

**PRIMARY HEALTHCARE IN THE KINGDOM OF SAUDI ARABIA:  
CHALLENGES IN HEALTH SYSTEM REFORM**

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## SUMMARY

This study focused on understanding the effectiveness of the Kingdom of Saudi Arabia's (KSA) 2005 National Policy for Health under the Ninth Development Plan (2010–2014) and its implementation at the primary healthcare level. This study also identified challenges associated with the implementation of, and any existing barriers to, delivering universal healthcare services at the primary healthcare level in Saudi Arabia. A thorough literature search revealed that no research had been undertaken to evaluate the effectiveness of the 2005 National Policy for Health. The research undertaken within this thesis adopted a framework model devised from the *Ouagadougou Declaration on Primary Healthcare* and health systems in Africa, which provided a structured methodology to analyse the effectiveness and challenges of the 2005 National Policy for Health.

Using a mixed methods approach, the researcher collected data from face-to-face interviews and an adapted survey tool from the Canadian primary healthcare practice-based surveys. The qualitative component included interviews with participants across two levels, interviews with 12 regional Ministry of Health primary healthcare directors, and data from 90 primary healthcare centres directors/managers. The survey instrument was adapted to a Saudi context after conducting a pilot study in an adjacent region. The survey data were analysed using descriptive statistics, and the qualitative data were analysed using thematic analysis.

The results showed that the 2005 National Policy for Health has been successful in expanding primary healthcare centres, with the establishment of 2,301 primary healthcare centres. However, many elements of the strategic plan—including mission, core values and objectives—are missing. The mission, core values and objectives were not effectively communicated by the Ministry of Health (MoH) or understood by the participants. The barriers to effective universal healthcare in KSA include a lack of autonomous oversight by the primary healthcare sector, including financial control and a lack of health technology, integrated health information systems and basic telecommunications systems, including phones and the internet. There were also issues with staffing, particularly specialised skills, and the primary healthcare system lacked public–private partnerships.

By examining the effect of the 2005 National Policy for Health, and investigating the barriers and challenges facing primary healthcare in KSA, this study extends the scholarly discourse of understanding the role and functionality of primary healthcare within KSA. Furthermore, this study discusses the effectiveness and efficiency of delivering universal healthcare in KSA. At a theoretical

level, this study developed an adapted framework model using the nine criteria set out in the *Ouagadougou Declaration* as a method of assessment, along with eight domains that are linked to the literature and discussed using deductive reasoning (Chapter 7). This study identified inherent systemic issues, such as the lack of infrastructural resources, stemming from leadership and policymaking, which are impacting the operational effectiveness and clinical delivery of care. These systemic issues have impeded the benefits of developing primary healthcare centres (PHCCs).

## STATEMENT OF ORIGINALITY

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university, and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

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Bader Aboud Alqhtany

February 2019

## DEDICATION

*To my Father, Aboud and my Mother, Safiah.*

*To my sisters, Salma, Meshial, Amjad and Sultanh and my brothers, Ahmed, Majed, Saed, Mohammed, Abdullah, Talal, Amar and Abudlrman.*

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## CONFERENCE PRESENTATIONS

Alqhtany, B & Martini, A 2017, 'Primary Health Care Centres (PHCCs) in the Kingdom of Saudi Arabia (KSA): Challenges in Health System Reform', *Primary Health Care Research Conference*, Brisbane, 7–9 August.

Alqhtany, B, Martini, A, Whitehead, D & Sheppard, L 2018, 'Primary Health Care Centres in the Kingdom of Saudi Arabia; Challenges in Health System Reform', *ASMR SA Scientific Meeting*, Adelaide, 6 June.

Alqhtany, B, Martini, A, Whitehead, D & Sheppard, L 2018, 'Primary Health Care Centres in the Kingdom of Saudi Arabia; Challenges in Health System Reform', *11th European Public Health Conference: Winds of change: towards new ways of improving public health in Europe*, Ljubljana, Slovenia, 28 November – 1 December.

## AWARDS

*Horizon Professional Development*, (Silver Award, December 2017), Flinders Academic Study, Flinders University, Adelaide, Australia

*Horizon Professional Development*, (Gold Award, December 2017), Flinders Academic Study, Flinders University, Adelaide, Australia

## LIST OF ABBREVIATIONS

GCC	Gulf Cooperation Council
GDP	Gross Domestic Product
GP	General Practitioner
HCW	Health Care Worker
HSS	Health System Strengthening
KSA	Kingdom of Saudi Arabia
MERS	Middle East Respiratory Syndrome
MoH	Ministry of Health
NHIS	National Health Information System
NGO	Non-Governmental Agency
ODSF	Ottawa Decision Support Framework
PBR	Patients' Bill of Rights
PHC	Primary Healthcare
PHCC	Primary Healthcare Centre
PPP	Public–Private Partnership
RTA	Road Traffic Accident
SPSS	Statistical Package for Social Services
TQM	Total Quality Management
UHC	Universal Health Coverage
UK	United Kingdom
UN	United Nations
WHO	World Health Organisation

## CHAPTER 1.

### INTRODUCTION

#### 1.1 INTRODUCTION

The concept of primary healthcare (PHC) is not new, but it was only formally recognised by the *Alma-Ata Declaration* in 1978 (Alma-Ata 1978). The Alma-Ata Declaration considered PHC as *'essential healthcare based on practical, scientifically sound and socially acceptable approach methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination'*. Thus, it strongly advocates a social model of healthcare with a high degree of community/people engagement and empowerment for health and welfare (Alma-Ata 1978, p. 16). As a result of discrepancies in accessing healthcare, and therefore health outcomes between rich and poor, several movements related to promoting people's health commenced even before 1978. These movements galvanised the international community to formally come together for 'health for all by the year 2000'. The aim was to deliver integrated health services (curative and preventative) to all people as near to their homes as possible. The World Health Organisation (WHO) General Assembly issued the Alma-Ata Declaration and advised countries to adopt the PHC principle. This served to identify PHC as the prominent means by which everyone would have healthcare by 2000 (Al-Ahmadi & Roland 2005). Four decades later, many countries persevere in establishing equitable and efficient PHC to meet its mandate for universal PHC. Within this time, the Kingdom of Saudi Arabia (KSA) has taken significant steps to establish PHC through the provision of primary healthcare centres (PHCCs) but faces considerable challenges in their implementation and success. This research investigated the effectiveness and challenges of the implementation strategy for PHCCs in KSA. Chapter 1 covers the background, issues, and potential research gaps, from which research questions and statements were devised, and terms and definitions explored to further clarify the research topic. Furthermore, this chapter outlines the research methodology used including the underlying framework and explains the contribution and limitations of the research along with the thesis structure.

## 1.2 HISTORY OF THE KINGDOM OF SAUDI ARABIA

The KSA emerged at the commencement of oil exploration in 1933, but human history extends as far back as 20,000 years as part of the Arabian Peninsula (Saudi Embassy 2013). The discovery and subsequent drilling and production of oil in 1938 initiated the transition of the region, as the Saudi state shifted to adopting a bilateral agreement with the United States of America whereas it had been predominantly tied to the United Kingdom (UK) (Bowen 2008b).

Saudi Arabia is a country that occupies 80% of the Arabian Peninsula and is the largest country in the region, but 95% of the land area is mostly uninhabited desert (Ham, Shams & Madden 2004). The extreme geological and climatic conditions essentially shape large swathes of the demography of Saudi Arabia.

Saudi Arabia is located near the south-western part of Asia (Figure 1.1). Its southern borders are shared with Yemen and Oman, eastern borders with the United Arab Emirates (UAE) and Qatar, and northern borders with Iraq, Kuwait, Jordan and Israel. The KSA comprises approximately four-fifths of the Arab Peninsula with a total area of ~2 million km<sup>2</sup> (Dhafar, Gazzaz & Shahbaz 2004). The KSA has a population of more than 31.7 million— including 11.7 million non-Saudis (expatriates and employees) or approximately 36.9% of the total population (General Authority for Statistics 2016)—which is expected to rise to 39 million by 2030 (Al-Kibsi et al. 2015; Saudi Embassy 2017).



FIGURE 1.1. SAUDI ARABIA IS LOCATED IN THE MIDDLE EASTERN REGION

### 1.3 THE HEALTHCARE SYSTEM AND POSITION OF PHC IN THE KSA CONTEXT

The Saudi healthcare system, comprising a network of public and private health facilities (Figure 1.2), was developed in 1926 when the first directorate for health built two hospitals, the first in Jeddah and the second in Mecca (Khaliq 2012). By 1951, the Ministry of Health (MoH) was established, and 11 hospitals had been built (Khaliq 2012). The current Saudi healthcare system originated in 1971 when the Saudi government implemented the first of their five-year plans (Khaliq 2012).

The Saudi Arabian system is an integrated approach that includes PHCCs as a part of the healthcare model (Figure 1.2). The overriding focus is on providing preventative, curative and rehabilitative health services. As such, it is imperative to have broad encompassing services to meet the health demands of all geographic areas. To ensure delivery of those health services, all health facilities must be situated near to each other. This means those PHCCs, pharmaceutical dispensaries and both maternal and child centres must be amalgamated with administrative offices into a central health unit. In the past two decades, the curative healthcare model has been superseded by a preventative model (Almalki, FitzGerald & Clark 2011).

Since 1995, the other governmental bodies described in Figure 1.2 have maintained ~20% of the hospital beds in the country, and received budgeted money from the Ministry of Finance (MoF) through various attached ministries (Alkhamis, Hassan & Cosgrove 2014; Ministry of Health 2012). Furthermore, the quality of services offered by these groups is generally superior to those provided by the MoH. However, these groups are independent, such that an individual can receive services from more than one group. Such practices often deprive individuals in need of services, as they do not have immediate access due to the non-availability of services caused by overcrowding (Alkhamis, Hassan & Cosgrove 2014).

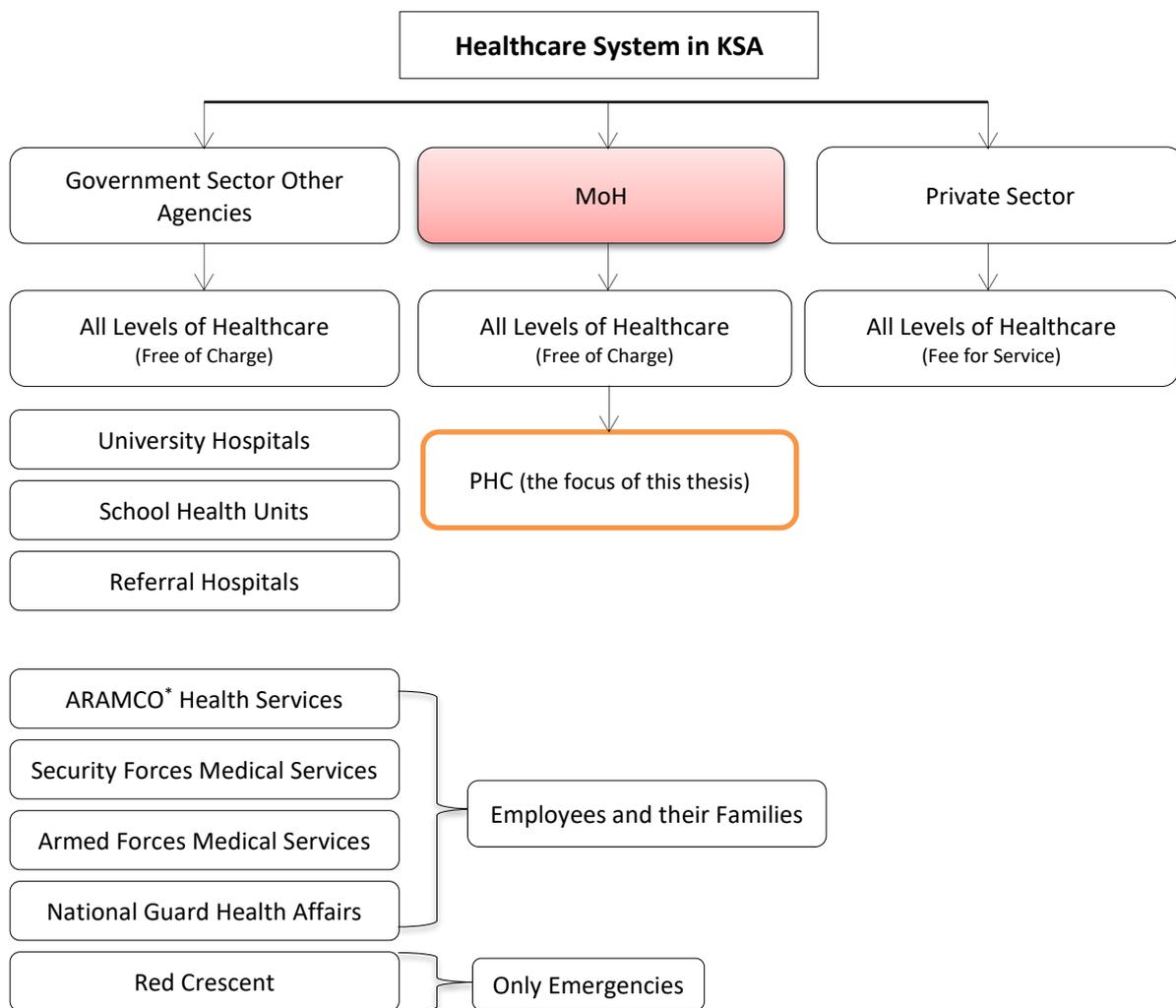


FIGURE 1.2. THE CURRENT STRUCTURE OF THE HEALTHCARE SYSTEM IN KSA

Source: Adapted and modified from Almalki, FitzGerald & Clark (2011)

\* ARAMCO: Arabian American Oil Company

As described in Figure 1.2, the evolution of the Saudi healthcare system now includes the MoH and private sectors that contribute to the delivery of services by operating hospitals and PHCCs within KSA (Jannadi et al. 2008). This investment by the private sector not only reflects a commitment to meet the needs of Saudi Arabians, but addresses the increasing population, demand for healthcare and rising costs. Budget surpluses generated from oil revenues are the primary source of revenue contribution to fund this investment and the need for private sector partnerships will augment and sustain support for the increased demand (SAGIA 2014).

The Saudi Arabian MoH, with funding from the Ministry of Finance (MoF), is responsible for the oversight and financial allocation of healthcare services for KSA; as such, they oversee 259 hospitals and 2,259 PHCCs (Almalki, FitzGerald & Clark 2011; Ministry of Health 2013b) and introduced a ten-year plan from 2010–2020 as a development strategy to focus on operating efficiencies and weaknesses (Almalki, FitzGerald & Clark 2011; Ministry of Health 2013b). These government-controlled services account for 60% of the total healthcare services provided in KSA, with the remainder managed by teaching hospitals, private hospitals, and employer-based schemes (Almalki, FitzGerald & Clark 2011). The past decade has seen a 60% increase in demand for healthcare services due to an increasingly aged society and steady population growth (Ministry of Health 2015).

The Saudi healthcare system is best described as a tiered system. At the bottom are PHCCs, followed by general hospitals and tertiary level services (Albejaidi 2010) (Figure 1.3). Within this structure, the MoH is responsible for providing the maximum healthcare services (Aldossary, While & Barriball 2008; Walston, Al-Harbi & Al-Omar 2008).

The MoH is entrusted with ensuring access to healthcare for all Saudi citizens. Other public and private facilities play an important role in terms of providing healthcare services. For example, 20% of the inpatient facilities are offered by other government agencies, and 21% are provided by private health services (Ministry of Health 2011; Walston, Al-Harbi & Al-Omar 2008). The MoH focuses strongly on programs related to prevention and primary healthcare and directly controls more than 3,300 health centres across the country (Walston, Al-Harbi & Al-Omar 2008).

The Saudi Arabian healthcare system has more recently followed the UK healthcare model and is similarly funded by central government (Khaliq 2012), with an annual healthcare budget of between 5.9% and 7.1% of the total Saudi budget from 1999 to 2006 (Jannadi et al. 2008). This percentage has remained consistent since 2006; with an average 6.56% of the government's

budget allocated to the MoH (Ministry of Health 2011, 2013b, 2014, 2015). The financial commitment to healthcare is part of an overriding investment in Saudi infrastructure borne from the economic wealth generated by oil revenues (Jannadi et al. 2008).

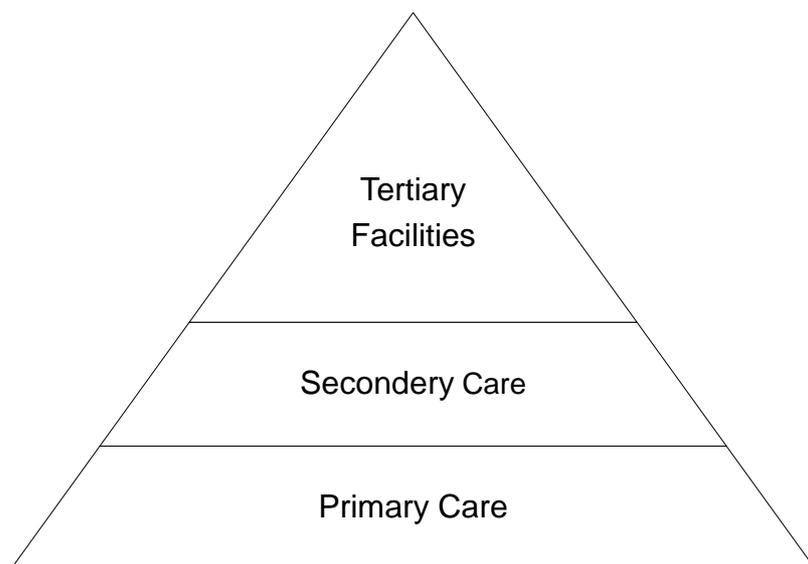


FIGURE 1.3. LEVEL OF HEALTHCARE SERVICES PROVIDED BY THE MOH

Source: Ministry of Health Statistical Year Book (2013)

#### 1.4 PHCCS: THE MEANS TO DELIVERING PRIMARY HEALTHCARE SERVICES IN KSA

There has been a significant paradigm shift in Saudi Arabian healthcare since Alma-Ata in 1978—from a medically curative approach to a preventative approach (Almalki, FitzGerald & Clark 2011). This paradigm shift toward preventative care is similar to that of many other countries, in response to the rising cost of care and the patient’s best interests (Aljumah et al. 2016). Healthcare costs in the past two decades have risen exponentially; the change to preventative care is a way to reduce the long-term costs of care given the lower initial costs of such care over curative measures. Preventative care is a means to treat diseases before they manifest into costly chronic conditions through specialised preventative programs, such as maternal and child health, malaria and tuberculosis (Ministry of Health 2006).

As of 2013, the MoH comprised 2,259 PHCCs delivering preventative, curative and rehabilitative care (Ministry of Health 2013b) and accounted for 83% of the public sector presentations (WHO 2006). There are three types of PHCC (Figure 1.5), distinguished by the size of the population they

serve. Large PHCCs cater to population densities >25,000 people, medium >5,000 people and small >500 people (WHO 2006). Despite this approach, there are issues of overcrowding, and PHCCs in larger urban cities often provide services to more than 100,000 people, which impedes service delivery (WHO 2006). Consequently, a further 900 PHCCs are needed to provide equitable delivery of healthcare services, especially in rural and remote areas. The Saudi MoH stated that there would be 2,750 PHCCs by the year 2020 (Ministry of Health 2013b).



FIGURE 1.4. THE THREE CLASSIFICATIONS OF PHCCs BASED ON THE POPULATION SIZE

Source: WHO Mediterranean Region Office (2006)

It was through the 1978 Alma-Ata that the Saudi government empowered the MoH to adopt a PHC focus. The Saudi government implemented a strategy to provide preventative health services as part of this overriding health strategy. The MoH needed to build PHC facilities to support these programs (Ministry of Health 2011). These PHCCs were established under a ministerial ruling as a means of meeting this mandate (Almalki, FitzGerald & Clark 2011). By establishing such centres, the PHC implementation strategy brought about a new referral system that would reduce the number of outpatient visits, such that by 2012 >54 million people (82%) used PHCCs (Alalfi et al. 2007; Ministry of Health 2013b). The increased facilities not only provided access to services and brought about changes to the referral system but a significant change to medical record keeping and a reduction in consultations and referrals from different physicians (Alalfi et al. 2007). Such streamlining offers cost-efficiencies that work toward long-term effective cost reduction strategies needed to offset the escalation of healthcare costs and demand for services. In the same context, the MoH set systems to reduce the cost of drugs and subsequently improve prescription documentation and pharmaceutical prescriptions which, in turn, sought to improve patient safety, supplies of essential drug requirements, and quality, clinical best practice (Almalki, FitzGerald & Clark 2011).

It is a widely held belief that PHCCs are integral for preventative health, especially chronic diseases (Harris 2008). Primary care settings provide more effective management for patients with chronic

diseases (Bodenheimer, Wagner & Grumbach 2002; Canadian Diabetes Association 2013; Renders et al. 2010; Wagner, Austin & Von Korff 1996). Furthermore, Iranian primary healthcare, with appropriately trained staff following specific guidelines, has been effective in preventative care for chronic non-communicable diseases (Farzadfar et al. 2012).

### **1.5 RESEARCH GAPS AND PURPOSE OF THE STUDY**

A range of studies has been conducted about PHC in KSA, most of which have focused on patient satisfaction (Al-Faris et al. 1996; Al-Sakkak et al. 2008; Alshammari 2014; Mohamed et al. 2015), barriers to improving primary healthcare quality (Al-Ahmadi & Roland 2005), primary healthcare development (Alsalloum, Cooper & Glew 2014) and electronic health (Altuwaijri 2008). While these studies investigated elements of primary healthcare in KSA, it is still not known how PHC functions in terms of its holistic purpose, particularly after the implementation of the 2005 National Policy for Health. To date, the researcher contends that there has been no research conducted within KSA that employed the nine criteria of the *Ouagadougou Declaration* (WHO 2010a, p. 4). By using these criteria as others have done in other countries (Du Toit et al. 2013; Sambo & Kirigia 2014), the present research investigated a broad spectrum of factors that impede policy implementation and the operational efficiency of PHCCs in two cities in the KSA. The *Ouagadougou Declaration* guided the researcher to design the research questions for this study. The framework was also well-aligned with the theoretical perspective—pragmatism—and the anticipated research outcomes. A review was done on how the nine criteria have been implemented in Africa and how each criterion can be included within the five research questions. Since Saudi Arabia has committed to extensive investment in healthcare and continued expansion of the PHC component of that, and given the continual challenges of increasing population, rising health costs and the propensity for increased non-communicable diseases like obesity and diabetes, the need for understanding the effectiveness and ways to improve efficiency and effectiveness of PHCCs is imperative. By understanding those factors that influence, and perhaps prohibit the efficient delivery of care can offer insight and, thereby, increase effectiveness and provide greater value-added benefits, especially given recent budgetary constraints. This can help in the formulation of policies in the future and reduce long-term expenditure.

