment*'

L6: 'Helping someone to make an appointment with the doctor, or getting a quick appointment...'

Whilst there were different perceptions among informants about the influence of *wasta*, there was a shared concern to show that decisions were not unduly influenced in this manner. This was particularly the case for the senior managers (L6 and L9). A part of senior managers' response seemed to be an attempt to justify the existence of *wasta* and its role in the health decision making. For example, although the informant, L9, explicitly acknowledged that *wasta* played a significant role in the decision making process, he doubted that all the decisions which appeared to be driven by *wasta* were actually made on *wasta* considerations, rather than rational reasoning.

L9: 'However, it is not always decisions that seem to be driven by wasta that were made in such a manner.'

L6: 'This does not mean that priority setting decisions are made based on wasta considerations.'

These informants suggested three possible reasons as to why decisions that might have appeared to have been driven by wasta considerations were in fact sometimes driven by rather more rational considerations.

The first of these concerns the lack of understanding that people may have of the process of decision making;

L6: 'People just say the decision making process is driven by wasta because they did not understand what was going on... There is a belief that wasta helps one to run their affairs smoothly by bypassing onerous bureaucratic processes...'

The informant thought this was because the decision making process is a '*complex process*' which at the same time '*uses analytically rigorous techniques to capture and quantify citizens' health needs*'. It was his view that these complex analytical modes of thought may be too difficult for the general public to follow. In addition, he perceived that the decision making process had to be '*flexible enough to evolve with the inherent complexity of our culture and to meet new challenges without excess regulation.*' This flexibility may, however, appear as inconsistency to the public and decisions therefore put down to wasta considerations.

The second reason why wasta may appear to be more influential than it is was noted by one informant as being related to the lack of clarity in the criteria for decision-making

L9: 'I agree that some of the priority setting decisions were based on criteria that left doubts as to the basis of these decisions, but it does not mean that those decisions were made on wasta considerations.'

Finally, this same informant also suggested that lack of transparency in decision-making might lead people to believe that wasta played a role in the decision making process.

L9: 'The lack of transparency ... may lead many people to misunderstand and mistrust the rationale behind these decisions'

7.1.4.2 Personal motivations

A small number of informants talked about the possible influence of personal motivations on decision making. Personal motivations is a subcategory label which can be used to describe the perceptions of the informants about the personal motivations that a decision maker might bring to their role. For example, it was perceived that, when a hospital is directed by a physician as an executive director, some of those executive directors seemed to be more loyal or give preference to their own medical speciality area rather than to other hospital departments.

N3: 'Why the disparity in rise to prominence of the achievements of different medical specialities, where most of the health institution's resources go to the department that the manager belonged to?'

There appeared to be two views about how the motivations of executive directors to their speciality areas influenced decisions: the first was in terms of directly allocating extra resources for the executive directors' speciality areas, and the second was in terms of orienting the media

to favour specific specialities over others. The first view discussed how and to what extent loyalty can play a role in priority setting decisions. Informants suggested that when the hospital executive director is a physician, they were more likely to allocate more funds for their development.

L4: 'Most hospital executive directors who are physicians often pay much attention and importance to the departments to which they are belonging, over other departments. This can be clearly seen through the enormous funding allocation, as well as the recruitment of additional staff for these departments. These departments become super-speciality departments that provide sub-specialized clinical care, at the expense of other health departments. The hospital then deviates from its original objectives, which is to provide health care services in various specialities'.

L3: 'Priority will be given to those departments in which they were belonging to. When the [name of person] was appointed as [leadership position], he appointed managers from similar department to their own in most of [leadership positions]'.

It was suggested that the reason behind such a situation was directly related to the degree of knowledge each director has about the hospital departments.

L4: 'It may be due to the fact that they [executive directors] have deeper level of knowledge in speciality areas of medicine which allows them to understand the needs of these departments'.

The second way in which personal motivations might act was in terms of influence over the media such that it gave attention to some medical specialities over others.

N3: 'Many other examples - for instance, what was the media reaction to the success of the liver transplant? Very well followed and receiving special attention.. After the hospital manager changed, all of this disappeared! Another example - look at the attention paid to (special operations) in the media, while there are other more complicated operations that the media never mentioned! In contrast, there are many medical success stories which are mentioned in the international media, while local media never mention them'.

Although the informant agreed that the media were (in any case) biased and likely to give prominence to certain people over others, he explicitly made an assumption that hospital managers were also biased to their departments:

N3: 'I agree with what they say that it is the media role because it is bias to one person and not the other, but to have it in this general and continuous way; it is hard to believe it is the media. Interestingly, some biased doctors who work as managers ascribe any achievement of their departments to themselves, and blame other departments' failures on their heads, neglecting the fact that they themselves are the managers of these hospitals, and they are responsible for any failures and successes'.

7.1.4.3 Personal preference

Some informants talked about the power of doctors to influence decisions not in terms of them favouring their own specialty but just in terms of them following their own personal preferences for how resources should be allocated. In particular, it was noted that this tended to lead to greater priority for secondary rather than primary services.

Fg:C4: 'There is a clear preference of decision making which favour advanced health care more than primary health care because the doctors and consultants of advanced health care have the greater influence in decision making.'

L11: 'The major hospitals benefit from greater flexibility in re-allocation of financial resources..... It may even be the case that the hospital management board, usually the executive director, has the right to make his own decision, as long as financial resources are available'.

One informant suggested possible reasons why hospital doctors had the major role in priority setting decisions, such as hospital doctors hold leader positions at health originations, and their voice was heard by decision makers.

Fg:C4: 'Either due to them having significant decision making posts or the decision makers give their suggestions more importance than the suggestions of the primary health care doctors and consultants... Financial resources allocations indicate the strong level of influence that the medical consultants have in the resources allocation process'.

7.1.5 Transparency and accountability

More one half of informants talked about transparency and accountability in decision-making.

The findings suggested that there was a serious lack of transparency in the current decision-making process, although there were efforts to enhance transparency and accountability.

Some informants indicated that efforts had been made to spread the principles of transparency and accountability by establishing national bodies to deal with these issues. There appeared to be

three bodies concerned with the issues of transparency and accountability at the national and local levels: the General Auditing Bureau, Investigation of Management/the Ministry of the Interior and the National Anti-Corruption Commission. However, all these identified bodies are governmental.

L2: 'The Government has made efforts to strengthen the culture of transparency and accountability. The government has established several national bodies promoting governance, enhancing transparency and enforcing accountability, such as the General Auditing Bureau and Investigation of Management.'

L5: 'Lately, corruption has either increased or become so noticeable... Therefore, last month [March 2011], the King took action by establishing the National Anti-Corruption Commission.'

Fg:C2: 'The Anti Corruption Commission has started to pursue corruption, but it is approaching the matter very cautiously; as it is a Government commission that is not independent.'

N5: 'There are many efforts which have been made to ensure transparency in all decisions... There are two departments monitoring and reporting issues of transparency and accountability in the Ministry of Health and in each local Health Affairs Control and Internal Auditing Department and Follow-up Department.'

Although those informants felt there were initiatives and efforts for improving transparency and accountability, most informants had similar views regarding the lack of transparency and accountability. Informants suggested that the decision making process was not open and transparent.

N3: 'I don't think decision making in general is described with 'transparency', although many decision makers claim transparency.'

L7: 'There are already transparency and accountability laws in place, but the problem is that there is no real transparency and accountability in place.'

L3: 'There is a lack of transparency in the process of decision-making...'

N5: 'Although there are many efforts which have been made to ensure transparency in all decisions, decisions largely remain not transparent.'

Fg:C2: 'There are some decision makers; we are not able to predict the decision or what justifications they adopted to make the decision.'

Fg:C1: 'Not all the decisions are built on a clear basis...'

Fg:C4: 'Decision making is a complicated process .You cannot follow or pinpoint when or at which period a decision was taken or who was the actual decision maker.'

L11: 'There is no unified framework which determines who the decision-maker is or what are the required justifications for making the decision '.

A suspicion was expressed over the validity of promoting a transparency agenda. Some informants wondered how there could be calls for increased transparency, while at the same time there are strict instructions against answering questions regarding their work without written permission from the top management:

L4: 'Transparency is used for rhetorical purposes rather than a method to improve the management activities. There are decisions concerning my department's budget decisions; but I do not know the basis upon which these decisions are made.... There are strict administration instructions to ensure the privacy of most management processes.'

L9: 'It is very hard for many, even some health care workers, let alone citizens, to find out what are driving these decisions.'

This lack of transparency in explaining the considerations underlying decision-making processes was seen by informants as negatively affecting people's trust and understanding:

L9: 'The lack of transparency in the current environment of decision-making may lead many people to misunderstand and mistrust the rationale behind these decisions.'

L10: 'I think that the existence of a number of bodies relating to transparency and accountability does not help achieve an effective regulatory framework for transparency and accountability...'

7.1.5.1 Respondents' attitudes about transparency and accountability

This section demonstrates informants' attitudes to, and understanding of, transparency and accountability, and their views about the extent to which the decision making process should be transparent. Respondents varied in how they perceived transparency and accountability.

However, other informants offered a variety of suggestions regarding the extent to which the process of decision-making should be made more transparent to the public. There was a range of views with some respondents' views favouring full transparency in all aspects of decision making.

L8: 'I would like to see greater transparency and information to patients and all citizens... The focus should be on promoting transparency, as it is at the centre of the medical field.'

L7: 'Accountability is not limited to financial aspects but there are equally important aspects as well, such as legislative and procedural accountability.'

Other respondents viewed some aspects of transparency and accountability as being important, and others less so.

L8: 'Although transparency and accountability are knit together....Of course there is a relationship between transparency and accountability where accountability is a consequence of the transparency and transparency is a main tool for accountability...Therefore, the purpose of transparency, in my opinion, should be to provide patients and citizens with correct information about their medical conditions, rather than providing people with knowledge that can hold their governments to account.'

And yet other respondents viewed transparency as being irrelevant.

L3: 'I think there is no reason that the process of decision-making should be open and transparent. It does not matter, since the decision maker maintains work standards and follows the procedures and policies... So, a decision maker should not be fearful of being responsible for the consequences of their decisions if they were sure that they followed the policies and procedures of work.'

One informant showed particular insight with respect to the issue of transparency, suggested that whilst the decision-making process should be kept as open and transparent as possible, the complexity of decision making meant that full transparency would be difficult to achieve. He

expressed much suspicion toward claims of full transparency in all decisions, and argued that enhancing transparency and accountability was the appropriate objective.

N5: 'The process of decision making in priority setting decisions is very complex. It involves balancing many competing issues and viewing different perspectives. Although there are many efforts which have been made to ensure transparency in all decisions, decisions largely remain not transparent... I think that it is difficult either to ensure transparency or to achieve full transparency in decisions, but the focus should be on enhancing transparency and enforcing accountability. Of course, this does not mean autonomy of decision making without constraints or accountability.'

The distinction between personal accountability and accountability at work was also made by one informant.

Fg:B2: 'I may not personally agree with the policies of the Ministry, but there is a big difference between my convictions and my work. In my work here, I carry out the policies of the Ministry. At the end of the day I am accountable based on the level of my implementation of the policies of the Ministry, even if the policy is not correct and does not fit with my own convictions.'

One aspect of transparency that is very specific to priority setting is the question of informing people about new treatments and the burden that this can impose on the system. One informant expressed concern about this issue and the resulting potential for high consumption of health-care resources.

L5: *'I do not totally agree with the idea of providing citizens with information about the existence of new treatments. If the citizens knew there is a new treatment for a specific health condition, they would either care less about maintaining their healthy habits and lifestyles as much as they did before, or they would expect that the new treatment would be available for everyone everywhere the next day.'*

7.1.5.2 Reason for lack of transparency and accountability

Informants discussed why there was a lack of transparency and accountability in Saudi health care decision making. There appeared to be three main reasons:

1) A belief that there was no real desire for transparency

A number of informants suggested that there was no real desire for transparency within the Saudi system, with some informants noting that the desire for transparency was largely rhetorical and not supported in practice.

L4: *'Transparency is used for rhetorical purposes rather than a method to improve the management activities... A written permission is required to provide someone with some information. Official letters and meetings minutes, for example, are classified as normal, secret and very secret. Almost no-one can access the high-level ones.'*

L7: *'Much has already been said about transparency and accountability I think there is no point in transparency since there is no public accountability.'*

Amongst the informants there were those who did not desire transparency or believe it to be part of their role to be transparent. These decision makers appeared to see their role purely in terms of following procedure and acting professionally.

L2: 'There is no point to inform the public about the basis of our decisions. It is our duty to run hospital work in the most professional and efficient way... The hospital's performance and productivity are monitored by government institutions that are responsible for reporting the financial and administration corruption.'

L3: 'I think there is no reason that the process of decision-making should be open and transparent. It does not matter, since the decision maker maintains work standards and follows the procedures and policies... So, a decision maker should not be fearful of being responsible for the consequences of their decisions if they were sure that they followed the policies and procedures of work.'

Some informants suggested that the Saudi political context did not promote transparency and accountability, since the Government conducted the health care services and other health system related functions including regulation, delivering and financing health care services:

L8: 'But this is not quite the case in our political context, since health care is delivered, financed and regulated by Government.'

2) Lack of an effective framework for transparency and accountability

Around one third of informants suggested that the lack of transparency and accountability was a consequence of the lack of an effective framework for transparency and accountability.

L10: 'I think that the existence of a number of bodies relating to transparency and accountability does not help achieve an effective regulatory framework for transparency and accountability. This is due to the lack of clarity of the roles and responsibilities of those various bodies.'

L7: 'The transparency and accountability framework itself does not help to create a culture of transparency and accountability.'

One informant argued that transparency alone was insufficient to prevent corruption or abuse of power. He suggested that there should be an effective accountability framework:

L10: 'Transparency alone is not sufficient for cutting abuse or corruption. There have to be effective and organised accountability measures which ensure there is no escape from punishment for anyone who abuses the system.'

A major concern with the existing framework was that there is no clear separation of responsibilities, with the Government playing multiple roles in providing and legislating, as well as monitoring and directing health services. Thus, the Government would not be accountable to itself:

L7: 'There is no recognisable separation of tasks, where the governmental institutions are responsible for legislating, delivering, monitoring and directing health services... The governmental institutions often do not comply with the laws that were enacted by the Government itself.'

Fg:C2: 'The Anti Corruption Commission has started to pursue corruption, but it is approaching the matter very cautiously; as it is a government commission that is not independent.'

3) Lack of understanding of transparency and accountability concept

There appeared to be a lack of understanding of the concepts of transparency and accountability by some informants. For instance, some informants thought that transparency meant *monitoring* of health care providers:

N3: ‘... the health care providers will not want to be monitored and followed-up, of course I don’t mean they have transgressions. I mean generally anyone assigned to a certain responsibility prefers very limited supervision and accounting... Supervision and accountability limits the managers’ and heads’ authorities.’

The informant suggested that the lack of transparency and accountability was because of lack of understanding of the responsibilities of health service providers and the rights of health care users:

N3: ‘The concept of health care is still as a “service” and it is not the duty of the provider or a “right” to the receivers. Starting from here you can imagine the feeling of the health service provider or the decision maker. It is true that awareness of health by the community is growing, regarding their right to receive health care which puts pressure on decision makers to be more transparent. The important point is that as transparency increases so does accountability. It is a direct proportion here. From my point of view, this is what most decision makers are trying to avoid, not because there are malpractices in decision-making, but the policies and procedures generally are stretchable, where an official can justify his reason for any decision.’

7.1.5.3 Using modern media for transparency and accountability purposes

Around one third of informants talked about the use of modern media (the terminology used to indicate what in the UK would be referred to as social media) for transparency and accountability purposes. Informants suggested that modern media were already used to play a role in creating accountability.

L8: 'New communication means encourage accountability by exposing cases of maladministration, medical malpractice,...'

L9: 'From my experience, there are two main purposes of using modern media in relation to health care services. One is to call for accountability ...'

N6: 'The new media play a role in transparency and accountability.'

L9: 'The introduction of new communications means has given the media much more freedom to criticise government policies and actions, and public figures. It is a great step for more transparency and accountability and may be more.'

One informant suggested that issues with the political system were part of the use of modern media

L7: 'Factors such as legislative and institutional weakness and lack of transparency allow corruption to happen and an expanded role for modern media.'

In this view, some informants emphasised that modern media were interested in exposing negative issues. For instance, informant L8 suggested five areas of the health-sector in which modern media may play a role as observers, and hence as a mechanism of accountability. These

areas were: *'mal-administration, medical malpractice, corruption, medical negligence and wrongdoing in public and private health institutions'*.

N3: 'The decisions that the community might have a role in are these decisions taken under pressure from the media... For example the media use either the newspaper or the internet to expose some problems, or failures in the health services, putting pressure on decision makers to act directly with what is published.'

L3: 'Specifically, the Internet has become a tool by which the public exercises pressure on decision makers to solve and address health issues, particularly malpractice issues in health services which have either been unknown to health authorities or the citizens.'

One informant, who suggested that modern media were used to *'call for accountability, when one made a mistake, or when issues go wrong'* indicated how modern media acted as a mechanism of accountability, suggesting that people inflated negative issues to bring them to attention of those in power.

L9: 'People usually share and swap the issue via social media and cell phone apps, sometime with some comments to amplify it in order to reach higher authorities to rectify the situation'.

7.2. Economic context

Most informants talked about economic factors influencing priority setting decisions. Informants described the level of spending on health care, and suggested that the level of spending on health care services was associated with the economic performance of the country as a whole.

L6: 'The budget is totally dependent on the economic growth.'

L8: 'As Saudi Arabia is witnessing an economic boom in recent years, the government has dramatically increased spending on the health sector.'

L11: 'During the increase of oil price, the government invests more heavily in infrastructure, health care, education etc'.

It appeared that financing of health care services was provided entirely through the General State Budget, which relied in large part on oil prices. Informants described the level of spending on health in times of economic crisis, and explained how oil exports were the main source of government revenue and hence spending:

N6: 'As revenue from oil exports is almost the sole source of government revenue, the oil price has a direct impact on government spending on all sectors, including provision of infrastructural facilities'.

The fluctuating price of oil appears to directly influence spending, leading to a lack of economic stability.

L11: 'Oil price fluctuations or instability in price of oil pose a serious challenge for the government, since it has no control over the price of oil and/or the amount of exports. Therefore, the government will be not able to accurately estimate the state's annual revenues. Consequently, expenditure will not be thoroughly planned ahead of time'.

Fg:B3: 'I believe that the main reasons which led to these differences between the regions are: Spending on health care went through turbulent periods in the past'.

At times, oil prices have been low, and consequently spending on health care has been reduced.

N3: '...the ministry [the Ministry of Health] has been through a phase where the financial allowances were below what was actually planned for itbecause of the change in the prices since the mid eighties'.

L10: 'We experienced many years when the State's budget was hardly able to fund basic health services, let alone meet the need to develop and modernise in line with the increasing population and the developments of health technologies'.

Fg:B3: 'This period [In the beginning of the 1970's with the economic boom] was followed by a period from the beginning of the 1980's until about 5 years ago, where there was a kind of economic recession which led to significant cuts on health care which totally halted the improvement and development of this sector'.

At others times high oil prices have seen increased health spending:

Fg:B3: 'In the beginning of the 1970's with the economic boom, the State implemented a 5- year development plan for all the government departments, including the department of Health. Health spending was very generous and excessive'.

One informant directly linked the terminology of '*rationing*' to these fluctuations in oil prices. He described how the situation changed dramatically when the economy began experiencing a strong growth rate due to the increase in the price of oil, and in turn claims of health care rationing have fallen and even disappeared:

L10: 'When the price of oil jumped to a record high, as it has since 2004 and remains to rise, it was clearly reflected in the size of the State's budget. The State began to spend

generously on health projects to make up for the shortfall during the previous years of the recession. The word 'rationing' became absent'.

The informant felt that demands for rationing were only raised when the oil price had sharply decreased:

L10: 'When we experience a period of recession and low price of oil, the calls for rationing rise, because the level of spending on health care has been and still remains dependent on the price of oil'.

This informant's view, was that the motivation for rationing health care was primarily the economic recession and that, in times of strong economic growth, there is little or no motivation for priority-setting. However, the informant suggested that citizens were still unsatisfied with the performance of the health system despite the recent additional funds to the health care sector:

L10: 'Despite the recent increase of finance for the health service, the public still complain about the weak performance of the health system and the tardy results, compared with the level of spending'.

Three reasons were suggested regarding why the outcomes of additional funds did not improve the performance of the health system. These were the nature of investment in the health sector:

L10: 'This is for a number of reasons. Investment in the health sector is considered a long-term investment and needs lengthy periods of time to produce the required results...'

a steady increase in demand for health services over time:

L10: '...the public's need for health services increase with the passing of time regardless of the level of economic growth; ...'

and the response of the health system to the amount of resource allocation:

L10: '...response of the health system to any decrease of resource allocation is always very prompt and instantly affects the consumers of the health service. This is unlike any increase of allocation of resources, where the health system's response is slow and unclear.'

It was noted that the recent years of prosperity had seen an increase in infrastructure spending.

L8: 'As Saudi Arabia is witnessing an economic boom in recent years, the government has dramatically increased spending on the health sector.'

L10: 'Despite the recent increase of finance for the health service, ...'

L11: 'During the increase of oil price, the government invests more heavily in infrastructure, health care, education etc.'

L6: 'The government policy emphasises infrastructural development such as capital equipment and medical education and training.'

L8: 'The government has dramatically increased spending on health sector to improve health care services and to expand the infrastructure; thereby allocating budget for more hospitals to be built.'

L11: 'During the increase of oil price, the government invests more heavily in infrastructure, health care, education etc. It is a national economic policy that aims to utilize the extra oil revenue resulting from an increase in price of oil by investing it in the infrastructure projects in order to boost the country's economic growth rate.'

It should be noted, however that the perception that health spending related primarily to oil price was not universal.

L6: 'The budget is consistent with last year's budget with some percentage increase...there is a significant increase in the budget allocation.'

However, although budget allocations according to hospitals' priorities may reflect the health needs of local communities, this might orient the health system towards hospital-based secondary and tertiary health care services rather than primary health care and public health needs and/or it may create challenges such as access to the hospital's health care services. One informant, L8, questioned that the government had allocated a large amount of funds over the recent period for health projects that might not be included in the health budget request.

L8: 'and are these funds different than funding requirements for our strategic plans?'

Although allocation of more funds would have a positive impact on meeting the health needs of the populations in different regions, the informant, L8, expressed a concern regarding the usefulness of additional funds that were allocated to health care sector. The informant wondered whether, where the rapid economic growth the country is currently experiencing comes to an end or moves elsewhere, how the government would run the new hospitals which were to be built in the near future.

L8: 'But the question is that what about the operating budgets for these hospitals, and would an economic boom be assured?'

Similar concern was expressed about lack of proportionality and stability in financing the health care system. It seemed that there was a lack of diversification in sources of financing of health care services. Some informants criticised the reliance on a single source of health care financing, the General State budget. However, determining the source(s) and amount of financing for health care services is beyond the remit of the health authority. Ultimately, it is a matter of sovereign decision making by the government on the basis of political and other factors.

L10: 'The connection of the level of spending on health care services with the annual economic growth only confirms an absence of a long-term strategy for financing the health care services...'

One informant suggested that there were two factors shaping the thinking and behaviour of health care consumers, and affecting the relationship between the supply and demand of health care services: financing of health care services entirely through the General State Budget; and the lack of tax system.