The nine criteria are:

- Leadership and governance for health
- Health service delivery
- Human resources for health
- Health financing
- Health information
- Health technologies
- Community ownership and participation
- Partnerships for health development
- Research for health (WHO 2010a, p. 4).

These nine criteria helped to evaluate the efficiency of both the implementation strategy used to develop PHCCs and assess the operational effectiveness of those already operating within the Saudi healthcare system. The nine criteria stated in the *Ouagadougou Declaration* are a holistic measure of PHC. This study investigated the effectiveness and challenges of the implementation strategy for PHCCs in KSA, a topic barely studied in KSA, though the national health policy (Ministry of Economy and Planning 2010) aims to achieve universal health coverage (UHC) through PHCCs. This study focused on the PHC criteria outlined within the *Ouagadougou Declaration on Primary Healthcare* and health systems in Africa framework methodology (WHO 2010a, p. 4).

The WHO *Ouagadougou Declaration on Primary Healthcare* was established as a means to deliver PHC through nine specific criteria for assessment; until now, no research has been conducted within KSA to identify whether the nine criteria of the *Ouagadougou Declaration* are being employed effectively. As per the government's 2005 National Policy for Health, these standards/criteria are meant to be employed by PHCCs. Moreover, the WHO and KSA MoH have expressed an inherent interest in the ability of PHCCs to benefit society and healthcare systems. Thus, it was important to assess whether PHCCs have delivered care at the expected levels as outlined in the most recent national policy and to explore any barriers that may have impeded their implementation.

By using the nine criteria to form a framework model, the researcher identified discrete yet interrelated factors within a PHC system (Samb et al. 2010). The framework enabled the researcher to analyse the performance of PHCCs within the two cities, Riyadh and Jeddah, in KSA from implementation to operational capacity (Figure 1.5).



FIGURE 1.5. THE NINE CRITERIA OF THE *OUAGADOUGOU DECLARATION* FOR PHC

Source: WHO (2010a)

## 1.6 RESEARCH QUESTIONS

### 1.6.1 OVERALL RESEARCH QUESTION

To what extent has Saudi Arabia's 2005 National Policy for Health been effective in delivering standards of care through PHCCs?

### 1.6.2 RESEARCH OBJECTIVES

1. Critically evaluate the effects of the 2005 National Policy for Health on the overall healthcare system in KSA.
2. Determine the major factors influencing health system reform and the planning and implementation of PHC centres in KSA.
3. Identify barriers and facilitating factors for operating PHCCs in urban, rural and remote KSA.

4. Consider the implications of this study for future policies, implementation and reform of PHCCs.

### 1.6.3 SPECIFIC RESEARCH QUESTIONS

- #1: What effect has the 2005 National Policy for Health had on the overall health system in KSA?
- #2: What do the PHC managers know about the role of PHCCs and healthcare workers within the National Policy for Health system?
- #3: What are the major factors that influence the planning and implementation strategy and evaluation of PHCCs in KSA?
- #4: What are the barriers to and facilitating factors for accessing PHC services?
- #5: How has the national strategic policy and establishment of PHCCs improved health service delivery in KSA?

## 1.7 THESIS STRUCTURAL OUTLINE

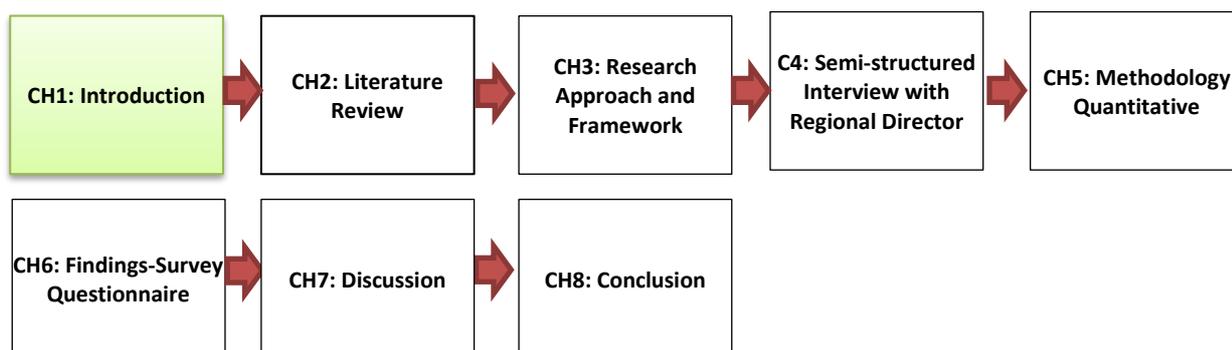


FIGURE 1.6. THESIS STRUCTURE OUTLINE

This thesis is organised into eight chapters (Figure 1.6). Chapter 1 introduces the topic and historical background of the primary healthcare system in KSA. The chapter includes a description of the rationale for the research, research objectives and research questions.

Chapter 2 reviews the literature and analyses the published research based on evidentiary findings. The theoretical framework is outlined as a fundamental theory on which the research is grounded. The literature review considers PHCCs in relation to the overall health system within KSA as well as how PHCCs are viewed globally. It offers insight into how this is perceived within the Kingdom and how the implementation strategy was developed. This chapter also considers the

issues surrounding successful PHCC implementation, the challenges to achieving universal healthcare, and how this transcends beyond PHCCs.

Chapter 3 is the first part of the mixed methods research approach and methodology, which presents pragmatism as the theoretical perspective and framework and highlights the qualitative descriptive exploratory design of the first phase of the overall process. This chapter reports how the data were collected, extracted, transcribed and coded, and ethical considerations. The complimentary quantitative phase of this study is described in Chapter 5. Chapters 4 and 6 present the relevant qualitative and quantitative findings of Chapters 3 and 5, respectively. Chapter 7 brings together the findings of Chapters 4 and 6 in terms of the process of triangulation and the integration of the qualitative and quantitative findings in facilitating an overall discussion of the total findings. Finally, Chapter 8 presents the conclusions and related theoretical, policy and practice recommendations.

The next chapter is a critical review of the literature related to primary healthcare, both internationally and within KSA, focusing on the nine pillars outlined in *the Ouagadougou Declaration on Primary Healthcare*.

## CHAPTER 2.

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

The literature review focuses on the nine pillars outlined in the *Ouagadougou Declaration on Primary Healthcare*, which is the basis of the current research. This chapter identifies issues that pertain to PHCCs, why they threaten the service and delivery of healthcare to the population and how they affect the implementation of strategies. The chapter details the literature search strategy, international and regional perspectives of PHC, and PHC challenges in PHCCs in KSA.

##### 2.1.1 LITERATURE SEARCH STRATEGY

A comprehensive search of selected databases—ProQuest, PubMed, Cochrane Library, CINHAL and Science Direct—was conducted. The keywords and terms used in this search were ‘Saudi Arabia\*’ and ‘healthcare services’ or combinations using Boolean logic – OR, AND, NOT to expand and collapse. Studies identified during the search were selected for their relevance to the research study and filtered based on information in the title, keywords and terms, and the abstract. The search also used grey reports—mainly annual program operational guides, statistical yearbooks and policy-related documents from the Saudi MoH, and relevant documents from the WHO and the World Bank.

##### 2.1.2 SELECTION OF THE RESEARCH STUDIES

The literature inclusion and exclusion criteria are in Table 2.1. Only those studies meeting the inclusion criteria were included, which yielded 23 articles, with all the studies conducted in Saudi Arabia (Figure 2.1).

##### 2.1.3 DATA EXTRACTION

The studies were extracted based on the inclusion conditions identified in Table 2.1. Further to this, the extracted sources were sorted based on characteristics including author(s), title of the source, setting, sample, type of data collection method, study design method, method of analysis, and results. Summary data was compiled into a structured format for review (see Appendix 1).

The literature was organised into nine thematic areas as outlined by the “Framework for the implementation of the *Ouagadougou Declaration on Primary Healthcare* and health systems in Africa”: leadership and governance for health; health service delivery; human resources for health;

health financing; health information; health technologies; community ownership and participation; partnerships for health development; and research for health (WHO 2010a, p. 4). The thematic criteria outlined by the framework helped the researcher to derive keywords to search the relevant literature for this study.

TABLE 2.1. INCLUSION AND EXCLUSION CRITERIA OF STUDIES

Categories	Inclusion Criteria	Exclusion Criteria
<b>Type of Participant</b>	<ul style="list-style-type: none"> <li>• Human participants</li> <li>• Service providers</li> <li>• Managers and consumers</li> <li>• Research studies focused on Saudi Arabia and primary healthcare</li> </ul>	Studies that focused on hospitals or were solely clinically focused
<b>Study Setting</b>	Primary healthcare centres and/or policy-related	<ul style="list-style-type: none"> <li>• Military hospital</li> <li>• Private clinic</li> <li>• MoH hospital</li> <li>• Psychiatric facilities, tertiary care</li> </ul>
<b>Primary Study Focus</b>	Operational conditions	Clinical conditions
<b>Type of Study Paper</b>	Primary and secondary research	Media releases and discussion papers
<b>Time Framework</b>	Peer-reviewed journal articles published after 2010 to June 2016	Prior to 2010
<b>Language</b>	English	All other languages

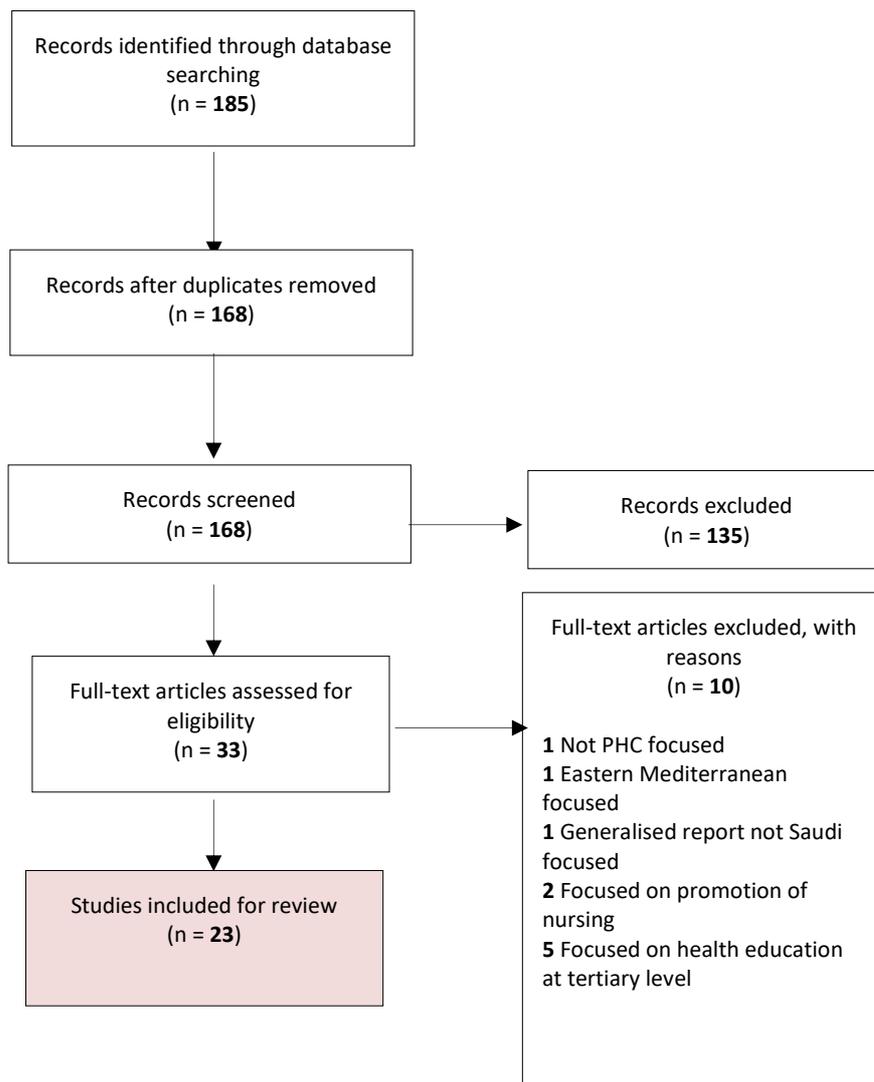


FIGURE 2.1. PREFERRED REPORTING ITEMS FOR SYSTEMATIC REVIEWS AND META-ANALYSIS (PRISMA) FLOW DIAGRAM

## 2.2 INTERNATIONAL CONTEXT OF PRIMARY HEALTHCARE

WHO (2008a) identified four keys reforms to achieving the goals established with the Alma-Ata Declaration:

1. Universal coverage of United Nations (UN) to reduce social disparities in health.
2. Service delivery reforms to manage people’s needs.
3. Improved public policy to integrate health into all sectors.
4. Leadership reforms to enable collaborative models of policy dialogue.

In light of the 1978 WHO Declaration, the government of Saudi Arabia amended its constitution to recognise healthcare as a fundamental right of every citizen (Al-Sakkak et al. 2008). In 1979, the MoH adopted the primary healthcare approach espoused at Alma-Ata to develop a health system that focused on PHC. In 1983, PHC policies were announced and then re-announced in 2005. The WHO stated that PHC is a practical way to make vital healthcare accessible to all, but it requires the participation of the community (WHO 1998).

Furthermore, the WHO elaborated that this approach to healthcare delivery was uniformly appropriate for all countries but varied depending on socio-cultural practices. The WHO suggested that PHC should have a two-fold strategy in terms of prevention, which focuses on lifestyle choices and disease treatment (Littlewood & Yousuf 2000). By mitigating risk, there is a corresponding increase in quality of life, which can be achieved by introducing immunisation programs that are widely adopted across communities to increase life expectancy (Littlewood & Yousuf 2000).

It has been considered that the concept of PHC as stipulated in the Alma-Ata failed to deliver the agreed goals (Hall & Taylor 2003). This was attributed to health experts and politicians within developing countries not supporting the idea that the planning and implementation of health service delivery can be driven by communities (Hall & Taylor 2003). In addition, there was a shift in economic philosophy of North America and Europe, which resulted in the focus on PHC shifting to 'Health Sector Reform' (Hall & Taylor 2003). This paradigm shift coincided with a change in political stance to a more neoliberal approach for government spending and controls, which reshaped the economic landscape and created market reforms that forced a political and economic rethink of how to deliver more cost-effective healthcare services for everyone (Hall & Taylor 2003).

As countries were facing new health issues, a new services approach that was not covered by PHC was applied. For example, in 2000, at the Millennium Summit, the UN established eight Millennium Development Goals that contained specific health-related areas, including reducing child mortality, improving maternal health, and combating HIV/AIDS, malaria and other diseases (UNDP 2014). These goals were agreed on and ratified by 189 UN member states and 23 international organisations, with a view to achieving them by 2015 with each having their own specific target criteria (UNDP 2014).

By 2008, the WHO established a PHC agenda that sought to renew the framework on how to tackle health systems, especially those in Africa, to treat both non-communicable and

communicable diseases (Aantjes, Quinlan & Bunders 2014). The 30-year anniversary report brought into context the failings and existing challenges that were thwarting the doctrine of universal healthcare for all (PAHO 2008). The reality of achieving equity in healthcare was challenged by economic events including the Global Financial Crisis, climate change and rising energy costs, the last of which has detrimentally impacted Saudi Arabia's healthcare sector (Almasabi 2013).

Thus, 'now more than ever', there was a need to adhere to the principles of PHC (PAHO 2008; WHO 2008a). WHO (2008a) asserted that countries whose economic development was comparative and whose healthcare systems structure was based on primary healthcare centres had better health results than those that were not focused on PHCCs (PAHO 2008). However, the growing divide in access to healthcare globally was undermining social stability (PAHO 2008). Health system failures can be attributed to access as well as affordability, which parallels these inequities and, as such, PHC is the most suitable solution to enact reforms to combat these challenges (PAHO 2008).

According to De Maeseneer et al. (2008), 12 characteristics describe PHC:

1. Wide-ranging and general in scope
2. Accessibility
3. Integration with health promotion
4. Prevention along with cure, care, rehabilitative and palliative care
5. Continuous
6. Teamwork
7. Holistic
8. Focused on the person, rather than the disease
9. Targets community and family levels
10. Coordinated within a health system
11. Adheres to patient privacy and confidentiality
12. Supports an advocacy role for health.

These characteristics are not new; they fit the broader implementation framework of PHC developed by the *Ouagadougou Declaration* (WHO 2010a). The characteristics of ‘holistic’, ‘coordinated within a health system’, ‘adherence to patient privacy and confidentiality’, ‘preventative, curative including rehabilitative care’ and ‘continuous care’ are key features of health service delivery, a key criterion of the Ouagadougou framework. What is important to consider here is that the framework for the implementation of the *Ouagadougou Declaration on Primary Healthcare* and health systems guides us to view and assess PHC more broadly. However, De Maeseneer et al. (2008) bring some specific attributes of PHC, which can still be comprehended under the broader Ouagadougou framework (WHO 2010a).

The importance of these 12 characteristics is that several are subject to challenges within the global context, such as:

- a ‘general’ approach at a time when sub-specialisation is booming
- ‘accessible’ to different cultural and social groups at a time when cultural diversity is seen by some as a threat rather than an opportunity
- ‘integrated’ in a framework where there is increasing fragmentation with market-driven ‘for profit’ stand-alone facilities
- ‘continuous’ at a time when people are constantly on the move and ‘care from the cradle to the grave’ sounds outdated
- ‘family orientated’ at a time when the traditional family is no longer the prevailing living unit
- ‘coordinated’ at a time when the quality of care for patients with multi-morbidity is often judged against guidelines created for the management of single diseases (De Maeseneer et al. 2008, p. 807).

Continuous care not only suggests ease of access but availability to everyone regardless of location. This is not only logistically problematic but fiscally so. With rising costs associated with delivering care and evolving technology, there is the issue of increasing demands for service brought about by global migration and the means to meet that demand (De Maeseneer et al. 2008). The world is facing many serious healthcare challenges, including PHC, and the contribution of the community to the health promotion. The lack of coordination between family and community proves that if there was coordination, then PHC could have controlled many communicable diseases, including HIV, tuberculosis (TB) and malaria. Primary healthcare is the only option for effectively addressing the epidemics of non-communicable diseases such as

cardiovascular diseases, diabetes, respiratory diseases and cancers. A PHC focus on preventing high rates of smoking, obesity, poor nutrition and the lack of physical activity is expected to contribute to reducing non-communicable diseases. Thus, there is a need to face this challenge, which requires that physicians who specialise in family medicine to focus on family coordination with the community. Community-based PHC needs to focus on the local populace, requiring a more inter-disciplinary level of care and broad-based training to meet the diversified needs of a community (De Maeseneer et al. 2008).

### **2.3 EVALUATION OF THE EMERGENCE OF A NEW IDEA OF HEALTHCARE SYSTEM**

As far as the emergence of a new idea of a healthcare system is concerned, in 1980, the WHO European Region established 38 regional targets to be achieved by 1984 (Whitehead 1992). One of the targets was the concept of health equity, which stipulated that health inequalities for disadvantaged people should decrease by 25% (WHO 1985). At this time, the concept of equity was construed as a fundamental idea of all areas of health. As such, a broad evaluation and assessment was conducted to determine new measures and targets of overall health, not just that of mortality (Whitehead 1992).

It is from the Alma-Ata Declaration that the notion of fairness and access to health has transcended beyond simply suggesting PHCCs as a solution. It also incorporated a broad overview of policies and the need to establish a more holistic view of health. Whitehead (1992) defined *'equity in health as a system that provided equity across all social boundaries and social hierarchies'*. The concept of equity has since been clarified to include equity in health, equity in healthcare financing, and equity in health provision (Zere et al. 2010). The inefficient and inadequate distribution of healthcare is a determinant of overall health in society, such that having equity in healthcare services will alleviate socioeconomic inequalities by providing access to everyone (Braveman & Gruskin 2003; WHO 2009; Zere et al. 2007).

However, the possibility of a PHC system being adopted by independent nations varied considerably, especially in regional areas (Seketeli et al. 2002), with the widespread need to establish Health Systems Strengthening (HSS) according to PHC (Oliveira-Cruz, Kurowski & Mills 2003; WHO 2007, 2010a, 2010b). The significance of HSS has been broadly documented in health literature despite no clear definition of what HSS entails (Blanchet et al. 2012; Blanchet & Lindfield 2010; Blanchet & Patel 2012; Swanson et al. 2010).

Moreover, Swanson et al. (2010) extended the argument by calling for principles to direct strategic frameworks that could be applied to policymaking, have practical application, and be measurable. Frameworks lacking such principles would be devoid of clarity, have a high degree of unpredictability, and result in limited improvement, innovation and learning (Swanson et al. 2010). Figure 2.2 illustrates the overlapping hierarchical stratification of the nine key pillars of the *Ouagadougou Declaration* and the six WHO Health Systems Building Blocks (Du Toit et al. 2013). Each pillar and building block has been identified as an essential element in developing sustainable health systems, which enable people to receive comprehensive services for a long time. The *Ouagadougou Declaration* developed blocks based on African health needs. It is essential to consider other blocks, developed by WHO and not included in the *Ouagadougou Declaration*, to make it more relevant and adapted to Saudi health needs.

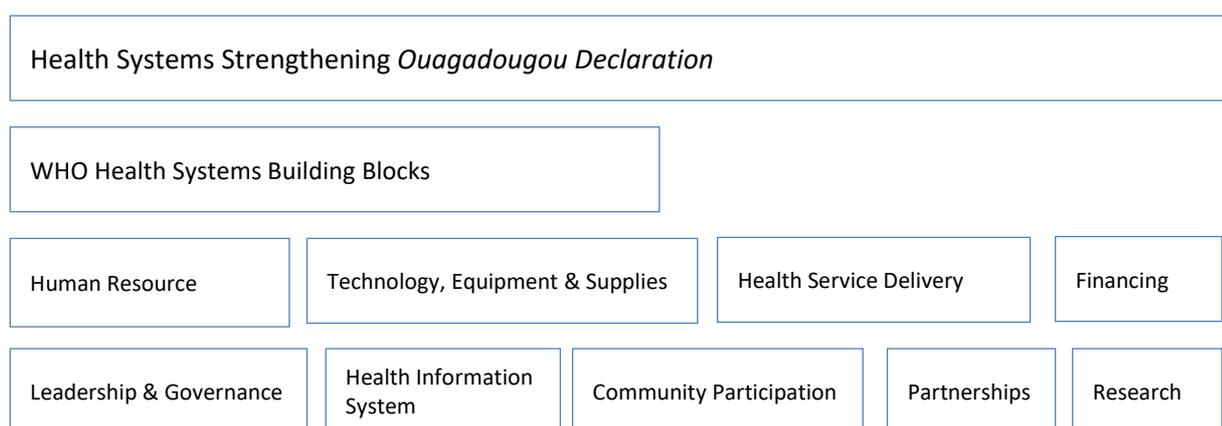


FIGURE 2.2. MODIFIED OVERLAP OF *OUAGADOUGOU DECLARATION* AND WHO BUILDING BLOCKS

Source: Du Toit et al. (2013)

## 2.4 ALTERNATIVE PHC SYSTEMS: BRAZIL, CUBA AND ESTONIA

It is important to identify characteristics of a successfully implemented PHC system; specifically, traits, such as decentralised control, that are both common and essential elements for success (Kruk et al. 2010). Brazil, Cuba and Estonia were identified as having successfully implemented PHC, which are reviewed below.

In South America, Brazil instituted a decentralised health system in 1996 that offered universal access, with the cost of delivery financed by the states and federal government (WHO 2008b). The local municipalities would comprehensively deliver free services where primary healthcare was

central services to providing care to 190 million Brazilians. The primary health program promoted prevention and disease management (WHO 2008b). This healthcare revolution was a paradigm shift from the previous approach where most of the population was excluded from receiving care, as reflected in the government's previous stance that healthcare was not an essential right (WHO 2008b). The notion of equality in health was enshrined in the 1988 constitution, and the first program to create equal access was the Family Health Program in 1994 (WHO 2008b).

Brazil's decentralised healthcare system promotes care at all levels of government and its PHC system provides services to 113 million people (Magawa 2012). By decentralising health services, Brazil increased access to healthcare in rural areas, so that areas that previously had no services were now provided preventative care (WHO 2008b). While community participation is deemed critical to PHC success, Brazil failed to meet the Alma-Ata goal of 'health for all' by 2000 (WHO 2008b). The lack of political commitment to support rural healthcare and the government's lack of provision for coordinated and integrated care (comprising basic preventative to specialised care) are the reasons behind the failures of Brazilian PHC. Despite advances, there remains an entrenched political reluctance to support rural care. Thus, the program does not operate to full capacity and, in urban cities, there is a desire for specialised treatments, which has created a contest between the old system versus the new PHC (WHO 2008b). Some of the population remains reluctant to attend PHCCs in their local rural area, so they travel to urban hospitals for care and treatment (WHO 2008b).

In Cuba, PHC coverage expanded in the 1980s, principally through increased community participation driven by a political desire to provide health coverage for all citizens, which translated into improved health statistics (Magawa 2012). This approach resulted in economic and social equity improvements (Magawa 2012). This progressive approach, compared with developed nations with more sizeable budgets, has Cuba ranked in the top 25 countries in the world for low infant mortality rates (Magawa 2012; Magnussen, Ehiri & Jolly 2004). The Cuban PHC system was established not only as a policy but as part of their legal system, and as the foundation for the entire healthcare system (Keck & Reed 2012). Cuba's PHC system stresses community participation that includes setting health priorities and diagnosing health issues (Atun et al. 2015). By working with government officials, communities can develop health strategies to support community health priorities and implement action plans (Magnussen, Ehiri & Jolly 2004).

The Cuban government orchestrated a clear healthcare policy and strategically implemented that policy, which included active community participation. This plan and the regulatory controls that enforced governance of healthcare strategy at the PHC level elevated Cuba's PHC to one of the most effective in the world (Whiteford & Branch 2007). In contrast, Saudi Arabia has had a lack of cohesive leadership from the Ministry downward, and the centralised control has resulted in ineffective managerial practices and minimised community engagement. Coupled with funding challenges and inadequate infrastructure and resources, PHC in Saudi Arabia needs reform to refocus on PHC and a more balanced approach to delivering health services.

Estonia has undertaken PHC reforms in terms of organisational structure, financing mechanisms, regulatory compliance, and service provisions (Atun et al. 2006). These reforms have had significant success in terms of the implementation and adoption of new organisation structures and the ability of patients to select their own family physician (FPs) (Atun et al. 2006). In addition, Estonia has instituted new payment methods (health insurance and state supports), new service contracts for FPs, increased service offerings in line with specialist training in family medicine, and increased scope of evidence-based practice guidelines (Atun et al. 2006). The resulting reforms have increase the effectiveness of PHC, as evidenced by the FP's management of certain chronic ailments and a reduction in hospital admissions associated with those ailments (Atun et al. 2006).

The innovative and multifaceted PHC reforms succeeded due to convincing leadership and effective coordination from policy and operational levels that brought about a simplified approach to intervention implementation (Atun et al. 2006). In doing so, this enabled adopters to understand the changes being made, so the change management strategy could circumvent politicising by stakeholders who opposed changes (Atun et al. 2006). A key aspect of Estonia's success was their investment in training that created support and buy-in of health professionals at the operational level resulting in policy adoption (Atun et al. 2006). The Estonian approach to PHC reform, driven by establishing legal mandate, was achieved due to a culmination of factors: organisational restrictions at every level, changes to financial mechanisms of funding that included payment systems, a reward scheme as an incentive for service innovations, and investment in staff resources (Atun et al. 2006). A range of factors, including law changes, organisational restructures, changes in the financing system, provider payments, incentives in service innovations and human resource development are the reasons for the success of the Estonian PHC (Atun et al. 2006).

Nonetheless, Brazil, Cuba and Estonia have illustrated that reforms and development through the commitment to PHC can yield success. However, for each country, there are different population levels that the healthcare systems must cater for, with Brazil the largest at 190 million, Cuba at 11.3 million and Estonia at 1.3 million. It seems that the reforms are more likely to succeed in a country like Estonia with its small population as its model is all-encompassing, with a commitment that is not centred on a political agenda, and investment in resources to support change and deliver on services.

Recognising successful implementation strategies and countries with successful PHC enabled the identification of characteristics that constituted a successful system; specific traits, such as decentralised control, were a common and essential element for that success. Table 2.2 summarises key factors that are considered crucial for the success of PHC in Brazil, Cuba and Estonia and linked to the *Ouagadougou Declaration's* nine criteria. To ensure successful PHC, Brazil, Cuba and Estonia instigated some changes to the criteria that were dependent on their own context and assessment of the inputs/investments needed. In general, the success of Estonian PHC is the result of inputs/reforms in most of the criteria, particularly leadership and governance, human resources and health financing. While Cuban success is mostly based on their overall leadership and governance, the progressive socialist approach to healthcare and success of the Brazilian PHC system is their emphasis on rights to healthcare, equality, decentralisation and state financing health services. There were no significant changes concerning health information, health technology, partnerships for health development or research for health in any of the countries.

TABLE 2.2. KEY FACTORS OF PHC IN BRAZIL, CUBA AND ESTONIA AGAINST THE *OUAGADOUGOU DECLARATION'S*  
NINE CRITERIA

Nine Ouagadougou Criteria	Brazil	Cuba	Estonia
<b>Leadership and Governance for Health</b>	Decentralised	Health governance approach (socialist approach to PHC), political desire and PHC system established as the foundation of the healthcare system	Restructured the organisation to deliver PHC, regulatory compliance and convincing leadership and effective coordination from policy and operational levels
<b>Health Service Delivery</b>	Free healthcare	Nil found	Nil found
<b>Human Resources for Health</b>	Nil found	Nil found	New service contracts for FPs and investment in training that created support and buy-in of health professionals at the operational level
<b>Health Financing</b>	Public financing of health services	Nil found	Public financing of health services and health insurance
<b>Health Information</b>	Nil found	Nil found	Nil found
<b>Health Technologies</b>	Nil found	Nil found	Nil found
<b>Community Ownership and Participation</b>	Healthcare as people's essential right, equality/equity in healthcare and community participation	Community participation and healthcare as people's essential right	Nil found
<b>Partnerships for Health Development</b>	Nil found	Private sector participation	Nil found
<b>Research for Health</b>	Nil found	Nil found	Nil found

## 2.5 REGIONAL PERSPECTIVE OF PHC OR PHCCS IN THE MIDDLE EAST CONTEXT

In the Middle East and beyond, there is a keen interest to assess healthcare to ascertain the quality of care. Within that, customer satisfaction from an external perspective should be considered (Al-Eisa et al. 2005). In a study conducted by Al-Eisa et al. (2005), customer satisfaction was generally good, yet some areas required an increased focus to improve customer satisfaction. In particular, there was concern about physicians' medical skills, especially among Arabic physicians with patients perceiving that non-Arabic physicians have better skills and knowledge (Al-Eisa et al. 2005). This aspect in and of itself is an important issue and raises concern regarding the effectiveness of PHCCs. Patient perception of training and skills can influence how patients interact with physicians, and this can affect healthcare decisions through the delivery of care. However, most of the physicians in the study were Arabic, whereas in Saudi Arabia this does not

hold. The study demonstrated the importance of patient satisfaction and indirectly showed, through such interactive patient participation, the significance of the patient–physician relationship in providing PHC (Al-Eisa et al. 2005).

Furthermore, Al-Eisa et al. (2005) demonstrated the need for increased physician-based training, which would increase physician responsiveness to patient needs. There is sufficient evidence that patient satisfaction surveys can add value, and should be done routinely as a means to measure and access the level of quality-based care being provided by PHC physicians (Al-Eisa et al. 2005; Mohamed et al. 2015). Similarly, Al-Ahmadi, & Roland (2005) conducted a research survey that focused directly on the level of quality in PHC in Saudi Arabia and determined '*substantial variation in the quality of Saudi primary healthcare services*' (Al-Ahmadi & Roland 2005, p. 331). An ongoing issue over two decades of primary care was the need to train knowledgeable staff, such that the researchers indicated a need for strategic staff professional development.

However, given the MoH's constant challenge of finding qualified staff, the likelihood of having sufficient trained specialists to meet the need could be a logistical challenge. The issue of staff shortages across every aspect of health from administrators to nurses, physicians and technical support requires additional professional recruitment strategies (Ministry of Health 2010). Previously implemented strategies have had a minimal effect on staff shortages; for example, auditing and feedback have shown that the benchmark is low due to the lack of compliance (Ministry of Health 2010).

Much like other Gulf Cooperation Council (GCC) countries, Saudi Arabia has some unique characteristics in terms of managing their healthcare system and its challenges. For example, in high-income countries, citizens largely contribute to healthcare funding through private health insurance. Conversely, in low-income countries, healthcare financing is dependent on assistance from donor countries and international organisations. In the case of GCC countries, healthcare funding is supported neither by healthcare insurance schemes nor by external sources. Rather, it depends on oil or gas revenue (Alkhamis, Hassan & Cosgrove 2014). In addition, GCC countries face challenges in operating their healthcare systems due to the unique demographic characteristics of their population and difficulties in deciding to what extent the vast number of foreign workers should receive healthcare support and how these should be financed (Alkhamis, Hassan & Cosgrove 2014).

Overwhelmingly, the GCC is a region that provides PHC through government programs, and as such is heavily reliant on direct funding to support PHCC infrastructure (Morris et al. 2015). Given the desire of many countries within the GCC to form public–private partnerships (PPPs) to reduce the associated cost burden, the opportunities to embark on the collaborative delivery of services poses significant challenges to governments as they are ill-equipped to manage healthcare providers (Mourshed, Hediger & Lambert 2006). Similar to Saudi Arabia, the GCC region faces the same three challenges: ageing population, population growth and increasing health risk factors. It is therefore essential that they act to solicit private healthcare providers despite the lack of familiarity or capacity to establish quality indices and measure service or financial performance (Mourshed, Hediger & Lambert 2006). Nevertheless, the intent and desire to seek opportunities, especially in managing PHC facilities, is an area that is a focal point given the lack of expertise in hospital management (Mourshed, Hediger & Lambert 2006). While PHC is existent within GCC health systems, the notion of a private healthcare model providing general practice care is yet to be established (Mourshed, Hediger & Lambert 2006).

To succeed, private healthcare providers entering this arena will need to establish a primary care network to acquire patients either by working with established medical specialists or through the creation of new networks (Mourshed, Hediger & Lambert 2006). In some instances, private providers have been integrated within existing hospital structures (Mourshed, Hediger & Lambert 2006). The opportunity to work with and attract private providers is not only critical for alleviating healthcare financial concerns but addressing the delivery of specific services where gaps exist in primary care facility management, rehabilitative and long-term care, or dialysis (Mourshed, Hediger & Lambert 2006).

## **2.6 COMPARISON OF PATIENT SATISFACTION IN REGIONAL PHC**

The UAE adopted the PHC approach to healthcare in 1986 (Bener, Abdullah & Murdoch 1993) and was in a PHC expansion phase much like Saudi Arabia in the 1990s. As of 2001, the UAE had 105 government-funded PHC clinics, which predominantly served most people within the country since most UAE citizens were geographically located a short distance from a clinic (Badrinath et al. 2002). The UAE PHC clinics have a comparatively similar level of limited infrastructure and services (Margolis et al. 2003). Similarly, PHCCs in the UAE have found that resource allocation is a factor in patient satisfaction (Margolis et al. 2003).

Al-Eisa et al. (2005) found that while overall satisfaction was very high, this was disproportionately skewed toward males. Female patients were less satisfied, and so were younger patients (Al-Eisa et al. 2005). Mohamed et al. (2015) more recently found a correlation between educational level and patient satisfaction, with less educated patients being more satisfied than those more educated.

When looking at Middle Eastern countries that have adopted PHC and successfully garnered community support to drive care in the rural setting, Iran has been successful with their 'health houses' located in remote and sparsely populated areas (Mehryar 2004). With each health house catering to ~1,500 people and accessible within an hour's walk, these facilities use local people to work and run the facility and, in doing so, bridge a gap that consequently increases the collection of health information (Mehryar 2004). Workers receive training free-of-charge at a district level and financial support over a two-year period; they are obliged to serve for four years at that health house after completing their training (Mehryar 2004).

In Muscat, the capital city of Oman, the level of satisfaction with PHC was reported as acceptable as a strategy to deliver healthcare (Albalushi, Sohrabi & Kolahi 2012). The conclusions drawn within this Middle Eastern country are that this type of healthcare provision is suitable for other countries, but its success is driven by the levels of satisfaction with the quality of the staff followed by the level of and access to the health services offered (Albalushi, Sohrabi & Kolahi 2012). Allocation of healthcare resources, education level of patients and healthcare accessibility are key elements of client satisfaction of PHC.

## **2.7 PRIMARY HEALTHCARE AND THE HEALTH SYSTEM IN KSA**

It is clear that the health system in KSA depends on the nine pillars and six building blocks of health systems. Guided by the framework stated above, this section considers the findings in the literature under each criterion.

### *2.7.1 LEADERSHIP AND GOVERNANCE IN HEALTH*

The government is accountable for providing the overriding vision for the health system (WHO 2010a). Moreover, it is the government's responsibility to ensure that there are suitable levels of knowledge management across the healthcare sector (WHO 2010a). The government plays an important role in the governance and implementation of national health policies and strategic plans. The government must ensure equity in health, which requires good governance at the local

level through regulatory frameworks, and the monitoring and assessing of health information data (WHO 2010a).

At the clinical governance level, the government must ensure that there is appropriate leadership, communication and teamwork as well as mitigate risk through stringent management procedures and clinical effectiveness (Du Toit et al. 2013). The government must also ensure that professional standards are maintained and accountable (Du Toit et al. 2013) using mechanisms that assimilate patient data across the healthcare sector from the policy level to the clinic level. The amalgamated information can be used to influence decision-making on critical health determinants related to health services and thereby ensure accountability and maximum efficiency (WHO 2010a). This is essential when considering the quality of care and the scarcity of resources available (Du Toit et al. 2013). WHO (2010a) reiterated the stringent need for oversight of the health development across health systems and stakeholders, and to engage the private sector and professional organisations to enforce levels of governance through frequent audits for accountability and transparency.

Sambo and Kirigia (2014) reported that leadership and governance transcended not only strategic policy initiatives but effectiveness monitoring in terms of managing human health resources and reaching universal access to healthcare. Moreover, the development of partnerships can be checked through regulatory processes. The need for strong leadership and governance is essential for delivering strategic policy initiatives, without which UHC cannot be achieved (Sambo & Kirigia 2014). Thus, a national health policy is dependent on a strategic plan for implementation, just as the strategic plan is dependent on leadership and governance for its effective execution. There is a natural dependence between the three aspects, which need measures to effectively assess the progress toward UHC, quality of healthcare delivery, and all other indices.

Al-Ahmadi and Roland (2005) identified the need to improve management to increase the quality of Saudi Arabian PHCCs. The failure of PHCC management to enact effective decision-making has impeded organisational performance, whereby healthcare professionals underperform, which translates into ineffective PHCCs (Al-Ahmadi & Roland 2005). The ineffectiveness attributed to poor leadership has been acknowledged by the Saudi Arabia Ministry of Health (Ministry of Health 2010). The Saudi Planning Department acknowledged that Saudi MoH leadership was an obstacle given its hierarchical and centralised power and decision-making structure (Ministry of Health 2010). This has obstructed the development of healthcare reform as part of the overriding

strategic plan. The current structure is not only ineffective for the PHCCs in question but also when considered across the whole system in Saudi Arabia (Alrabiyah & Alfaleh 2010).

The current Saudi Arabian healthcare leadership structure restricts lower level management decision-making (Al-Ahmadi & Roland 2005). By limiting the authority of leaders to enact decisions locally, the Saudi structure is constraining leadership behaviour and shaping the PHC organisational culture. This culture is ineffective as such bureaucracies are prevalent in Arab countries (Al-Yahya, Lubatkin & Vengroff 2009; Lok & Crawford 2004). Decentralisation of decision-making has occurred in some Arab countries, notably Sudan, with others, such as Lebanon, Syria, Tunisia and Oman, in the process. The need to change the approach to management is now a reform priority for many countries (Jabbour et al. 2012).

Governance strategies are not merely central to, or solely reliant on, governments implementing, monitoring and evaluating. In some instances, private governance is used to outsource, accredit and regulate to improve the provision of quality-based health services (Lewin et al. 2008). In some cases, governance through outsourcing to the private sector has resulted in less than optimal quality-based indicators with regard to the quality of care and patient satisfaction. Lewin et al. (2008) suggested that these approaches to governance are particularly useful when applied in lower socioeconomic areas.

Tait (2004, p. 723) stated that *'changing the way people work; demonstrating that leadership, teamwork and communication is as important to high-quality care as risk management and clinical effectiveness'* are requisites for clinical governance. This can be extended to include professional standards and staff accountability within the primary care setting (Du Toit et al. 2013). In terms of governance in Saudi Arabian PHC, the focus relates to patient safety and the delivery of care. Obeidat et al. (2012) reported that the level of quality as determined by the level of services increases in line with population increases to meet desired health goals. In addition, they noted that to achieve health outcomes, a certain level of professional knowledge is required to meet patient expectations. Knowledge management, appropriate leadership communication and clinical governance level are key elements of the quality of care in PHC.

### 2.7.2 HEALTH SERVICE DELIVERY

Health service delivery is how services are provided to improve patients' lives. These services must be comprehensive in nature, equitable and responsive to health needs, and driven by quality and integration (WHO 2010a). For a health system to work properly, the delivery mechanism must

provide delivery without barriers to geographic location, ethnicity, economic means, or educational level (WHO 2010a).

Thus, health system delivery extends beyond clinical practice, as it includes all facets of health and includes aspects such as the promotion of good health, disease prevention and engaging communities (WHO 2010a). Having integrated health services delivery models across all levels and facets of health services will ensure equity in health and achieve levels of economic efficiency (WHO 2010a). To achieve such equity, a comprehensive health service delivery model needs to be integrated from the outset and from policy level to delivery level. The model should be accessible, equitable, affordable, and ensure patient safety (WHO 2010a). With the future direction of incorporating private health providers through PPPs into national programs as in Saudi Arabia, health systems should be designed with an approach to ensure continuity of care (WHO 2010b). Technological advancements in health systems and the functionality of the delivery system must constantly adapt to the changes. The infrastructure must be responsive to demands and changes in health needs, and sustain universal coverage through a pliable health infrastructure that can accommodate these challenges (WHO 2010b).

It can be asserted that, given the complexity of health systems, it has been challenging for policymakers to increase the strength of those systems and services. Therefore, policymakers need to improve the performance of the health system in such a way that the implemented changes can be measured (Dudley & Garner 2011).

#### *Review of the Role of Directors/Operational Leaders in Health Service Planning, Development and Operations*

Typically, like other developing countries, the development of healthcare policies and plans related to capacity building, staff development and training in Saudi Arabia is intermittent. However, to ensure an efficient health system, it is important to adopt a long-term plan for adequate leadership training, management and professional development. However, the lack of such long-term plans results in poor health service outcomes, even though the government allocated substantial resources to the health sector (Ministry of Health 2011). The annual fiscal burden for the health sector has made it hard for the Saudi Arabian government and the MoH to effectively allocate funds to service providers (Albejaidi 2010). Consequently, most of the funding was directed to hospitals, without attending to the PHC system.