Fg:C3: 'Spending on health care from the State's general budget and the absence of a tax system has created a defect in the relationship between the supply and demand of health care services... The consumer does not perceive health care as a product that has a financial cost in return, but he perceives it as a right which is guaranteed to him by the constitution'.

7.3. Organisational context

This section explores the organisational factors that shape the decision making process in a practical sense. Decision making in practice revealed a more complex and less transparent

process, where there were many different actors, whose rationalities were characterised by personal behaviour, rather than a relatively clear basis for decision-making. In this section, therefore, the focus is on organisational factors that shape the process of decision-making and the basis of decision-making, as they were discussed by informants. All informants spoke about the organisational context for decision-making, and how this influences the manner in which decisions are made. Three main categories fall into this section: compliance with national priorities; lack of awareness of bases for decision-making; and uncertainty about organisational factors.

7.3.1 Compliance with national priorities

It appeared that some informants were mainly concerned with how to comply with national targets. Around one half of informants suggested that local priorities were driven by national instructions, rather than local concerns:

N8: 'Centralisation remains a big role player especially in allocating financial resources and the way it is spent...'

L10: 'Most of the financial resources are aimed to meet the national priorities'.

N8: 'Only a small part of funds is directed to address local health priorities'.

N7: 'The permanent committee determines the required targets based on the resources available to it... It [the permanent committee] also recommends the best methods to use such resources, whether by way of adopting more effective services replacing the less effective services, or whether based on medical effectiveness or cost effectiveness'.

Some informants suggested that the need to address national priorities may divert resources away from local priorities.

N8: 'Priority in spending is given to implement national priorities. Therefore most of the financial allocations that would be allocated to meet local health priorities are diverted to implement national priorities instead...'

N6: '... it is not necessary that the national priority setting is relevant to or in line with local health needs'.

Although another informant, L11, was unable to identify who made decisions and how these decisions were made, he simply referred to the need to comply with national instructions.

L11: 'There is no unified framework which determines who the decision-maker is or what are the required justifications for making the decision....There are decisions that are made for enforcement of national policies'.

7.3.2 Lack of awareness of bases for decision-making

Informants were not clear about who made decisions or how they were made. This suggests that there is a lack of understanding of the bases for decision-making. Over one half of informants suggested that it was very difficult to figure out how and where decisions were made, and who made them.

Fg:C2: 'There are some decision makers; we are not able to predict the decision or what justifications they adopted to make the decision'.

Fg:C1: '...not all the decisions are built on a clear basis'.

Some informants suggested that decisions were made on an unclear basis due to the complexity of the decision making process or to the need to comply with national instructions

Fg:C4 'Decision making is a complicated process .You cannot follow or pinpoint when or at which period a decision was taken or who was the actual decision maker. No doubt, at the end, it is always down to one, who is responsible for that decision. A certain decision may have been based on a recommendation of a committee or due to the directions from officials or sources of high authority'.

L11: 'There is no unified framework which determines who the decision-maker is or what are the required justifications for making the decision... '.

There was a concern that this lack of clarity about the basis for decision making meant that it was not possible to prioritise citizens' needs, although it was the view of these informants that citizens' needs and views should be the priority.

L8: 'Spending on health care services represents funding allocation from the General State Budget based on the government's priorities and choices rather than on health priorities that should reflect the health care needs and views of the citizens in line with health policies.'

L9: 'On this basis I would say that these budget proposals are likely to address the health care needs of citizens, On this basis I would say that these budget proposals ought to address the health care needs of citizens, but in reality they do not'..

7.3.3 Organisational uncertainty

Organisational uncertainty appeared to be a key element affecting some aspects of decision making. It was noted that the constant succession of health Ministers and health leaders was a significant characteristic of the context of decision-making. It was suggested that these management changes put a huge pressure on health staff due to difficulties in coping with the bureaucracy, characterized by individualism, power and hierarchy.

N7: 'The switching of Ministers and officials and the differentiations between their directives and approaches and their views has marked confusion for a lot of the staff in the health care sector. The strategic policy for health service clarified the health policy and the strategic targets for the health system; but these targets and policies are very broad'.

Informants also spoke about two aspects of organisational uncertainty at more local levels. These focused on lack of trust and personnel issues, especially change in personnel.

Lack of trust

Around one quarter of informants suggested that there was a lack of trust between different levels of health care organisations; primary, secondary and tertiary care. For example one focus group C explicitly indicated the lack of trust in the decision making process.

Fg:C2: 'Despite the integration based relation between the different levels of health care, it remains apparent that they deal with each other on a basis where each side is diverting responsibility away from itself. Each side is keen to remain in the safe section'.

Fg:C3: 'Some doctors would refer the patient to the hospital marking it as an urgent or emergency case when it is not really so'.

An example of the lack of trust is evidenced in the comments of N3, as he suggested that the reason for building certain hospitals was down to a lack of effective ambulance system rather than any other reason.

N3: ‘... it was well known to the ministry before building these hospitals that the cost of the health care given in it is higher than those in main cities, and yet the decision of building it was taken because of other factors such as the unavailability of an effective ambulance service system..’

Personnel issues

A few informants talked about personnel issues, and particularly changes in personnel. These informants suggested that there was a lack of transparent criteria for the placement of staff, particularly in leadership positions. High personnel turnover and uncertainty about the duration for which personal would be on leave or placed elsewhere, appeared to create feelings of organisational instability for a number of informants. This concern about personnel turnover is particularly important given the political and cultural context in which, as discussed above in (7.1.4.3), personal preferences, power and relationships appear to be important elements in decision-making.

L3: ‘It is sometimes, but not always, a suggestion that placing physicians in hospital leadership positions can help achieve significant improvements in hospital performance. But I do not agree with the suggestion that higher clinical qualifications, famous and successful career could be enough to appoint someone as a hospital executive director. It is not at all necessary that every successful physician would be an effective manager...’

N8: 'The changes in leadership posts in the health institutions are not subject to a clear policy'.

N8: 'There are administrations which have changed numerous times in a few years, and there are administrations which have not changed for many years. I believe that the frequent changing of hospital managers, health administrators and executives creates administrative instability and a blurred vision'.

Not only did informants speak about personnel change and the uncertainty that it created, but also key challenges in terms of recruitment: challenges to recruit qualified health professionals and whether these professionals should be a national or foreigner.

N3: 'It is hard to recruit the qualified staff for these hospitals, as among the resident of small cities there is not sufficient number of qualified health workers to run these hospitals, and the health work that we contract with from other countries do not want to work in such distant small cities. Believe it or not; some jobs remained unoccupied for years, or if we found someone to get this job he would leave after one or two months or asks to be moved somewhere else. It is well known that it is mandatory to have full crew in order to have the full benefits of the rest of the employed health-crew'.

Organisational instability also appeared to be associated with differences in salaries in different settings. One informant viewed this as exacerbating organisational instability, and suggested that health staff were reluctant to work in primary health centres or general hospitals for this reason.

L11: 'The staff at major hospitals has better financial and educational gains than staff who work for health centres and general hospitals. These differences limit the desires of

health professionals to work in health centres or general hospitals... This creates instability in filling in their employment vacancies’.

7.4 Public role in the decision making process

It is important to note that investigating the public role in decision making was not the focus of this research and that, because of this, the views that are discussed here are not the views of the public. Health decision makers’ views regarding the role of public participation as a factor influencing the decision making process, did, however, emerge as an important contextual theme. Although, the informants suggested that the public did not have any great impact on priority-setting decisions, it was clearly a key issue for them at the time of this research which was conducted around the time of the Arab Spring. Indeed, most interviewees spoke about the role of public participation in the decision-making process. Issues discussed fell into two main categories: the importance of public participation in decision making, and methodological issues for public participation in priority setting.

7.4.1 The importance of public participation

Informants attached relative importance to public involvement in priority setting decisions. However respondents’ views were varied about the extent to which the public played a role in health priority setting decisions. There appeared to be two main views: while the first view attached great importance to public participation in priority setting decisions, the second view was that this was less important.

Public participation as important

There appeared to be strong awareness among some informants of the need to include the interests of the public in the decision making process. It seemed that informants who were in low-level administrative work paid more attention to public participation than those informants with high-level decision making capability. Most informants attached great importance to public participation in priority setting decisions, although this role might not be seen very clearly.

A number of informants suggested that public participation was an important part of the decision making process.

N4: '...our belief that public opinions in priority setting decisions are considered to be important.'

N6: 'The role of the citizens is very important in the decision making process as they are the beneficiaries from the health services provided. And despite the vagueness of the role of the citizens, it is still a very important role in the decision making process. The importance of this role stems from the fact that it forms a constant push and pressure on the health authorities to meet the health targets which deliver the health needs for the citizens.'

N3: 'Yes, many have the same vision or maybe better. I have discussed the issue [public participation] with more than one colleague... You may find people with the same point of view.'

N5: 'We [the MOH] made every effort to establish constructive partnerships with the society as well as other bodies in order to offer better health services for all those who need them... In doing so, we recognise the inevitable and equivalent role of each of the

two parties [the MOH, society and other bodies] in the planning, implementation and monitoring stages, hence our logo 'health is a collective responsibility'.

Public participation was seen as particularly important in the context of disinvestment decisions.

N8: 'The public do not accept the discontinuation of a certain health service without seeing a replacement for it.'

N7: 'No doubt, the disinvestment in health care will face resistance from the affected individuals or groups and from the decision-makers too'.

The importance of public participation for the use of economic evaluation in decision making was explicitly noted by one informant.

L7: 'This [public participation] was one topic of the committee's discussion... Most committee members felt that the lack of proper public participation is one of two core questions that, if not answered properly, may diminish the potential benefits of the use of economic evaluation.'

This informant also pointed out a number of other reasons for the importance of public participation, including the impact on the population's health, the sustainability of the health system and the need to understand public values.

L7: 'It [lack of public participation] not only negatively affects the population's health needs and concerns, but also influences health policy that should reflect the population's preferences and should be concerned to meet the needs of the current and future population's health and health care.'

L7: 'Incorporating public concerns into health policies is very important to ensure the sustainability of the health care system.'

L7: 'Thus we need to know ...what the population's preferences are, and what the population believes is valuable or less valuable... what is valuable to people in relation to individual utility of health care and societal value of health care.'

Despite the positive attitudes towards public participation, a number of informants stated explicitly that there was a lack of public participation in the decision making process.

N3: 'I don't think there is effective public participation in decision making at the present time. True; there are effects on the community in one way or another on some decisions.'

In my opinion, I don't consider this as an 'effective participation in decision making....'

L11: 'Despite the people's growing awareness towards real participation in the decision making process, there really is no real role for the people's views in decision making'.

L7: 'There is a lack of opportunity for public participation in the decision making process.'

Public participation as not important

Some informants suggested reasons for the lack of importance of public participation. For example, one informant, N1, considered that public participation was inappropriate in many situations,

N1: 'Public involvement in priority setting decisions is not appropriate in many situations.'

There appeared to be five reasons for lack of importance:

- ***Lack of knowledge***

Two informants suggested that there was a lack of understanding among the public and viewed the lack of expertise of the public as an important reason why these views should not be considered in priority setting.

N1: 'They [the public] do not have sufficient medical knowledge or administrative skills to participate in such decisions.'

L6: 'People just say the decision making process is driven by wasta because they did not understand what was going on.'

- ***Vested interests***

One informant, L2, felt that the public would not take a neutral view of the decisions that needed to be made, but instead would be driven by their own vested interests.

L2: 'public participation will be driven by their needs for particular health care services, rather than by the best use of health care resources.'

Slightly differently, another informant suggested that public opinion may be driven by the media. The informant discussed how drug companies influence public opinion in the introduction of new health care technology, before and after gaining access to Saudi healthcare market.

N5: 'The Ministry [the Ministry of Health] usually faces different pressures when a new healthcare technology for a specific health condition was either made available in the Saudi market, or was reported by news but not yet available in our country. Although the news reports and adverts in the media and the Internet focus mainly on issues

surrounding the new healthcare technologies' benefits, if these technologies were not available yet in the national news reports and the advertisements do not pose a significant challenge for the Ministry to make these new healthcare technologies in the Ministry's facilities. However, one of major challenges is when new healthcare technologies gain access to the Saudi healthcare market after they were approved by the Saudi Food and Drug Authority... In some cases, new treatment or diagnosis techniques reach patients' attention before the health professional is fully informed. The media and private health ads play an important role in attracting the citizens' attention to the new healthcare technologies. They simply invoke a red herring. They focus mainly on issues surrounding the new healthcare technology's benefits and erase any negative issues about them'.

- Political and cultural reasons

It seemed that citizens resorted to a route fitting with the Monarchy system, characterized by an open-door policy along with specified rules and policies⁴. Two informants, N3 and N6, thought that citizens were already able to present their needs to the Health Ministry or to higher level political leaders.

N3: 'The decisions that the community might have a role in are these decisions taken under pressure from the media, or through obtaining direct orders from the political leaders'.

⁴ 'Open door policy means opening the door to citizens to meet the King, the Crown Prince, top officials, princes and ministers in order to submit to them their complaints and requests. If the top official cannot provide an immediate answer, then the citizen's request is quickly forwarded to the permit department to settle it as soon as possible. During specific times reception rooms are opened for the citizens to meet the King, the Crown Prince and areas' princes to sit in order to put forward their concerns' (Chai, 2006, p. 162). It is quite common knowledge to citizens that they can approach and talk to the government leaders whenever they have a problem.

N6: 'The citizens can present their health needs directly to the Ministry or to those at the highest point of authority'.

This may appear to be in line with the views that were expressed by N3 and L5 about the utilization and delivery concepts of health service.

N3: 'The concept of health care is still as a "service" and it is not the duty of the provider or a "right" of the receivers. Starting from here you can imagine the feeling of the health service provider or the decision maker. It is true that the awareness of health in the community is growing, regarding their right of receiving health care, which puts pressure on decision makers to be more transparent.'

L5: 'I do not totally agree with the idea of providing citizens with information about the existence of new treatments. If the citizens knew there is a new treatment for a specific health condition, they would either care less about maintaining their healthy habits and lifestyles as much as they did before, or they would expect that the new treatment would be available for everyone everywhere the next day.'

One informant suggested a reason why there was a lack of political will to include public interest in health decision-making processes. This informant thought that the lack of political will for involvement in health decision making stemmed from a desire to avoid the spread of a desire for public involvement into other sectors.

N3: 'Community participation in decision making regarding the health field is not much important in itself. That is because the health field is not considered to be sovereign sector in the country. I think the lack of political will till now is not because the

politicians don't want community participation in health decisions, but it might be the beginning to a wider participation that might spread to other sovereign sectors.'

- ***Time needed***

Two informants suggested that though public participation was desirable, a number of issues would need to be considered and dealt with before it would become a reality.

L2: *'There are certain work activities that need to be completed prior to public participation in the process of decision making. We [local decision makers] do not reach basic levels of health care provision. Therefore, we have to provide what has been approved in reform plans as a first priority.'*

L11: *'Building real participation of the people in the decision making process will require many issues and a long time'.*

7.4.2 Methodological issues for public participation in priority setting.

Most informants discussed different methodological issues in obtaining public involvement in priority setting. These issues are grouped into three sub-categories: who should represent the public interest, methods for public participation, and the role of modern media.

7.4.2.1 Who should represent the public interest?

While some suggestions were given about who would be appropriate to represent the public in priority setting decisions, concerns were expressed regarding how and who should represent the public.

L1: *'Who will represent them? And how?'*

It was suggested by some informants that independent representatives should reflect the public interest

N4: *'Who is going to represent the public... public participation should be based on clear principles. For example, the public representative should be independent, qualified, etc... If there are qualified people who are definitely health professionals working in governmental or private health sectors.'*

N3: *'The presence of the independent members will positively participate in council performances, which will reflect on the quality and fairness of health care provided. The independent members, at least, will represent the user' point view... I am sure that independent members will make great positive effect on setting priorities.'*

Concern was expressed, however, about the lack of a mechanism for choosing a representative of the public:

N4: *'...there is no mechanism for choosing who should represent the public.'*

Overall, informants had varied views about who is the '*public*' in public participation, and the extent of public involvement in priority setting decisions. Informants thought that the public meant '*the people*' or society/ community in general:

L1: *'This will allow everyone to be involved in priority setting in a selected topic.'*

Everyone here not only means the people ...'

L11: *'Despite the people's growing awareness towards real participation in the decision making process...'*

N3: *'...the community might have a role in how these decisions are taken.'*

L6: *'People just say the decision making process is driven by wasta because they do not understand what is going on.'*

Other informants thought that the public meant *'population or citizens'*:

N5: *'Internet-based surveys might help to indicate the citizens' opinion...'*

N6: *'The role of the citizens is very important in the decision making process ...'*

L7: *'Thus we need to know ...what the population's preferences are...'*

L8: *'The citizens' health needs and interests are obtained throughout health statistics and health data that are routinely collected.'*

L9: *'Modern media can also be used to mobilise citizens to stand behind a specific issue...'*

7.4.2.2 Methods for public participation

Informants discussed methods for use in obtaining public opinions. There appeared to be two main views; while the first view suggested there were methods for use in obtaining public opinions, the second view was that there was a lack of methods for the public to become involved in decision making processes.

Informants suggested methods that were already used in obtaining public opinions, such as *'indicators'*, *'statistical data'*, *'surveys'* and *'the national dialogue'*.

L1: *'We use some indicators as much as possible to elicit public preferences regarding specific care or the priority setting of new health technology, such as appeals, complaints,... sometimes statistics from the private sector are used as an indirect way of using the willingness-to-pay method to elicit public preferences.'*

L8: *'The citizens' health needs and interests are obtained through health statistics and health data that are routinely collected.'*

L2: *'Discussions of health services which took place as part of the national dialogue have ignored the principles of dialogue per se. For instance, the actual process of choosing participants in those national dialogues was never clear. More importantly, there is no mechanism whereby national dialogue recommendations can be put into practice.'*

N2: *'Actually, we frequently elicit the views of the public through satisfaction surveys and online surveys on the Ministry of Health, regional health affairs and hospitals websites.'*

N5: *'Internet-based surveys might help to indicate the citizens' opinions, but according to previous experiences, most Internet-based surveys were not fully successful.'*

However, suspicions were expressed about the role that the Internet could play in terms of public participation. Informant N5 raised some suspicions:

About whether all people would have the same access and skill/ability to use the Internet:

N5: *'... according to previous experience, most Internet-based surveys were not fully successful...There were some considerable difficulties; for example, do all citizens have fair access to the Internet and have they fair knowledge of Internet usage?'*

About the validity of information obtained from the Internet, and

N5: *'It is difficult to ensure that the information being obtained from internet-based surveys will represent all target respondents ...'*

About whether the target respondents would be able to give their responses within the target time period

N5: *'..and that their responses will be obtained within the prescribed time frame.'*

It seems that the above methods sought public opinions rather than allowing the public to be directly involved in the decision making process. For instance, one informant, L1, who suggested that data collected routinely and statistical data could be used to indicate public interest in relation to decision making processes, felt that there was a lack of institutional structure for public participation, and suggested that where there were no appropriate mechanisms for public participation, the focus should only be on the use of evidence:

L1: *'There is no political or organisational structure for the community... I think the best way at this period in time is to use clinical evidence. It would be helpful at least until the public voice gets a more organised and structured approach.'*

Two informants expressed concern about the lack of methods and mechanisms for public participation:

N3: *'Although I know there is no mechanism of public participation in order to allow positive and effective participation...'*

N4: *'There are also logistic difficulties, such as a lack of trustworthy mechanisms to elicit and analyse public opinions.'*

However, informants suggested that the lack of formal methods for the public to be involved in decision making processes may allow an opportunity for modern media to play an important role.

7.4.2.3 The role of modern media in public participation

More one half of informants talked about the role of modern media in the decision making process. It appeared that the effect and ‘the potential’ role of the modern media as a channel for public participation were discussed much more than other methods; again, this may be related to the timing of the interviews and the important role that social media appeared to play in the Arab Spring. Around one half of the informants who discussed the role of the modern media in public participation were local decision makers. This may suggest that the role of modern media was more noticeable at the local level than the national level. Informants suggested that the Internet/modern media played an important part in being used by the community to voice their interests about health issues:

According to a number of informants’ views, modern media played a considerable role at various points of the priority setting decision making process.

L8: ‘New communication means play multiple roles in the decision making process.’

L9: ‘Today, modern media play a critical role in all aspects of our daily life. It can be used in different ways or for different purposes.’

L3: ‘The Internet is still seen as both a fast and influential means in the formation of public opinion towards these matters... Today the Internet is seen as a catalyst on which the community can express their concerns regarding some health issues.’

L1: *'We use some indicators as much as possible to elicit public preferences regarding specific care or the priority setting of new health technology, such as ... the media.'*

L5: *'Despite the fact that we have not so far made full use of what it has to offer, the Internet has become an influential tool in facilitating public participation in priority setting decisions. It [Internet] can play a dual role; as health professionals, we should use it positively to obtain public opinions regarding a given type of health care service, as a feedback device, and it [the Internet] can be used to spread positive health messages and knowledge.'*

L8: *'I think new media gains much attention due to the revolution in communication technologies.'*

L9: *'Introduction of new means of communication has given media much more freedom to criticise government policies and actions, and public figures.'*

L6: *'However what has been posted on the internet may be valuable in calling decision maker's attention to significant issues that would have otherwise been ignored.'*

However, it appears that modern media had an informal role for public participation in decision making processes, and that the public thereby had an indirect role in decision making. It seems that modern media went beyond the scope of voicing public opinion into an 'enforcement' stage by using media pressure.

N3: *'The decisions that the community might have a role in are these decisions taken under pressure from the media... For example, the media use either the news paper or the internet to expose some problems, or failures in the health services, putting pressure on decision maker to act directly with what is published.'*

L3: *'Specifically, the Internet has become a tool by which the public exercises pressure on decision makers to solve and address health issues, particularly malpractice issues in health services which have either been unknown to health authorities or the citizens.'*

N5: *'The Ministry usually faces different pressures when a new healthcare technology for a specific health condition is either made available in the Saudi market, or is reported on the news but is not yet available in our country. Although the news reports and adverts in the media and the Internet focus mainly on issues surrounding the new healthcare technologies benefits....'*

Some felt that modern media had gone further, and could be used as a mechanism to challenge government actions.

L9: *'The introduction of new communication means has given the media much more freedom to criticise government policies and actions, and public figures.'*

Although the role of the public by using media pressure was perceived as having positive effects in terms of addressing 'malpractice issues', it was felt that these media may also shape public opinion according to another party's interest. One informant proposed that modern media played a critical role in mobilising citizens to stand behind a specific issue.

L9: *'Modern media can also be used to mobilise citizens to stand behind a specific issue regardless of whether it proves to be beneficial or not, such as pharmaceutical companies that launch marketing campaigns for their new medications.'*

A further concern was expressed regarding the validity of data submitted on the Internet, and informants suggested reasons as to why information on the Internet may not be valid: such as self-publishing, anonymity and unverifiability of sources undermined the validity of Internet information.

L6: 'They [information sources] are self-publishing 'often anonymous' and not from credible or reliable sources. I don't want to discuss the legal or moral issues surrounding anonymity on the Internet... It is a waste of time and effort...I saw many health issues that were published and discussed on the Internet, but I quickly realized that most of them are either fake or misleading.'

L3: 'Despite the fact that many public health matters are widely circulated via the Internet and other means of modern communications technology, the circulation of these matters does not follow a systematic pattern in terms of determining the nature of published health matters.'

However, although informant, L6, stated that he did not want '*to discuss the legal or moral issues surrounding anonymity on the Internet*', much emphasis was placed on anonymity in the discussion. The informant felt that it was not sensible to react to anonymously posted information.

L6: 'I would say that it is not wise to respond to everything that has been posted anonymously on the Internet... I think things submitted on the internet by an anonymous internet poster should not be taken seriously'.

Similarly, another informant, N6, arrived at a similar conclusion, but for different reasons:

N6: *'The modern media and the social media networks are renewed free media to a very chaotic level and are not governed by laws or regulations, as opposed to traditional media. Therefore not all that is spread over the new type media is taken seriously.'*

However, informants had varied views about whose voice was accessible through modern media. Some informants suggested that the 'Internet' expressed '*community concerns*', or '*interest groups*'

L3: *'Internet is seen as a catalyst on which the community can express their concerns regarding some health issues.'*

L1: *'... interest groups will play a great role in priority setting activities, such as what happened with the swine flu vaccine... the media exaggerated the swine flu threat to promote vaccine sales..'*

Factors behind the expansion of the role of modern media in of decision making

There appeared to be two main factors behind the expansion of the role of modern media in the decision making process: characteristics facilitating the use of modern media, and the desire to inform higher authorities so that they are able to resolve issues.

1) Characteristics facilitating the use of modern media

It appeared that there were several features of modern media allowing it to play a role in decision making process. Five informants suggested features that facilitate modern media having a particular role to play in the decision-making process. For instance, one informant, L8, reported six features that contribute to the widespread use of modern media in decision making.

L8: *'I think new media gains much attention due to the revolution in communication technologies that are affordable, easy-to-use and easy-to-carry, and almost the end of a long time of media blackout....In these days, anyone can get detailed information online regarding any topic that you may think of, with quick and easy access. Media blackout becomes increasingly hard in the presence of modern media. Modern media makes everyone a journalist and broadcaster, and they have the ability to upload this information and materials onto the internet and anyone around the world can then access that information.'*

L4: *'One of the most important elements distinguishing the use of the Internet is the swift and widespread dissemination of information about health matters among the public.'*

Other informants suggested that modern media has powerful features including quick and simple spread of information, a catalyst for the community to express themselves, reliability and credibility of published information

L4: *'One of the most important elements distinguishing the use of the Internet is the swift and widespread dissemination of information about health matters among the public... Some of what is being published enjoys a high degree of reliability and credibility such as video clips, documents or formal letters.'*

As the identities of publishers' were anonymous, the publishers consequently felt they will not be accountable for the materials posted on the Internet such as *'video clips, documents or formal letters'*.

L4: *'Another feature is the impossibility to determine the identity of the individual publishers be it a health services' employee or otherwise.'*

Another feature was reported by L9. He felt that modern media were used due to their freedom of expression. It seemed that modern media might contribute to the establishment of freedom of expression. The informant suggested that modern media have increasingly enjoyed freedom to criticise government policies.

L9: *'Introduction of new means of communication has given media much more freedom to criticise government policies and actions, and public figures.'*

2) To inform higher authorities to resolve particular issues

A small number of informants suggested that modern media could be employed by the community as a means of directly informing higher authorities about certain issues, so they can target these issues.

N3: *'...the internet to expose some problems, or failures in the health services, putting pressure on decision maker to act directly with what is published.'*

L3: *'... the Internet has become a tool by which the public exercises pressure on decision makers to solve and address health issues, particularly malpractice issues in health services which have either been unknown to health authorities or the citizens'.*

One informant, L9, described a possible scenario of how people used modern media as mechanism of the public to deliver their interests to the core of the political system.

L9: 'People usually share and swap the issue via social media and cell phone apps, sometime with some comments to amplify it in order to reach higher authorities to rectify the situation'.

In contrast, the second view proposed that modern media was employed to pay attention to something other than communities' interest. One informant suggested that media may shape public opinion according to another party's interest.

L9: 'Modern media can also be used to mobilise citizens to stand behind a specific issue regardless of whether it proves to be beneficial or not, such as pharmaceutical companies that launch marketing campaigns for their new medications.'

For example, two informants, N5 and L1, described how modern media shaped opinion according to drug companies interest

N5: 'The ministry usually faces different pressures when a new healthcare technology for a specific health condition was either made available in Saudi market, or was reported by news but not yet available in our country. Although the news reports and adverts in the media and the Internet focus mainly on issues surrounding the new healthcare technologies benefits... The media and private health ads play an important role in attracting the citizens' attention to the new healthcare technologies. They simply invoke a red herring. They focus mainly on issues surrounding the new healthcare technology benefits and erase any negative issues about them'.

7.5 Conclusion

Overall, it appears that contextual factors, including those beyond the immediate health care setting, have a great influence on the priority decision making process. These include factors that were unexpected and have not generally been discussed in other settings, such as the roles of vested interests and the media in the process of decision making. It appeared that vested interests played a significant role in decision making process. The findings suggest that the process for budget allocation to the health care sector and within the health care sector was highly political and not necessarily in line with the health care priorities as seen by those working within the system. As a rentier state, Saudi health care is financed through the General State Budget, which relied in large part on oil prices. Although there were efforts to enhance transparency and accountability, most informants thought that the decision making process was not transparent and was poorly understood.

Despite most informants viewing public involvement in decision making as important, there were some varied views about what the extent of this involvement should be. Relative to high level decision makers, local decision makers paid more attention to public participation citing reasons such as sustainability of health care and the need to understand public values. There were however some decision makers who felt that public participation was not appropriate due to perceived lack of expertise, inability to be independent and being unduly influenced by the media. Whilst public participation in decision making was in the main seen as a good thing, there was lots of discussion about who should represent the public and the most appropriate route for the public to express their view. Some informants felt that existing mechanisms were already in place such as the use of surveys or indicators whilst other informants felt there was a lack of

opportunity for public influence on decision making. Finally the role of the media emerged as an important factor particularly with decision makers at the local level.

CHAPTER 8: USE OF ECONOMIC EVALUATION IN DECISION MAKING

The previous two results chapters have set out the context for decision-making, as well as the structure of decision-making which is useful for facilitating a more comprehensive understanding of the findings within this chapter. This chapter explores the use of economic evaluation in decision-making. It begins by examining the use of economic evaluations and then investigates what the perceived barriers are to the use of economic evaluation in decision making. This is then followed by an analysis of how the participants view the potential use of economic evaluation. The chapter ends with a brief conclusion.

8.1 Use of economic evaluation

All interviewees and most focus group participants talked about the practical use of economic evaluation in decision making. The comments of the respondents on the use of economic evaluation are further categorised into two parts, the first part analysing the extent of the use of economic evaluation in the decision making and the second part focusing on the levels of decision making where economic evaluation is used. Before continuing, it is worth noting, however, that some informants pointed out the potential value of economic evaluation both in

terms of improving resource use, but also making the public more aware of the costs of health care.

L10: 'The use of economic evaluation in making the decisions assists effective management of resources. It contributes to the increased awareness of the costs of the health care for both health staff, as health services providers, and the citizens who receive these health services.'

N7: 'The economic evaluations establish a clear relationship, for the people, between the clinical benefits and the costs of various health interventions... Therefore when the beneficiaries understand this relation, their contributions should be complementary to the health care providers with regards to designating appropriate health care resources.'

8.1.1 The extent of the use of economic evaluation

There appeared to be little evidence to demonstrate that, overall, economic evaluation was used to inform health care decision making. Most respondents explicitly stated that there was little impact of economic evaluation on the process of decision making. Taken as a whole, even though some respondents referred to the use of economic evaluation within decision making, most respondents agreed that the extent of the direct use is minimal.

N2: 'I haven't seen that much of decisions based on economic evidence...'

FgA2: 'it [economic evaluation] is rarely used in the decision making process.'

L8: 'Economic evaluation has little effect on the decision making process...'

However, one informant suggested that although economic evaluation was not used directly, the approach to decision making was aligned with economic principles.

N3: 'The strategic health plan complies with the principles of health economics, which includes different areas of health economics, raising additional funds means, rationalisation of health expenditure, analysing costs, efficient resource allocation, feasibility studies for health projects, and using economical evaluations.'

Another Informant, L8, indicated that economic evaluation was used, but as only one of several components of decision making that need to be taken into account by the decision makers.

L8: 'It [economic evaluation] is only one element of decision making.'

The lack of use of economic evaluation studies was contrasted with a perceived higher use of studies of clinical effectiveness.

N1: '... many trials are conducted across the Kingdom to evaluate clinical effectiveness for many health interventions..., but this is not the case in cost- effectiveness.'

8.1.2 The level of decision making

8.1.2.1 At national level

Only one informant suggested that economic evaluation is used at the national level. He stated that the Ministry of Health used economic evidence to inform the allocation of resources at the macro level.

L1: 'Our focus [the Ministry of Health] is on economic evaluation studies that address broad questions rather than narrow and specific questions about the cost-effectiveness of particular health intervention.'

The informant suggested that the reasoning behind the trend of addressing macro questions rather than specific questions about the cost-effectiveness of particular health interventions related to different regional contexts.

L1: ‘... economic evaluation studies that address broad questions... due to variations between regions in terms of interventions’ inputs’.

There was little suggestion from other informants that economic evaluation was used at this level and it is important to note that, this informant, L1, was actually a local decision maker, and therefore his knowledge about the national level may have been uncertain. Nevertheless, the informant mentioned a number of decisions that had been made based on this type of economic evidence.

L1: ‘for instance, long-stay hospitals instead of wards within public hospitals and transferring 50-bed hospitals to primary health centres which are now called referral centres.’

8.1.2.2 At the local level

Both national level and local level informants discussed the use of economic evaluation at the local level. It appeared that there was some evidence to demonstrate that economic evaluation was used to inform decision making processes at the local level, with a suggestion that it was used within two components of the local health care system: pharmaceutical drug departments and Self-Operation Programmes (referral hospitals). With both components, the informants indicated that cost-effectiveness measures were frequently included in new healthcare technologies meetings.

Overall, the data suggest that economic evaluations, or more specifically cost-effectiveness studies, were seen as important in the deliberations preceding the introduction of new technologies into health care practice, but were by no means the primary, or even a major, consideration for decision makers involved in choices about the introduction of new technologies.

L2: 'During regular staff meetings, particularly in discussions concerning new healthcare technologies, cost effectiveness considerations are often discussed and recorded as part of meeting minutes.'

L3: "We [referral hospital] often use cost-effectiveness techniques to compare new treatments against standard treatments."

It appeared that the economic evaluation of pharmaceutical drugs has obtained some sort of a foothold in Saudi Arabia. Some informants suggested that economic evaluation was used for consideration of pharmaceutical drugs more than for other types of health interventions. One informant, for example, suggested that it was only in the hospital's pharmaceutical departments that the term '*economic evaluation*' was likely to be heard.

N2: 'I would say, you can hear of this [economic evaluation] in the hospital's pharmaceutical departments.'

L4: 'Most medications that have been approved as cost effective are prescribed on the hospital prescription...'

Reasons for use of economic evaluation included that it provided a useful tool for decision makers, particularly in relation to dealing with uncertainty

L3: 'We [referral hospital] often use cost-effectiveness techniques... Cost-effectiveness analysis may provide decision makers with an appreciation of the cost per numbers of admissions days avoided... Cost-effectiveness analysis is considered as an appropriate and useful tool in the current circumstances where our understanding, ability and professional skills to handle uncertainty and ambiguity in the economic evaluation of health care technologies are still in an early stage and will be challenged constantly'.

Even in terms of local level decision making, however, there was some doubt expressed by one informant (N2) as to whether the technique was really used for practical decision making or was used just for research purposes.

N2: 'Nowadays most Self-Operation Programmes hospitals apply economic evaluation for research purposes.'

N2: [when asked about whether economic evaluation was used in decision making] 'I am not sure about that'.

8.2 Barriers to the use of economic evaluation in decision-making

All informants discussed a number of barriers to the use of economic evaluation in decision making. These barriers have been grouped into two categories: methodological barriers, and barriers related to decision-makers' attitudes.

8.2.1 Methodological barriers

Around two thirds of interviewees and most focus group participants mentioned the lack of relevant economic evaluations as a key barrier to the broad use of economic evaluation in health decision making.

N2: 'There is a lack of Saudi-based studies... Before using economic evaluation, we must consider the quality and availability of information and then the decision maker may or may not consider this information...'

There were five key reasons for the lack of relevant economic evidence: first, the lack of relevant cost data; second, the lack of clinical evidence; third, the lack of experts; fourth, the availability of an independent research sponsor; and finally, issues around the timing of economic evaluations.

8.2.1.1 The lack of relevant cost data

Over half of informants and most focus group participants cited the lack of cost data as a reason for lack of economic evidence. This was the most frequently cited reason why relevant economic information was not available. The informants talked about the perspective of the economic evaluation in terms of which costs should be considered when conducting economic evaluation studies.

They were particularly focused on the issue of different health organisations across the country applying different cost estimations while conducting economic evaluations, which in turn, they felt, limited the usefulness of economic evidence in decision making. These variations in the

costs that might be included were discussed in a focus group at length when participants suggested that the lack of relevant economic information limited the usefulness of economic evidence in the process of decision making.

FgA2: *'I think not only lack of cost estimating at national level, but there can also be significant differences in the cost between regions'*.

FgA1: *'I think not only a lack of generalisability of economic evaluation findings, but there are significant differences in the cost of a particular intervention in the same region' ...For instance the cost of a natural child birth at our hospital [Security Force Hospital] is estimated to be around 8000SR [£1400], while in private hospitals, in Riyadh, the same procedure costs between 4500 to 25000SR. [£750-£6200].*

FgA2: *'The lack of economic evaluation studies is not related to clinical data, but to the cost side. Every hospital has a different cost estimating guide...'*

This issue also arose in interviews, with one interviewee explaining that the focus of the Ministry of Health is on addressing *'broad questions'* of economic evaluation studies rather than *'specific questions about the cost-effectiveness of particular health intervention'* was because of variations in the costs of health interventions between the different regions (as quoted earlier in section 8.1.2.1).

The discussion also revealed the lack of national up-to-date guidance for handling cost data. One focus group participant, FgA2, suggested that there were structural reasons for the application of different costs.

FgA2: *'...and the national guide is not constantly updated'*.

This issue of lack of availability of cost data in most areas of health care, was also given as a reason why economic evaluation might be more prevalent in relation to pharmaceutical drug studies, where costs are clearer and thus these studies might be easier to conduct.

N1: 'such as patients receiving single-drug treatment or outpatient drug treatment, in these cases, the cost can be identified especially with outpatient cases.'

To address these methodological concerns, one informant, L7, was a member of a committee for developing strategies to promote the use of economic evaluation in health care decision making. He suggested that the committee aimed to achieve a consensus on basic methodological principles in order to set out national health economic guidelines, and indicated that questions of obtaining information about costs were particularly important in the work of the committee.

L7: 'We seek to achieve a consensus on common core principles, as a framework for establishing comprehensive national health economic guidelines.'

L7: 'Measurement of costs is one of the most crucial issues now under discussion.'

8.2.1.2 The lack of clinical evidence

Some informants cited the lack of clinical evidence as a barrier for use of economic evaluation in decision making.

L4: 'In some cases, evidence on clinical effectiveness ...of new drug treatments are often limited or even not existent at the time they are first launched. ... the quality of the published evidence needs to be examined in terms of the number of patients involved in clinical trials, ...'

Uncertainty about the clinical information was perceived as being particularly important where the decision concerned disinvestment.

N7: No doubt, the disinvestment in health care will face resistance... This is because usually there is no absolute evidence about the lack of benefits of a certain existing health intervention which would enable the decision maker to disinvest the resources from such a health intervention.

N8: 'Also the decision of disinvestment in health care lacks reliable methods for setting health service priorities due to issues surrounding the uncertainty of clinical... evidence.'

The combined lack of both clinical and cost data were seen as compounding the methodological problems for economic evaluation.

N3: '... it [economic evaluation] is very limited use ... There is a lack of reliable data regarding both clinical and cost'

8.2.1.3 Lack of experts

Lack of experts to conduct and interpret economic evaluation studies, which were seen as complex and difficult, was cited by some informants as a reason for the scarcity of relevant economic evaluations.

L3: Other techniques, such as the cost–utility analysis, are very rarely used, because often information on cost–utility is not available and it is also very difficult to calculate.

FgA2: 'It is not easy to put this approach [economic evaluation] into practice with lack of qualified people...'

L6: 'Assessment of new medicines and new diagnostic technologies is a very complicated process.'

This led to a perception that the economic evaluation that is conducted is more of a research enterprise than a formalised part of health care decision making.

N3: 'Economic evaluation is not institutionally carried out. It is individuals' efforts that are conducted by researchers or health institutions'.

8.2.1.4 Independent research sponsors

Some informants talked about the lack of independent research sponsorship for the conduct of economic evaluation studies.

FgA2: 'It is not easy to put this approach [economic evaluation] into practice with lack of... independent research sponsors.'

Fg:C1: 'There are hurdles which limit the use of economic evaluation in the decision making process. From the main hurdles is the absence of an independent governing body which specialises in economic evaluations, such as 'NICE'.

This lack of independence was felt to translate into a focus on different aspects of health economics rather than concern with economic evaluation

Fg:C4: 'The health economics administration lacks independence, as it is a department of the Ministry of Health. This department is rather interested in other aspects of health economics and not economic evaluation'.

It appeared that informants viewed the setting up of a 'NICE' type organisation as having advantages in ensuring a focus on the specific area of economic evaluation.

Fg:C3: 'The existence of a concerned independent body would contribute to the distribution of the understanding of economic evaluation and the improvement of the quality of the health care in return for the finance that is spent on it'.

8.2.1.5 Timing of economic evaluations

Some informants questioned whether economic information would be available at the right time for making decisions. It was suggested that decisions 'sometimes' need to be made within a very tight time frame, and that this meant that the relevant economic evidence was often not available or still in the process of collection. It was also perceived to be time consuming to collect together and assess the available evidence, and there was a concern that if evidence from industry was all that was available, this would be seen as insufficient.

N4 'I would prefer to wait until research provides appropriate evidence, but in health services, most decisions cannot wait, only some can... Sometimes we receive directives from the top to provide them with urgent recommendations about a particular health intervention.'

N5: 'Introducing new healthcare technology, either medical devices or a drug, is not an easy task. It takes time and must be approved through specific procedures, which has caused us so much embarrassment at times..'

L4: 'In some cases, evidence on clinical effectiveness and cost effectiveness of new drug treatments is often limited or even not existent at the time they are first launched.

Therefore, if there were published trials, the quality of the published evidence needs to be

examined in terms of the number of patients involved in clinical trials, cost considerations and trials sponsors. Information that is only provided by the manufacturer of the drug is often unlikely to be used...This takes time to be approved as cost-effective enough to be prescribed on the hospital's prescription'.

L9: 'Conducting an economic evaluation required time and resources.'

8.2.2 Decision-makers' attitudes

Informants pointed out that, even where evidence on economic evaluation is available, it is not always adopted.

L5: '...it is not usually the case that when evidence on cost-effectiveness of a new intervention is available, the decision would be made based on findings from economic evaluations studies as it should be... The reasons behind that were not often totally clear... Simply, decision makers always find a reason.'

Fg:C2: The events on the ground show that despite availability of economic evaluation studies, it is not adopted in decision making. It is a sad thing which raises the question of why did the health authorities approve and introduce the economic evaluation to be used in decision making?'

The most likely reason for this lack of adoption is attitudes of decision makers, and this forms the second major barrier to the use of economic evaluation in decision making that will be discussed. Decision makers' attitudes are shaped by their personal knowledge and experience, which could have an effect on the use of economic evaluation. The importance of such attitudes is highlighted by N5's observation that many issues need to be balanced against one another.

N5: 'The process of decision making in priority setting decisions is very complex. It involves balancing many competing issues and viewing different perspectives.'

Although responses varied in emphasis, the common barriers related to decision-makers' attitudes were grouped into two categories: importance of the effectiveness evidence, and lack of knowledge and understanding of economic evaluation.

8.2.2.1 Importance of the effectiveness evidence.

The most frequently cited factor in relation to decision maker attitudes was the weight that was placed on the clinical evidence by decision makers. Responses from interviewees and focus groups suggested that greater importance is attached to the clinical evidence than to economic evidence. The informants paid less attention to cost evidence, preferring to concentrate on 'clinical evidence' 'patients needs', or on 'life-saving' .

L1: 'Our approach focuses on patient needs on the basis of ensuring that the most clinical benefit in terms of life-saving is given the first priority...'

N2: 'The first thing that we examine is the evidence of clinical effectiveness. Costs can then be resolved depending on whether additional resources will be required, or through shifting resources.'

Fg:B3: 'Our interest is focused on the clinical benefit..'

N7: 'In the absence of full and sufficient information, there would usually still be decisions made on medical benefits alone. There only needs to be a small piece of information to indicate benefit for the patient from such medical decisions; the decision will be taken merely on this basis'.

Safety was seen as a particularly important aspect of clinical benefit, and indeed was noted as being an absolute minimum requirement.

Fg:B2: The quality of the evidence is very important in the process for providing new medications. But there is also a minimum requirement that has to be met in order to approve to provide a certain medicine in health institutions, such as medical safety'.

However, one informant argued against those who gave top priority to evidence on clinical effectiveness in priority setting decisions.

Fg:C1: 'The dominant approach in current decision making process is only to rely on clinical effectiveness evidence. The supporters of this approach refer to the generous funding of health care. I think this is not true. They are ignorant or they play ignorant to the fact that resources are limited regardless of the level of funding of health care.

Around one third of informants suggested that physicians played an important role in resource allocation decisions, which may, in part, explain why clinical evidence appeared to be ever more important in the decision making process, reflecting a reliance on physicians' areas of expertise.

N6: 'The participation of the doctors and other health professionals in the decision-making process is very important in terms of their judgement regarding the clinical benefit of health care, so to help determine the allocation of resources whether on a regional or national level'.

N7: 'We try to see that any decisions we take are primarily based on the patient's benefit. Therefore the information obtained from the doctors plays a major role in the decision-making process'.

Fg:C4 'Consultants of advanced health care have the greater influence in decision making...'

N8: 'The doctor may sometimes recommend a certain treatment that is not from those that were approved by the Ministry of Health'.

N7: 'Doctors may provide their judgement regarding resource allocation when having to compare a health intervention with an alternative'.

Some informants provided possible reasons as to why doctors had such a major role in health care decisions. One reason was that the use of evidence in the decision making process relied on the quality of available evidence. Health care decisions were taken on the basis of clinician's recommendations where there was insufficient information or poor quality of evidence.

Fg:C2: 'When information and evidence for a certain treatment is minimal or poor quality, the final decision rests with the doctors' interpretation of available data.

Another reason as to why doctors had the major role in health care decisions was that the physicians enjoyed considerable power in local decision-making, particularly medical consultants working in hospitals. Such hospital doctors hold leadership positions at health organisations and thus their voice tends to be 'heard' by decision makers.

L11: 'It is not very clear what the process is for making decisions on a certain care in a hospital. It surely rests with the evaluation and clinical judgement of the patient's doctor'.

N8: 'It is my view that there should be a balance in place between responsibility and authority in decision- making. It is only the doctor who knows the patient's condition, and he is the one responsible for determining the suitable care for the patient'.