Therefore, to address the ever-increasing pressure on the MoH at the macro level, regional directorates were given more autonomy in the areas of planning, recruitment and training of professional staff, contracting health service providers and undertaking small-scale financial decisions. In the absence of adequate financial and human resources or spending authority, due to the lack of individual budgets, the regional directorates were unable to perform what was expected of them (Mufti 2002). Besides overseeing the delivery of overall healthcare, the directorates are responsible for inpatient and outpatient care.

The MoH had to not only supervise fiscal control but operational activities such as the framing of policy guidelines and overall operations activities. Thus, decentralisation of major services would be recognition by the MoH that healthcare service efficiency depends on the power given to the provider to determine its resource requirements. Without fiscal control, the ability to ascertain resources is prohibitive, and the notion of decentralisation in the health sector seems far from reality (Mufti 2002). The granting of autonomy to public hospitals may be beneficial for the expansion of services, service quality and revenue generation (Mufti 2002). Decentralised healthcare in Saudi was envisioned during the fourth five-year development plan from 1985–1990 (Mufti 2002).

#### *Analysis of Functions of the MoH (Especially PHC): from Past to Present*

In past decades, the MoH has experimented with numerous strategies to improve hospital management and PHC by introducing health insurance, granting autonomy to public hospitals, and privatising public hospitals (Walston, Al-Harbi & Al-Omar 2008). In addition, in the past decade, KSA has required that non-Saudi workers, accounting for 30% of KSA's population, have comprehensive health insurance (Alfaleh et al. 2015). Moreover, these strategic changes burden the private business sector, although the level and quality of health insurance are not universal throughout KSA (Alfaleh et al. 2015). Currently, insurance companies contract health providers as a means to negotiate rates for services and, therefore, different levels of premiums and care are provided (Alfaleh et al. 2015). The variability means that patients do not receive PHC from hospitals and medical centres that are not equipped to provide specific services (Alfaleh et al. 2015), which consequently increases the demand for privatisation of healthcare system and increases competition in the insurance sector. This issue reflects the imbalance of access to healthcare service delivery within KSA.

### *The Hajj Event and its Impact on PHC in KSA*

Saudi Arabia is unique within the Islamic world as it is the home of two holy cities, Makkah and Al-Madinah. Every year, millions of pilgrims from across the world visit the country to perform Hajj, one of the most important pillars of Islam; every Muslim must make the pilgrimage to Makkah once in their lifetime (Ministry of Hajj and Umra 2011).

In 2011, 2.9 million pilgrims performed Hajj; among them, 62.4% were foreigners (Ministry of Health 2011). With such an influx of pilgrims, healthcare delivery in Saudi Arabia faces many challenges during the Hajj season including:

- Challenges to treat various forms of acute illness, ranging from infectious and parasitic disease to chronic illness.
- Pilgrims are offered preventative care including immunisation and chemoprophylaxis. For example, in 2005, roughly 3,000 pilgrims were provided meningococcal meningitis vaccines, and 300,000 pilgrims received prophylactic treatments (Jannadi et al. 2008). Every year during Hajj, more than 12,000 healthcare workers are appointed to provide services to pilgrims (Ministry of Health 2011).

For this purpose, 14 permanent hospitals and seven temporary hospitals are run by the MoH with more than 3,600 hospital beds (Ministry of Health 2011).

### *Reasons for Serious Health Problems During Hajj*

The Hajj season often witnesses health crises due to overcrowding, which increases the likelihood of injuries and the spread of infectious diseases (Walston, Al-Harbi & Al-Omar 2008). Moreover, temperatures rise to more than 40°C in summer causing many people to suffer from fatigue and dehydration. In 2005, around 1,200 pilgrims died while performing Hajj (Jannadi et al. 2008). To reduce the number of casualties among Hajj pilgrims, various organisations including the MoH, Armed Forces and National Guard operate large-scale contingency plans to ensure that necessary healthcare services are available to pilgrims on a 24-hour basis (Walston, Al-Harbi & Al-Omar 2008). Additionally, other ongoing government projects are undertaken to ensure the health and safety of Hajj pilgrims. Since 2001, the Saudi government has become aware of potential security risks that might lead to injury and loss of lives.

### *Challenges for the Government During Hajj in KSA*

Essentially, providing healthcare services to Hajj pilgrims presents considerable challenges to the Saudi government. The government provides preventative programs including health education and vaccinations for all pilgrims through quarantine services at all airport and land ports, while a system of healthcare units provides emergency and curative services. However, since pilgrims can access all healthcare services for free, the Saudi Arabian health system and health budget are under considerable pressure. Alternatives to ensure optimal service quality at lower cost, such as a mandatory health insurance scheme for international pilgrims, is needed (Almalki, FitzGerald & Clark 2011).

The sheer scope of the number of pilgrims each year poses another significant problem in that healthcare workers (HCWs) must have a vast knowledge regarding communicable diseases and preventative measures (Al-Ghamdi & Kabbash 2011). The issue that HCWs face is the outright refusal by pilgrims to take vaccines or medications, coupled with language barriers (Al-Ghamdi & Kabbash 2011). The HCWs inability to perform these treatments increases the potential risk for the spread of disease and the need for additional treatment at a hospital, which then impacts on delivery of care and increases patient waiting times. Other issues that challenge HCWs during this period is their training and knowledge of specific diseases, such as yellow fever, meningococcal meningitis and influenza (H1N1) (Al-Ghamdi & Kabbash 2011).

In 2009, along with 21 hospitals (14 permanent and seven seasonal, >3,600 beds), an additional 154 PHCCs were in operation (CDSI 2012; Ministry of Health 2011). Typically, a PHCC treats 4,734 pilgrims (Almalki, FitzGerald & Clark 2011; Ministry of Health 2011). In 2011, 21,201 staff, including doctors, nurses and allied health professionals, were recruited by these facilities, which was 8% more than the previous year. On average, one doctor provided treatment to 720 pilgrims, and each nurse treated 427 pilgrims (Ministry of Health 2011).

There remains a significant need to implement training courses for all HCWs prior to Hajj and to establish a process for addressing language barriers that contribute to the prevention of healthcare delivery. During Hajj in 2012, 585 deaths occurred, with approximately 45% related to heart and blood vessel disorders and cardiorespiratory failure (Ministry of Health 2013b).

The population congestion of Hajj increases the likelihood of respiratory infections, as brought on by 'Hajj cough', and given the proximity, viruses and bacteria can spread quickly (Shafi et al. 2008). The number of pilgrims attending Hajj poses a significant threat for infectious diseases to spread

rapidly which in turn creates immense challenges for healthcare policymakers, officials and personnel (Shafi et al. 2008). The annual population increase, coupled with escalating disease, requires an updated healthcare program to ensure the health safety of all participants, health personnel and KSA citizens (Shafi et al. 2008).

### 2.7.3 HUMAN RESOURCES FOR HEALTH

Healthcare professionals are the medium for the implementation of healthcare policies and care services to the public. These human resources are vital for the delivery process. As a core liaison for any healthcare system, human resources are critical for patient-centred delivery of care and the advancement of health in society (WHO 2010a). The adequacy and level of training of these resources are critical for achieving positive health outcomes and the quality of health service delivery (WHO 2010a).

Due to the essential role that human resources play in health system delivery, the effective planning, management and utilisation of those resources are needed (WHO 2010b). Therefore, it becomes critical when there is a scarcity of those resources or significant turnover as this can diminish the amount and quality of services. Moreover, it is important that the distribution of resources be equitable (Sambo & Kirigia 2014). Thus, the equitable alignment of resources and facilities within a health system is paramount for improving delivery and performance.

To improve health systems, it is essential to increase recruitment of the health workforce by improving management, retention and motivation strategies (WHO 2010a). Given the global health worker migration process, bilateral and multilateral agreements need to be developed and implemented to curb the migration crisis (WHO 2010a). It is critical that policy and planning include human resource information systems to advance health worker resource issues (WHO 2010a).

Primary health infrastructure is critical for reducing poor health indicators that measure the success of a nation. It reflects the measure of the effectiveness of PHC systems and the efficiency of delivering services. The factors that impede the efficiency and effectiveness of a healthcare system can be funding, lack of staff training facilities, and improper management and organisational structure (Azétsop & Ochieng 2015). The *Ouagadougou Declaration* stressed the importance of training facilities, along with maintaining staff motivation to reduce turnover and increase retention, to minimise the impact on health service coverage and retain the quality of care of health service delivery (WHO 2010a). Comprehensive policies are needed that are directly

related to the training and development of existing staff with specific fiscal allocation to support delivery (WHO 2010a).

One of the essential aspects of PHC is staffing resources. It is inherent in comprehensive primary care; even the WHO stated that creating teams that are inclusive of requisite skills, such as family physicians, is essential for providing proactive care (Moosa et al. 2014). However, Mumenah and Al-Raddadi (2015) found that family physicians have experienced complications with the MoH-based system concerning other staff, infrastructure and services, which have affected job satisfaction and are a likely factor for the lack of trained family physicians within the MoH PHCCs. Moreover, in a study on PHCCs in Jeddah, only 66% of surveyed physicians working in the MoH had bachelor level training (Aloufi and Bakarman 2016). This issue becomes aggravated when PHC physicians are faced with medical emergencies, as those physicians lack competency for such situations (Aloufi & Bakarman 2016). To recapitulate, the lack of adequately trained staff and job dissatisfaction is affecting the efficiency and effectiveness of PHCCs in KSA, which has consequently increased the demand for new staff and increased pressure on old staff.

Alshammari (2014) found that the most significant indicators for patient satisfaction were access to appropriate healthcare and physician availability. As the demand placed on PHC physicians increases, frameworks or adapted models are needed to address these demands. To combat increasing global chronic diseases, particularly in middle and low-income countries, PHC systems must be strengthened through the adoption of a Chronic Care Model or framework (Hogg et al. 2008; Samb et al. 2010; Wagner, Austin & Von Korff 1996). Samb et al. (2010) found that the functionality and design of a healthcare system can significantly affect implementation strategies to combat chronic diseases. Furthermore, they found significant restraints on the six key building blocks stipulated by WHO (Figure 2.2) (Samb et al. 2010). All of the WHO partners have increased their efforts to combat diseases like malaria, tuberculosis, HIV and others associated with preventative diseases (Samb et al. 2010).

The increased global emergence of chronic diseases and consequent failure to meet the Alma-Ata targets requires a new approach to strengthening health systems by developing a new global agenda (Samb et al. 2010). By 2030, it is estimated that the prevalence and escalation of non-communicable diseases will account for 69% of all deaths globally, of which 80% will occur in middle and low-income countries (Samb et al. 2010). Incorporating a broader management approach to chronic diseases has not occurred, as the focus is typically on a single disease and

efforts are disjointed. However, evidence shows that managing chronic diseases increases the strength of health systems (Samb et al. 2010).

#### *Importance of Recruitment, Training and Education in the Healthcare System in KSA*

It is widely accepted that to run an efficient healthcare system, qualified and adequately trained staff are essential. In Saudi Arabia, around 80% of doctors and nurses and more than 50% of health technicians are non-Saudis (Ministry of Health 2006) because Saudi citizens are mostly employed in administrative duties in health services (Ministry of Health 2011). Up to 2011, the number of practising doctors and dentists reached almost 35,000; however, only 9,119 were Saudi doctors (Ministry of Health 2011).

Similarly, 45,875 of the 82,948 nurses (53%) are Saudi (Ministry of Health 2012). Furthermore, most Saudi healthcare personnel are concentrated in urban areas; this distribution of indigenous health personnel results in inefficiencies in the health sector. The existing situation requires enhanced investments in medical education and allied health disciplines in both government and private sectors (Mufti 2002).

In addition, to improve the quality of health services, increased investments are needed to train Saudi doctors and nurses to update their professional skills through continuing medical education (Al-Mosilhi & Kurashi 2006). Specifically, Al-Mosilhi and Kurashi (2006) found that PHCC physicians were unhappy with the Medical Education Centre training being offered, citing that they were unaware or did not have access to this training due to factors including internet, email and distance learning. The latter is particularly significant, and invest in internet access is needed, as a lack of such technology makes distance learning impossible (Alshammary, Ratnapalan & Akturk 2013).

#### *2.7.4 HEALTH FINANCING*

Health financing is the means by which funds are collected to pay for services. These include both the public and private sectors, which diversifies the financial risk as the funds are derived from governments, business, donors and households (WHO 2010a). Health financing provides a funding mechanism for the acquisition of cost-effective interventions and, by offering providers financial incentives, it enables individuals a means of access services otherwise unavailable (WHO 2010a). Health financing should be incorporated within a national health strategic plan and serve as a gateway to increasing efficiency through PPPs, increased capacity, improved priority setting,

implementing a needs-based allocation of resources, curb wastage, and initiating organisational and managerial reforms (WHO 2010a).

To take advantage of health financing, financial management skills need to be strengthened (WHO 2010a). It has been suggested that financial decentralisation is necessary to support the latter aspects and improve efficiency. Financing health systems must accommodate financial hardships and disasters brought on by ill health (Swanson et al. 2010). The ability to pay for health services when an individual has suffered some form of financial hardship is counter to the ethos of universal coverage. Health financing needs to be sustainable and offer a level of predictability, particularly during crises, which can be achieved from taxation or foreign aid (Swanson et al. 2010).

Those health systems that endorse and support prepayment schemes and have high participation rates can avoid the impoverishment that results from out-of-pocket expenses, thereby maximising health equity (Gilson et al. 2007). Similarly, social protection schemes are required to include social health insurance, or a system funded through taxation to insulate against impoverishment of health expenses (WHO 2010a). The need to collaborate and coordinate these various health-financing mechanisms requires integration within national health policies and strategies for implementation (WHO 2010a).

#### *2.7.5 HEALTH INFORMATION*

Health information systems provide medical professionals access to evidence-based research that can inform decision-making about care. It is imperative that this information and its data be of high quality, so its analysis yields interpretation and applies to practice (WHO 2010a). Health information can provide data that can be continually monitored and evaluated and, as such, should be integrated within the national healthcare system (Bhutta et al. 2010; Du Toit et al. 2013). Even two decades ago, Wagner, Austin and Von Korff (1996) stated that a key primary care attribute was a clinical information system.

An integrated health information system enables data analysis across all systemic levels, including logistics, supplies, training and clinical practice. This information can be then used to develop strategic plans to improve quality (Rowe 2009). It is essential for healthcare providers and key decision-makers at the clinical and policy levels to ascertain reliable and comparable health information data, which can be used to assess organisational functionality and PHCC delivery of care (Levesque et al. 2014). Health information systems are a source for supporting professional

development and training that can bridge the education and clinical practice divide, which translates into increased quality of care (Davis, Davis & Bloch 2008; Du Toit et al. 2013).

One of the impending challenges faced by the Saudi health system is the establishment of a National Health Information System (NHIS) to supply reliable data that would facilitate evidence-based decision-making by policymakers. However, this goal has not been achieved, and the available data on the health status of people, such as data relating to morbidity and mortality, is not considered accurate and reliable. The efficiency of the proposed NHIS would largely depend on how the system is supported by improvements in telecommunications technology in collecting data from all parts of the country. The NHIS can also play a vital role in promoting medical services in rural and remote areas (WHO 2008a). To get a better understanding of the health information system—information/reporting flow, data on health service utilisation patterns and medical/clinical records—it is important to discuss and define the e-health system.

### *E-health*

Saudi Arabia's government has been proactive in extending e-health benefits to citizens by ensuring greater access and use of credible and comprehensive health information. The extension of e-health benefits is viewed as an important strategy to enhance the quality of care. Faster access to and sharing of health records may be instrumental in preventing disease and reducing costs associated with chronic disease management (Altuwaijri 2008).

E-health may lower medication and rehabilitation costs. E-health programs will bring numerous benefits to physicians and other healthcare workers, as there would be fewer clerical errors since information will be processed electronically rather than relying on handwritten documents that may lead to miscommunication and misinterpretation (Altuwaijri 2008). Furthermore, e-health instruments will enable physicians to exert more control over the ordering process (drugs and equipment), which will enhance the quality of healthcare. The e-health initiative may also help to reduce the time needed for locating patient charts and using information promptly (Altuwaijri 2008).

The Saudi healthcare system requires a comprehensive nationwide integrated electronic system that incorporates an injury surveillance system (Alanazi et al. 2015). Such a system would provide a means to establishing epidemiologic profiles to evaluate injuries by establishing indicators, and effectively monitor and plan resource allocation (Alanazi et al. 2015). The MoH initiative to design such a system was undertaken to integrate existing health information systems and provide

information that could support policy decision-making for Saudi's health system (Alanazi et al. 2015).

Despite this, health information technology has not been widely employed in delivering quality initiatives within primary care as the costs are allocated to the primary care facility (Higgins et al. 2015). Furthermore, its implementation requires clinical and administrative staff to have specific knowledge about the information systems.

While technological advancements have aided healthcare delivery, they are also a significant challenge. Health information systems are costly to implement and require continued support and maintenance. They also require staff to learn how to use the systems and adapt to computerised record keeping (Qurban & Austria 2008). In Saudi Arabia's case, the MoH established an electronic health system plan from 2008–2011 to improve the level of functionality and efficiency of health services offered (Qurban & Austria 2008). However, the lack of an e-health system within PHCCs adversely affected the implementation of the plan and confirmed the inadequacies of the current PHCC infrastructure (Alghanim 2011).

Information needs to be gathered to understand the factors that affect the prevention of chronic diseases. This is particularly relevant at a primary care level as this has been identified as the appropriate level at which chronic diseases should be managed (Bodenheimer, Wagner & Grumbach 2002; Canadian Diabetes Association 2013; Lukewich et al. 2014; Renders et al. 2010; Wagner, Austin & Von Korff 1996). To increase the likelihood of success of an implementation strategy, assessing and recognising management proactivity and supporting and rewarding it is necessary for innovation in PHC (Birken et al. 2013).

#### *Implementation of a Strong Health Information System*

Saudi Arabia's current healthcare structure is comprised of several providers who oversee a multitude of systems, and this has led to poor communication and a lack of coordination, which has implications for all healthcare sectors (Al-Ahmadi & Roland 2005; Al-Rabeeah 2003; Alyemeni 2010). This, coupled with the lack of an NHIS, contributes to significant issues in terms of data transfer, decision-making, health communication and education awareness, and policymaking (Al-Yousuf, Akerele & Al-Mazrou 2002; Alyemeni 2010; Mufti 2002). It also contributes to operational inefficiencies, such as duplication of services, data errors and increased costs. It has been alleged that Riyadh has more medical equipment than London as a result of poor coordination by management (Sebai 2011). Understanding organisational effectiveness is a primary concern, and

knowing what medical equipment is available and the information it can provide is essential. Having informational tools enables the diagnosis of factors affecting chronic disease prevention and the development of management strategies; without such tools, data collection is impossible (Lukewich et al. 2014). Increasing the understanding of organisational attributes at local, regional and national levels offers a tool for understanding what factors affect the quality of care (Lukewich et al. 2014).

### *Patients' Bill of Rights*

Another aspect that has received little attention and is often misunderstood is the Saudi Patients' Bill of Rights (PBR). In a study by Alghanim (2012), where information was collected from >1,000 physicians, nurses and patients regarding the PBR, more than 75% of the patients reported no knowledge of the PBR. More alarming was the finding that 33% of the PHCC staff had no knowledge of the PBR and 50% of the PHCC staff had very little knowledge of the PBR (Alghanim 2012). The justification by PHCCs for the lack of knowledge and inability to communicate the PBR to patients included issues involving general staff dissatisfaction and the lack of facilities and staff shortages, with 25% of staff stating 'heavy workloads' and 'inadequate resources' as reasons (Alghanim 2012, p. 153). Such findings suggest that there are widespread issues relating to the dissemination of health information to the populace and within the sector. Such issues can contribute to patient dissatisfaction and reflect the poor functionality of the MoH.

### *2.7.6 HEALTH TECHNOLOGY*

Many countries, particularly in the developing world, have seen how an effective health information system plays a significant role in improving the quality of health services delivery (WHO 2008a). Moreover, an improved health information system can obtain insights on epidemiological transition and disease patterns (WHO 2008a). Thus, the establishment of an NHIS is considered necessary as part of capacity building in health, as it facilitates policymaking, service delivery and health research. Additionally, efficient utilisation of health information may eventually promote equity and quality of health services in the country and reduce misuse of resources such as facilities, drugs and equipment (WHO 2008a). Saudi Arabia needs to develop a mechanism for monitoring the performance of various health services to ensure that the government's plan to improve the health system has been successful.

Rapid urbanisation in recent years has brought additional challenges to the health system, influencing lifestyle changes in terms of diet, mobility, physical activities, and participation in

cultural activities (WHO 2006). The preventative approach healthcare model demands that the government plays an important role in encouraging people to adopt healthier lifestyles. Accordingly, the government must promote healthy environments in homes, educational institutions, workplaces and neighbourhoods (WHO 2006).

#### 2.7.7 COMMUNITY OWNERSHIP AND PARTICIPATION

Community participation is a fundamental aspect of PHC and integral to providing universal coverage as it encourages active participation. As such, a mechanism must exist for the community to influence policy (WHO 2010a). Having active communities enables broader planning and cooperation and can benefit health service delivery and increase health system responsiveness to health needs (WHO 2010a). Encouraging community participation means that communities take ownership of their health and influence their behaviour in a preventative way (WHO 2010a).

Historically, communities have been isolated from appropriate policymaking and thus lacked a formal process for participation in health at the local level. In most instances, policies and processes were overwhelmingly externally driven (WHO 2010a). It is necessary to increase community participation by using existing local governmental structures (WHO 2010a). In creating local policies that promote health awareness, healthy lifestyles will increase as those policies can be tailored to address local determinants of health (WHO 2010a).

In addition to active participation and policy adoption, communities must strengthen their managerial structures, increase participation in decision-making, and establish priority planning agendas that consider incorporating consumer activities into the delivery of health (WHO 2010a). Communities must be empowered to undertake governance of health services and become involved in the process to ensure capacity building. Community involvement with health services must be strengthened to increase the collaboration of effort to address both needs-based services and those that are demand-driven, which will require increased coordination and interaction (WHO 2010a).

#### *Community Healthcare*

Primary healthcare capacity needs to expand by integrating governmental and social agency entities so that Community Home-Based Care can augment the delivery of PHC, as they are critical for supporting social welfare services for patients (Aantjes, Quinlan & Bunders 2014). The 2008 WHO revitalisation program for PHC targeted countries that needed to revitalise their healthcare

systems for both communicable and non-communicable diseases (Aantjes, Quinlan & Bunders 2014).

The WHO stated that community participation was a requisite for PHC to provide essential levels of universally accessible care (Littlewood & Yousuf 2000). The central aspects of PHC are prevention and lifestyle modification, such that specific programs like immunisation and community participation are integral (Littlewood & Yousuf 2000). For PHCCs to achieve their stipulated health goals, active community participation is needed. As such, some basic requisites are needed. These include the patient's right to exercise decision-making over their healthcare, and community-based decisions must have the means to implement those decisions (Kathleen, Laetitia & Trinette 1999). Community participation, therefore, requires integrated healthcare planning along with the implementation of health outcomes (Kathleen, Laetitia & Trinette 1999). The implementation of community health programs in Saudi Arabia has increased public awareness of non-communicable diseases such as cardiovascular disease, diabetes, cancers and respiratory illnesses, which are highly correlated with global mortality rates (Memish et al. 2015).

Community focus became a model in the 1980s, a period when aspects of health such as governance, incentives and stewardship were uncommon (Meessen & Malanda 2014). The advent of good governance and increasing accountability and governance works alongside increasing community participation in health as part of the wider system. By increasing community participation, the community is empowered as a whole and education is improved. However, this requires greater cross-collaboration and coordination (Meessen & Malanda 2014).

Community health personnel need to understand program expectations, have a clear plan, and control finances and resources to ensure the success of community health programs as part of the overall primary health system (Bhutta et al. 2010; Du Toit et al. 2013; Standing & Chowdhury 2008). The value of community consultations as a means of addressing health needs is essential for combating issues to improve the likelihood of success (Du Toit et al. 2013). The role that community health workers can have, when actively engaged in the PHC system in their community, increases not only the viability of programs but also clinical outcomes (Du Toit et al. 2013).

#### *2.7.8 PARTNERSHIPS FOR HEALTHCARE DEVELOPMENT*

Partnerships in the delivery of health development require the collaboration of two or more entities in the delivery of health objectives by contributing resources such as material

contributions, technical and financial support (Valaitis et al. 2012). Government stewardship is required when those partnerships support national health programs through PPPs. The stewardship ensures accountability for service delivery and requires a coordinated approach to increase the robustness of the health system (WHO 2010a).

A partnership at both private health and non-health provider's level will aid in policy development and strategic planning. This requires coherence across entities to meet health determinants and support health equity (Siddiqi et al. 2009). Such partnerships can be achieved on an international level and, in doing so, mechanisms for health promotion and soliciting multi-donor financial support can have a broad impact on national health directives (Sieleunou et al. 2017). Inter-sectoral collaboration as part of a national health strategy can expand policy formulation and services being offered whereby PPPs are included in policy directives (WHO 2010a). Partnerships can benefit in ensuring community awareness and support global initiatives, such as increasing governance through increased accountability and transparency, which improves the development of health initiatives (Estacio et al. 2017).

#### *Analysis of Three PPPs (Public–Private Partnerships)*

Public–Private Partnerships are a way to increase service delivery and reduce direct healthcare costs by governments through the privatisation of health insurance and specific medical care, as well as sharing risk and increasing expertise. In Saudi Arabia in 2012, the first of this kind occurred when the King Fahd Medical City contracted with a private sector company to develop a Saudi Centre for Particle Therapy (Economist 2014). The 2014 Saudi Health Exhibition and Conference attracted over 300 industry-specific companies, representing 35 countries, to attract potential investors to develop strategic partnerships that will lend knowledge and expertise to the region (Arabnews 2014). Such is the need for healthcare investment to meet the rising challenges that this forum is a way to foster PPPs within the sector.

PPPs in Saudi Arabia is an area that has been targeted to reduce 60% of healthcare expenditure (Watson 2012). In doing so, the Saudi Arabia MoF is providing grant assistance to attract private healthcare providers, and given the burgeoning middle-class in KSA, this market segment has been targeted by international healthcare providers (Watson 2012). This move, coupled with existing PPPs that have provided support to deliver large-scale projects, along with the utilities sectors (Watson 2012), can provide significant solutions to existing healthcare problems that would otherwise take significantly longer to resolve. PPPs provide opportunities to reduce risk, bring

specialist skill sets, particularly those required in the health sector, and above all increase efficiencies (Watson 2012). Inter-sectoral collaboration through PPPs requires theoretical changes to both public and health policy formulation and strategies to improve health systems including PHC (Azétsop & Ochieng 2015).

While existing public health structures and systems are inadequate to meet both the demand and level of quality needed for healthcare, the notion that PPPs are the solution has evolved over the past decade (Baig et al. 2014). This sort of arrangement can be a natural extension of other neoliberal privatisation schemes adopted in the past three decades and would, therefore, require increased oversight and governance to monitor the quality of health services. Additionally, it is considered that PPPs would increase the level of service. However, Baig et al. (2014) found that the delivery of services was lacking and existing public health facilities were more accessible, with greater access to medicines and improved doctor communication.

The Baig et al. (2014) study also included PHCCs in a non-governmental agency (NGO) and at a corporate level. Overwhelmingly the study found that PPPs were not the answer to staff shortages or retention and that this translated into sub-optimal performance. For Saudi Arabia, where staffing is a considerable challenge, this poses a significant concern, since the desire to increase PPPs in an environment beleaguered by staffing challenges that affect overall capacity can be construed as an ineffective solution and one that may compound existing levels of care.

#### 2.7.9 RESEARCH FOR HEALTH

Research for health is an area that requires review and needs to be addressed. The *Ouagadougou Declaration* noted that current global research levels are only 10% of the funding allocated to health (WHO 2010a). This disproportionate allocation accounts for 90% of the global population's health issues and represents a significant global health challenge (WHO 2010a). The *Ouagadougou Declaration* was held to establish a framework to address the challenges that impede health system delivery and to include the recommendations within national health policies for PHC to re-address those challenges (Kirigia & Barry 2008). It has been felt that, through the promotion of PPPs, these challenges can increase access to health systems and improve health infrastructure and access to medicines and vaccines (Kirigia & Barry 2008). PPPs can also deliver new technologies that would support health information systems, increase health education and awareness, and evidence-based research (Kirigia & Barry 2008).

Saleh et al. (2015) found a lack of evidence-based decisions at the PHC level, and that overall research output was low and thus a poor basis for making evidence-based decisions. A lack of evidence-based decisions raises concerns over quality in clinical practice, which has implications for the patient–physician dynamic in primary care (Saleh et al. 2015). To date, research has not been widely adopted as a means for shaping policy changes or being integrated into practice (Du Toit et al. 2013). Given that the study above was conducted in the Eastern Mediterranean region within parts of the GCC, differences are highlighted in terms of issues with PHC between western societies and KSA (Heath et al. 2009).

Saleh et al. (2015) suggested that issues that impede quality of care and are driven by process limitations or impediments should be prioritised. A lack of resources in Saudi Arabia could be due to the inability to conduct research. Both issues (lack of resources and lack of awareness regarding priorities) are prevalent in KSA, which raises the question as to what the priorities are and what primary challenge should be tackled. As far as PHC is concerned, the physician needs sufficient time to explain treatments, reassure the patient, and include patients in the decision-making process for patients to report satisfaction in the primary care setting (Saleh et al. 2015). Evidence-based research would increase a physician’s clinical knowledge, if they are provided with adequate training; in fact, there is a direct correlation between a physician’s knowledge of statistics and their ability to comprehend evidence-based research (Jahan, Al-Saigul & Suliman 2016). Jahan, Al-Saigul & Suliman (2016) stated that 73% of physicians rated themselves as scoring five or below on a 1–10 scale of knowledge on statistics. The study also showed a correlation between a physician’s positive attitude to learn more statistics and the ability to understand the evidence-based research.

In Saudi Arabia, health research needs to increase to support policymaking and improve healthcare through evidence-based research (Jahan et al. 2014). Such research is particularly beneficial in the PHC setting as it is critical for improving the delivery of quality-based care to patients, advancing clinical knowledge of healthcare providers, and reducing health costs (Alsalloum, Cooper & Glew 2014; Jahan et al. 2014). Research can aid organisations in developing priorities as a means of improving health outcomes. Jahan et al. (2014) found that focusing on the specific clinical health needs of the populace in Saudi Arabia’s Qassim assisted aided in providing treatment for various non-communicable diseases. The research further identified the need for broad collaboration between health departments in the primary care setting to augment and facilitate evidence and inform decision-making (Jahan et al. 2014).

In 2002, it was reported that there was a strong need to develop evidence-based medicine through research. The need to base clinical decisions on a research approach is key for the effective delivery of healthcare treatments in a PHC system (Alansary & Khoja 2002). Alansary and Khoja (2002) found that PHC physicians in the Riyadh region were unable to undertake journal research, demonstrated little ability to review publications from electronic databases and, in many instances, chose not to use those resources. At that time, the main issue related to research was that learning and developing the necessary skills were not deemed important due to patient workload (Alansary & Khoja 2002). Researchers emphasised the need to improve access to evidence-based medical research, provide guidelines, and promote training and education among PHC physicians to maximise the potential benefits for patient care (Alansary & Khoja 2002). The WHO (2012b) strategy on research for health identified four distinct and yet interdependent areas that could improve overall health: priorities, capacity, standards and translation.

#### *Research Priorities*

The main priority is the identification of specific health needs. Given the global health landscape, agreeing on goals is a significant challenge within itself (WHO 2012b). The Millennium Development Goals brought about increased research in health and, along with other global initiatives, has meant that an escalation in research will only increase health outcomes (WHO 2012b). In many instances, the strategic health goals of each country are driven by political, social and environmental concerns, which means that priorities for research activities will vary for each country (WHO 2012b). The WHO suggests aligning the national research capacity on a global level, especially with regard to research funding.

#### *Research Capacity*

Capacity reflects the need to provide adequate support for National Health Research priorities and systems. This is particularly important when a nation's capacity is limited; consequently, the WHO encouraged cooperation between its member countries (WHO 2012b). The need to promote health research systems including IT is integral to increasing the timeliness of achieving national health objectives (WHO 2012b). In many countries, health research systems lack adequate funding mechanisms and are poorly resourced and managed. This is often a result of a lack of understanding as to the value that health research systems can have on health outcomes. Bridging these inadequacies requires regional collaboration across healthcare networks and all economic levels of countries (WHO 2012b).

With the ongoing challenges to health systems, there is a need to meet and even anticipate those challenges at a local level, as an essential aspect of a robust health system (Swanson et al. 2010). Similarly, across all levels of the healthcare sector, capacity planning is a requirement for the development of a sustainable health system, which includes facilities and regulatory agencies to meet the challenges that emerge from the continually changing environment (Swanson et al. 2010). It is here that capacity is dependent on leadership, as planning requires sound judgement and effective management, which is correlated to the level of services provided and quality health outcomes. Leaders must have strong leadership and managerial skills to use the level of capacity to maximise and enhance health outcomes from government to local health facilities (Swanson et al. 2010).

Capacity is also highly dependent on the ability to generate knowledge through research as this can contribute to building a robust health system (Swanson et al. 2010). Enhancing capacity will elevate the effectiveness of health across all levels, increase the responsiveness to information, and establish and implement health priorities for policy development. It is essential that nations seek to improve leadership and build capacity across their health systems, as this will not only yield improvements in health service delivery and outcomes but provide a means to facilitate private sector engagement and expand universal coverage (WHO 2012b). In Saudi Arabia, it will serve to increase private sector participation in health including insurance and ease fiscal pressure on the entire system.

### *Research Standard*

The need to establish global standards is a primary purpose of WHO, which requires the development of strategies to create universally agreed rules for health research that are of best practice, including ethical guidelines, benchmarks and accountability in health research (WHO 2012b). From establishing such standards and guidelines, there is a need to ensure compliance both to existing standards and future directives, especially in the areas of clinical trials, ethics and biological security, including within laboratory settings (WHO 2012b).

### *Research Translation*

Research translation is the need to develop and link health research with policy and put it into practice. This relies on research information for policy decision-making that can be put into practice (WHO 2012b). There is a divide between research, policy and practice as research frequently fails to provide information to shape policy or adopt into practice. Similarly, research

has been unresponsive to policy initiatives (WHO 2012b). Thus, WHO is promoting ‘research translation’ as a means to facilitate the process whereby research evidence is translated into policy and can be put into practice.

## **2.8 A PRACTICAL APPROACH TO PRIMARY HEALTHCARE**

Newell (1975, p. 13) stated that it was necessary for *‘a health approach, which integrates at the community level all the elements necessary to make an impact on the health status of the people. Such an approach should be an integral part of the healthcare system’*. From this, it is understood that the health directives proposed at the Alma-Ata conference in 1978 were shaped.

There are three central notions to the Alma-Ata Declaration: appropriate technology, medical elitism, and health as essential for socioeconomic development (Cueto 2004). Appropriate technology is geared toward the issue of equipment that is fit for purpose. Some equipment was deemed too complex and costly and failed to meet the needs of individuals at the poverty level (Cueto 2004). Similarly, the term ‘appropriate technology’ denotes the development of urban hospitals, particularly those formed in developing countries, as they only catered to the minority, and were deemed financially costly and labour intensive (Cueto 2004).

The second notion, medical elitism, focuses on the health professional’s specialisation in developing countries to recognise local community-based health needs and practices rather than an emphasis on top-down health initiatives (Cueto 2004). This notion focused on the link between improved health and increased socioeconomic development, which was deemed a long-term strategic initiative. Central to overall public health policy is the improvement of living conditions and individual health, which in turn benefits society. Thus, it was beneficial to society to provide improved access to safe drinking water, adequate housing and sanitation (Cueto 2004). Given the interdependency of this issue between health and development, there were political considerations, as public policy would need to be enacted to support this initiative. Since the Saudi government deemed the need to increase the overall health of citizens, no study has examined whether the national policy and establishment of PHCCs has improved health service delivery. This would clarify the effectiveness of the development of PHCCs, measure the levels of health services now provided, and correlate the measured health outcomes.

Despite the initial support after Alma-Ata, it was later deemed too idealistic and wide-ranging, and the timeline was perceived impracticable (Carrin et al. 2009; Cueto 2004). The importance of the latter is to look at different PHC aspects to address the epidemiology of diseases from a social

perspective (Gish 1982). Those who advocate PHC promoted the adoption of immunisation along with the need for safe drinking water and sanitation, especially in developing countries (Cueto 2004). Accessibility in societies undergoing rapid population growth through mass migration is challenged by cultural divides, such as customs and language barriers, as encountered in KSA (Albougami 2015). Primary healthcare requires an unwavering commitment, as countries that have adopted such systems can provide models for those willing and ready to commit to the values that PHC espouses (Setlhare 2014). In adopting existing successful models, countries can alleviate pitfalls and avoid making mistakes and wasting resources on alternate healthcare systems that are unproven (Setlhare 2014). One such example would be the Eastern Mediterranean region, where Saleh et al. (2015) identified the need to model effective intervention strategies in the PHC setting to achieve better health outcomes in clinical practice. When enacted for short periods, the study found that they remained effective.

## **2.9 CHALLENGES FOR PRIMARY HEALTHCARE IN KSA**

The KSA is currently challenged by population growth, as well as societal and religious constraints. However, KSA has a high demand for universal access and delivery of service but faces the challenge of training local physicians and general practitioners (GPs) who are familiar with cultural nuances and not subject to language barriers. Aloufi and Bakarman (2016) noted specifically that there was a distinction in training of those physicians working at PHCCs in Jeddah, particularly for Advanced Trauma Life Support and Advanced Cardiac Life Support. Further to this, there were differences between the older non-Saudi physicians as to the degree of competency in providing emergency services at PHCCs, especially those with extensive PHCC experience (Aloufi & Bakarman 2016).

In 2000, the dawn of the Millennium Goals reignited the view of the world regarding PHC and elevated the political focus and financial commitment to achieving them (Meessen & Malanda 2014). Nonetheless, this affected local community-based health systems due to the onset of an overabundance of vertical initiatives that impeded those systems (Meessen & Malanda 2014). Instruments like the gathering of data intelligence and funding mechanisms based on performance and assessed through benchmarking can play a vital role in delivering care, especially when coupled with information and communication technology (ICT) (Meessen & Malanda 2014). Meessen and Malanda (2014) asserted that, at the local level, decentralised and independent delivery of care is needed along with a strategy that includes openness in communication that is

inclusive to everyone and supports technological aspects of ICT and performance enhancements. Unquestionably, one of the most pressing issues facing healthcare is the rising cost of delivery, and how to meet patient demand when costs per patient soar (AIHW 2014; Morris et al. 2015). With the notion of healthcare efficiency, the delivery of those services as measured by healthcare costs per capita are a central focus for governments. As of 2014, in the Bloomberg report (*Ranking of the most-efficient healthcare*), Singapore had the most cost-efficient system in the world when compared with other countries with populations >5 million, a minimum life expectancy of 70 years, and a gross domestic product (GDP) per capita of >US\$5000 (Wong & Chen 2014).

Looking further into the comparative figures, the commitment by the Australian government to invest in healthcare shows that investment in this area varies in each country, not solely in terms of actual total amount spent by GDP and per capita but on the size of a country. Moreover, some context must be placed on information for the largest costs per capita; in the top 20 is Norway at >US\$9,000, yet the country has a population of 5 million, similar to that of Singapore with 5.3 million, but the cost per capita there is US\$2,426 (Table 2.3). Comparing Australia and Saudi Arabia, two countries of similar population size, Australia spends 77 times that of Saudi Arabia on healthcare (Wong & Chen 2014). Of the 51 countries listed, Saudi Arabia has the 16<sup>th</sup> lowest investment per capita on healthcare expenditure.

TABLE 2.3. COUNTRIES BASED ON THE EFFICIENCY OF THEIR HEALTHCARE SYSTEM, 2014

Country	Life Expectancy (years)	Healthcare Costs (% GDP)	Healthcare Costs Per Capita (US\$)	Change in Costs Per Capita (US\$)	Change in Costs Per Capita (%)
Singapore	82.1	4.5	2,426	281.73	13.1
Australia	82.1	9.1	6,140	25.62	0.4
Norway	81.5	9.1	9,055	-852.86	-8.6
Saudi Arabia	75.5	3.1	795	73.88	10.2
Brazil	73.6	9.3	1,056	-62.49	-5.6

Sources: World Health Organization, World Bank, Bloomberg (2014)

Table 2.4 shows the comparative economic spending as a percentage of GDP for five countries, where Saudi Arabia is behind that of China, despite significant investments and improvements to facilities. While this is not the direct sum appropriated to PHC, the concern is that the forecasts from 2013 to 2017 only show a 0.2% increase. Given the burden of escalating costs, expansion of development, lack of resources, need to develop greater infrastructure such as a Health

Information System (HIS), and need to increase development and training, the budgetary forecasts could be considered inadequate.

TABLE 2.4 HEALTHCARE SPENDING COMPARISONS (% OF GDP)

	2008a	2009a	2010b	2011b	2012b	2013c	2014c	2015c	2016c	2017c
<b>Saudi Arabia</b>	3.2	4.4	4.4	4.0	4.3	4.8	4.9	4.9	5.0	5.0
<b>USA</b>	16.5	17.6	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6
<b>Japan</b>	6.8	7.0	7.2	7.3	7.5	7.7	7.9	7.9	7.9	7.5
<b>China</b>	4.6	5.1	5.1	5.2	5.3	5.4	5.6	5.7	5.9	5.9
<b>Germany</b>	10.7	11.7	11.6	11.6	11.7	11.8	11.8	11.9	11.9	12.0

\*a Actual. \*b Economist Intelligence Unit estimates. \*c Economist Intelligence Unit forecasts.

Source: Economist Intelligence Unit (2012)

This review demonstrates the issues providing appropriate healthcare services for everyone in KSA. The challenges include factors related to accessibility, population growth, elevated political focus, financial commitment, community ownership, training of FPs and the need for decentralised control, which are indeed part of the different elements of the Ouagadougou framework.

## 2.10 PHC IN KSA

Saudi Arabia first acknowledged the need to develop a strategy for the implementation of PHC following the WHO 1978 Alma-Ata Declaration. In response to the Declaration, Saudi Arabia undertook to define a strategy for PHCCs within KSA in 1983 (Al-Mazrou 2002; Almalki, FitzGerald & Clark 2011). For Saudi Arabia, PHC (as defined in Chapter 1) was '*basic health services for all members of the community, and represents the first level of community contact with the health services*' (Al-Mazrou 2002, p. 15).

The Saudi government began enacting consecutive strategic plans every five years in 1970, with a focus on developing KSA's infrastructure, including healthcare. In the past 45 years, the development of the health system has evolved through these strategic plans, including the adoption and implementation of PHC (Alrabiyah & Alfaleh 2010). The first significant change to the Saudi health system resulting from Alma-Ata occurred in 1980 when the MoH amalgamated healthcare offices, maternity, childcare centres, and dispensary under the title of primary care (Almazrou & Salem 2004). From this, the integration of curative and preventative services was

incorporated in 1984 into PHCCs. This resulted in a collective range of services for all Saudis, including vaccinations, pregnancy, immunisation, patient follow-ups, pharmaceutical dispensary, and eye and dental care (Alharthi et al. 1999; Almazrou & Salem 2004). Another function that PHCC now served was that of health education by providing access to resources (Alharthi et al. 1999). The first PHCCs were established in each of the 11 Directorates General for Health Affairs regions (Almazrou & Salem 2004; Bahurmoz 1998).

Assessment of the implementation of the first PHCCs resulted in an expansion policy to all health centres that existed at that time (Al-Mazrou, Al-Shehri & Rao 1990). Just over a decade later, the expansion resulted in 1,725 PHCCs each serving 10,353 patients per year (Ministry of Health 1995).