Fg:C4 'Either due to them having significant decision making posts or the decision makers give their suggestions more importance than the suggestions of the primary health care doctors and consultants... Financial resources allocations indicate the strong level of influence that the medical consultants have in the resources allocation process'.

Interestingly, however, it was also suggested that physicians involved in decision making might disagree about the importance of different aspects of the clinical evidence, making the decision making process even more complex. This issue was discussed in one focus group, by two participants who were both hospital medical doctors.

Fg:B2: 'The quality of the available evidences vary, and different decision makers value these evidence differently. For example there are evidences which are regarded as very good for treatment of a group of patients but the treatment carries serious side effects, such as Warfarin which reduces the risk of stroke. At the end of the day you may find those who will go by the evidence which support that Warfarin is effective in reducing strokes undermining its serious side effects, or you may find those who will go by the evidence that regards the serious side effects of Warfarin, regardless of its effectiveness in reducing risks of stroke'.

Fg:B1 'Evidence may be used to support a suggestion to fund a certain treatment'.

8.2.2.2 Lack of knowledge and understanding of economic evaluation

Around one half of informants talked about lack of knowledge of economic evaluations. Some informants stated that economic evaluation was relatively new in Saudi Arabia and there were difficulties such as lack of understanding of economic evaluation techniques, although the situation was felt to be changing.

L3: '... Cost-effectiveness analysis is considered as an appropriate and useful tool in the current circumstances where our understanding, ability and professional skills to handle uncertainty and ambiguity in the economic evaluation of health care technologies are still in an early stage and will be challenged constantly'.

FgA2: 'I would say...economic evaluation approach has gained prominence since the last two years.'

There was concern expressed about the lack of awareness of economic evaluation.

N3: There are some reasons for limit use of economic evaluation. Most important reason is that decision makers lack the awareness of the importance of economic evaluation in the decision making process.

Informants themselves were sometimes aware of their lack of knowledge.

N3: 'I believe it is not easy for decision makers to understand the concepts and principles of economic evaluation. For instance I don't know much about the methods and concepts of economic evaluation...'

And among other informants there seemed to be misconceptions about the nature of economic evaluation.

Fg:B3: '... while economic evaluation is concern on the low cost option'.

L11: 'Economic evaluation may help set priorities between items of the same output, such as comparing one drug with an alternative drug. But when there was need to make comparisons between different priorities that produce different outcomes, economic evaluation tends to sort such priorities towards cost considerations'.

This lack of knowledge may be a result of lack of training in explicit decision-making strategies, including economic evaluation, as well as a lack of practical use of the approach. One informant, who had experienced training, suggested that educating decision-makers could be beneficial in enhancing the use of economic evaluation in decision-making:

N7: 'Some of the participants in this workshop have said to me that they realised that there are a lot of things that have never previously been the subjects of their considerations, in terms of how and whether economic issues could be incorporated into health decision making'.

8.2.2.3 Lack of information about population values

One informant suggested that poor information about population values may limit the proper use of economic evaluation. This can be conceived as being a political barrier, given the context for decision making in Saudi Arabia and the lack of desire to allow public values to influence decision making.

L7: 'There is a lack of opportunities for public participation in the decision making process. ...It [lack of public participation] not only negatively affects the population's health needs and concerns, but also influences health policy that should reflect the population's preferences and should be concerned to meet the needs of current and future populations' health and health care.....Thus we need to know answers to the questions of what the population's preferences are, and what the population believes is valuable and less valuable... Most committee members felt that the lack of proper public participation is one of two core questions that, if they are not answered properly, may diminish the potential benefits of the use of economic evaluation.'

This informant argued that value should be determined by the population's utilization of health care services, not by what the Ministry of Health thinks to be valuable.

L7: 'It is crucially important to know how to determine what is valuable to people in relation to individual utility of health care and societal value of health care. The value which a population receives from the health care resources spent on their health care is measured by the population's utilization of health care services. Therefore, the value should be determined by what the population believes to be valuable, not by what the health care provider, which is the Ministry of Health, thinks to be valuable.'

This informant, L7, suggested that 'most committee members' were not satisfied with the way that value of health was determined. He believed that the committee felt that public preferences should be taken into account as part of valuing health states.

L7: 'Most committee members felt that the lack of proper public participation is one of two core questions that if are not answered properly, may diminish potential benefits of the use of economic evaluation.'

The informant suggested that if public preferences were not measured, policy making would be affected.

L7: 'Incorporating public concerns into health policies is very important to ensure the sustainability of the health care system.'

One barrier discussed was the perception that the public in general, and groups losing out from decisions in particular, would not accept changes on the basis of economic evidence, particularly where there is uncertainty about the evidence or an alternative treatment strategy.

N7: 'No doubt, the disinvestment in health care will face resistance from the affected individuals or groups and from the decision-makers too. This is because usually there is no absolute evidence about the lack of benefits of a certain existing health intervention which would enable the decision maker to disinvest the resources from such a health intervention'.

N8: 'The public do not accept the discontinuation of a certain health service without seeing a replacement for it'.

8.2.2.4 Lack of incentive

Around one half of informants, mainly from the national level, spoke about the impact of factors on use of economic evaluation. These primarily focused on a lack of incentive to use economic analysis and the need to work within the institutional processes.

The informants suggested that the lack of incentives to use economic evaluation in decision making could limit its use in decision making.

N4: 'There are no incentives...incentives are considered as a key factor that could encourage health professionals in the use of economic analysis.'

N5: 'Introducing a new healthcare technology either medical devices or a drug is not an easy task. It takes time and must be approved through specific procedures, which has caused us so much embarrassment at times... It does not mean that, once a new drug treatment or a new medical device that has been innovated or developed will start circulating immediately in the facilities of the Ministry of Health, even if they were cost-efficient or have a better cost-effectiveness than the existing ones... '.

These difficulties were compounded by a perception that disinvesting from health care is difficult. Some informants talked about inflexibility of health care resources. These informants suggested that it was difficult to reallocate resources that were earmarked for one particular health care service to fund a new health care service.

N7: 'No doubt, the disinvestment in health care will face resistance... '.

N8: 'Setting priorities through the health system still remains a big challenge. This is because disinvestment in health care is regarded as a difficult process and this is due to a number of reasons '.

N6: 'Disinvestment in resources for a certain health service does not occur without providing a replacement for it... The disinvestment in resources would take place gradually for health services that are less beneficial '.

However, this informant attached some importance to disinvestment decisions as a process for effective use of health resources:

N6: 'Disinvestment is an important process for using the resources more effectively, through disinvestment of health interventions that offer low clinical effectiveness or less cost-effectiveness, and then reinvest these resources in health interventions that provide high effectiveness or more cost-effectiveness'.

8.3 Potential use of economic evaluation

Around one half of informants talked about factors that might increase the use of economic evaluation in decision making.

8.3.1 Decision Makers' attitudes

Around one third of informants showed enthusiasm for, and interest in, the use of economic evaluations.

L1: 'I therefore consider [economic evaluation] to be an important tool, especially in such circumstances where the health resources will be used for the prevention or cure of the same disease, regardless of any other principles.'

Fg:C2: 'There are those who have a tendency towards the use of economic evaluation in the decision making process due to the absence of a clear approach in the decision making process. I therefore prefer the use of the benefit and cost approach for scaling and setting the priorities'.

This suggests that there is scope for building on this interest among some people to further promote use of economic evaluation in the Saudi health care system. Furthermore, some informants suggested that economic evaluation would raise public awareness about the efficient use of medical services. Informants suggested that, with further use of economic evaluation to inform decisions about the efficient allocation of resources, this would help to spread awareness of the cost of health care among both health care professionals and citizens:

N7: 'economic evaluations establish a clear relationship, for the people, between the clinical benefits and the costs of various health interventions... Therefore when the beneficiaries understand this relationship, their contributions should be complementary to the health care providers with regards to designating appropriate health care resources.

L10: The use of economic evaluation in making the decisions assists effective management of resources. It contributes to the increased awareness of the costs of the health care for both health staff, as health services providers, and the citizens who receive these health services.

8.3.2 Institutional factors

Two informants mentioned that there was a potential flexibility for shifting, or reallocating, health budgets between and within the health sector components. These two informants discussed possibilities for reallocating health budgets, suggesting that at least some informants were familiar with economic principles of efficiency.

N2: 'The first thing that we examine is the evidence of clinical effectiveness. Costs can then be resolved depending on whether additional resources will be required, or through shifting resources.'

L1: 'health resources are allocated according to both national and local health needs...the regional health authorities can reallocate part of existing health resources which makes the health system more flexible and responsive to the health needs of local communities, and helps to manage rising incidences of specific or complex illness at the local level... This type of operation [self-operation hospitals] is flexible, in terms of its resource allocation, whether the level and quantity of health care services that will be provided, and/or the recruitment processes to attract highly qualified and experienced staff. Each programme receives its independent budget from the Ministry of Finance.'

8.3.3 Training

Some informants felt that training decision-makers in explicit decision-making strategies was important moving into the future, building on what was perceived to be an already good programme of work to start to provide information about health economics.

N7: 'Ongoing training is vital to raise decision- makers' awareness of economic evaluation'.

N3: 'The ministry did a great effort in spreading the culture of health economics and economic evaluation via seminars and periodical lectures'.

8.3.4 Improving methods for economic evaluation in the Saudi context

Despite reported limits to understanding of economics, some interviewees described the ongoing work in order to develop national guidelines as one mechanism for improving the use of economic evaluation.

N3: 'Research is made now to determine the diagnosis and treatment procedures for health conditions in order to estimate the actual cost for health interventions. .. As soon as these studies are finished we will get national guidelines and clinical standards, and also clinical costs index that will be used in the economic evaluation studies. .. The costs index will be used to determine the health budget to each health facility according to provided health care.'

This informant suggested that introducing guidelines for economic evaluation would enhance the use of economic evaluation in decision making.

N3: May be issuing this guidelines and the cost index contributes in benefiting of the economic evaluation.'

8.4 Conclusion

The findings suggest that the use of economic evaluation is still very limited and that it does not systematically inform health care decision making. There appeared to be four main types of barriers to the use of economic evaluation in decision making. Firstly, methodological factors were the most frequently reported barriers to the use of economic evaluation. This suggests that there was lack of relevant economic evidence, including the lack of relevant cost data, the lack of clinical evidence, the lack of experts, availability of an independent research sponsor; and issues

around the timing of economic evaluations. Decision makers' attitudes were the second common cited barriers. This appeared to have a two-fold effect of limiting the use of economic evaluation in decision making; their personal knowledge and experience. The findings suggest that decision makers paid great importance to the clinical evidence over economic evidence. Furthermore, more serious reservations were sounded regarding levels of understanding of the economic analyses.

Informants reported that there were contextual factors, including political and institutional factors, influencing the use of economic evaluation in decision making. However, contextual factors beyond the immediate health care setting that were discussed in the previous chapter, to some extent, hinder the use of economic evaluation in decision making. For example, the notion that the use of economic evaluation to inform health care decision making might not be achievable locally, largely because the compliance with national directive.

Despite the current low level of using economic evaluation some informants were enthusiastic to make economic evaluation information available to aid the decisions they make. A detailed and rigorous national guideline could help to increase the use of economic evaluation in a systematic manner in Saudi Arabia. Furthermore, educating potential users, making the economic evaluation process transparent and participatory would help to conquer barriers to using economic evaluation in decision making.

The thesis will now turn to discussing the empirical findings obtained, within the context of the existing literature and the particular strengths and limitations of the work conducted here. The implications of the work will also be considered in the next.

CHAPTER 9: APRIORITY SETTING MODEL FOR SAUDI ARABIA

The extreme mismatch between the demand for healthcare services and the availability of resources has made priority setting a vital part of health care policy making. Although priority setting is viewed as a synonym for resource allocation and rationing, it involves the formulation of systematic rules meant to facilitate the distribution of the limited health care resources among programs or categories of patients. While various priority setting models have focused on social justice, burden of disease, efficiency and the equitable allocation of resources, consensus has failed to be achieved on what values a priority setting philosophy should foster. In this chapter, a framework for the current state of priority setting in Saudi Arabia, generated from both literature and empirical evidence, is provided followed by a proposed priority setting model to be adopted in Saudi Arabia to promote the effective allocation of healthcare services. This model is proposed based on the need to increase awareness of economic information among stakeholders in the healthcare industry.

9.1 Priority Setting in Saudi Arabia

With a GDP of US\$746.25 billion in 2014, Saudi Arabia is only one of a few countries in the world that has not been affected by the major global economic crises. Despite this, healthcare policy makers in the country recognize the need for reform in the sector. In Saudi Arabia, the

Ministry of Health is the primary provider of health care services. This is carried out through a network of 2037 healthcare centres and 244 general and special hospitals (Al-Aqeel, 2012). However, other government agencies fund and provide care to their employees and their dependants. The government of Saudi Arabia also funds and provides care to patients on a referral basis through specialized care hospitals such as the research centre and the King Faisal Specialist Hospital (Al-Aqeel, 2012). All healthcare services provided to Saudi citizens are free of charge except for private healthcare institutions which are made up of 125 hospitals, 2218 dispensaries and clinics across the country. Additionally, Saudi citizens working for private companies and diplomats are entitled to health insurance benefits.

The regulation and supervision of the health care market is carried out by the Council of Cooperative Health Insurance which is an independent government body (Al-Aqeel, 2012). This council was formed in 1999 by the government to address the growing population's demand for health care services and to improve the quality of health care delivery. However, the Ministry of Health has the responsibility for creating, planning and managing health policies (The Economist, 2014). In addition, it is also tasked with the supervision of health programs and monitoring of healthcare delivery in the private sector.

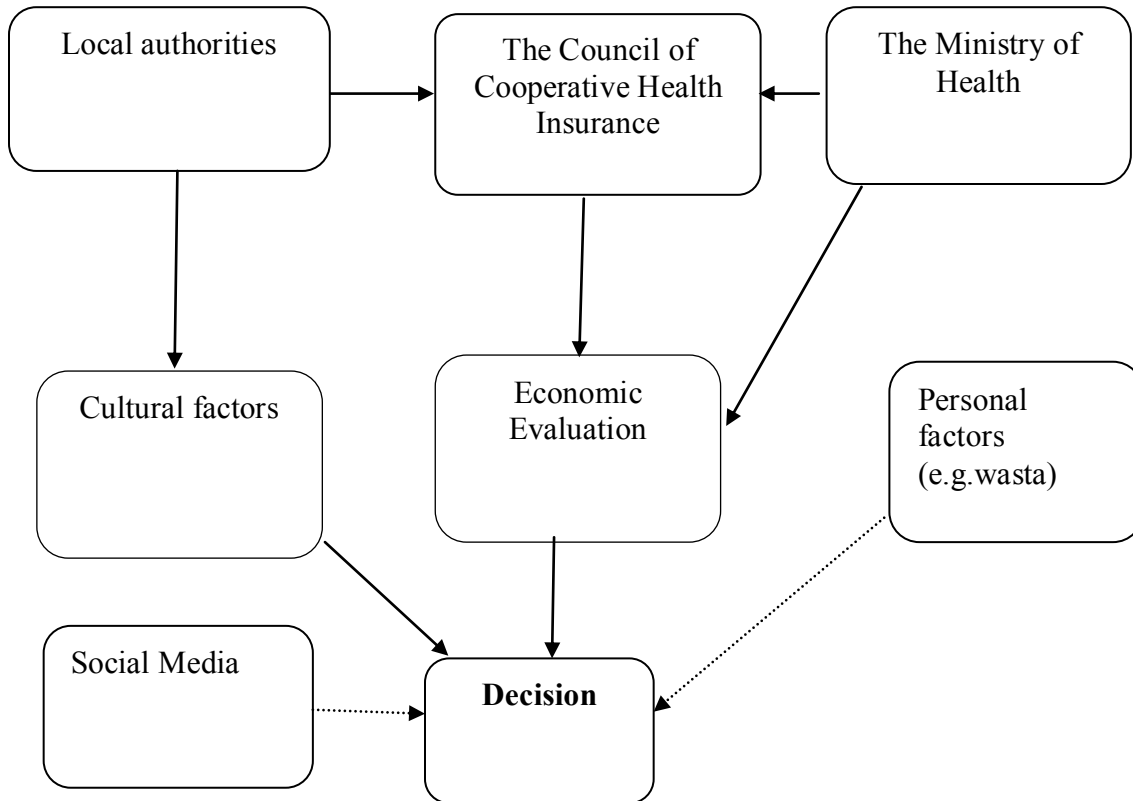
A health insurance scheme was also established in 1999 with the aim of reducing the health care costs faced by the government in providing free health care. This scheme was meant to be planned and executed in three stages. The first stage which began in 2006 was used in the provision of healthcare services to both Saudis and non-citizens using the private healthcare services. The second stage involved cooperative agreement on health care for public workers

while the final stage involved the provision of care to minority groups such as pilgrims. In the past 3 years, the Saudi government has invested SAR 86 billion with the aim of improving health and social affairs across the country. However, despite such a huge investment, healthcare costs have continued to rise due to technological advancement, increased incidences of chronic illnesses, and high demand for free healthcare services, and the annual population growth of 2.75%. This has made the allocation of health resources difficult for decision-makers in the Saudi healthcare system. Therefore, like many developed countries, decision-makers in Saudi Arabia require economic evaluation to support their decisions on licencing, reimbursement, pricing and addition to the formulary (Al-Aqeel, 2012). However, in Saudi Arabia, the submission of evidence on economic evaluation to support decisions on licencing is not mandatory. Based on the Saudi Food and Drug Authority guidelines regarding the prices of pharmaceuticals, economic evidence is used to aid pricing decisions. The figure 9.1 below shows the current structure of decision making in Saudi Arabia. The findings from this thesis indicate that Saudi Arabia lacks set guidelines for the use of economic evaluation in the healthcare sector. Therefore, it is necessary to establish a national agency that will be responsible for funding economic evaluations. In addition, further investments should be geared towards the collection of demographic and epidemiological data, health costs and clinical practice patterns in order to facilitate further research on priority setting concepts in the country.

Cultural factors were found to influence decision-making in Saudi Arabia. Saudi Arabia, emphasizes on relationships on various levels of healthcare decision-making. Therefore, the religious and tribal implications of decisions are strictly considered in economic evaluations. *Wasta* (networking) and the use of social media was found to be a major driver of decision-

making in Saudi Arabia. Additionally, the use of social media was found to influence decision-making. Interpretation of decisions differently in social media was found to be a potential barrier to the implementation of evidence from economic evaluation. Although many informants indicated a positive effect of social media on decision making in Saudi Arabia, some informants described scenarios of how people used the media pressure to gain access to specific health care interventions or technologies.

Figure 9.1. Decision-making Structure in Saudi Arabia



9.2 The Proposed Model for Priority Setting in Saudi Arabia

The proposed model consists of nine phases; (1) preliminary functions, (2) selecting a health problem, (3) developing a priority setting framework, (4) public participation, (5) economic evaluation, (6) reviewing phases 3-5, (7) finalizing recommendations (8) adopting the recommendations, and (9) process evaluation.

Phase 1-Preliminary Functions

In the preliminary functions' phase, priority objectives should be first identified by the health care institution. Based on the findings of this thesis, methodological factors were the most frequently reported barriers to the use of economic evaluation. However, through proper identification of objectives and study scope, this model is expected to improve priority setting in Saudi Arabia. These objectives may include establishing a list of healthcare institutions which will get funding based on their need for resources and thus attaining allocative efficiency using available resources. The second task in this phase should be to define the priority setting scope.

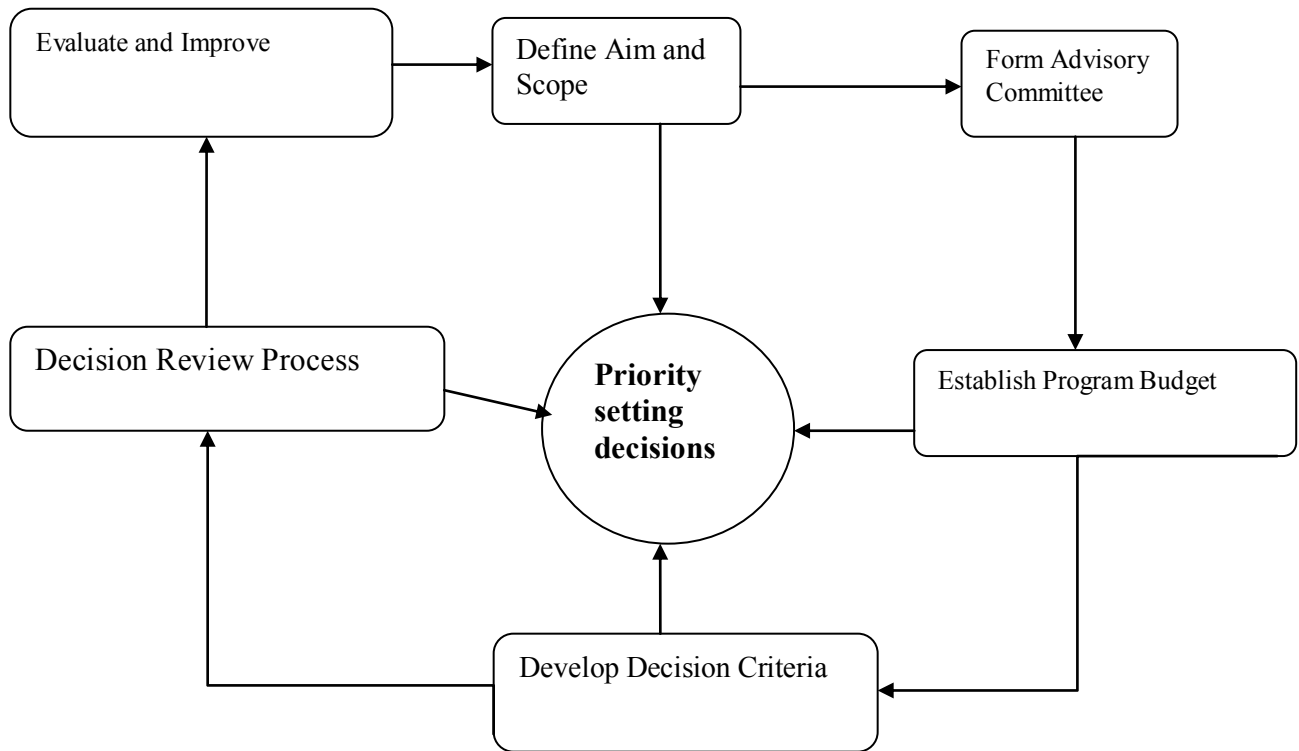
This task is critical because it determines extension of the analysis to cover the healthcare sector widely. In the third task, stakeholders are identified based on the scope of priority setting. In the fourth task, an advisory committee is formed consisting of a clinician and a health economist for technical reasons. The other members of this group should be the identified stakeholders. The last task in this phase is to determine the decision making criteria. The decision making criteria should be based on political acceptability, access, equity, and community values. There should be a unified framework to determine who the decision makers are and what the required justifications will be for making the decisions.

The local committee will be tasked with the responsibility of collecting information from various health care providers across the region, so that it can produce appropriate recommendations for the healthcare decision makers. The local committees will then submit their recommendations

for priorities on healthcare resources to the permanent committees at the Ministry of Health for further action.

The advisory committee should comprise the representatives from the Health Services Council. The Health Services Council should advise the local committee and ensure that the decisions made are in line with the Saudi health strategic plan that is formulated and adopted by the Health Services Council. In particular, the Council should promote a national strategic direction for health policy using an institutional framework which promotes coordination and cooperation within the government and between the governmental and private health services providers. Since the Ministry of Health and the permanent committees at the Ministry of Health are national actors in the decision-making process, the permanent committees at the Ministry of Health should be included in the advisory committee. The role of the permanent committee from the Ministry of Health is to advise the local committee on the health care services that may be provided in primary health care and in the general healthcare centers. The local committees, which will be equivalent to the permanent committees at the Ministry of Health, should address issues exclusively relevant to its region and liaise with permanent committees at the Ministry of Health to determine the amount of resources that should be allocated to them. The local committee will play a mediator role between the providers of the health care services in those regions and the permanent committees. The local committees should also consult with the permanent committee at the Ministry regarding their budget proposals to the Ministry of Health.

Figure 9.2: Decision-making Process



Phase 2-Selecting a Health Problem

The second phase involves selecting a health problem. A disease based approach is employed in this case because of the broad range of advantages it offers. By setting priorities using of a disease based approach, the contribution of every disease to the healthcare cost is measured. This approach ensures a focus on allocation of resources between disease stages, offers opportunity to employ research efficiency and intermediate outcome measures, and capacity to observe distributional effects. Based on the findings of this study, a number of groups took part in the decision-making process and were influenced by contextual factors which are often overlooked

in formal evaluations. The following are factors that should be considered when selecting a health problem: equity issues, disease severity and national priorities, and access to data on cost and effectiveness.

The findings of this thesis also suggest that incorporating economic evaluation into the health care decision making process in Saudi Arabia is difficult and overlooked by researchers.

Therefore, the local committee should provide a broad range of information about health problems in their region by ranking them according to their severity in order to enable decision makers to select a health problem that deserves immediate attention. Various health services from a particular region should be integrated in the decision making process. This integration will assist in faster identification of a health problem that is of major concern to local people.

Phase 3-Developing a Priority Setting Framework

Most participants in this thesis indicated that when creating a priority setting framework, effective priority setting criteria should be clearly defined and understood by all the stakeholders. In addition, information should be used to support the priority setting criteria.

Therefore the third stage should be about developing a priority setting framework for the health problem. One of the tasks to be carried out during this stage is through obtaining a thorough understanding of the health problem in terms of feasible points of intervention to minimize disease burden, normal disease problems, and disease etiology. The second task entails understanding the health problem and determining its opportunity cost for the treatment of the disease. The third task involves extending analysis on priority setting to allow for wide coverage

of the health care sector. For example in Saudi Arabia, health centers in urban and rural areas are chiefly concerned with secondary and primary care, therefore, the priority setting framework for services provided in urban and rural health centers would be limited to these health problems.

The fourth task revolves around identifying all intervention options at every disease phase regardless of target population, health delivery, and the modality involved. The final task in this stage is selecting the intervention to include in the priority setting exercise based on the existing information.

Phase 4-Public Participation

The fourth phase involves public participation. From the findings of this thesis, two main views regarding obtaining public opinion arose. While some respondents thought methods of obtaining public opinion existed, others saw a lack of involvement of the public in the decision-making process.

The local committee in collaboration with the Ministry of Health should organize a discussion meeting with the local members of the public and obtain their views regarding the identified health problem. Public participation in decision making is important because it will put constant pressure on the health authorities to meet the set health targets. Public participation in the decision-making process will also ensure the sustainability of the health care system. The internet should be employed as an important tool in facilitating public participation in priority setting decisions. The local committee, in collaboration with the Ministry of Health, should use the internet positively to obtain public opinions regarding a given type of health care service, as a feedback device, and to spread positive health messages and knowledge. The internet can also be

a critical tool through which the public exercises pressure on the local committee and the Ministry of Health to solve and address health issues.

Both low-level decision makers and high-level decision makers should pay more attention to public participation. In particular, local committees located at various parts of Saudi Arabia and permanent committees in the Ministry of Health should recognize the role of citizens in the decision-making process. Since members of the public are the beneficiaries of the health services provided, they should be involved actively in the decision making-process. The Ministry of Health should establish a constructive partnership with the society. Public participation has the potential to influence health policy that should reflect the population's preferences and should be concerned on how to meet the needs of the current and future population's health and health care.

From the findings of this thesis, political and cultural factors were found to have more impact on decision making than the results of economic evaluation. Therefore, the Ministry of Health should ensure public health matters are circulated through the internet and the members of the public are informed and encouraged to use the internet to express the views and opinions regarding a particular health concern. The local committees and permanent committees at the Ministry of Health should develop clear guidelines on who should post views. Although responses from some informants indicated a lack of valuation of public participation in priority setting, most interviewees believed that public participation was vital for both decision making and methodological issues in priority setting because they provide vital information during evaluation of the process.

Phase 5-Economic Evaluation

The fifth stage is concerned with economic evaluation. There is a need for the establishment of a national agency that will be tasked with the responsibility of funding economic evaluations.

Economic evaluation includes determining the cost/benefit ratio of the proposed interventions.

The measure of benefit should be specified and should permit comparison between different stages of different health problems. This will involve commissioning and then reviewing the evidence on costs and outcomes from existing literature, calculating the opportunity cost of the diseases and ranking the proposed interventions according to their cost/outcome ratio, and making primary recommendations on desirable resource allocation.

From the results of this thesis, the majority of the respondents indicated that economic evaluation should be employed by healthcare professionals in their decision making process. Therefore, once the permanent committees at the Ministry of Health have received information/budget proposal from the local committee of every region, they should then use economic approaches (detailed below) to priority setting to determine the type and scope of the required services and evaluate the funds required to support these services.

Additionally, 95% of participants expressed interest in attending seminars and workshops to gain economic skills. It is anticipated that training in health economics should encompass these key principles that would form the economic aspect of the approach to priority setting. There are two important principles of economics that are associated with health care priority that should be utilized by local committees and permanent committees at the Ministry of Health. These

principles include the principle of opportunity cost and the principle of margin. The basic tenet of the principle of opportunity cost is that health care professionals must weigh the benefits and the cost of doing one thing over the other. The principle of margin revolves around altering or shifting the resource combination. For example, if organizational managers decided to increase the budget, they should ask themselves how best the extra budget should be spent. On the contrary, if managers decide to reduce the budget, they are expected to remove resources from areas that generate least benefit. Alternatively, if the budget is neither decreasing nor increasing, it is expected that some resources will be removed from one area and taken to another with an aim of improving benefit. Therefore, PBMA allows for priority setting in instances when the budget is not fixed.

Cost-effectiveness analysis is considered as an appropriate and useful tool in the current circumstances where our understanding, ability and professional skills to handle uncertainty and ambiguity in the economic evaluation of health care technologies are still in an early stage and will be challenged constantly.

Economic evaluation may help set priorities between items of the same output, such as comparing one drug with an alternative drug. Economic evaluation should also be seen as an important tool, especially in circumstances where the health resources will be used for the prevention or cure of the same disease, regardless of any other principles.

Economic evaluation should have the potential to establish a clear relationship between the clinical benefits and the costs of a broad range of health interventions. The decision taken by the

local committees and the permanent committees at the Ministry of Health should comply with the principles of opportunity cost and margin.

The Ministry of Health should ensure that economic information is available at the right time by making sure there is an easy flow of information throughout the process of priority setting.

Therefore, the Ministry of Health should develop mechanisms that facilitate the flow of information in order to ensure all stakeholders access the same information accompanied by provisions to enable the involvement of all the participants regardless of the level of their technical skills. In addition, before starting the process, the stakeholders need to be provided with relevant information since the availability of knowledge influences the priorities to be chosen. However, the need to comply with national objectives has been outlined as a potential barrier to economic evaluation in decision making. According to most participants, the use of economic evaluation was important in making decisions as it enabled effective management of resources. In addition, it contributes to improved awareness of the costs and benefits for all stakeholders.

Phase 6-Reviewing Phases 3-5

The sixth stage revolves around reviewing phases 3-5 to ensure effectiveness of the model. Based on the findings of this thesis, most participants felt that the lack of use of economic evaluation evidence was either due to the difficulty in generalizing or the transferability of results. In addition, policy makers in the healthcare industry were seen to value clinical health objectives over efficiency objectives. There was therefore a perceived lack of transparency within the current healthcare decision making process according to some respondents which led

to a mistrust and misunderstanding of the rationale behind some decision making. For this reason, the recommendation here is for the Council of Cooperative Health Insurance to ensure effective monitoring of the priority setting process, the use of economic evaluation evidence, and the resulting recommendations to ensure that all steps in the process are not biased.

Phase 7-Finalizing Recommendations

The seventh stage entails finalizing recommendations. This task is carried out by revising the primary recommendations proposed by the advisory working group against the original decision making criteria. Through involving stakeholders' views in the evaluation of the model, this phase increases the likely acceptability of the decisions to stakeholders, hence reducing barriers for adopting the recommendations. The findings of the qualitative study within this thesis indicated that economic evaluation helps to shape the decision makers' views on priority setting in the healthcare industry.

Phase 8-Adopting the Proposed Recommendations

Phase 8 involves adopting the proposed recommendations. After receiving budget proposals from the local committees in various regions within Saudi Arabia, the permanent committee at the Ministry of Health should discuss the proposal with officials from the Ministry of Finance. The Ministry of Finance may decide to approve a different budget from the one presented by the permanent committees from the Ministry of Health. The Ministry of Finance will have the responsibility for adopting health projects which have been adopted by committees from different governmental organizations. During the implementation stage, both the public and private health centers should cooperate in ensuring that the proposed intervention to the

identified health problem is effectively implemented. Based on the need for transparency in the healthcare system, it is recommended that modern media is used in order to improve accountability in the sector. Additionally, economic analysis should be encouraged for the allocation of resources in order to achieve efficient outcomes.

Phase 9-Process Evaluation

The Accountability for Reasonableness Model proposed by Daniels and Sabin (2002) should be used to conduct a thorough evaluation of the process. In this evaluation phase, the local committees should monitor the services provided in the regions and assess the level of contribution and effectiveness of those decisions in meeting the goals of the health system in terms of improving the health and wellbeing of the society.

The Ministry of Health should ensure that it provides healthcare services to all citizens in an equal and equitable manner regardless of variations in geographical, social, or other considerations. The Ministry of Health should consider patients in everything it does, attending to what the patients believe is most important for their health conditions. When deciding on the allocation of resources, the Ministry of Health should ensure that it addresses the power imbalance that results in inequitable distribution of resources among different healthcare organizations.

Once a hospital receives the funding from the Ministry of Health, top officials in the hospital should ensure that there is transparency and accountability in allocating the available resources to various departments within the hospital. The officials should also ensure that they do not

deviate from the original objective of providing healthcare services in various specialties. Priority should be given to those departments that are in dire need of funds. The executive directors should have advanced level of knowledge in specialty areas which will enable them gain better understanding of the departmental needs.

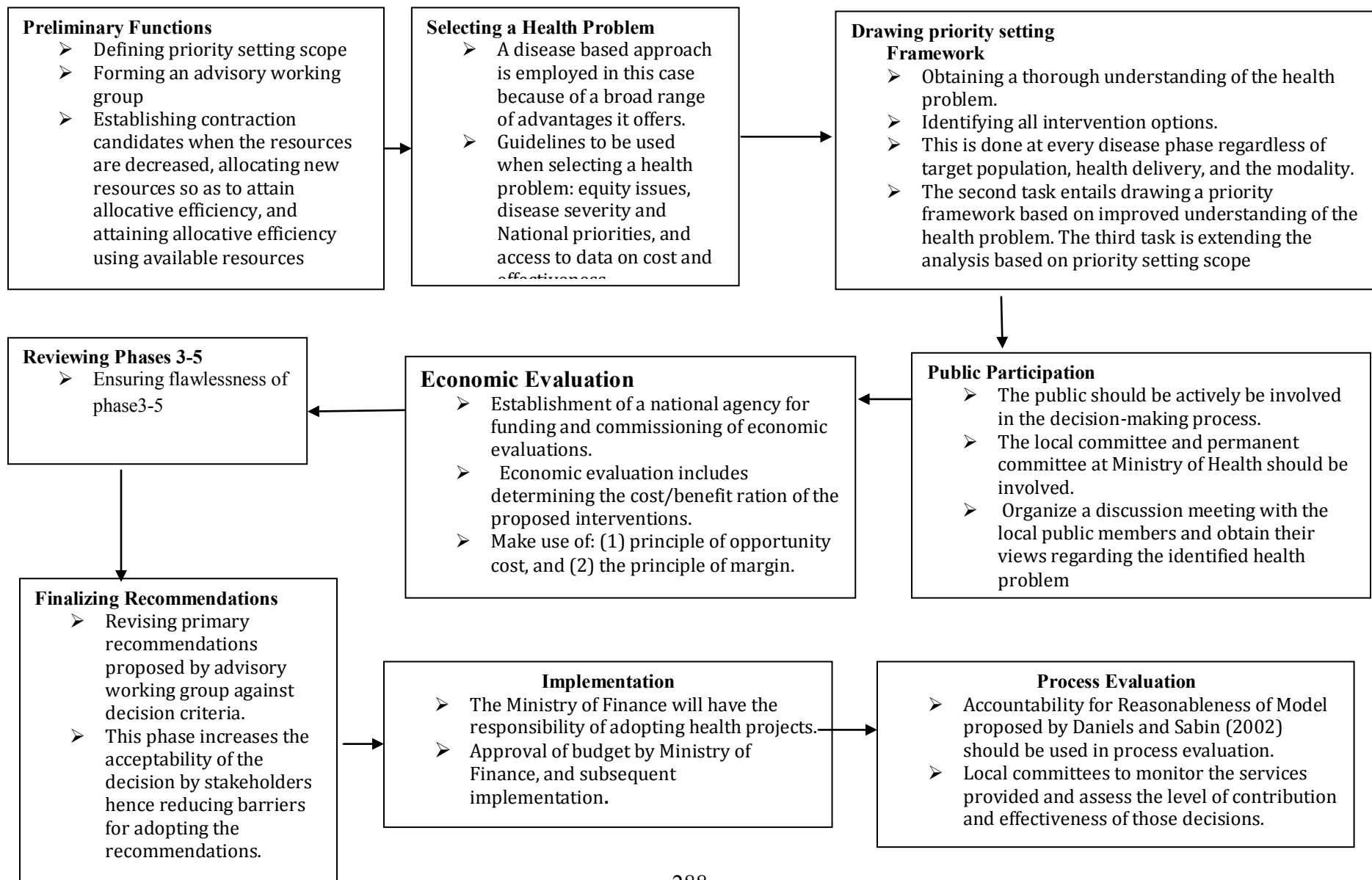
Transparency and accountability is a critical component of this phase. The decisions made by the local committees, permanent committees at the Ministry of Health and officials from the Ministry of Finance should be based on transparency and accountability.

In the evaluation stage, officials from the Anti-corruption Commission should conduct their own independent assessment of how the allocated resources were utilized. The commission should also prosecute individuals found to have embezzled public funds. The Saudi government, through General Auditing and Investment of Management should ensure that the principles of transparency and accountability are adopted at various stages of the decision making process.

Follow-up department and Health Affairs Control and Internal Auditing should also assist in evaluating, monitoring and reporting issues of transparency and accountability. To enhance transparency and accountability, the Ministry of Health should ensure that a written permission is not required when providing someone with relevant information Meeting minutes and official letters should not be classified as secret in order to promote transparency and accountability within different healthcare organizations.

The Ministry of Health should inform the members of the public about the basis of their decision. The hospital's performance and productivity should also be monitored by the members of the public. Both the local committees and permanent committees at the Ministry of Health should maintain work standards and follow the procedures and policies during the decision making process. There should also be an effective and organized accountability measures which ensure there is no escape from punishment for anyone who abuses the system. Both the local committees and permanent committees at the Ministry of Health should ensure that the allocated resources are directed to meeting both local and national priorities instead of adopting only national priorities.

Figure 9.3: A 9-Phase Priority Setting Model



9.3. Conclusion

In this study, a 9-phase priority setting model that can effectively fit within the context of Saudi Arabia was suggested and is summarized in figure 9.3. The preliminary phase entails the identification of priority objectives, defining the priority setting scope, identification of stakeholders, the formation of the advisory working group, and the determination of the decision criteria. The second phase encompasses selecting a health problem using a disease based approach. The third phase involves obtaining a thorough understanding of the health problem in terms of feasible points of intervention to minimize disease burden, normal disease problem, and disease etiology. The fourth phase requires the public to be actively involved included in the decision making process in order to facilitate constant pressure and push on the health authorities to meet the health targets. The fifth phase requires the establishment of a national agency that will be tasked with the responsibility of funding and commissioning of economic evaluations. Phase six is a summary of both phase three and five.

The seventh stage entails finalizing recommendations by revising primary recommendations proposed by advisory working group against decision criteria. Phase 8 involves adopting the proposed recommendations and the final phase utilizes the Accountability for Reasonableness Model, by Daniels and Sabin, to achieve a thorough evaluation of the process. By adopting this model, healthcare decision-making in Saudi Arabia will improve and more efficient priority setting will be achieved.

Based on the findings from this thesis, the creation of a national agency is recommended for the purposes of improving infrastructure and improvement of economic evaluation in Saudi Arabia. After identification of objectives, selection and understanding the health problem, the public should be encouraged to participate and express their views on proposed healthcare

interventions. A national agency should then be formed in order to advice or provide criteria for priority setting in healthcare in future. Additionally, the national agency should be officially tasked with distributing funds and developing procedures for applying economic evaluation findings into healthcare priority setting. Finally, the national agency should be charged with the formation of a national strategic plan, regulations, and legislations to ensure effective integration of economic evaluation between the private and public healthcare institutions. However, before adoption of the recommendations developed by national agency, a thorough review of the objectives of economic evaluation is necessary.

CHAPTER 10: DISCUSSION AND CONCLUSION

The aim of this research was to investigate the structure and the process of priority-setting and resource allocation in health care, particularly in relation to the use of economic evidence, in the Saudi-Arabian context. Previously, there had been only one (quantitative) study investigating the role of pharmacoeconomics within formulary decision making in the Saudi health care system (Alsultan, 2011). The research reported here has extended this earlier work by investigating the overall structure of health care decision making and looking specifically at the contribution of the use of economic evidence in health care decision making more generally.

The main findings of this research suggest that contextual factors have a great influence on the priority decision making process, including political, cultural, social and economic contexts. Rising pressure on fluctuating and limited resources were at the forefront of motivations pushing the government to take notice of priority setting. Health policy makers appeared to realize it was a fruitless task to try to cover all health services that could assist patients and that it was necessary to funnel resources to the most appropriate services to a larger extent in the long term. There was a call for increased efficiency in the utilisation of resources, because of the rapidly rising availability and cost of cutting edge health technologies and the prevalence and complications of diseases that raised the need for costly procedures.

Although decision makers frequently indicated that transparent decision-making was essential, it appeared that current decision-making methods were not transparent and did not tend to involve stakeholders such as hospital directors, health professionals, or the public. The main motivation for encouraging economic analyses in health care resource allocation decisions was to try to make these processes and their outcomes more rational. This rationality in the system was seen as leading to greater transparency, thus increasing accountability to meet the organisational standards (Lindblom, 1959). Decision makers also recognised that economic evaluation could facilitate an increase in the legitimacy of their decisions as it potentially provides a rational set of procedures with which to justify decisions and thus present them as more acceptable to health decision makers and the public.

According to the informants, the role of the public was very limited in allocation decisions, and was largely an informal role. However, most informants suggested that the public should be involved in allocation decisions. Some informants considered it was important to have an open public debate about the need to set priorities. Reflecting on what is reported within the literature, New, in the UK, has previously noted that, as rationing is inevitable, a specific discussion on its fundamentals and challenges should occur (New, 1996). Ham and Coulter have also suggested that when public awareness is rising on medical advances, the hardest aspect is to educate the public and have them take part in discussing healthcare fund allocation (Ham & Coulter, 2001). Two main trends can be identified on the topic of public involvement in the allocation of health care resources. One opinion is that public knowledge raises the accountability and transparency of decision making (Litva *et al.*, 2002), while the other states that, even if public involvement is important, specific circumstances do not make this always an appropriate choice, as the public lack the expertise to evaluate medical and

scientific topics (Fijn *et al.*, 2002). Both of these views reported in the literature were apparent among the informants included in this research.

Most respondents thought that the decision-making process for resource allocation was unreliable and not easily understood. This view is reflected in other studies. Benatar, for example, stated that only a limited number of people could reasonably understand how resources were allocated in major hospitals in South Africa. These decisions were made without transparency or public participation (Benatar 2003). This lack of transparency of the decision-making process was identified at all different levels of decision-making by the informants here. Again, this is reflected in other work. Mooney discussed Western Australia's health service, and noted that a lack of transparency caused inequities and less efficiency in resource distribution efforts (Mooney, 2003). The Cookson case study of the Pharmaceutical Benefits Scheme (PBS) further underlined that this decision-making procedure was not sufficiently transparent (Cookson, 2000). In Canada, for example, it was shown that decision making lacks transparency and certain individuals dubbed it the 'black box' as it was unclear how decisions are formed (Mitton & Donaldson, 2002)

Nevertheless, as was found in this PhD research, transparency of decision making is desired. For example, Mitton's work on decision-makers in the South West Area Health Service in Western Australia highlighted decision-makers' demands for transparency on all procedures regarding setting priorities (Mitton *et al.*, 2004b). This transparency is seen as important from the perspective of both practice and theory. In terms of practice, in the research reported here, informants suggested that limited consistency and transparency had led to a varied supply of medicines throughout hospitals in the country. Similar worries have been noted in other contexts (Low, 2003). In terms of theory, as previously described in Chapter Three, for a

rigorous priority setting process meeting the requirements of ‘Accountability for Reasonableness’, four conditions must be covered to make legitimate and fair decisions, one of which is around publicity or transparency (Daniels & Sabin, 1997). The informants here seemed to want to distribute health resource in a fair way, but the decision-making process appeared inconsistent and not transparent. In other contexts, Ham has noted this chasm between decision-makers goals and what is actually going on (Ham & Robert, 2003).

Some informants further voiced their thoughts on both national and local levels of decision making, in that the process of decision-making did not take public opinions into account. Smee noted that it is crucial to involve those directly affected by a decision within the decision-making process (Smee, 1997). The informants thought that although rationing took place it was not always openly discussed. This seems to be a common experience in countries: in Smee’s 1997 analysis across four countries (USA, Canada, Australia, New Zealand), in only one, New Zealand, was rationing discussed openly (Smee, 1997).

With regard to public participation, many informants suggested that the media plays a dual role: first, as a method for the public to express their opinion; and second as a method for drug companies to influence public opinion with the introduction of new health care technologies. Some informants suggested that due to the lack of formal methods for public participation, the media was the main method used by the public to voice their opinion.

The respondents further discussed the importance of the media influence on public views about priority-setting under specific circumstances. Concern was raised about the role of the media, particularly during specific political and/or epidemiological circumstances. During specific political circumstances, for example, some informants suggested that the decision

makers have given significant attention to the media as a result of its role during the Arab Spring which started in late 2010 to the present (Salvatore, 2013; Stepan & Linz, 2013; Wilson & Dunn, 2011)⁵. Other informants expressed their concern about how drug companies might approach the media to promote their products. One informant, for example, talked about the media influence during the prevalence of swine flu in 2009, when the Saudi authorities ordered more than 20 million vaccinations and how under the influence of the media, many citizens refused to be vaccinated (or for their children to be vaccinated) (REUTERS, 2009; APS, 2009; Otaif, 2009; Alsaleem, 2013). This issue is not unique to the Saudi context as in the UK for example, Moran found that pharmaceutical companies spend more money on advertising and marketing than they do on research (Moran, 2003) and the same result has been reported by other authors in the USA (Angell, 2000; Angell, 2004; Mukherjee, 2003; Avorn, 2004).