#### *2.10.1 KSA 2005 NATIONAL POLICY FOR HEALTH — A MAJOR BREAKTHROUGH IN SAUDI PHC*

The recognition of the need for more PHCCs occurred in 2005 with the eighth National Development Plan (2005–2009) that brought to light several public health concerns and resulted in an 8.9% increase in PHCCs from 2004 to 2014 (Ministry of Health 2015). Under the 2005 National Policy for Health, the MoH established the Central Board for Accreditation of Health Institutions (Almasabi 2013). Further to this, there was an increase in staffing, with more nurses and physicians hired (Ministry of Economy and Planning 2010), which improved health outcomes with greater immunisations, reduced child mortality rates, eradicated poliomyelitis, and reduced preventable diseases requiring vaccines (Ministry of Health 2013b). By 2006, Saudi Arabia had established 1,925 PHCCs that each served an average of 8,727 patients per year (Albejaidi 2010). In the past decade, the number of PHCCs has increased by 356 and now services 55% more patients, or 13,490 per PHCC per year (Ministry of Health 2014). The increase in demand for services is alarming when considering the burden on service delivery.

Figure 2.3 shows the distribution of PHCCs by region. The Ministry of Health plans to increase the number of centres to 2,750 by 2020, from the 2,279 as of 2012 (Ministry of Health 2013b). This increase of 471 centres represents a capacity increase of 20.6% in eight years.

The Ministry of Health (2006) reported the need for at least 900 more PHCCs on top of the 1,925 already in place. With current numbers around 2,300 and demand forecasted at >2,800, even with the government's plan of 2,750 by 2020, the estimated shortfall is at least 50 PHCCs. This is without considering changes in population growth, disease patterns, ability to provide adequate resources to staff facilities, or the continued funding needed to meet these targets.

### REGIONAL DISTRIBUTION OF PRIMARY HEALTH CARE CENTERS

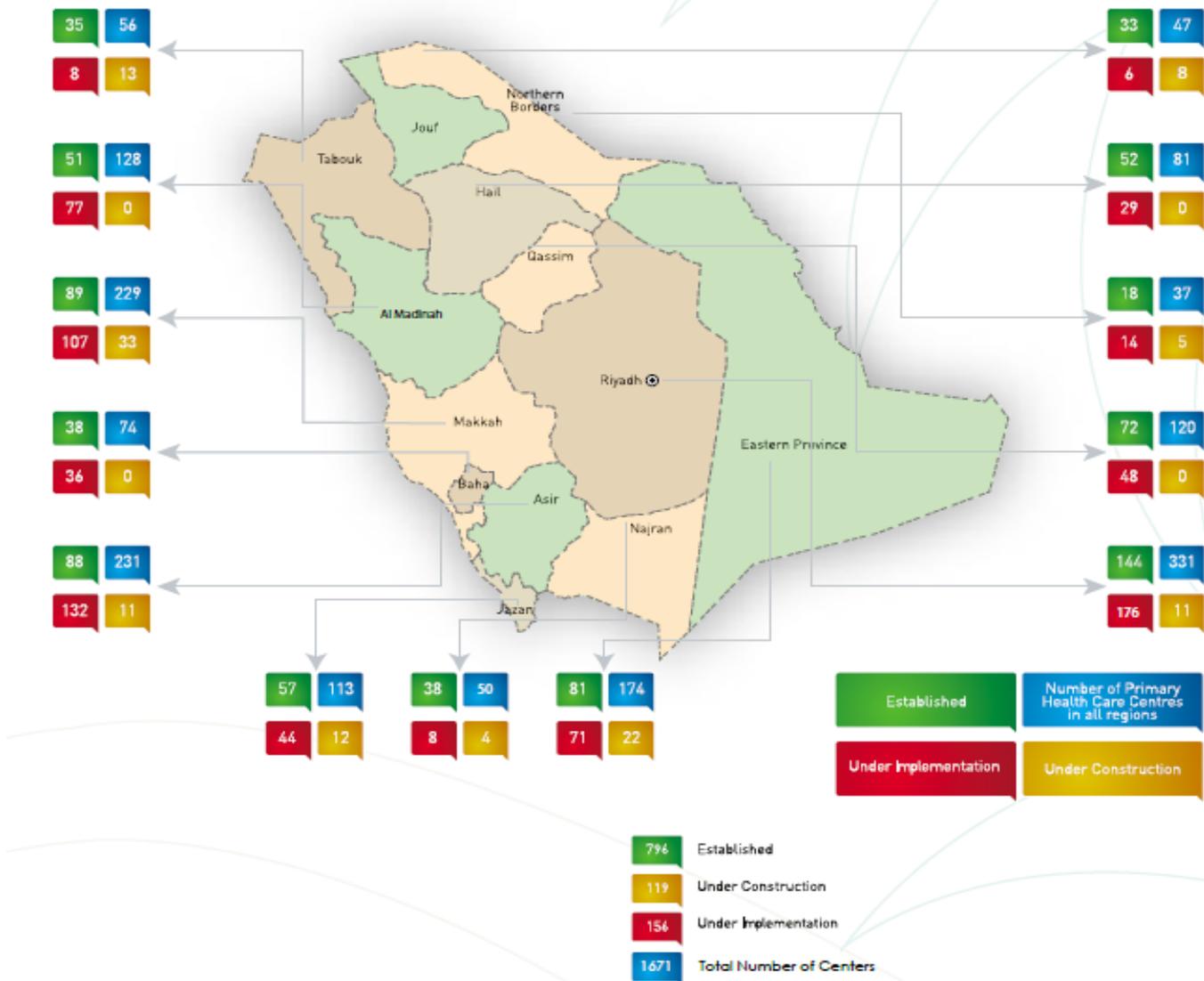


FIGURE 2.3. PHCCs IN KSA: REGIONAL DISTRIBUTION

Source: MoH Achievements (2013a)

In the decade since 2004, Saudi Arabia increased the capacity of PHCCs from 1,848 to 2,281 (Ministry of Health 2015) – see Figure 2.4. Figure 2.4 shows the projected 2,750 PHCCs by 2020, an increase of 469 PHCCs since 2014. This corresponds to at least 78 PHCCs built per year to reach this target. At no time over the past decade has this been achieved. Rather, 57 PHCCs were built across 2004 and 2005, 61 in 2007 and 2008, 59 in 2009 and 2010, and 160 in 2011 and 2012. This target seemingly does not consider the lack of health resources necessary to make the facilities fully functional. Although the 2005 National Policy for Health has resulted in a 19.7% increase in

PHCCs in the past nine years, an additional 20.5% increase is required to reach the suggested target.

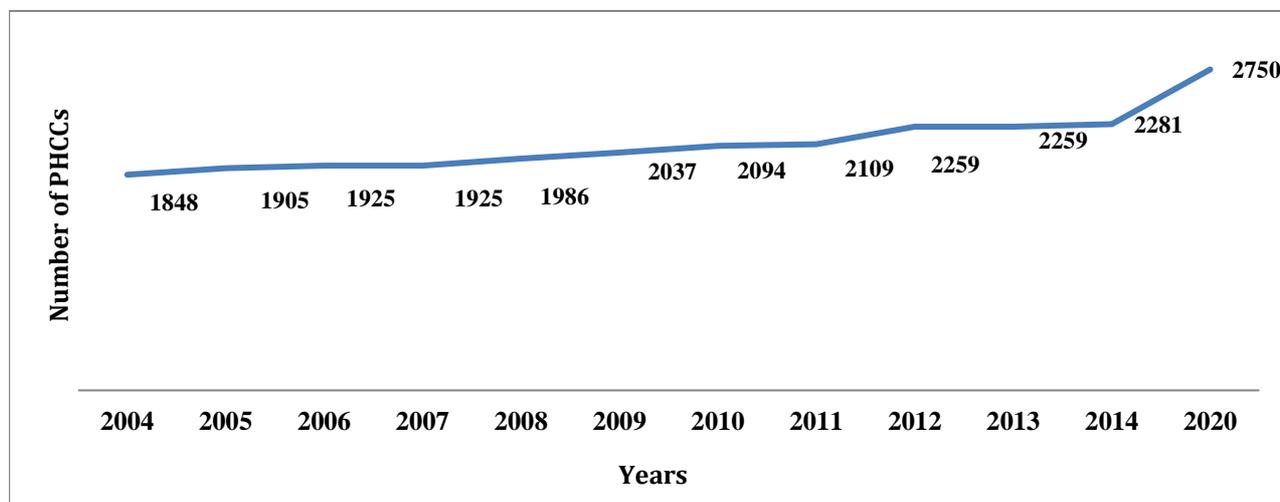


FIGURE 2.4. SAUDI ARABIAN DEVELOPMENT OF PHCCs FROM 2004–2020

Source: MoH (2015)

Saudi's who do not live in urban areas, where the most facilities have been built, will face greater challenges, in that PHCCs are prioritised to areas with the highest demand, which is creating inequity in the delivery of health (Ministry of Health 2006). Further complicating this is the inability to attract staff to facilities in rural or remote areas. Additional issues are related to the provision of resources. The Ministry of Health (2014) reported only 9,304 physicians for the 2,281 PHCCs, which equates on average to four per facility, serving on average 13,490 patients annually. This equates to one physician per 3,372 patients per year and assumes an equal distribution, which for high-density cities like Riyadh and Jeddah is probably not the case. The effect of the perceived lack of resources, particularly physicians in PHCCs, exacerbates the ability to provide training and specialisation of specific skills to reduce risk (Mahfouz et al. 2007).

Mahfouz et al. (2007) conducted a study on all 30 PHCCs in Abha city in the south of KSA. Mahfouz et al. (2007) discovered a lack of equipment and pharmaceuticals, but most alarmingly there were no allocated facilities for emergency services in two centres. The study included 47 PHC physicians who indicated an overwhelming need for professional training, especially as it related to cardiovascular emergencies in 72% equate to (47) of the survey respondents and placed a high degree of risk on patients (Mahfouz et al. 2007). Lack of training is an ongoing issue that is not

solely attributable to staff shortages but reflects the need for increased education and training to support services provided at PHCCs.

The study also indicated comprehension issues with regard to the type of patient cases presented, with 40.4% of surveyed doctors identifying that many cases were not valid emergencies (Mahfouz et al. 2007). However, almost 44% of the patients that presented did so for emergency services such as trauma. This suggests two specific issues: that the clear and definitive role of PHCCs in the healthcare system is unclear to citizens and that citizens lack a level of understanding as to where a patient should go for specific services. It can be conversely argued that geographic convenience can influence a PHC's perceived accessibility over a second-tier emergency facility, or that there are issues with second-tier facilities such that the patient is unwilling to visit that facility.

Nonetheless, as of 2011, Saudi Arabian healthcare had established 244 hospitals providing 33,277 beds. Coupled with the 2,109 PHCCs, this made up 60% of the healthcare services in KSA (Almalki, FitzGerald & Clark 2011). As of 2014, there were 249 hospitals, with 34,370 beds, and 2,281 PHCCs; however, there was a plan to establish 605 more PHCCs to cater for a population increase of more than two million (Ministry of Health 2015).

Despite the rapid advancement and implementation of the infrastructure in healthcare in the region, corresponding support structures are lacking, as are citizen awareness programs. This too is the case for staff, who have faced a lack of training and education. To date, a study of the effectiveness of the 2005 National Policy for Health has not occurred. One of the key questions is, has the development of PHCCs under the 2005 National Policy for Health been able to meet existing demands, even with the increased population growth? It is important to understand the scope of the impact of the 2005 National Policy for Health, especially with regard to the issues that have been highlighted here.

Initially, the focus was to establish a foundation, whereby health workers would undergo extensive training at the PHCCs (Al-Mazrou 2002). After which, the program would undergo rapid improvements through expansion, followed by the implementation of quality reforms with the adoption of Total Quality Management (TQM) initiatives in conjunction with 'supportive supervision' (Al-Mazrou 2002). This would be followed by the expansion of specialised programs before reviewing the PHC implementation process (Al-Mazrou 2002). Significantly, several key aspects noted by Al-Mazrou (2002), such as training and supportive supervision, are issues that

have been raised as present-day challenges to meet the current levels of service demand and need for greater education (Economist 2014).

Despite significant investment and development in healthcare and modernisation, which has transformed the PHC sector, the system has been plagued by challenges that have limited the effective utilisation of TQM principles to improve the delivery of care and increase efficiencies (Albejaidi 2010). The adoption of TQM, as a means to improve efficiency and achieve best practice, has been well documented in business (Albejaidi 2010). In the healthcare sector, it is used to increase the knowledge base and general levels of awareness, assess cost-effectiveness and establish models for reliability (Zairi & Matthew 1995).

As far as PHC in KSA is concerned, the challenges of the Saudi healthcare system need to be examined to improve the level and efficiency of services offered in both the public and private sectors. Consequently, the MoH adopted a new national strategy to control healthcare services, which was approved by the Council of Ministers in April 2009 (Ministry of Health 2009).

The aims of the approved national strategy included:

- Diverse funding sources
- Developing a robust information system
- Developing the workforce, especially of the MoH, in terms of enhanced supervision and monitoring role over health services
- Encouraging more private sector involvement in health services
- Improving the quality of preventative care as well as curative and rehabilitative care
- Ensuring equity in healthcare, especially distributing healthcare services to all regions on the principle of equality (Ministry of Health 2009).

While the Council of Health Services (CHS) supervised the national strategy, it was mainly implemented by the MoH, and active cooperation was sought from other healthcare providers (Ministry of Health 2009). A 20-year period was set to achieve the objectives of this strategy.

### *2.10.2 PHC AND SERVICE DELIVERY*

Saudi Arabia's national PHC strategy and national strategy for service delivery are both patient-centred and employ the method of a logical referral system. As of 2009, PHCCs accounted for 82% of patient visits, which comprised >54 million visits (Walston, Al-Harbi & Al-Omar 2008). The Saudi public health system accounted for 82.9% of the total allocation of health expenditure in 2010, and it is estimated to rise by 10% from 2012–2016 (Economist 2012).

The Saudi MoH established a partnership with other countries and international agencies as a means to identify reforms geared to service delivery to align with the national strategy (Walston, Al-Harbi & Al-Omar 2008). This service delivery model is systemised across five tiers: PHCCs, district hospitals, general hospitals, central hospitals and medical cities. The function of the PHCCs is to act as a 'gatekeeper' to identify patients requiring referrals to the general or more specialised hospitals (Alalfi et al. 2007; Jarallah 1998; Walston, Al-Harbi & Al-Omar 2008; WHO 2013).

The Saudi MoH proposed a healthcare model that will deliver improvements and efficiencies to the healthcare system, which encompasses significant reforms. These changes establish a national authority that will manage the MoH hospitals (Ministry of Health 2006). Establishing a non-profit national fund for healthcare would act as primary procurement for services of those constituents who need funding. Establishing healthcare councils for all 14 regions would serve to coordinate levels of care between each regional system and allocate funding.

These new PHC strategies aimed at improving service delivery are not only patient-focused but geared toward health promotion and addressing the social determinants of health (Ministry of Health 2013b). It is through the coordinated activities of the MoH and other sectors that, by advocating health in all policies, there is no greater advantage at a sub-national level. As part of the national strategy, the need to implement reforms for service delivery can increase the strength of the PHC strategy for health promotion, including lifestyle choices that can reduce risk factors for non-communicable diseases. In addition, the integration of programs and care can be achieved, and health outcomes improved. For instance, combining environmental health and PHC can improve how the environment can affect health and safeguard the public from environmental risks through greater public health awareness (Ministry of Health 2013b).

The adoption of a best practice tool as TQM serves to facilitate change. In the past two decades, the public health sector in western societies has adopted TQM as a means to addressing the escalating costs, improve levels of service, and facilitate change like that of improving teamwork (Ahmad & Maqbool 2013). Despite its inherent value, there are challenges to implementing TQM that would ultimately facilitate the changes necessary to improve PHC within Saudi Arabia. Given the overwhelming reliance on publicly funded MoH-driven healthcare services, there is undue pressure placed on finance mechanisms (Albejaidi 2010). The MoH is, therefore, an essential cog in the wheel not only for the delivery of care but the distribution of funds and how these are allocated to afford everyone healthcare. The MoH itself suffers from levels of bureaucracy and

inefficient management, which translates into PHCCs not receiving adequate funding levels for each facility, such that the ability to enact TQM practices are not implemented (Albejaidi 2010). It has been argued that the Saudi Arabian MoH has received significant investments for the healthcare sector with the amounts increasing annually (Albejaidi 2010). However, developing a healthcare system that lags behind developed countries, coupled with a rapidly increasing population and rising costs, is a significant challenge. In a study by Alosimy (1994) on the effectiveness of PHCCs in Riyadh, it was found that human resource staff were not skilled. Furthermore, 100% of facilities were inadequate, and a lack of equipment was prevalent in clinical areas in 66% of the centres (Alosimy 1994). Nonetheless, most of the patients indicated a degree of satisfaction with service levels. These issues, it could be argued, reflect a sudden growth in new healthcare delivery of services, such that the focus was on establishing facilities in general and not on quality. Therefore, there is a need to implement procedures and assessment methods like TQM and improve accessibility to equipment. In contrast, this could reflect a lack of sufficient capital investment and access to resources and staffing to support the infrastructure some two decades ago.

Saudi Arabia has unique healthcare challenges within its system that need to be addressed. Given the rapid economic expansion that has fuelled the dearth of development in the healthcare system, including PHC, there are challenges to developing medical education systems that support the infrastructure of that system (Da'ar & Al-Shehri 2015). According to Telmesani, Zaini and Ghazi (2011), this is integral to sustaining the efficiency of the system but furthermore, an essential aspect of meeting staffing needs for the developed PHCs.

### *2.10.3 ROLE OF PRIMARY HEALTHCARE CENTRES IN KSA*

As far as the role of PHCCs in KSA is concerned, there was a significant increase in domestic migration within KSA between 1970 and 1991 that reflected a shift from rural to urban living (from 49% to 78%). This corresponded with a more than 50% increase, which ultimately placed significant demands on services like healthcare (Littlewood & Yousuf 2000).

As a part of the overall development of PHC in KSA, the MoH published the pharmaceutical care in the PHCC policy in 2001 as part of the general directorate of PHC (Zedan & Avery 2008). The overriding aim of the policy was to improve best practice and establish a framework for medical professionals for pharmaceutical management and the requisite expectancies and responsibilities (Zedan & Avery 2008). Up to 2012, more than 2,279 PHCCs provided curative, rehabilitation and

preventative services in KSA (Ministry of Health 2013b). In Saudi Arabia, hospital admissions were mostly related to cardiovascular disease, diabetes and bronchial asthma, the most common diseases that challenge to the healthcare system (Ministry of Health 2012), while most of the outpatient visits to PHCCs were for upper respiratory tract infections, musculoskeletal disorders, oral and dental diseases, and diabetes mellitus (Ministry of Health 2012). Part of the ten-year plan (2010–2020) included the provision of 1,258 new PHCCs, of which 824 are now completed, and 434 are under construction.

Historically, the MoH controlled the resources, planning of priorities, responsibility for contract negotiations and, above all, determined the regulations and established health policies. The MoH has failed to establish significant health policy reforms (Al-Ahmadi & Roland 2005; Al-Rabeeah 2003; Sebai 2011). Furthermore, it has been stated that the MoH has lacked clarity of vision and purpose and that their strategic approach is incorrect. Regulations fail to provide good governance due to a lack of leadership that is highly centralised and autocratic and suffers from bureaucracy and nepotism (Al-Ahmadi & Roland 2005; Al-Falieh, Al-Freihi & Al-Rabeeah 2009; Alyemeni 2010; Deghaither 2006; Khursani, Buzuhair & Khan 2011; Sebai 2011). Moreover, the current structure lacks financial accountability and transparency (Al-Falieh, Al-Freihi and Al-Rabeeah (2009). These sorts of issues infer a lack of control at the head of the MoH, lead to the perception of corruption, and detract from any progress that has been made. Ram (2014) called for an institutional framework, along with the need for increased regulatory controls, as a way to bolster the sector and attract private sector investment.

The research overwhelmingly indicates that many Saudis are less than satisfied with the access to PHC services (Al-Sakkak et al. 2008; Alabbad & Alhaidary 2016). It is essential to understand what is meant by access and whether this relates to logistics or not having the means to get to the PHC. Alternatively, access may relate to the inability of PHCCs to provide a broad spectrum of care due to a shortage of staff or specialised physicians to meet the array of complaints, and an inability to provide necessary treatments. Alghanim and Alomar (2015) found that health users chose to use emergency departments in addition to PHCCs, and concluded that PHCCs needed resources to meet public needs and reduce the burden on emergency departments (Alghanim & Alomar 2015). Having appropriate resources and equipment can affect both staff morale and patient care (Mumenah & Al-Raddadi 2015). Additionally, not having computerised services, specialised staff, lab services, x-ray or ultrasound equipment has contributed to decreasing the morale of MoH physicians (Mumenah & Al-Raddadi 2015). The inadequate resources provided to PHCCs is not

only a deterrent for health users but impacts the macro health system as the lack of resources are a barrier to healthcare delivery.

The MoH has acknowledged the lack of resources and found that the barriers to accessing health services are caused by geographic location, environmental conditions, socioeconomic status, income, education and nutrition (Ministry of Health 2012). Infrastructural barriers also exist; the absence of an efficient referral system that works across all three levels of care impedes access to healthcare services (Al-Ahmadi & Roland 2005; Alzaied & Alshammari 2016; Jarallah 1998). Given that Saudi's have expressed dissatisfaction with the level of service, and that the MoH has recognised barriers to access those services, it is important to understand the degree to which these barriers preclude patients from receiving care, as this is a fundamental aspect of PHC and part of the Saudi tiered system.

The lack of fundamental infrastructural requirement effectually nullifies care, thereby limiting follow-up by specialists or treatments required at other facilities (Al-Ahmadi & Roland 2005). The issue of infrastructural barriers is integral to the delivery of care within the healthcare system as a whole and can be best resolved with technology investment in a HIS that would provide patient access to all three levels of care and service. The ninth five-year plan allocated US\$385 billion to developmental projects in KSA for 2010–2014, equivalent to SR1.4 trillion. This represents a significant increase in appropriation from the previous plan, where the allocation was only about one-third of the current funding level. Healthcare development received 19% of the total budget allocation. Besides the fiscal commitment, the Saudi Arabian Ninth Development Plan (2010–2014) established several policies for improving health within KSA (Ministry of Health 2013a), including:

- Introduction of several funding sources for health activities using the Cooperative Health Insurance program.
- The need to rationalise government expenditure and optimise resources given the predominant source of funding is the state budget.
- Balanced allocation of facilities and services, demographically and geographically, to meet the needs of the population.
- Advocating advanced information technology to support health information systems at all levels, nationally and sector-wide.
- Implementation of methods to increase employment rates in the health sector for Saudi Arabia to be self-sufficient.