Although many informants discussed the role of the media in priority-setting decisions, investigating the media discourse and its effect on the public's views regarding access to health care was not the main focus of this research. Some informants, however, described scenarios of how people tried to use the media to go beyond voicing their opinions into an 'enforcement' stage in which they were trying to use media pressure to gain access to specific health care interventions or technologies. The informants used phrases such as '*under pressure*' and '*apply pressure*' in discussing their perceptions of the media impact on access to a medication. Examples such as access to trastuzimab and imatinib in Australia (Mitchell, 2004) and interferon beta-1b in the UK (Walley, 1995) were mentioned. These cases, as described by Daniels, draw public sympathy and highlight the challenge of getting the public to understand limits (Daniels *et al.*, 2003). Marley stated that "*on emotional grounds, the*

⁵ For example Wilson and Dunn (2011) 'Digital Media in Egyptian Revolution: Descriptive Analysis from the Tahrir Data Sets'.

public refuses to believe that any treatment, despite cost and lack of evidence, should not be provided” (Marley 1996, p. 59).

The findings of this research suggest that explicit rationing was not an entirely accessible or comfortable concept from the perspective of the decision-makers, and for some, the option of implicit, rather than explicit rationing might be easier as challenging decisions can be hidden. It was reported that some implicit decisions have been turned into explicit decisions and this can result in negative public opinion towards the health care decision makers. An example of this from outside the Saudi context involved a contentious local decision for the treatment of a young child with a malignant brain tumour (Ham & McIver, 2000). Despite clinical specialists arguing that there was no treatment available to cure the child, the parents referred the child to a specialist in the USA who offered an operation that had a 20% success rate although local commissioners refused to fund the procedure. This led to local support which managed to secure the funds for the operation; the local commissioners were heavily criticised for not funding the procedure. On return to the UK the child died after a period of four months. This example demonstrates what can happen when the media get involved and the potential for the media to influence public opinion about what is deemed ‘fair’ and ‘unfair’ under specific circumstances, and the resulting pressure upon decision-makers. Some informants did not seem to want to be accountable, and appeared to want to avoid blame. In the literature, Coast has researched this issue in detail and shown that decision-makers wish to avoid the disutility that can come with the denial of care (Coast, 2001). Coast found that local decision makers are expected to make the ‘objective’ choices on behalf of their local population for the benefit of the community, but that they use a number of mechanisms to try to avoid responsibility for these decisions. Indeed, decisions taken at the

local level are often 'reinterpreted' and 'diluted' as the impact of decisions gets closer to the patient (Coast, 2001).

Around one half of the informants suggested that some decisions were made based on the personal values of individual decision makers. Reflecting on this finding in relation to the literature it is apparent that very few studies report how personal incentives influence decision making. It remains uncertain as to how personal interests may affect their (decision makers) perspectives (Lomas *et al.*, 1997). Such issues as these might not have been captured by studies that used qualitative methods such as postal surveys (Lomas *et al.*, 1997); and structured interviews (Mitton & Donaldson, 2002) or even semi-structured interviews (Miller & Vale, 2001) as these methods limit the degree of depth that can be gained. It is likely that the use of in-depth interviews in this research helped to capture these more personal, sensitive issues and therefore gained more of an insight into 'real life' decision making behaviour (Miller & Vale, 2001).

Cultural issues were also found to influence decision making. More than one third of the informants viewed *wasta* as the main reason for an inequitable distribution of resources, whether that be between different national sectors or within the health sector. It was surprising that the role of *wasta* was found in such a prevalent way with the distribution of resources, as this can result in a lack of the rule-of-law (Mohamed & Hamdy, 2008) and consequently a lack of justice (Barnett *et al.*, 2013). However, some informants made a distinction between benign and non-benign *wasta*. One informant, for example, thought that to 'help' someone for 'getting a quick appointment' was a 'small issue'. This is consistent with the definition of benign *wasta* in the literature which is defined as 'offering help to those who need it' and 'facilitating access to their legitimate rights' (Mohamed & Hamdy, 2008).

However, defining behaviour as a good or a bad *wasta* is a cultural construct (Bellow, 2003), and allowing *wasta* or '*help*' to lawfully access one's legitimate rights runs the risk of allowing it to unlawfully gain access to others' rights (Mohamed & Hamdy, 2008). This acceptance of the so-called benign *wasta* (or '*help*') can result in a situation whereby lack of access is argued to be due to lack of *wasta* instead of it being the responsibility of decision makers and it being a person's right. (Barnett *et al.*, 2013). Some authors argue that there is no good or bad *wasta*, and *wasta* in itself should be seen as a form of corruption (Kilani & Sakijha, 2002).

The PhD findings indicate greater support for the use of economic evaluation from senior or higher level decision makers compared to decision makers at the local or clinical level. At the local/clinical level, it was found that decision makers were deterred from using economic evaluation because of problems with the assumptions involved in economic evaluation studies. Despite the decision makers generally appearing to consider economic evaluation information to be beneficial, it was not widely seen as the only criterion for decision-making. The informants discussed a variety of challenges or complications that appeared to result in hesitation or difficulty in putting economic evaluation to use by policy makers. This underlines the importance of economic evaluation being conducted from a wider context in a manner that acknowledges the traditional procedures of these organisations.

Organizational modes of thinking and attitudes made decision makers hesitant to use economic evaluation to varying degrees. For example, decision makers at a senior level were very focused on the objectives of their health organisations, whereas decision makers at the clinical level were primarily concerned with patient care. There was an apparent gap between the two levels in the manner that the overall objectives of the health care system were

interpreted revealing differences between the policy level and the practical level. In relation to national level decision making, around one half of informants suggested several overall objectives of the health system as being criteria for priority setting e.g. *‘to provide health care services to all citizens in an equal and equitable manner’*, *‘patients first’* *‘patients’ needs’* or *‘saves lives at the first’*. These sorts of criteria tend not to acknowledge trade-offs. Indeed, a dominant way of thinking and acting embedded in health decision making is the primacy of the right to treatment and health without concern for economic issues. A rights-based approach to health care also provides the underlying Saudi Basis Law of Government (constitution-like) (Roemer, 1991). Therefore, decision makers may not often think about costs of health care as these concerns would conflict with their views about their professional ethics to maintain health and save lives. Such views may help to justify decision makers' concerns about introducing economic evaluation. Theoretically, health professionals should be in favour of the patient's best interests, as this is where trust between the patient and provider comes from, and they would not readily deny an individual patient treatment on theoretical reasons from “society's interest”, calculated from economic evaluation, with the exception of when these rationales can be clearly explained.

Other decision makers' concerns regarding economic evaluation were affected by the overall context, especially decision makers at senior level who were considered responsible for ensuring health care services for citizens in front of the political leaders. This is consistent with the unacceptable situation that was explained by Robinson when: *‘the proposed course of action is sufficiently unpopular and widespread among those who are expected to suffer from the decision (and among their supporters) that their resultant political actions (e.g. lobbying, press campaigns, protest meetings, demonstrations) are likely to cause*

considerable social unrest. In the limit, this may lead to the decision-makers losing office"
(Robinson, 1999, p. 23).

The political circumstances and various political factors influencing the decision making process were seen as unavoidable and significant by informants, and were undoubtedly influenced by the time period in which the research was conducted, which was marked by the Arab Spring (Salvatore, 2013; Stepan & Linz, 2013). Economic evaluation data could only be evaluated in the context of these political agendas, such as the need to sustain political legitimacy and popularity. By implementing economic evaluation, there would also be consequences for the distribution of power within the decision-making process. The interviews showed decision makers' cautious attitudes to the fact that if economic evaluation was to be widely implemented as an important criterion for coverage decisions, their power and authority would be reduced and moved to academics or economists.

These findings suggested that there are a number of barriers to the use of economic evaluation. The most common barrier to the adoption of economic evaluation for decision making is regarding the provision of Saudi research of a sufficient standard. Informants did not accept overseas data as they were aware that differences in costs would be likely to reduce how meaningful results were for Saudi decision making. It is acknowledged that generalizability of economic evaluation studies might be low because of differences in health systems across the settings, such as differences in costs (Brinsmead *et al.*, 2004) and it has previously been reported in other settings that transferring economic evaluation findings is a barrier to the use of economic evaluation (Sloan *et al.*, 1997; Grizzle *et al.*, 2000; Martin *et al.*, 2001; McDonald & Baughan, 2001; Williams *et al.*, 2007; Teerawattananon & Russell, 2008).

The second barrier to the use of economic evaluation was connected to decision makers' limited understanding of it, shown by misuse of terminology and a common failure to differentiate between economic evaluation and cost analysis. Limited training in health economics for health professionals and medical students in Saudi Arabia can explain these results. If understanding is not increased for all health professionals and decision makers at all levels, the use of economic evaluation in Saudi health decision-making seems unlikely to be successfully implemented. Lack of understanding of economic evaluation has been cited as one of the most common barriers to the use of economic evaluation in decision making (Ross, 1995; Duthie *et al.*, 1999; Evans *et al.*, 2000; Cox *et al.*, 2000; McDonald, 2002) and previous studies have found that training in economic evaluation has been as low as one third of decision makers (Hoffmann & von der Schulenburg, 2000).

A third barrier was the lack of trust in economic evaluation findings and its complex simulations, and the potential for bias within the analysis, most commonly expressed by informants in terms of lack of independent sponsorship of economic evaluation. The majority of these issues were documented in detail by certain respondents. The informants were of the opinion that the findings can be altered if research was not undertaken transparently and by independent parties. Similar, although not identical, concerns have been expressed in other studies. Within the literature, most participants across the different studies were deterred from using economic evaluation findings in decision-making due to a number of assumptions, which are used in economic evaluation studies (Drummond *et al.*, 1997; Evans *et al.*, 2000; Weatherly *et al.*, 2002; Williams *et al.*, 2008). The lack of confidence in results was the second common barrier in a number of studies across different countries, specifically funded studies by the pharmaceutical industry (Drummond *et al.*, 1997; Sloan *et al.*, 1997; Walley *et*

al., 1997). Williams *et al.*, for example, found that that lack of credibility and transparency deterred some decision-makers from using the economic evaluation findings (Williams *et al.*, 2008).

Informants did not talk about other economic techniques to assess efficiency such as Programme Budgeting and Marginal Analysis (Mitton *et al.*, 2003c). These other approaches might be useful as an alternative, or a supplement to economic evaluation as they might be more flexible to fit within the particular organisational context.

Methodology reflections

There are two main methodological strands in the existing literature on use of economic evaluation in decision making. The first strand of literature employs primarily quantitative research such as postal surveys and questionnaires; the second smaller strand of literature uses qualitative evidence on economic evaluation.

This thesis fits within this second strand of literature, using qualitative evidence to investigate the beliefs and attitudes of decision makers regarding the use of economic evaluation in the decision-making process in Saudi Arabia. This thesis employed qualitative methodology by using methods associated with grounded theory, using a systematic set of procedures including theoretical sampling and the constant comparative method of analysis (Glaser, 1992; Glaser & Strauss, 2008). The research allowed informants' beliefs to be examined and facilitated the long term development of theory. Despite in depth qualitative research being used in other research on the use of economic evaluation, this research has arguably gone further than this, and tried to explore all contextual factors that impact the decision making

process. In contrast, previous literature concentrated more on the direct use of economic evaluation.

The nature of this methodological approach requires extensive investment of time and effort, in which the process of data collection and data analysis are carried out simultaneously. During the conduct of this research, most potential informants were unfamiliar with the qualitative data collection methods of interviews and focus groups. Despite the researcher approaching 113 potential informants (during three data collection trips) prior to the interviews by distributing an information sheet and a copy of the consent form, only 30 informants consented to participate: 22 in the interviews and 11 in the focus group discussions (29.2 % response rate). A total of 19 interviews with 19 informants and three focus group discussions with 11 informants were taped and transcribed, and one priority meeting was attended and extensive notes were taken. Three informants refused to be taped, although they consented to participate when they received an information sheet and a copy of the consent form prior to the interviews; in these cases, extensive notes were taken. All informants were decision makers. Fifteen informants were decision makers at the national level: five medical doctors, three pharmacists, four health care administrators, and one health professional in medical devices. Eighteen informants were decision makers at the local level: nine medical doctors, five pharmacists, four health care administrators, two health professionals in medical devices, and one professional in financing.

The main reason given for nonparticipation by potential respondents was that they had no time to participate in an interview. Lafi *et al.*, who conducted qualitative research in Jordan, which is a similar setting to Saudi Arabia, similarly found that only 10 out of 35 selected informants (8.6% response rate) consented to participate (Lafi *et al.*, 2012).

As the researcher belongs to the same setting (Saudi Arabia), the language and culture of the respondents was not expected to be an issue. All interviews and focus group discussions were in Arabic. The researcher was a health employee for more than 12 years in Riyadh/Saudi Arabia, which was useful and helped to save time in identifying the key informants (Goulding, 2000). To ensure a rigorous process, prior to conducting the empirical work, a robust and detailed guidance to assist in data collection and analysis (e.g. guiding questions, prompts and/or topics to be covered in the interviews) was developed (see appendix 2 guidance notes).

All data collection was conducted in one city in Saudi Arabia, Riyadh. Inevitably, the location for fieldwork had to be limited because Saudi Arabia is a very large country and there were time limitations for data collection. Riyadh was selected because it contained both the Ministry of Health and a local health authority, thus enabling sampling of informants from all levels of decision-making. This does mean, however, that the typicality of local informants, particularly, is open to question. Informants in other local authorities, that are further away from the centre of decision making, may hold different views.

Collecting data through different fieldwork trips gave the researcher the opportunity to discuss the work directly with the research supervisors and seek their advice, to revise the processes of data collection, for future data collection (e.g. guiding questions, topics to be covered in the interviews), to ensure validity of findings through eliciting participants' explanations for these findings, and to ensure that theoretical saturation was achieved when no new information or themes emerged.

During the period of data collection, the researcher spent three months in an office within the same context which enabled rapport to be built with participants. Previous experience, and an understanding of the cultural and social contexts played a significant role in building rapport with participants and helped in recruiting new participants and providing rich data that was thus achieved. The particular period of data collection was also important in the findings that were obtained in at least two ways. The period of data collection was at the time when political events were sweeping across the Middle East in the Arab Spring (Salvatore, 2013; Stepan & Linz, 2013; Wilson & Dunn, 2011). The researcher's perception is that this made people generally talk much more openly, and much more frequently to others, and it is likely that this affected the willingness of participants to speak openly about issues such as *wasta*. Further, the heavy emphasis in the discussions on public participation which also pervades the reported findings may also have been strongly related to the impact of social media within the Arab Spring.

All interviews were carried out voluntarily and with the informed written consent of the participant. All participants were given the option to withdraw from the interview at any time, and were informed of their right to withdraw their data following interview, two weeks from the date a transcript is received.

Although saturation of information in relation to use of economic evaluation (the primary focus of the research), was achieved after nineteen interviews and three focus groups during the first and second fieldwork trips, a third fieldwork trip was conducted and three further in-depth one-to-one interviews (90 minutes each) were conducted to ensure that full data saturation was reached. Although these additional three interviews were conducted with health professionals with expertise in health economics and health decision makers, no

significant new information emerged. This further confirmed to the researcher that theoretical saturation had been achieved.

All interviews were conducted in the Arabic language. There are many debates about analysis of cross language data which focus on three main points. Firstly, authors argue that analysis of translated qualitative data shows some similarities with secondary qualitative data analysis (Thorne, 1994; Corti *et al.*, 2005; Temple *et al.*, 2006). Secondary data analysis refers to the reuse of data by researchers other than those who collected the original qualitative material (Corti *et al.*, 2005; Temple *et al.*, 2006). The basis for this concern is that qualitative data are considered as an outcome of the interaction between researchers and informants; this interaction is understood by primary researchers who develop an intimate bond with the original material as they have collected it (Thorne, 1994). Where data are collected through first language interviewers, translated and then analysed by different researchers in a second language, this concern may be justified, with the data being perceived as "second-hand" qualitative data that were collected by other researchers (Thorne, 1994; Corti *et al.*, 2005; Temple *et al.*, 2006).

The second argument concerns the analysis of qualitative data using a different language from that in which the data were collected. In the literature on research transcription, authors have criticised the lack of attention given to the complications inherent in translated transcriptions (Lapadat & Lindsay, 1999). This suggests that the translation of transcripts should be viewed as part of the analytic process. Again, translation by an interpreter may influence the analysis and similarly lead to the notion that the data analysis becomes one of secondary data (Thorne, 1994; Corti *et al.*, 2005; Temple *et al.*, 2006). Third is the relevance of the context in which data were produced to both the interpreter and data analyst (Temple *et*

al., 2006). There is debate about the importance of the context of the production of the original qualitative material in interpreting these data. As qualitative research aims to collect participants' experiences, the context of production is considered as a crucial and integral aspect in the process of analysis (Corti *et al.*, 2005) and understanding this is vital for the interpretation of these data.

In this research, therefore, the researcher followed a robust process for the purpose of limiting any potential influence of translation on the process of analysis (Brislin, 1970). Firstly, all interviews were transcribed and analysed in the Arabic language. At the stage of reporting the findings, cited quotations were translated from Arabic to the English language from the original transcripts by the researcher who conducted all interviews and thus understood the context within which they had been undertaken. Then all quotations were translated back from English to Arabic language by an independent interpreter. Back-translated quotations were checked by the researcher to ensure that they gave similar meaning to the original text as in the transcript, and any differences were discussed with the interpreter. It was important that translations were made by the researcher, since he carried out the interviews and understood the context within which the research was undertaken.

This process also had some disadvantages, however. As the transcripts were written in the Arabic language, it was not possible for full transcripts to be read by the academic supervisors (neither of whom speaks Arabic). Although two full transcripts were translated from Arabic to English, one by the researcher and the other by an outside translation agency, this meant that the supervisory team's input to the analysis was inevitably limited somewhat. Furthermore, the transcript produced by the outside agency was difficult to interpret, given their lack of understanding of the context and setting for the interviews. To ameliorate this

issue, there were extensive discussions between the researcher and his supervisors during both the data collection and analysis process around the interpretation and the cited quotations used as evidence, to ensure rigour in the findings.

Methods triangulation was a critical part of this research. The research was centred on in-depth interviews and focus groups but also included some observation in relation to a priority setting meeting. It has been suggested that observations may be used as triangulation methods to investigate decision makers' routine use of economic evaluation (Eddama & Coast, 2008; Williams *et al.*, 2008; Luce & Brown, 1995). This allowed for greater understanding of how decision makers stated, how they acted, and how they operated in practice. Subjects could be discussed in depth during the interviews, the use of which along with the focus groups brought depth and breadth of material to be investigated. The priority setting meeting enabled direct observation of practise and it was also possible to gain individual opinions about the event. The focus groups allowed new topics to come up naturally, something which is not always possible during interviews.

Despite generalizability not often being considered a goal of qualitative research, certain scholars, such as Hammersley and Atkinson (1995), state that one should look at the typicality of cases regarding the wider population or if a model developed is going to have an effect on other contexts. By studying decision makers, three possibilities for why this might not be the case come to light.

Firstly, the participants of a study are not necessarily going to include all possible positions within the health service. Despite this, the ones pointed out by informants as crucial to the decision-making process were interviewed. A wider investigation could extend the scope of

this decision-making sample, to cover more higher level (such as N3) and lower level (such as pharmacists and clinicians) individuals. Secondly, fieldwork for this thesis was undertaken in a period of significant change. This included reform for the health care system and thus organisational change and uncertainty will have had an impact on all aspects. Furthermore, the period of conducting this research, was the tumultuous period known as Arab Spring which swept across the Middle East and so the research was conducted in a period of wider societal and political change. Both these factors might make the research less typical than it might otherwise be.

Thirdly, the population examined could be unique compared to other 'non-Saudi settings', as the issues within Saudi decision making may be different to those of other settings, even other rentier state settings. Despite this, these pressures are not thought to be unique to certain areas, as the majority of these issues are part of wider national issues or organisational problems most likely present in other areas. Furthermore, most informants who were interviewed thought that national directives, including the specified targets, were a hurdle for local decision-making. On the other hand, informants suggested that although spending on health care services was subject to fluctuation during different periods of time, there had been a generous spending on all health care services over the last few years. These wider contextual circumstances will have certainly impacted the specific context of decision-making and how decision makers had to deal with them.

Implications for policy

This research has important policy implications. Since a local appraisal system is not present and decisions are reached seemingly on an arbitrary basis, health care resources can often be deployed to unproductive services or expensive interventions, which can harm other efficient

programmes. The variety of services and treatments funded in the health care system are perhaps not the most efficient blend. As a result, patients could have longer waiting times or not benefit from optimal treatment. Furthermore, this research clearly shows the lack of connection between the proposed explicit priority setting approach of economic evaluation and the actual decisions made, such as employing more medical personnel or constructing new hospitals.

Training and undertaking local studies were found to be decisive factors in allowing wider use of economic evaluation in resource allocation decisions and so this research underlines that if economic evaluation is going to benefit health organisations; two factors are required. First, more training is required amongst those who will use economic evaluations. Such training systems would need to provide awareness to try to increase decision maker confidence to implement and understand economic evaluation evidence. Second, independent health economists must be involved in local health organisations to a greater extent to carry out work closely tied with the decisions that needed to be reached. Issues around whether there is sufficient expert health economics capacity in Saudi Arabia may therefore also need to be considered.

Since the level of spending on health care is so strongly related to oil prices, it should serve as a motivating factor for more specific resource allocation approaches for priority setting to assist with achieving technical and allocative efficiency. Better implementation of the use of economic evaluation in Saudi Arabia is based upon improving health decision makers understanding of the impact of economic evaluations together with the results of investigations into local implications. One option for furthering use of economic evaluation would be to develop a national agency to assist health sector coverage policies regarding

medical and health technologies; this could perhaps be linked to the Health Services Council given its existing monitoring functions.

The findings of the research in relation to the increased desire for the participation of the population through modern media, could possibly be helpful in increasing use of economic evaluation. The research here suggested the increasing importance of such media in Saudi society, and it is possible that these media could be harnessed to increase the profile of economic evaluation and generate discussion around its use.

Implications for research

As this is the first research of its kind in the Saudi Arabian context, this work focused on obtaining information from a range of stakeholders. Future research could be undertaken to pursue particular findings in more depth and with particular groups. For example, future work could focus on the perspectives of particular groups often involved in implementing the findings of economic evaluation, such as health economists, who were not included in this research. Furthermore, as the research conducted here was inevitably constrained in the location of fieldwork (in Riyadh), further research could investigate other local health authorities within Saudi Arabia, to explore whether perceptions of decision making and views about economic evaluation differ in these settings. In particular, it may be that new policies such as economic evaluation take longer to reach these settings. More generally, there is a paucity of research on the political, cultural, social and economic environment in relation to health care and further research in these areas could help in exploring the complex nature of decision making in the Saudi context.

Clearly this work focused on the Saudi context, but it may offer insights into health care decision making in rentier states more generally. Other researchers could build on the work discussed here to undertake research in other rentier states and to assess where issues are similar and where they differ.