- Efficiency in management and service levels by adopting managerial and operational health systems using a decentralised managerial philosophy, allocating the budget to individual health areas, forming both referral and specialised hospitals, and integrating procedures that increase efficiency levels.
- Adoption of a decentralised approach to management and use of quality standards of comprehensive health coverage that are fair and affordable for everyone. Coordination with the CHS and other government agencies to create a collaborative effort to execute their roles to achieve policy objectives under the national healthcare strategy.
- Building the private healthcare sector role as part of this strategy so that it complements the public sector in achieving healthcare goals and supports policy initiatives. This would support the MoH intent of developing PHC services as part of the overall health system by improving efficiency and integrating within that system.
- Supporting the development of curative care across primary, secondary, specialist and referral levels as part of the integrated health framework.
- Adopting performance and quality measurement methods to ensure that overall health services are achieving standards to measure improvements and assess returns on investment. These measures would identify adequacy levels and efficiency standards to determine patient satisfaction levels—a means to protect against malpractice and safeguard patients' rights (Ministry of Health 2013a).

After the Ninth Development Plan, the significant change in global oil prices placed undue pressure on the Saudi state budget; as such, there have been important changes to the health budget. The severity of the oil price collapse resulted in a decrease in healthcare spending to 56 billion Saudi Riyals or a 35% decrease in total allocation (Sahoo 2016; SUSRIS 2015). However, these figures do not conform to the Ministry of Health (2015) figure of SR62 billion and, in any case, the decrease of SR6 billion only reflects a 10% reduction, not the stated 35%. Nevertheless, this sizeable budgetary reduction will impact on all levels of the healthcare system, including any incentives allocated to private healthcare groups to entice them to KSA (Sahoo 2016).

As far as future perspectives of health service delivery in KSA are concerned, it can be contended that while private health supplier incentives will decrease, there is a growing demand gap and desire to establish new models for PHCCs along with specialised centres (Sahoo 2016; SUSRIS 2015). There is a push to privatise health services by corporatising state hospitals and PHCCs so that the government acts as the regulator as a means to reduce the effects of market influences,

such as burgeoning price increases (Kerr 2016). Currently, the private sector provides 30% of the services in the Saudi health sector, with the aim of increasing this two-fold by outsourcing areas such as medication dispensing, logistics and procurement (Kerr 2016).

The depth of funding cuts could mean significant delays for current and planned projects (Sahoo 2016). This abrupt reduction can only serve to widen the existing gap of healthcare funding and delivery of services. This furthers the need to increase PPPs to offset the delivery of care in countries with an ageing and growing population. As 2016 budgetary cuts to the healthcare sector are unveiled, the healthcare system is undergoing drastic revamping. By attempting to streamline operations and improve efficiencies, the healthcare sector is faced with challenging socio-cultural and religious barriers, such as the segregation of male and female emergency treatment rooms (Kerr 2016). Although such obstacles must be overcome to increase efficiencies and improve effectiveness, there is extreme resistance from social conservatives. Such changes are part of cost-cutting to reduce wastage in a system swollen with inefficiency and requiring increased productivity to meet growing service demand. Despite the growing demand, about 50% of the provided health services remain unused and projected cost savings are estimated at US\$90 billion by 2030 (Kerr 2016). The steep decline in oil revenue has led KSA to institute an austerity program to reduce spending (Kerr 2016).

While annual spending on healthcare is around US\$45 billion, there is a demand for increased value for money in existing services (Kerr 2016). Further, there is a desire by the MoH Minister to change the existing healthcare funding model to a non-state-based system and establish a private health insurance model. Research has shown that patients with private health insurance tend not to use primary care services at hospitals, but avail themselves of private healthcare services (Alsubaie et al. 2016). State funding may be helped by coupling such a model with increased taxes on items directly correlated with health risks (e.g. cigarettes, soft drinks and snacks) (Kerr 2016). Another significant addition would be that of taxing car insurance, given the perpetuation of road traffic accidents (RTAs) where 27.4 per 100,000 people in 2013 died due to an RTA (Kerr 2016). Another aspect that could help to reduce the future cost burden is to increase local health workers, as 82% of doctors and 74% of nurses are foreign (Kerr 2016).

Since the Alma-Ata Declaration, PHCCs have been an essential element of healthcare strategy; therefore, it is necessary to deliver PHCC services effectively (Mills & Drummond 1987). Historically, Saudi healthcare officials have been challenged with multiple choices when

attempting to implement PHC programs, including determining whether to select public or private partners for medical supplies, particularly with regard to pharmaceuticals (Mills & Drummond 1987). The Saudi approach is currently based on deciding whom to target and how to deliver healthcare; however, this contradicts the fundamental notion of PHC for everyone.

The value that PHCCs provide is recognised by their central role as the initial primary point of contact for healthcare in communities. Thus, as a primary care provider, the PHCC must provide health education (Sheikh, Mahamoud & Househ 2015). It has been central to the Saudi MoH since Alma-Ata to provide preventative health strategies as part of the overriding strategic plan to afford citizens a safe and healthy lifestyle (Sheikh, Mahamoud & Househ 2015). The role of PHCCs is to promote and provide programs and education about the value of maintaining a healthy diet along with an active lifestyle, which is essential for reducing non-communicable diseases. Thus, PHCCs are the integral link to Saudi citizens delivering health services (Midhet, Al-Mohaimeed & Sharaf 2010). Implementation of such health education awareness programs can only be achieved through PHCCs (Midhet, Al-Mohaimeed & Sharaf 2010). Since the PHCCs are integral in the delivery of care in Saudi Arabia and given the accelerated growth in PHCC development in KSA, a study is required to reveal whether PHCCs and staff comprehensively understand their role in the system.

Just as there is a dependency on PHCCs to deliver programs and ascertain community involvement, PHCCs depend on the continual support and evaluation of those programs, as they require resources and must meet Saudi society's health expectations (Sheikh, Mahamoud & Househ 2015). PHCCs exist to offer specific health services and are a means of early diagnosis and palliative care services. Unhealthy lifestyles, which are highly correlated to non-communicable diseases, can be directly targeted by programs at the PHC and community level and these programs can aid to reduce the risk of non-communicable diseases within the Saudi population (Sheikh, Mahamoud & Househ 2015). PHCCs can provide a suitable framework for reducing health disparities across societies, which will improve the overall health of the population and reduce long-term health costs, particularly through immunisation and vaccination programs (Sheikh, Mahamoud & Househ 2015). With PHC early detection programs for non-communicable diseases such as cancer, PHCCs can establish strategic plans to evaluate the prevention of suffering and minimise costs through early testing as part of health education awareness.

#### 2.10.4 CHALLENGES TO IMPLEMENT PHC IN KSA

In many countries, the delivery of accessible PHC is an important national priority (Beaglehole et al. 2008). However, in developing countries, governments find it difficult to make healthcare more accessible and affordable because of policy and institutional weaknesses (Almalki, FitzGerald & Clark 2011; Beaglehole et al. 2008). In KSA, other issues are also challenging, such as the rapid increase in the demand for improved healthcare services across Saudi Arabia in recent years (especially in major cities) (Ministry of Health 2012), acute shortage of healthcare professionals (Almalki, FitzGerald & Clark 2011), ageing population, large numbers of visitors during the annual religious pilgrimage of Hajj (Al-Ghamdi & Kabbash 2011; Ministry of Health 2013b), ‘unofficial’ citizens without access to healthcare, and overcrowding and long waiting times at emergency departments (EDs) (Alkhamis, Hassan & Cosgrove 2014).

The development of the long-term strategic plan for the implementation of PHC and building of facilities to meet service delivery requirements has focused on urban areas. Consequently, healthcare delivery in KSA is predominantly tied to hospitals and PHCCs that are principally located in the larger cities. Forty-eight per cent of all private hospitals in KSA are in Jeddah and Riyadh (Ministry of Health 2007) or 55% of all hospitals (Ministry of Health 2007). However, when considering the population of these two cities, the number of beds available, and resources to support the delivery of care, the issue becomes more skewed as the disproportionate allocation of hospitals between rural and urban areas is exacerbated (Khaliq 2012; Ministry of Health 2009). This issue is central to the delivery of care and extends beyond hospitals to PHCCs and is unrelated to the significant financial commitment that has been made.

Despite significant investment, studies have repeatedly highlighted significant issues that reduce the effectiveness of PHCCs, including inadequate staff training (Alosimy 1994), lack of resources (Saleh et al. 2015), poor patient–physician relationships due to disrupted continuity of care (Al-Ahmary 2014), problems with community engagement in PHCC prevention programs (Al-Ahmary 2014), lack of staff development in regards to knowledge and skills (Al-Ahmadi and Roland (2005), and poor quality management (Al-Ahmadi & Roland 2005). The level of ineffectiveness associated with leadership is reflected in staff dissatisfaction that transcends to the working culture and affects the organisational environment, thereby affecting healthcare workers (Al-Ahmadi 2002; Kalantan, Al-Taweel & Abdul 1998). Furthermore, there are issues with screening protocols and health measures. In a study conducted across 15 PHCCs in Riyadh, less than half provided comprehensive age-related screenings, including for cancer, and there was no common protocol

for counselling (Alhamdan et al. (2015). In a study on the impact of health measures, the need to include community-level scores, not just individual ones, when developing health system targets was identified as a way to gauge improvements in populations and meet strategic goals (Al-Ahmary 2014). Understanding how well PHCCs are functioning will galvanise whether current national strategies are helping to meet the population needs.

With these challenges and the scarcity of resources, human or otherwise, efficiency is essential. From the time of the first theories on efficiency by Frederick Taylor, where the measurement of units of production in a manufacturing assembly line was conceived (Taylor 1911), efficiency has become a primary goal in every sector. However, Henri Fayol advocated the notion of efficiency as it related to human resources (Wren, Bedeian & Breeze 2002). Given the nature of healthcare services, the task of measuring efficiency is problematic as to how and what to measure (McGuire 1987; Mensah & Li 1993).

#### *2.10.5 RAPID POPULATION GROWTH*

Despite 150 major cities accounting for the bulk of the population, Saudi Arabia has more than 2,000 villages spread throughout the country. This poses a logistical challenge for healthcare delivery (CDSI 2012). Most healthcare delivery centres are located in highly dense urban areas. The KSA has a population of more than 31.7 million including expatriates. With the principal cities of Riyadh, Jeddah, Medina and Makkah accounting for almost 16 million people (>50% of the total population), when adjusted for expatriates, this reflects approximately 69% of the total population (General Authority for Statistics 2016).

Despite the increasing population, the population growth rate among Saudi nationals has been decreasing in the past ten years. Notably, the population distribution in 0–4 years age group has declined from 13.9% in 2000 to 8.4% in 2020, or a 0.5% decrease over two decades.

Table 2.5 shows that the 15–64 years age group is estimated to account for 70.3% of the population in 2020 (up from 68.7% in 2015) but only 65.7% in 2050 (U.N 2012). Life expectancy in Saudi Arabia is increasing, with the current life expectancy at 76.51 years and predicted rise to almost 80 years by 2030 and almost 82 years by 2050. In 2010, the proportion of children under 15 years was ~30%, and the median age was 27 years (WHO 2014). Saudi Arabia may be facing daunting population growth and increased demand for healthcare services from the elderly.

TABLE 2.5. POPULATION DISTRIBUTIONS BY AGE GROUPS IN KSA, 1980–2050

Year	0–4	5–14	15–64	65+
1980	18.5	25.9	52.6	3
1985	17.4	25.3	54.7	2.6
1990	16.8	25.7	54.8	2.7
1995	14.1	26.9	56.3	2.6
2000	13.9	24.5	58.1	3.5
2005	11.4	22.9	62.6	3.1
2010	11.1	19.6	66.3	3
2015	9.6	18.7	68.7	3
2020	8.4	17.3	70.3	4.1
2025	6.5	16.3	71.7	5.4
2030	5.3	13.9	73.6	7.2
2035	5.1	11.2	74.2	9.5
2040	5.4	9.9	72.6	21.1
2045	5.4	10	69.1	15.4
2050	5.4	10.5	65.7	18.4

Source: United Nations, World Population Prospects (2012)

#### 2.10.6 UNEQUAL GEOGRAPHICAL DISTRIBUTION OF PRACTITIONERS

When comparing the population data with the number of physicians working in EDs in KSA, it is apparent that there is an issue relating to population density and physician distribution. Typically, GP physicians are located in high socioeconomic areas such as cities, such that non-urban areas having more staff shortages in the healthcare sector (Boffa 2002). Medina has more than 231 ED physicians compared with 127 in Makkah, corresponding to one physician for every eight persons in Medina but only one to 15 in Makkah (Ministry of Health 2012). When this analysis is extended to Jeddah and Riyadh, the issue is more pronounced. Riyadh has 315 ED physicians (one to 22 ratio), while Jeddah has 148 physicians (one to 26 ratio) (Ministry of Health 2012). That is, the two most-populated cities in KSA have a disproportionate distribution of ED physicians, which is likely a significant contributory factor to ED waiting times.

There are 71,518 physicians working in Saudi Arabia across the Ministry of Health and other governmental and private sectors, which equates to approximately one physician for every 408 people (Ministry of Health 2013a). Considering that almost 15 million people reside in Riyadh and Makkah, it would be reasonable to suggest that there are about 36,210 physicians in these two

regions. However, these cities have the fewest physicians (and nurses) per capita (Ministry of Health 2013a). Physician allocation is estimated at 5–9 per 10,000 or ~13,000 physicians in total for the two regions (Ministry of Health 2013a).

Al-Mazrou (2002) stated that geographical challenges, such as the vast deserts, make it difficult to provide universal care. When PHCC implementation began, the phased approach involved establishing base foundations through training regimes, followed by expansion, increased delivery of services, adoption of TQM initiatives, and finally a revision of those processes (Al-Mazrou 2002). Though, this has not resulted in providing universal primary healthcare for all Saudi citizens especially those in remote areas. However, TQM is affected by global factors, as well as policy and regulations set by governments, and the influence of NGOs such as the WHO (Almasabi 2013). Furthermore, TQM is subject to economic factors, like that of financial resources being driven by global oil prices, which can influence budget-making agendas. TQM is also subject to social influences such as increasing populations and the demand for greater services (Almasabi 2013).

#### *2.10.7 A DOUBLE BURDEN OF EMERGING INFECTION AND NON-INFECTIOUS DISEASES*

Certain social changes during the development and implementation of PHCCs in the past three decades have had unforeseen challenges for the success of universal healthcare. These include emerging infectious diseases as well as non-communicable disease. In 2012, the emergence of MERS (a severe, contagious respiratory illness caused by a coronavirus, characterised by fever, cough, and shortness of breath and first identified in Saudi Arabia) brought new challenges, as the associated death rate has been approximately 36% of those diagnosed with MERS (Ministry of Health 2015). The symptoms include coughs and fevers and, in most instances, is attributable to human to human contact (WHO 2015). It is important to note that this poses a significant threat during Hajj, as the likelihood of the virus spreading among such large numbers of pilgrims is highly probable and a major health concern for KSA.

Most notably, the increased prevalence of non-communicable diseases such as diabetes (Memish et al. 2015) is another big challenge for the KSA primary healthcare system. This increasing trend in diabetes is not isolated to adults, with children exposed to and consuming excessive amounts of unhealthy foods is contributing to the diabetes pandemic (Darwish et al. 2014). The prevalence of diabetes, which increased by 50% from 1994 to 2002, has now reached 1.6 million patients (Ministry of Health 2011). Saudi Arabia has one of the highest incidence rates of diabetes in the world at 23.9% (International Diabetes Federation 2013). Diabetes is the largest singular

contributor to amputations, with diabetes-related gangrene accounting for 41.2% of all amputations in 2012 (Ministry of Health 2013a). This figure surpasses that of car accidents; 31.8% of all car accidents results in an amputation (Ministry of Health 2013a). Diabetes is a known cause of death during the annual Hajj pilgrimage, with six deaths or 1% of the total deaths related to Hajj (Ministry of Health 2013a). There are now 20 dedicated clinics across the country specifically designed to treat diabetes patients, 30% of which are in Riyadh and Makkah (Ministry of Health 2013a). It should again be noted the disproportionate allocation of these clinics relative to the population density of these areas—Riyadh, with a population of 8 million, has only one clinic compared with five in Makkah, which is insufficient to address the existing problem let alone the future.

The need for effective PHC and the delivery of services and programs is evident from the acute failings of the existing Saudi health system, with the prevalence of certain non-communicable diseases like diabetes. This is a prime example of the need for an effective preventative strategy to address escalating disease within KSA that can only be addressed through preventative measures delivered by PHCCs. Saudi Arabia has the world's highest rate of diabetes (Shaw, Sicree & Zimmet 2010).

In Saudi Arabia, obesity, a risk factor for non-communicable disease, has become a major issue with more than 70% of the population reportedly obese, and 37% of Saudi women having disorders related to being overweight, according to figures presented at the 3rd International Obesity Conference (Khan 2014). The WHO placed Saudi Arabia 29<sup>th</sup> of 190 countries ranked for overweight and obesity (WHO 2008a). (Darwish et al. 2014). To achieve this goal, communities can establish educational programs that can be implemented at the local level to engage people to take a proactive approach to their health, but this can only be achieved through the support of PHCCs.

#### *2.10.8 EMERGENCY LONG WAITING TIMES*

The Saudi PHC program has had considerable success in terms of better access to services, high immunisation rates, improved maternal and child health, and the control of endemic diseases. However, complaints are common in regard to long waiting times. For example, in public hospitals, patients may need to wait several months to a year to undergo non-emergency surgeries. These problems have been linked to the increased use of private healthcare services as

MoH-run hospitals are perceived to be inferior to those operated by private companies or other state-run providers (Walston, Al-Harbi & Al-Omar 2008).

Saudi Arabia similarly experiences hospital ED delays, and they have noted that this is precipitated by non-urgent cases (Tashkandy et al. 2008). Coupled with this is the lack of available beds and primary care physicians as well as a shortage of GPs, which has greatly contributed to the increased numbers of patients presenting to EDs (Elkum et al. 2009).

#### *2.10.9 INCREASED ROAD TRAFFIC ACCIDENTS*

Another rising issue that has impacted wait times is road traffic accidents (RTAs). Saudi Arabian society is heavily reliant on the motor vehicle as a primary means of transportation, but this reliance has resulted in 20% of all hospital beds being occupied by RTA patients with more than 3.5% of the population involved in RTAs every year (Ansari et al. 2000). RTAs are a significant contributor to ED wait times (Hokkam et al. 2015; Qayed 1998). About 65% of RTAs result from excessive speed, with those involved often severely injured. One study found that almost 80% of the patients with spinal injuries in one hospital were due to a lack of wearing safety seat belts in RTAs (Ansari et al. 2000). There is an immediate need to improve road safety to help reduce the spiralling costs associated with RTAs (Alsalloum, Cooper & Glew 2014).

#### *2.10.10 LACK OF TRAINED HEALTHCARE PROFESSIONALS*

According to the WHO, the Saudi healthcare system is struggling to meet their developmental needs in terms of resources (WHO 2006). Although Saudi nationals make up 33% of all GPs, only 11% are ED physicians (Ministry of Health 2012), due to the lack of training for Saudi-national emergency-based personnel. Furthermore, the shortage of Saudi health professionals is only one of the key factors limiting the development and effectiveness of healthcare service delivery. Other factors include the MoH's multiple roles, limited financial resources, extreme demand for free services, changing disease patterns, limited access to care for some citizens, lack of a health information system, and failure to make use of advancements in electronic health strategies (Almalki, FitzGerald & Clark 2011).

As of 2013, there was a heavy reliance on foreign-trained GPs to provide primary care services (Alshammary, Ratnapalan & Akturk 2013) due to inadequate and inaccessible training within Saudi Arabia. Primary care physicians and other trained doctors receive different levels of postgraduate training, which results in differing levels of PHC knowledge and unequal patient care (Alshammary, Ratnapalan & Akturk 2013). Similarly, trained medical professionals are not offered the

opportunity to participate in continuing education such as evidence-based healthcare due to time constraints (Bindawas 2013). Other issues in meeting service demands are cultural awareness and language barriers (Al-Ahmadi & Roland 2005; Al-Ghamdi & Kabbash 2011; Al-Yousuf, Akerele & Al-Mazrou 2002; Albougami 2015; Aldossary, While & Barriball 2008; El-Gilany & Al-Wehady 2001; Mansour & Muneera 1996).

There is a lack of training, particularly in family medicine (Alshammary, Ratnapalan & Akturk 2013), which affects the ability of PHCC physicians to provide minor surgeries at PHCCs, thereby requiring referrals to hospitals, and increasing hospital burden. While physicians in one research survey felt competent to perform minor surgeries and saw value in doing so, they did not feel confident enough to practice them (Alfaraj, Sebiany & Alharbi 2015). This appears contradictory: physicians have the skills to enhance service delivery but are reluctant to do so due to lack of practice. Despite the shortage of physicians, this endorses the need for practical training.

To combat the lack of professional training and augment physician 'knowledge acquisition', a Family Medicine Education (FAME) program offered to all the family physicians working in the MoH for free (Alshammary, Ratnapalan & Akturk 2013). It was designed in seven modules including theoretical and practical workshops. This program resulted in an increase in physician knowledge and gave grounds to advocate the need for investment in trainers, librarians, support staff, textbooks, access to recent journals, system administrators, internet access, and contemporary learning methodologies, including online learning and small group practice-orientated learning (Alshammary, Ratnapalan & Akturk 2013). The need to augment physician training in PHCCs to address specific illnesses (e.g. bronchial asthma) reflects the need for a broader approach for establishing national guidelines for education and training (Yousef, Koura & Yousef 2015). Physician-based training can have positive effects in terms of changing attitudes. This was demonstrated in one study where practitioners who had undergone mental health training were better at changing attitudes and adding value in the PHCC setting, compared with those with only undergraduate training in psychiatric medicine (Al-Khathami et al. 2003). This study showed the need to provide specific training, especially for Saudi nationals, who are now the primary focus of Saudi educational institutions.