Furthermore, the results here suggested that public participation in coverage decisions is increasingly perceived as essential, as decision makers and health professionals listened to the public's reactions to these decisions. This was not the main focus of this thesis, however, and so future research on both public and patient perspectives on priority setting in this context would be extremely valuable. This is particularly the case given the importance of public perceptions in ensuring that economic evaluation can be depended upon as a realistic way to spread resources. Further investigation could look into public acceptance of implementing economic evaluation or other resource allocation criteria for health-care coverage decisions. An unexpected finding of this research was the important influence of social media on the perceptions of decision makers. These new methods of communication may have large implications for the transparency of decision making in the future, whether desired or not, and more detailed study of this area could be important.

This research mainly used methods that rely on reports of decision making rather than observation of the decision making process itself. This was in part due to the fact that the research was based in the UK, and thus the opportunity to conduct fieldwork was inevitably somewhat limited. It was also in part related to the issue of whether observation would be likely to be acceptable to informants in this first research of its kind. Future research on the decision making process would be enhanced if it were possible to gain access to direct

observation of this process, but this may be difficult to achieve in practice given the particular political and cultural setting.

Conclusions

This thesis has provided new and novel evidence on the way that health-care priority setting decisions are made in Saudi Arabia and the extent to which economic evaluation influences those decisions. This particular setting is under-researched in this context and so this research provides an important contribution to the international research on priority setting, giving insight into how priorities are set, not set or avoided altogether, in this context.

This thesis has demonstrated that economic evidence is utilised all the time, particularly in the United States and Europe when making hospital formulary decisions. However, the reviews indicated that although economic evaluation is seen as an important and useful tool in the decision making process, their direct use as the dominant decision criterion for decision makers within the healthcare organizations is still moderate, particularly at micro and macro levels. In Saudi Arabia, there is an increasing use of pharmacoeconomic data by healthcare decision makers. Nevertheless, there is need for additional education to hospital administrators and healthcare professionals in Saudi Arabia in order to facilitate the use of economic evaluations. In addition, healthcare centers should utilise healthcare professionals with health economics knowledge if scarce resources in Saudi Arabia are to be managed effectively. This study also established the structure of how health care decisions are made in Saudi Arabia and the factors that influence the healthcare decisions.

The key players in the decision making process in Saudi Arabia include Health Services Council, local committees, permanent committees at the Ministry of Health, and the Ministry

of Finance. Health Services Council provides advisory services to decision makers in Saudi Arabia while the local committees act as intermediaries between the provider of the healthcare services and the permanent committees at the Ministry of Health. Once they have receiving budget proposals from the local committees, the permanent committees at the Ministry of Health use the information to determine the scope and the type of the services needed at the local level. The Ministry of Health works in partnership with the Ministry of Finance to ensure that the proposed hospital budget is approved. Local committees are also tasked with the responsibility of adopting the decisions of the permanent committees and have a small amount of flexibility to alter these decisions in line with population needs.

The key players in the decision making process in Saudi Arabia were influenced by a broad range of contextual factors that go beyond the immediate health care setting and so are often overlooked. In this particular context, unexpected important cultural contextual factors, not discussed in other settings, including *wasta* and the use of social media in the population as a whole, were discovered to be important in influencing decision making. Contextual factors have a greater influence on the priority decisions than economic evaluation and these factors also affect the impact of economic evaluation as an explicit priority setting approach. Despite the recent policy changes in Saudi Arabia that advocate use of economic evaluation, there appeared to be very little influence of economic evaluation on the decision making process and the use of economic evaluation is still very limited. Lack of conceptual and technical knowledge, challenges accessing the studies and limited credibility in data sources, health sector institutional fragmentation, and a theme of scepticism and rejection from clinicians are challenges in the use of economic evaluation. The wider health decision making context in Saudi Arabia also offers particular cultural challenges associated with how decisions are currently made, with both *wasta* and concern about how decisions are interpreted on social

media, acting as potential barriers to the implementation of evidence from economic evaluation.

This thesis identified some of the barriers to the utilisation of economic evaluation in healthcare decision-making in Saudi Arabia. These barriers include methodological, cultural, political, and institutional factors. Other barriers include lack of economic analysis and time constraints, the concern of disinvestment in medical technologies, the absence of clarity over aims and role of local decision-makers, constraints on decision makers, and problems with adoption of economic evaluation approaches to priority setting.

Based on the results and findings of this thesis, a 9-phase priority setting model was suggested that can be applied in Saudi Arabia. These phases include preliminary functions, selecting a health problem, developing a priority setting framework, public participation, economic evaluation, finalising recommendations, reviewing phases 3-5, adopting the recommendations, and process evaluation. A broad range of activities are conducted during the preliminary phase. These activities include defining the priority setting scope, identifying the stakeholders based on the scope of priority setting, forming the advisory working group, and must consist of a clinician and a health economist to help on technical issues, and determining the decision criteria based on political acceptability, access, equity, and community values.

The second phase entails selecting a health problem. In this phase, decision makers use a disease based approach in identifying the health problem either at the local or national level. This approach has various advantages such as ensuring a focus on allocation of resources between disease stages, offering opportunity to employ research efficiency and intermediate

outcome measures, and capacity to observe distributional Effects. The third phase revolves around obtaining a comprehensive understanding of the health problem in terms of feasible points of intervention to minimize disease burden, normal disease problem, and disease etiology. Other activities conducted in this phase include focusing on a priority framework based on improved understanding of the health problem, extending the analysis based on priority setting scope, identifying all intervention options at every disease phase regardless of target population, health delivery, and the modality, and ensuring that the selection of the intervention must be included in the priority setting exercise based on the existing information.

Public participation is critical in the decision making process, therefore, it is included in the fourth phase of the 9-phase priority setting model. The Ministry of Health collaborates with the local committees in receiving opinions from the members of the public. Other critical phases of this model include economic evaluation, finalizing recommendations, reviewing phases 3-5, implementation, and process evaluation.

APPENDICES

Appendix 1: related to chapter 4

Appendix 1: Extract 1

1) The Review Protocol

1.1 Introduction

The need to review the literature using a systematic approach helps to identify all existing literature on the use of health economic evaluation in decision making. Systematic reviews have been defined as ‘*concise summaries of the best available evidence that address defined clinical questions*’ (Mulrow *et al.* 1997, p. 1). Reviewing the literature using a systematic approach enables researchers to gain a comprehensive overview of the existing knowledge on a particular topic. A systematic literature review is considered a research methodology in its own right comprising a well-defined research question, explicit and rigorous methods to identify information, critical appraisal, and a full discussion of the findings (Pope *et al.* 2007).

The purpose of conducting a systematic review in this thesis was to identify, analyse, evaluate and summarise the relevant health literature on the use of economic evaluation in decision making. The findings from the literature review helped to focus the empirical research question to maximise its academic contribution and to determine the extent to which

the findings were consistent with existing literature. The review, therefore, identifies all published empirical studies, and existing reviews on the use of health economic evaluation in the process of decision-making.

The review protocol was developed prior to conducting the review in order to specify the methods in advance to reduce the risk of bias. If any modification to this protocol was required, this is clearly documented and justified. The protocol outlines the objective of the review and the methods, including the search strategies (electronic databases searches, other sources searched and periods over which the databases were searched), the inclusion and exclusion criteria, data extraction strategy, quality assessment criteria, and methods of analysis/synthesis..

1.2 Review questions and scope

The review was designed to address two questions:

- To what extent are findings from economic evaluation studies used in health decision-making processes?
- What factors affect the utilisation of study findings?

The main aim of the review was to assimilate and contextualise the empirical evidence on the use of economic evaluation in priority setting decisions. There were five specific objectives of the review:

- To identify the empirical work concerned with the use of economic evaluation in decision making in all health policy-levels.
- To explore the use of economic evaluation findings in resource allocation decisions.
- To examine differences and similarities between these studies over time and across countries.

- To discuss the main findings/evidence in the existing reviews of literature relating to the use of economic evaluation in decision making.
- To identify challenges or barriers that may impact the use of economic evaluation, and what opportunities there are to overcome these obstacles.

2. methods

2.1.1 Search strategy

2.1.1.1 Searching electronic databases

Prior to conducting the review, existing reviews in the health care literature in relation to the use of economic evaluations were reviewed, in order to identify whether there were existing systematic reviews on the use of economic evaluation in priority setting decisions. Two high quality systematic reviews were identified. These reviews were carried out by: (i) Eddama and Coast (2008) which included studies up to 2007, and (ii) Williams *et al.* (2008) which also included studies up to 2007

Due to the difficulty with the way in which the literature in this field is poorly served by keyword indexing where qualitative approach is often used, search strategies are developed by refining and modifying search process to maximise the number of relevant papers.

Searches of electronic databases will be run by using a combination of index terms and free-text terms. The search strategies for electronic databases will be documented and presented in the review Appendices.

- Electronic databases: MEDLINE (Ovid) (Aug week3 2007 to present), EMBASE (Ovid) (Aug week3 2007 to 'present), and EconLIT (EBSCO) (Aug week3 2007 to 'present) (Figure 1)

- Searches are restricted to papers in the English language.

2.1.1.2 Searching other sources (Figure 2)

- Handsearching of key journals: Health Economics, Journal of Health Economics, and Pharmacoeconomics.
- Handsearching helps to assess the possibility of the risk publication bias, by comparing the results of published and unpublished studies (Rothstein *et al.* 2005).
- Checking of citation lists of included studies and relevant reviews
- Searching selected websites for unpublished/grey literature.

2.1.2 Selection

All identified studies were first screened by title and abstract. If there was uncertainty regarding the rejection of the article then the full text was requested. Where the abstract met the inclusion criteria, the full manuscript was requested. Any differences in opinion regarding the inclusion of articles were resolved by discussion with the PhD supervisors. A citation search was undertaken for publications included in the review to identify any additional publications which might not have been previously identified.

2.1.2.1 Inclusion criteria for empirical work

a) Study design

- Does the study design assess the use/role of economic evaluations by health decision/policy makers?

b) Population

- Health care decision-makers and/or policy-makers.

c) Intervention

- The use/role of economic evaluation in the process of decision making.

d) Outcomes

Any considered.

2.1.2.2 Exclusion criteria for empirical works

- Any paper does not meet above criteria.

- Any unsure-judgment will be resolved by discussion with advisory group and/or involving a third reviewer if required.

2.1.3 Quality of included papers

The expectation was that because of the nature of the research question, a large proportion of studies identified would be of a qualitative nature and there is a lack of consensus over an agreed criteria or principles for judging quality in qualitative research (Rothstein *et al.*, 2005; Sandelowski *et al.*, 1997). The papers identified in the review were critically appraised and evaluated for quality by using the Critical Appraisal Skills Programme (CASP) (Table 1). The CASP was used to assess number of qualitative studies (e.g. study that investigate the role of economic evaluation in decision making by (Williams *et al.* 2008).

- This quality assessment process was undertaken by the reviewer, and unsure-judgments resolved by discussion with the advisory group.

The appraisal process was carried out prior to the synthesis as it helped to screen out poor quality papers.

- The quality of included studies and reviews is reported, and important strengths and weaknesses of them with regard to the objectives of the review highlighted textually.

All included papers are tabulated (e.g. Table 2)

- Excluded papers after full document reading were tabulated, when title and/or abstract did not offer sufficient information for exclusion, reasons for exclusion are reported (e.g. Table 3)

2.1.4 Methods of data extraction, analysis and synthesis

2.1.4.1 Data extraction and reporting

Although there are no formal data extraction frameworks, a sample and initial table for data extraction is proposed, in order to standardised extracting basic information of included studies (Table 4). This Table may assist in reducing bias and improving validity and reliability of data extraction process. It is designed and developed with consistency both the review question and subsequent data analysis. The data extraction table includes:

- General information about study (e.g. author(s), article title, date of publication).
- Study characteristics (e.g. objectives of the study, study design- type of participant, sample size, and type of methods used-, study setting, level of investigation such as national/regional level, or a particular health intervention, and brief summary of study outcome).

2.1.4.2 Method of data analysis and synthesis

Since qualitative and quantitative approaches were used to address this topic, a narrative approach is used for data extraction, analysis and synthesis (Dixon-Woods *et al.* 2005). This approach provides a descriptive summary, explanation of the characteristics and the relationships within and between findings of the included studies.

2.2 Dissemination and discussion of results

The results of all analyses will be interpreted in relation to the review objectives. Subgroup analyses will be carried out when it's possible to explore heterogeneity between included studies, in terms of methodological differences between studies that have addressed this question

- Evaluating the robustness of the synthesis (e.g. the methodological quality of the included studies
- Full critical review of all findings for exploring and shaping bonds between emerged categories, in order to present results as a whole, as possible, by overall coherence discussion

2.3 Updating literature searches

A re-run of the searches will be conducted to ensure that no recent papers are missed. The date of original searches will be documented to identify anything added to the database since the original search was conducted.

Figure 1: Search strategies for empirical work

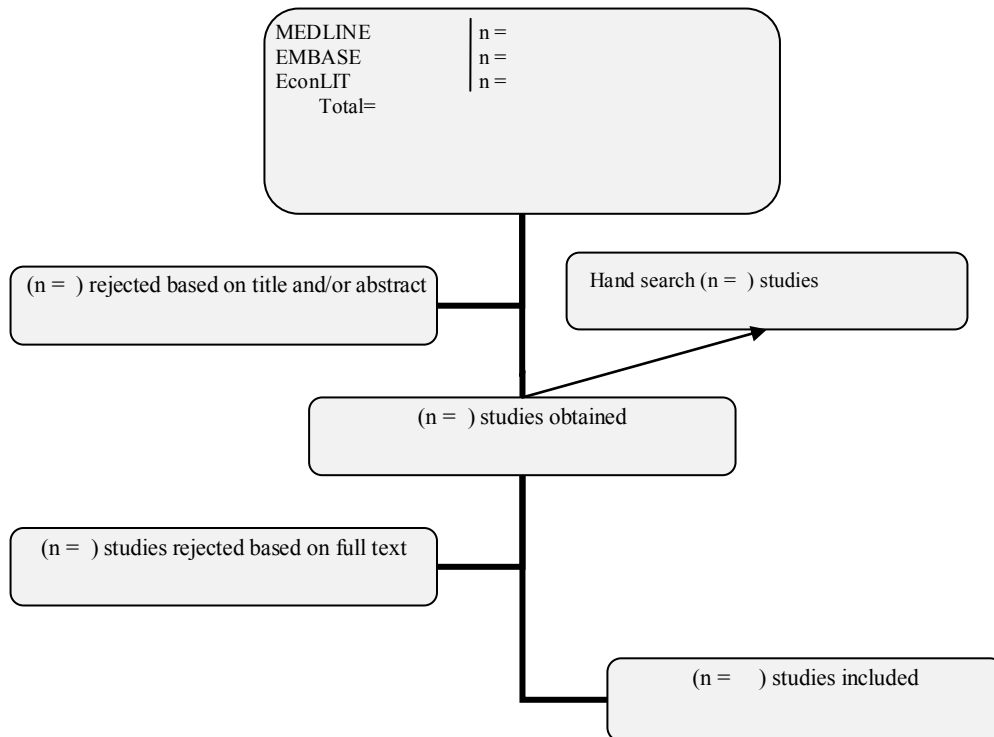


Figure 2: Core principles and methods for conducting the systematic review

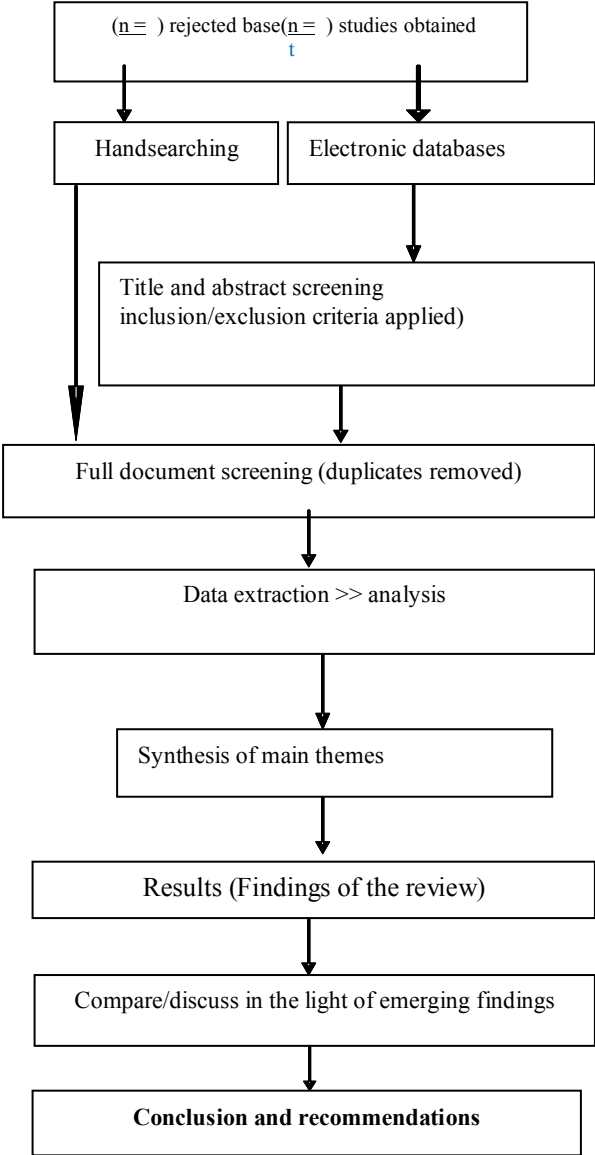



Table 1 :Critical Appraisal Skills Programme (CASP)

The table content is completely redacted with a solid grey fill. No data or structure is visible.



Source: The national CASP collaboration for qualitative methodologies. Public Health Resource Unit, England (2006).

Table 2: Included studies					
Author(s)	date of the study	Sample	Setting	Sample e	Methods
Evans, C. Dukes, E. and Crawford, B.	2000	Medical and Pharmacy Directors.	US	41	Telephone survey
Eddama, O. and Coast J.	2009	PCT managers, hospital managers, palliative care managers, cancer network managers, GPs, nurse, clinician, and SHA manager.	UK	20 13	in-depth interviews Meetings observations
Lessard, C. Contandriopoulos, A-P. and Beaulieu, M-D.	2009	family physicians (FPs)	Canada,	10 9	Life history interviews Semi-structured interviews Direct non-participant observation
Vito, C. Nobile, G. Furnari, G. Pavia, M. De Giusti, M. Angelillo, I. and Paolo V.	2009	physicians	Italy	760	Postal survey
N/S = Not specified					

Exclusion form

Title and/or abstract did not offer sufficient information for exclusion.

Excluded studies	Reasons for exclusion
Bergthold. L., Singer, S. Huang, A. Gemperli, M. Garber A, Osterhoff R. 2002. Using evidence and cost in managed care decision-making.. Center for Health Policy, Stanford University;2002.	Not with health stakeholder.
Hutton, J. Brown, R..2002. Use of economic evaluation in decision-making: what needs to change?. <i>Value Health</i> , 5:65–66.	It is not a study, Report or comment

Table (4): Basic information	
Study number	1
General information of study	
Title	
Author	
Publication(source)	
Year of publication	
Study characteristics	
Objectives of the study	
Methods used	Quantitative and/or Qualitative
Type of participants	Decision makers and/or policy makers
Sample size	
Study setting (Country)	The UK
Level of investigation	National/regional level, or a particular health intervention.
Brief of study outcome	
Ethics approval obtained?	Yes/No
Additional comments	

Appendix 1: Extract 2

2) Search strategy:

Search strategy and results for identifying reviews on the use of economic evaluations

MEDLINE (Ovid), EMBASE (Ovid), and EconLIT (EBSCO) *search strategies* (up to March Week 3, 2013)

Database: Ovid MEDLINE(R) <1948 to March Week 3 2013

Search strategy:

1 Economics.mp. (133869)

2 (economic\$ or pharmacoeconomic\$ or pharmaceutical).tw. (142753)

3 exp Economic evaluation/ (107109)

4 Cost*.mp. or exp "Costs and Cost analysis"/ (71091)

5 exp Cost utility/ or exp Cost utility analysis/ (22753)

6 exp Cost benefit/ or exp Cost benefit analysis / (139753)

7 exp Cost minimization/ (159720)

8 exp Health care cost\$/ (98561)

9 exp Cost effectiveness/ (211832)

10 exp Cost of illness/ (151853)

11 or/1-10 (1099541)

12 Health policy.mp. (184673)

13 exp Decision making/ (200427)

14 exp Policy making (156703)

15 exp Resource allocation/ or exp priority setting/ (131751)

16 exp Health care rationing/ (119214)

17 or/12-16 (792768)

18 11 and 17 (99088)

Search strategy and results for identifying reviews on the use of economic evaluations

MEDLINE (Ovid), EMBASE (Ovid), and EconLIT (EBSCO) *search strategies* (up to March Week 3, 2013)

Database: EMBASE (Ovid) 1980- to March Week 3 2013

Search strategy:

- 1 Economics/ (85869)
- 2 (economic\$ or pharmacoeconomic\$ or pharmaceutical).tw. (89392)
- 3 exp Economic evaluation/ (83198)
- 4 exp Health care cost\$/ (43290)
- 5 Cost\$/ or exp Cost analysis/ (79076)
- 6 exp Cost of illness/ (50739)
- 7 or/1-6 (431564)
- 8 Health policy/ (124673)
- 9 Decision making/ (194763)
- 10 Policy making/ (97383)
- 11 Resource allocation/ (58391)
- 12 Priority setting/ (37190)
- 13 exp Health care rationing/ (52101)
- 14 or/8-13 (534501)
- 15 7 and 14 (21032)

TOTAL Form all databases= 121,220

Appendix 1: Extract 3

Table 4.1: Empirical studies included in the review at all levels

	Author(s) and (year)	setting	Sample	sample size	Methods and
1	Alban (1982)	Scandinavia and UK	Researchers involved in economic evaluation	11	Postal survey
2	Alban (1987)	Scandinavia and UK	Researchers involved in economic evaluation	28	Postal survey
3	Ludbrook (1986)	UK	National Health Service staff who had undertaken a correspondence course in health economics.	46	Postal survey
4	Brody <i>et al.</i> , (1991)	US	Hospital physicians	2200	Postal survey
5	Davies <i>et al.</i> , (1994)	8 European countries	N/S	87	Postal survey
6	McNamee and Godber (1995)	UK	Two HA's	N/S	Researchers personal experiences
7	Luce and Brown (1995)	US	Decision-makers from hospitals, HMOs, third-party payers, and self-insured employers.	48	Semi-structured interviews
8	Ross (1995)	Australia	Health expenditure managers	34	Structured interviews
9	Steiner <i>et al.</i> , (1996)	US	Physician at private health plans	159	Postal survey
10	Steiner <i>et al.</i> , (1997)	US	Medical directors at private health plans	231	Postal survey
11	Kangis and van der Geer (1996)	Greece	GPs and specialists	60	Face-to-face questionnaire-based survey
12	Lyles <i>et al.</i> , (1997)	US	Managed care organizations	51	Telephone survey
13	Sloan <i>et al.</i> , (1997)	US	Directors of hospital pharmacies and pharmacists	103	survey

14	Walley <i>et al.</i> , (1997)	UK	Pharmaceutical advisors	178	Postal survey
15	Drummond <i>et al.</i> , (1997)	UK	Medical and pharmaceutical advisors, hospital directors of pharmacy, directors of public health	446	Postal survey
16	Duthie <i>et al.</i> , (1999)	UK	GPs, hospital doctors, Trust business managers, hospital pharmacists, HA personnel	17 duo interviews	Duo interviews
17	Burns (2000)	UK and US	Purchasers of health care (in UK, 14 nonmedical Health Authority purchasers, 7 public health physicians, and 9 general practitioners) and (in US, 13 public officials, 4 private-sector purchasers, 5 representatives of private purchasing coalitions, and 3 consultants)	55 (30 in UK and 25 in US)	Semi-structured interviews
18	Rosen (2000)	UK	Hospital clinicians, hospital managers, purchaser managers, public health consultants, nurse managers	51	Semi-structured interviews and Documentory analysis
19	Anell, and Svarvar, (2000)	Sweden	Members of formulary committees	210	Postal survey
20	Evans <i>et al.</i> , (2000)	US	Medical and Pharmacy Directors.	41	Telephone survey
21	Cox <i>et al.</i> , (2000)	US	Pharmacists	16	Telephone survey
22	Ginsburg <i>et al.</i> , (2000)	US	Family doctors at hospitals	1000	Postal survey
23	Grizzle <i>et al.</i> , (2000)	US	Managed care decision makers	31	Telephone survey
24	Zwart-van <i>et al.</i> , (2000)	The Netherlands	Interviews with 9 physicians, 6 senior regulators and 4 politicians. Fifteen hospital Pharmacists surveyed by a postal questionnaire	19 15	Semi-structured interview Postal survey

25	Motheral <i>et al.</i> , (2000)	US	Pharmacists and physicians	409	Postal survey
26	Hoffmann and von der Schulenburg, (2000)	Austria, inland, France, Germany, Netherlands, Norway, Portugal, Spain and UK	government agencies and physicians (GPs and specialists), (hospital pharmacists or hospital administrators)	968 53 20	Postal survey. Semi-structured interviews. Focus group
27	Martin <i>et al.</i> , (2001)	Canada	A priority setting committee members (Cancer Care Ontario Policy Advisory Committee consisted of administrators, oncologists, oncology researchers, a pharmacist, an ethicist, patients, and members of the public)	12 11	Document analysis, Observation of committee meetings, Interviews with 11 of 15 committee members
28	Kulsomboon <i>et al.</i> , (2001)	US	Pharmacy directors of teaching hospitals	166	Postal survey
29	McDonald and Baughan (2001)	UK	Health authorities (economists)	9	Semi-structured interview
30	McDonald (2002)	UK	One Health authority		Documentary analysis and Participant observation
31	Erkan <i>et al.</i> , (2002)	US	Specialists (rheumatologists)	375	Postal survey
32	Nixon <i>et al.</i> , (2002)	UK	One Health authority		Documentary analysis
33	Johnstone and Lacey (2002)	UK	One Health authority		Documentary analysis
34	Odedina <i>et al.</i> , (2002)	US	Hospital pharmacists	204 Telephone	Telephone survey
35	West <i>et al.</i> , (2002)	Canada	Senior bureaucrats in the 5 provincial governments	N/S	Postal survey
36	Weatherly <i>et al.</i> , (2002)	UK	Health Improvement Programme Leaders in 102 Health authorities	102 10	Postal survey Telephone interviews and Documentary analysis
37	Hoffmann <i>et al.</i> , (2002)	UK	Health authorities	2	Focus group

38	Drummond <i>et al.</i> , (2003)	US	leaders in managed care pharmacy	10	Focus group
39	Martin <i>et al.</i> , (2003b)	Canada (Toronto)	Minutes of Pharmacy & Therapeutics Committee (P&T) meetings, key informants of P&T committee	20 doc. 3 18	Document analysis Observation of P&T deliberations Interviews
40	Späth <i>et al.</i> , (2003)	French	Pharmacists in 13 public hospitals and 6 private clinics	19	Semi-structured interviews
41	Ubel <i>et al.</i> , (2003)	US	Family doctors at hospitals.	560	Postal survey
42	Ijzerman <i>et al.</i> , (2003).	The Netherlands	GPs, representatives of health insurance companies, the Health Care Insurance Board (CvZ), and medical guidelines committees.	N/S	Semi-structured interviews .
43	Sheldon <i>et al.</i> , (2004)	UK	primary care prescribing, hospital pharmacies, senior clinicians and managers.	68	Semi-structured
44	Wu O <i>et al.</i> , (2004)	UK and Scotland	GPs	27	Survey by post and by email
45	Iglesias <i>et al.</i> , (2005)	Latin American and European participants in the NEVALAT project (Argentina, Brazil, Colombia, Cuba, Mexico, Nicaragua, Peru, Portugal Spain, United Kingdom, Uruguay and Venezuela.)	Health decision makers (in Colombia, Cuba, and Mexico, the answers reflect the views of representatives from the Ministry of Health, and local Social Security Institutions).	N/S	Postal survey
46	Hasl'e-Pham <i>et al.</i> , (2005)	France, Germany, The Netherlands, UK	143 doctors and 169 pharmacists	312	Postal survey

47	Jansson, and Anell (2006)	Sweden	GPs and specialists	738	Postal survey
48	Fattore and Torbica (2006)	Italy	Health professionals with a background in management and economics	175	Postal survey
49	Williams and Bryan (2007)	UK	Local committee members.	N/S	Documentary analysis Observation of deliberations Semi-structured interviews
50	Bryan <i>et al.</i> , (2007)	UK	Appraisals Committee Members (GPs, Consultant physician, Public Health physician, Investigational physician, Consultant surgeon, Clinical pharmacologist, Paediatrician, Health economists, Statisticians, Nurses, Clinical pharmacists, PAM, NHS Managers, Patient advocates, Device manufacturer Representatives, and Pharmaceutical company Representatives)	30	Semi-structured interviews, non-participant observation and documentary analysis
51	Williams <i>et al.</i> (2007)	UK	Trusts, county-wide priorities network, primary care area medicines management, hospital medicine management committee, interface medicines management committee	101 trusts	Postal survey, documentary analysis, observation of committee meetings, semi-structured interviews
52	Chen <i>et al.</i> (2007)	UK	Pharmacists (in Hospital medicine management committees)	10	Semi-structured interviews, Observation of committee meetings,
53	Rubinstein <i>et al.</i> (2007)	Argentina	Decision makers from public and private sectors at all decision levels	6 3	Semi-structured interviews and focus groups
54	Teerawattananon, and Russell (2008)	Thailand	Policy makers (senior policymakers at the national level,	36	Semi-structured interviews

			hospital directors, health professionals, academics)		
55	Rocchi <i>et al.</i> (2008)	Canada	13 individuals from across Canada (included 3 oncologists, 3 pharmacists, 2 provincial drug plan advisory board members, 2 health economics/health policy specialists, an ethicist, and 2 patients)	One meeting discussion	One-day informant Roundtable, and documentary analysis
56	Eddama & Coast (2009)	UK	PCT managers, hospital managers, palliative care managers, cancer network managers, GPs, nurse, clinician, and SHA manager.	20 13	in-depth interviews observations Meetings
57	Chaikledkaew <i>et al.</i> , (2009)	Thailand.	Members from the Management Committees of Provincial Health Offices, and from public and private hospital formulary drug committees throughout Thailand	758	Postal survey
58	Torbica and Fattore (2010)	Italy	Cardiologists	129	Postal survey and Observation
59	Alsultan (2011)	Saudi Arabia	Medical doctors and pharmacists (Member from the Pharmacy and Therapeutics committees in 11 hospitals in Riyadh)	48	Postal survey
60	Lafi (2012)	Jordan	Health decision makers, economists, health economists, pharmacoeconomists, clinicians, pharmacologists.	10	semi-structured interviews by telephone
N/S = Not specified					

Appendix 2: (related to chapter 5)

Appendix 2: Extract 1

Consent form (Translated from Arabic)

This consent form outlines my rights as a participant in the study conducted by Mohammed Kashm, a postgraduate student of Department of Health Economics, School of Health & Population Sciences, the University of Birmingham in England.

I,(participant's name)

1. I have received and read the Participant Information attached.
2. I am hereby voluntarily consent to participate in this study.
3. I understand that any data collected for the purpose of the researcher's thesis will remain strictly confidential, and it will be kept in a secured environment.
4. I know the interview (or meeting observation) will be audio recorded.
5. I have been informed of my right to decline to answer any question that I am asked, or to end the interview at any time.
6. I have been informed that my name and identity will remain confidential in any publications or discussions, and will not appear on any tapes or transcripts resulting from the interview.
7. I have been informed that the information obtained from this research may be used in future research, and may also be published.
8. I have been informed that no-one other than the researcher's supervisors is allowed review a transcript of this interview.

I have read the information above. By signing below and returning this form, I am consenting to participate in this interview.

Signature: _____

Date: _____

Would you like to receive a summary of findings? Yes No

Appendix 2: Extract 2

Invitation letter for an interview or focus group (Translated from Arabic)

Date

Person's name

Position

Institution

Dear (salutation)

I am a Saudi student at the University of Birmingham in England. I am conducting a research project to explore priority setting issues in the Saudi health care system. It focuses on the role of economic evaluation in the decision making process. Therefore, I would like to explore views, perceptions and concerns of decision makers regarding the use of economic evaluation in the process of decision making.

For this reason, I would sincerely appreciate the opportunity to have a (...) -minute conversation with you, that will be recorded with your consent. The data collected during the interview will be confidential. The Research Ethics committee of the University of Birmingham has approved this research. I enclose for you a Participant Information sheet.

Your collaboration is greatly appreciated and I would like to thank you in advance for considering this request.

Yours sincerely,

Mohammed Kashm

PhD Candidate

The University of Birmingham

Appendix 2: Extract 3

Participant information sheet (Translated from Arabic)

Research title: ‘The use of economic evaluation in health care decision making in Saudi Arabia’

1. What is the study about?

Since the strategic plan was approved, and economic evaluation is identified as an approach to set health care priorities, this research aims to explore the ‘potential’ role of economic evaluation, and whether this is acceptable and applicable to health care priority setting. It will discuss the current and potential use of economic evaluation at the policy and organizational levels of decision making processes.

2. Who is carrying out the study?

The study is being carried out by Mohammed Kashm, a postgraduate student of the Department of Health Economics, School of Health & Population Sciences, at the University of Birmingham in England.

3. What does the study involve?

If you choose to be involved in this study, you will be invited to participate in a single interview with the researcher (or focus group). During this interview your discussion will be tape recorded to help the researcher collate the results of this study, however data will be de-identified

4. How much time will the study take?

The interview will last up to 60 minutes.

5. Can I withdraw from the study?

Participation in this study is completely voluntary - you are not under any obligation to consent.

6. Will anyone else know the results of my interview?

The information obtained from this study may be published, and may be used to develop future research. All data collected will remain strictly confidential, however, and all information will be de-identified.

7. What if there's a problem?

If you require further information or have any other questions, please feel free to contact me.

Yours sincerely,

Mohammed Kashm

PhD Candidate

The University of Birmingham

I have explained the above and answered all questions asked by the participant:

Researcher's Signature: _____ Date: _____

Any person with concerns or complaints about the conduct of a research study can contact:

Health Economics Unit

University of Birmingham

Edgbaston

Birmingham B15 2TT

Appendix 2: Extract 4

Table 5.1: Characteristics of informants

Code	Sex	Role*	Reasons for selection	Place of interview	Comments on setting	Approx length of interview	Interview audio-recorded?	Comments on interview *
N1	Male	Decision maker at the national level (senior manager)	Key informant	Informant's office	comfortable	60 minutes	Yes	First interview; a health care administrator
N2	Male	Decision maker at the national level	Key informant	Informant's office	comfortable	55 minutes	Yes	A medical doctor, informant was a national priority committee member
N3	Male	Decision maker at the national level (senior manager)	Key informant	Informant's office	comfortable	60 minutes	Yes	A medical doctor, informant was a national priority committee member
N4	Male	Decision maker at the national level	Suggested by another local level informant	Informant's office	Comfortable but interrupted when the informant received visitors in his office	55 minutes	Yes	A health care administrator, data from the first 22 minutes were used (before interruption)

N5	Male	Decision maker at the national level	Key informant	Informant's office	comfortable	65 minutes	Yes	A health professional in medical devices
N6	Male	Decision maker at the national level	Suggested by another local level informant	Informant's office	comfortable	90 minutes	Yes	A medical doctor
N7	Male	Decision maker at the national level	Key informant	Meeting room	comfortable	75 minutes	Yes	A pharmacist
N8	Male	Decision maker at the national level	Key informant	Meeting room	comfortable	90 minutes	Yes	A pharmacist
N9	Male	Decision maker at the national level	Key informant	Meeting room	comfortable	55 minutes	No	Informant refused to be taped, extensive notes were taken (interview at first fieldwork); A pharmacist
N10	Male	Decision maker at the national level	Suggested by another national level informant	Informant's office	comfortable	55 minutes	No	Informant refused to be taped, extensive notes were taken (interview at first fieldwork); A medical doctor
N11	Male	Decision maker at the national level	Key informant	Informant's office	comfortable	50 minutes	No	Informant refused to be taped, extensive notes were taken (interview at second fieldwork); A health care administrator
L1	Male	Decision maker at local level	Suggested by another local level informant	Interviewer's office	comfortable	50 minutes	Yes	A professional in financing

L2	Male	Decision maker at local level	Suggested by another national level informant	Interviewer's office	comfortable	50 minutes	Yes	A medical doctor
L3	Male	Decision maker at local level	Key informant	Informant's office	comfortable	60 minutes	Yes	A medical doctor
L4	Male	Decision maker at local level	Key informant	Interviewer's office	comfortable	60 minutes	Yes	A health care administrator
L5	Male	Decision maker at local level	Key informant	Interviewer's office	comfortable	55 minutes	Yes	A pharmacist
L6	Male	Decision maker at local level (senior manager)	Suggested by another local level informant	Informant's office	comfortable	75 minutes	Yes	A medical doctor
L7	Male	Decision maker at local level	Key informant	Interviewer's office	comfortable	60 minutes	Yes	A pharmacist
L8	Male	Decision maker at local level	Key informant	Interviewer's office	comfortable	70 minutes	Yes	A professional in medical devices; local priority committee member
L9	Male	Decision maker at local level (senior manager)	Key informant	Interviewer's office	comfortable	80 minutes	Yes	A medical doctor
L10	Male	Decision maker at local level	Suggested by another local level informant	Informant's office	comfortable	70 minutes	Yes	A health care administrator

L11	Male	Decision maker at local level	Key informant	Informant's office	comfortable	55 minutes	Yes	A health care administrator
Fg:A1	Male	Decision maker at the national level	Suggested by another local level informant	Meeting room	comfortable but background noise	75 minutes	Yes	A medical doctor participated in a focus group
Fg:A2	Male	Decision maker at local level	Suggested by another local level informant	Meeting room	comfortable but background noise	75 minutes	Yes	A pharmacist participated in a focus group
Fg:A3	Male	Decision maker at local level	Suggested by another local level informant	Meeting room	comfortable but background noise	75 minutes	Yes	A health care administrator participated in a focus group
Fg:B1	Male	Decision maker at the national level	Key informant	Meeting room	comfortable	85 minutes	Yes	A medical doctor participated in a focus group
Fg:B2	Male	Decision maker at local level	Suggested by another local level informant	Meeting room	comfortable	85 minutes	Yes	A medical doctor at a hospital participated in a focus group
Fg:B3	Male	Decision maker at local level	Key informant	Meeting room	comfortable	85 minutes	Yes	A pharmacist participated in a focus group
Fg:B4	Male	Decision maker at local level	Key informant	Meeting room	comfortable	85 minutes	Yes	A pharmacist participated in a focus group
Fg:C1	Male	Decision maker at the national level	Suggested by another local level informant	Meeting room	comfortable	85 minutes	Yes	A health care administrator participated in a focus group

Fg:C2	Male	Decision maker at local level	Suggested by another local level informant	Meeting room	comfortable	85 minutes	Yes	A medical doctor participated in a focus group
Fg:C3	Male	Decision maker at local level	Suggested by another local level informant	Meeting room	comfortable	85 minutes	Yes	A medical doctor participated in a focus group
Fg:C4	Male	Decision maker at local level	Key informant	Meeting room	comfortable	85 minutes	Yes	A medical doctor participated in a focus group

* Only broad roles are given to avoid the possibility of identification of individual informants.

Appendix 2: Extract 5

Guidance for conducting empirical work

1st Fieldwork trip – Stage 1 (12/3 to 18/4/2011)

Before conducting empirical work, a robust and detailed guidance for data collection process was developed. It is to help the researcher in conducting qualitative work.

1. The Study Design

This qualitative methodology uses a systematic set of procedures to collect and analyse data about the phenomenon under investigation. The nature of this methodological approach requires extensive investment of time and effort, in which the process of data collection and data analysis are carried simultaneously.

2. Was ethical approval obtained?

Ethical approval was obtained from both (i) the University of Birmingham ethical committee (number: ERN_10-1040 on 07/03/2011), and (ii) from the ethical committee at the Security Forces Medical Services (SFMS) in Saudi Arabia (number: 758/201/7/21 on 19/1/2011).

3. Data Collection Procedures

Prior to conducting interviews, the researcher approached potential participants, distributing an information sheet and a copy of the consent form to each. Interviews were carried out and consent forms were obtained voluntarily. All participants were given the option to withdraw from the

interview at any time, and were informed of their right to withdraw their data following interview, two weeks from the date a transcript is received.

Memos for each interview or focus group discussion have been written in three stages: during and following the interview, during listening to the interview, and comments and notes can be added on the memo when the next interviews were conducted 'if relevant'. Memos play an important role in assisting researchers in their studies: assisting in keeping up with the process of study, selecting the future sampling, depiction and interpretation of the data, and then visualizing the unfolding story which means that memos help the researcher to obtain an analytical distance from materials 'moving from working with data to conceptualizing and developing the theory'. The researcher therefore kept memos about the interviews and data analysis as they progressed.

3.1 Sample and settings

This research is undertaken at the Ministry of Health (MOH) and Riyadh Health Affairs in Riyadh, the capital of Saudi Arabia. While this study uses theoretical sampling to recruit the participants and/or settings that are relevant to the research topic, initial sampling was determined on the basis of relevance to the research area (MOH).

- Further data collection will be based on what has been said in previous interviews, where the outcomes of the continuous analysis develop additional questions for the next interviews.
- Theoretical sampling will be achieved through: (a) directed questioning; and (b) obtaining sense of who will be the next participants and/or the area of next sampling, in turn,
- Writing memos during the process of data collection and analysis helped widening my horizons towards different areas of health system that have potential theoretical samplings (e.g. other departments in the MOH).

3.2 Guidelines for writing notes *:

1. Methodological Memos: This type of memo helps to improve my next interview. During writing notes, ask yourself the following questions to improve the next interview.
 - What types of things happened during the interview that affected the way it was conducted, the quality of the data, the participant's comfort level, and other issues relevant to how the interview took place.
 - Are there new questions that should I ask to the next participant?
 - To organize ideas from the interview, identify themes and questions/ideas which I intended to pursue in further data collection/analysis.

2. Personal Memos: This section denotes my personal response to the interview and how it went, including:
 - How I felt during the interview (relaxed, nervous, intimidated, in control, sad, etc.).
 - Whether I felt inhibited asking certain questions.
 - Mental associations caused by participant comments.
 - Whether other noteworthy personal issues that arose during or after the interview.

3. Theoretical Memos: This type of memos will summarize:
 - The substantive and theoretical thoughts that surfaced during the interview (e.g. thinking about the theories and concepts that have been exposed).
 - During the interview and in subsequent interviews, comments will be added to this section (e.g. describing how a given participant's experiences are similar or different from participants who have already been interviewed).

4. Conclusions and Recommendations

- The main conclusions will be restated in this section, including recommendations for subsequent actions to be taken by the interviewer.
- Where appropriate, additional documents (e.g. regulations) will be attached.
- Ask myself the following questions:
 - Are terms used in themes/analysis defined clearly?
 - Do the themes/ideas seem well-supported by the data?
 - Are the connections between the quotations and the themes clearly explained?
 - Are alternative interpretations and/or limitations of the interpretation considered?
 - Are questions thoughtful and connected to ideas explored in the memo?
 - Are there insights as to how questions could be pursued in further data collection?

3.3 Preparation for interview

- Read the research objectives and topics well.
- Study last version of the interview questions.
- Rehearse questions and ‘anticipate answers’.
- Remember, asking the main questions, and listening, and then ‘dynamic style’ asking follow-up questions, probes, and prompts.
- Remember, ‘Be relaxed & Relaxed participant talks more, and the participant may mirror my tone and actions.
- Do whatever I do to feel relaxed and confident. Before starting an interview, place myself in a relaxed, confident, and friendly state of mind, polite, positive and above all show respect to the participant.

3.4 Build rapport with participants,

- Building rapport starts from the point that when the participants were asked to take part in the research project.
- Start building rapport by showing respect to the participants, and then follow the introduction checklist.
- Always build rapport, during warm up questions, and during the interview by; eye contact, show understanding and ‘empathy’, lean forward, look interested, nod head..etc.
- Remember, even if I do not agree with the participant, be sure to respect them and keep an open mind (respect their knowledge, feelings, opinions, and perceptions).

3.5 After introduction ‘dig to find out why and how’

Dig to find out what lies below their answers (e.g. feelings, beliefs, perceptions, and knowledge).

- Investigate, in a non-threatening way, beyond their answers with follow-up questions, probes, and prompts.
- Stay on track laddering techniques and projective techniques.
- Use their words when asking follow-up questions.

3.6 Handling Trouble

- Become familiar with technical terms: understand Arabic terms from early interviews, and the exactly meaning of those words, and use them for later interviews. Avoid jargon terms as much as possible.
- Attempts to manage dominant personalities, preventing them from side-tracking discussions or aggressive challenging the interviewer.

In focus groups session, for example, one participant showed up, and tried to dominate the discussion. First time, I reminded them 'as a group' that it was intended for there to be equal talk time for everyone. The participant still tried to interrupt others, so I stated 'please I want to hear from the others'. Another techniques if required: Do not look at the dominant participant when asking a question. If a dominant participant tried to interrupt or talk, raise hand and look at someone else.

- Do not give opinion to participants, and if they asked for my opinion, turn the question back to them. For example, a participant: 'how do you value our health system compared to other countries?' Interviewer: 'I don't know, what do you think about it?'

2.6. Developing skills & notes

- To graduate to conducting focus group (i) focus group session was conducted with friends, and I asked them for a critique. (ii) The focus group session was conducted after three interviews had been completed.
- From tape recordings, Listen to how I sound, and how people answer. Ask what I could do better. Could I follow up more? Probe more?
- From transcriptions. Read them and ask what I could do better.
- If I would like to challenge participants' answers that contradict with previous answers or other's answers, challenge in a friendly way, keep the tone upbeat and positive, and do not argue. So, I can say, 'excuse me, I don't understand the differences between this answer and what you previously said ..'
- Do not judge their answers during the interview.
- Ask for meaning and clarification, if I heard something that I did not understand.

- Keep Time: watch and manage time during the interview. If a question confuses a participant, rephrase it. If it still, skip to another question.

* Adapted from: Tips for collecting and analyzing Qualitative Data;

http://www.insites.org/CLIP_v1_site/downloads/PDFs/TipsAnalzQualData.5D.8-07.pdf

http://tobaccoeval.ucdavis.edu/documents/Tips_Tools_18_2012.pdf

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