The influx of expatriates filling vacant healthcare professional positions is problematic, as most do not speak Arabic. Patients fail to understand the scope of their health-related issues given these communication barriers. Also, a large number of Saudi women are poorly educated, and this

complicates the provision of services and treatments (Al-Ahmadi & Roland 2005; Mobaraki & Söderfeldt 2010). The existing communication barriers create a gap in the patient–physician relationship, which in turn affects the level of healthcare provided, as information about care is often poorly communicated (Saleh et al. 2015).

#### *2.10.11 LACK OF FEMALE HEALTH WORKERS IN PHC*

In Saudi Arabia, the lack of education and training for women is widespread; most female Saudi doctors went to nearby Egypt as female-only courses were offered at a considerably lower price, (Vidyasagar & Rea 2004). Despite the increase in awareness regarding education and training for women in PHC, the additional demand for healthcare professionals due to increased patient numbers and new facilities still does not meet the required number. However, the increase in Saudi female professionals in the sector has not exceeded 10% in the past two decades (Al-Falieh, Al-Freihi & Al-Rabeeah 2009). It simply means that in Saudi Arabia, there is a continuing shortage of women healthcare professionals; to address this, the Saudi government entered into partnerships with the UK to attract female healthcare professionals to the region to help alleviate the shortage (Merghalani 2005).

Figure 2.5 illustrates a significant increase in medical profession graduates between 2005 and 2010. Across all graduate areas, there has been a 102.8% increase, with medicine and nursing having the largest increases: the most notable is the five-fold increase in the nursing sector. Conversely, pharmacy has only increased by 47%, indicating a possible shortage in this sector, which would magnify the overall industry shortage. Nonetheless, with the overall increases in health graduates coupled with infrastructure development, the sector as a whole has shown rapid advancement. However, a significant shortage in overall staffing remains (Al-Falieh, Al-Freihi & Al-Rabeeah 2009; El-Gilany & Al-Wehady 2001; Tumulty 2001).

The rapid increase in educational programs within medical schools has created a demand for qualified Saudi teachers. Again, the gap has been filled by attracting foreign nationals predominantly from developing countries like Egypt, Pakistan, India and Sudan, as these countries have a traditional teaching background which has served to shape medical education for Saudi Arabia (Al-Hazimi, Al-Hyiani & Roff 2004; Bajammal et al. 2008; Sebai, Milaat & Al-Zulaibani 2001).

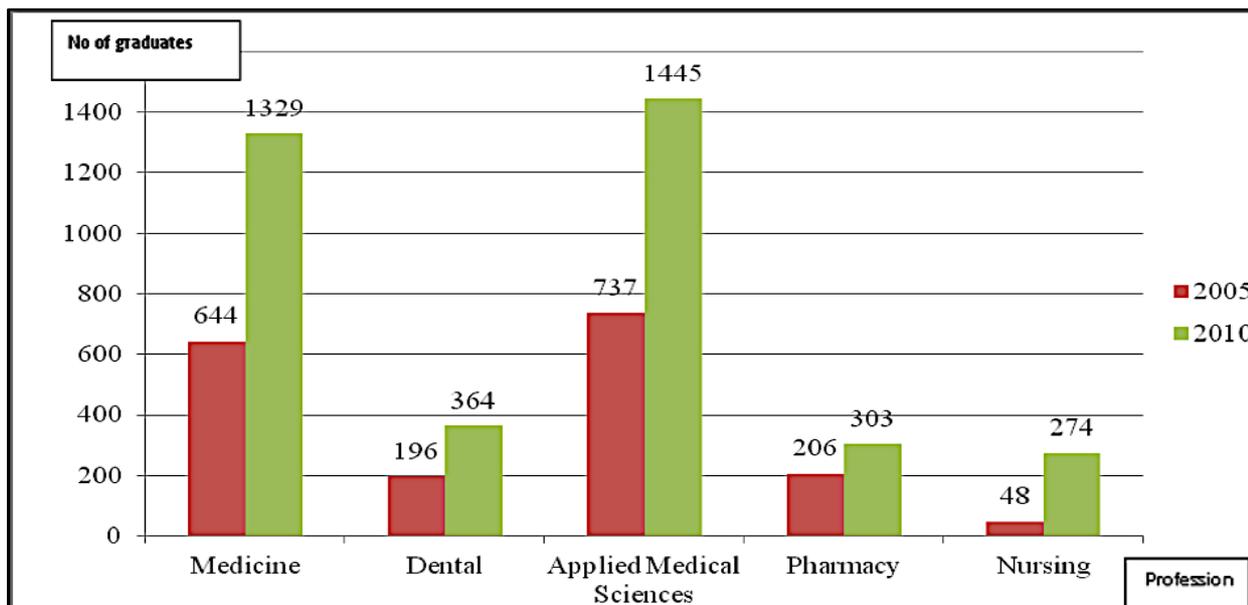


FIGURE 2.5. GROWTH OF MEDICAL SCIENCES GRADUATES BETWEEN 2005 AND 2010

Source: MoH Statistical Yearbook, 2009; MoH Statistical Yearbook 2005-2010; Al-Falieh, Alfreihi & Al-Rabeeah 2009; (Alghamdi 2012).

The overriding issue of inadequate staffing has been historically offset by the recruitment of foreign staff from places including Australia, the UK and North America despite these locations also having staff shortages in similar areas. Additional recruitment has come from other Middle Eastern countries, as well as in Malaysia, the Philippines, India and South Africa (Aboul-Enein 2002; El-Gilany & Al-Wehady 2001; Tumulty 2001; Walston, Al-Harbi & Al-Omar 2008).

A separate issue contributing to the staffing issue is the large number of hospital administrators who lack formalised qualifications, particularly within management (Alshamary 2012). A survey conducted by Alshamary (2012) found that 90% of hospital managers in KSA’s MoH lacked a suitable managerial qualification, with only 44% holding a bachelor’s degree. Furthermore, those surveyed held the belief that experience and ability were more necessary than a formal qualification.

Al-Falieh, Al-Freihi and Al-Rabeeah (2009) estimated 63,506 physicians (including dentists) in 2015 (Table 2.6). However, the MoH reported 95,379 nurses, while Al-Falieh, Al-Freihi and Al-Rabeeah (2009) estimated 58,339 nurses in 2015 (Ministry of Health 2015).

The Ministry of Health (2015) reported 3,184 fewer pharmacists than the 2015 estimate of Al-Freihi and Al-Rabeeah (13,779). While these estimated figures are outdated, they clearly show the significant shortfall in physicians, which are integral to PHCC staffing as they affect operational

effectiveness and provision of healthcare. This further suggests that there could be an oversupply of staff and the need for greater staff allocation and training of the existing staff, rather than more staff.

TABLE 2.6. PHYSICIAN, NURSES, PHARMACISTS AND ALLIED HEALTH PERSONNEL, KSA, 2011–2015

Profession	2011		2012		2013		2014		2015	
	MoH	*	MoH	*	MoH	*	MoH	*	MoH	*
<b>Physician including Dentists</b>	33,999	56,501	35,841	58,172	37,895	59,897	38,458	61,677	41,240	63,506
<b>Pharmacist</b>	1,897	13,626	2,154	13,626	2,381	13,626	2,914	13,626	3,184	13,779
<b>Allied Medical Personnel</b>	43,422	22,907	45,698	24,303	50,743	25,822	53,077	27,477	55,080	29,288
<b>Nurse</b>	77,946	50,152	82,948	52,066	83,862	54,065	91,854	56,154	95,379	58,339

Source: MoH (2015) and \*Al-Falieh, Alfreihi & Al-Rabeeah (2009)

The (Ministry of Health 2014) reported inconsistencies in the number of physicians. On page 40, the report states that there are 81,532 physicians in KSA; subtracting the 12,785 dentists leaves a net total of 68,747. However, on page 48, the report states that there are 94,960 physicians; minus the dentists leaves a net total of 82,175. The figures on page 35 indicate 22.39 physicians per 10,000 people, equating to 67,170 physicians. A table on the same page shows total physicians as 27,861 for the MoH hospitals, and yet on page 50, they report 38,458 for the same category (Ministry of Health 2014). This does not bode well for information gathering within the Saudi health sector, especially when determining resource allocation, budgets and reporting accuracy.

#### 2.10.12 FUNDING MECHANISM CHALLENGES

Both the public and private sector health system are facing ongoing funding challenges. The introduction of user fees, co-payments, and policies for services or medications have failed to overcome the costs associated with service delivery (Lewin et al. 2008). Financing the health system presents significant challenges (Swanson et al. 2010). Policy development that targets specific aspects of the health system, such as medication and co-payments, has implications for equity in health, and universal coverage and care (Lewin et al. 2008; Neyaz et al. 2011).

The impact of user fees in low and middle-income countries has been assessed, with a focus on the negative effects in primary healthcare (Lewin et al. 2008). Where users incurred fees, there the use of health services declined significantly. Correspondingly, when user fees were withdrawn, health service utilisation increased with immediate effect (Lewin et al. 2008). Another mechanism to offset healthcare costs has been through financial incentives. By directing financial incentives to

physicians, health provider groups reported some degree of positive effect (Lewin et al. 2008). Adoption of community-based health insurance has demonstrated increased use of primary care for specific services such as vaccinations when compared with communities without insurance (Lewin et al. 2008).

As far as the historical aspect of funding in Saudi Arabia is concerned, healthcare has been funded from oil revenues, which is a common financing mechanism within the GCC region (Alkhamis, Hassan & Cosgrove 2014). This approach differs considerably from other regions where healthcare in high-income countries is funded by the people (Wang et al. 2010), and low-income countries have relied on external funding sources (Alkhamis, Hassan & Cosgrove 2014). Equity in healthcare likely relies on drastic changes to financing mechanisms (Alkhamis, Hassan & Cosgrove 2014).

The GCC region and indeed Saudi Arabia have unique demographic characteristics, such as the high number of expatriates working in the region (Shah 2009); this, along with a mix of high and low-income countries within the GCC has prevented private investment opportunities. Despite increased funding levels that have brought about significant improvements in both the structure and level of care to the Saudi healthcare system, additional funding is still needed for process improvements and efficiencies (Albejaidi 2010). Allocated funds could also provide valuable training to help reduce staff turnover rates, particularly in remote areas (Albejaidi 2010). Additional funding could be used to create a Regional Quality Health Information System that would enable health policy decisions to be both measurable and reliable; the data could be used to assess policy effectiveness by assessing the levels of quality implementation by region (Albejaidi 2010).

With allocated funding for healthcare expenditure reaching more than US\$37 billion by 2018 (Ministry of Finance 2018), the issue is not one of lack of funding but rather the allocative efficiency and distribution of the funding to provide the greatest returns on that investment. This would, therefore, suggest and support the need for increased private participation as SAGIA (2014) noted. It must not be lost that Saudi Arabia is a developing country and one that is attempting to provide equality of services for all citizens, regardless of geographic location, in a short time frame.

To combat the escalating costs of healthcare, private investments and mandated private health insurance have been proposed (Alkhamis, Hassan & Cosgrove 2014). This has been made clear by the Compulsory Employment-Based Health Insurance system (CEBHI) as a strategy to address

inequity posed by employers who fail to provide healthcare for expatriates (Alkhamis, Hassan & Cosgrove 2014). This one aspect alone illustrates fragmentation within the healthcare system in Saudi Arabia that have caused inequities in funding allocations between governmental agencies (Alkhamis, Hassan & Cosgrove 2014). This has resulted in non-MoH-based agencies providing better benefits and services than MoH agencies. Greater equity and fairness needs an alternate allocation mechanism, such as allocating per capita or changing the healthcare structure by combining agencies (Alkhamis, Hassan & Cosgrove 2014; Schieber 2005).

With the MoH-driven public sector providing most of the care in Saudi Arabia, the private sector is primarily responsible for foreign workers who either have work-based health insurance schemes or bear the costs themselves. Those in the public sector are afforded predominantly free-of-charge services, even for cancer, kidney dialysis, open heart surgery and organ transplants (Khaliq 2012). The Saudi Constitution mandates that the government provides free healthcare to all citizens of KSA (Jannadi et al. 2008).

#### *2.10.13 LACK OF FUNDING PRIORITY TO PHC*

The MoH decision-makers tend to focus on funding hospital-based services rather than PHC services, which shifts the burden of focus to curative rather than preventative care (Alrabiyah & Alfaleh 2010) and raises the question of proportionate funding levels for PHCCs. Furthermore, it questions the commitment to the PHC sector and raises concerns of equality of care. This then questions the services being offered at the PHCC level and the need to evaluate service effectiveness in ill-equipped PHCCs with insufficient trained staff to deliver services.

Understanding what is being offered needs to be adequately communicated. In the case of specialised services, such as physiotherapy, there are inherent barriers including the lack of radiological equipment, fully trained staff, and general facility and resource limitations (Alabbad & Alhaidary 2016). The majority of funding is directed toward the MoH's development of hospitals and associated infrastructure (Alrabiyah & Alfaleh 2010). However, the lack of appropriated funding, limited to only 10% for project development and infrastructure, is a significant issue.

The disproportionate allocation of funds has resulted in several critical concerns, namely that 80% of PHCCs occupy rented facilities (Alrabiyah & Alfaleh 2010). This issue poses important logistical concerns, as the buildings themselves are 'not fit for purpose' and many lack easy access, which presents a challenge for elderly and disabled patients (Alrabiyah & Alfaleh 2010). One study found

that the most common complaint by practitioners/patients impacting patient satisfaction was that the buildings were not suitable (Mohamed et al. 2015).

Another type of funding issue is that leased buildings have maintenance issues that need to be resolved by landlords as opposed to government buildings that are maintained or based on budget considerations by the MoH, thereby reducing operating costs. There are essentially three types of buildings serving as PHCCs (Alosimy 1994): old MoH buildings requiring continual maintenance, rented buildings that are not fit for purpose in many instances and new, dedicated PHCCs that lack necessary resources. The lack of necessary resources is directly attributed to the funding imbalance, as hospitals are designed specifically for their intended function, whereas PHCCs are an afterthought. The lack of direct funding allocation has affected the ability to design 'fit for purpose' facilities for PHC. This reflects the growing divide between primary and secondary levels of healthcare within Saudi Arabia and extends to resource allocation (Alrabiyah & Alfaleh 2010). Previous studies from the Asir region in KSA has shown that this disproportionate allocation translates into what care and services are offered by PHCCs due to a lack of available resources (Al-Khaldi & Al-Sharif 2002; Khoja & Al-Ansary 1998). The weaknesses of PHCCs are directly attributable to funding, which affects infrastructure and resources, and impedes the delivery of health services (Ministry of Health 2010).

Table 2.7 illustrates significant investments by the MoH to healthcare in KSA over time. The total budget allocation as a percentage increased from 2010 to 2015 by 11.7% (6.49 to 7.25), corresponding to 27 billion Riyals. This increased financial commitment reflects the overriding need to invest in the sector due to the demand for services, and the escalating costs associated with healthcare. However, when compared to the spending of developed nations as a percentage of GDP, Saudi Arabia lags woefully behind, especially in light of its economic prowess as the world's leading oil producer.

Merely increasing the funding allocation would be ineffective in addressing the budget shortfall if the annual allocation as a percentage of GDP lags behind that other developed countries. With the 2016 budgetary cuts, there is a heightened focus on the distribution and allocation of funds. This brings to the forefront the argument of Alkhamis, Hassan and Cosgrove (2014) for increased efficiency of those funds. It also reiterates the Ministry of Health (2013a) report that the Saudi government had indicated, under the Ninth Development Plan, the need to decentralise budgetary allocation control to individual units.

TABLE 2.7. BUDGET APPROPRIATIONS FOR THE MOH IN RELATION TO THE GOVERNMENT BUDGET

Year	Government Budget	Financial Appropriations for MoH	
		Total Budgets	%
2007	380,000,000	22,808,200	6.00%
2008	450,000,000	25,220,000	5.60%
2009	457,000,000	29,518,700	6.46%
2010	540,000,000	35,063,200	6.49%
2011	580,000,000	39,860,200	6.87%
2012	690,000,000	46,076,447	6.68%
2013	820,000,000	54,350,355	6.63%
2014	855,000,000	59,985,360	7.02%
2015	860,000,000	62,342,539	7.25%

Source: MoH (2015)

The recent move by Saudi Arabia to change private healthcare requirements among expatriates can be seen to align Saudi's overall health system. However, as the country has a legal obligation to provide free healthcare for citizens, ensuring equity poses a challenge that Saudi Arabia is willing to undertake, unlike other GCC countries (Alkhamis, Hassan & Cosgrove 2014). Only through investment can such equity be maintained, or the government would have to continue to assume the current fiscal burden. This makes Saudi Arabia a pioneer in private healthcare system reform in the region and has therefore reduced its financial burden (Alkhamis, Hassan & Cosgrove 2014). This must be considered a step toward increasing private investment in the healthcare sector. Nonetheless, the Saudi government still carries the load of financial responsibility for the delivery of healthcare; finding ways to increase interest from the private sector remains a challenge and an opportunity (Alkhamis, Hassan & Cosgrove 2014).

#### 2.10.14 HEALTH INSURANCE IN KSA

An enhanced focus on health insurance in Saudi Arabia began following the MoH's continuing difficulty in funding healthcare services across the country (WHO 2006). The provision of free-of-charge health services has placed a huge burden on the government, largely from several concurrent factors, such as rapid population growth, the need for expensive new technology, and an increased awareness of health among citizens (Walston, Al-Harbi & Al-Omar 2008).

The introduction of health insurance has brought about a significant change in healthcare funding in Saudi Arabia. The establishment of the Health Insurance Council in 2012 was a milestone in implementing the concept of mandatory health insurance across the country, which is to be implemented in phases (CCHI 2012). For example, the first phase involves making it mandatory for employers with more than 500 employees to pay for insurance coverage for expatriate workers and their dependents. The second phase involves applying mandatory health insurance requirements for companies employing more than 100 people. The third phase ensures that all employers and their employees, irrespective of the size of the company are covered by health insurance (Walston, Al-Harbi & Al-Omar 2008). Thus, the government's alternative options for funding healthcare services in the future, which include the mandatory private sector insurance scheme for expatriate workers, is the first major step toward achieving this goal (Almalki, FitzGerald & Clark 2011).

The introduction of health insurance is recognised as the most important step in improving the financial strength of the healthcare sector, as it could considerably reduce the government's financial burden (CCHI 2012). Moreover, health insurance will enable people to obtain higher quality health services. Finally, the government has established National Health Accounts under the MoH that will cover all revenues and expenses related to health in both the public and private sectors (WHO 2006) and will include detailed cost analyses of existing health services in KSA.

The Ninth Development Plan allocated SR242.7 billion (US\$64.7 billion) to meet the financial requirements of various organisations within the Saudi Arabian health sector (Ministry of Economy and Planning 2010), including various government agencies (the MoH, the Saudi Arabian Red Crescent, King Faisal Specialist Hospital & Research Centre, and the Saudi Food and Drug Authority). The scheme aims to help these organisations reduce the financial burden arising from providing free-of-charge health services. In 2012, 28 health insurance companies operated in Saudi Arabia through an estimated 150 hospitals that comprised 22 public sector hospitals operated by the MoH and an additional 2,900 healthcare providers (CCHI 2012).

Moreover, the CCHI accredited eight Third Party Administrator companies and 2,130 health providers. In 2012, 1,786 healthcare providers renewed their accreditation, an increase of more than 32% compared with the 1,348 in 2011 (CCHI 2012). As of 2012, the number of insured individuals was ~7.8 million consisting of 5.5 million foreign workers and 2.3 million Saudi citizens (CCHI 2012). The Secretariat General of the CCHI was overwhelmed with the continual success of

implementing insurance schemes following the cooperative health insurance law and expects to see further increases in private health coverage (CCHI 2012).

Up to now, the Saudi government has focused on how to implement and promote the remaining two stages of the plan to bring widespread adoption of private health insurance (Khaliq 2012; Walston, Al-Harbi & Al-Omar 2008; WHO 2006). Also, efforts are being taken to ensure health insurance coverage for public sector employees, as well as for pilgrims of Hajj; however the ultimate goal is to privatise the state-owned healthcare services (Walston, Al-Harbi & Al-Omar 2008). Nevertheless, the introduction of private health insurance for the entire population in Saudi Arabia, in addition to employees and expatriates, has not been forthcoming. Countrywide implementation of private health insurance would likely reduce the overall financial burden on the Saudi Arabian government to provide health services free-of-charge. Moreover, this will provide people with more choices of quality health services (Walston, Al-Harbi & Al-Omar 2008).

In the absence of any standardised agreement, the efficiency of insurance schemes remains unsatisfactory and can lead to an increase in inequality and inequity in the healthcare system (WHO 2012b). To ensure efficiency improvements, WHO (2012b) suggested merging a range of health insurance providers and standardising a minimum package of insurance benefits.

Moreover, the services offered by private health insurance schemes should be complemented by government agencies. However, the MoH is not authorised to set prices based on various tiered levels, and this applies largely for private sector providers, but it can set maximum prices for pharmaceutical drugs (Walston, Al-Harbi & Al-Omar 2008).

#### *2.10.15 BARRIERS TO QUALITY OF PRIMARY HEALTHCARE SERVICES*

A 2005 research study conducted by Al-Ahmadi and Roland (2005) concluded that there were six essential barriers to providing quality-based care at the primary healthcare level: organisational factors, organisational culture, managerial factors, lack of evidence-based practice (EBP), need for professional development, and issues associated with the interface between primary and secondary care (Al-Ahmadi & Roland 2005). PHCC services can only be as effective as the resources available, but cannot solely rely on those resources (Gibson et al. 2015). There is similarly a dependency on funding, infrastructure, and highly trained healthcare practitioners to provide high levels of care to patients (Gibson et al. 2015).

Decision-making as to healthcare management between patients and physicians has been a historical barrier. In Canada, the Ottawa Decision Support Framework (ODSF) was developed as a

mechanism to address this; however, the ODSF itself has been viewed as a barrier as much as the relationship between patient and physician (Légaré et al. 2006). The void between the patient and physician in decision-making is as much about the physician's approach to delivering care, be it patient-centred, evidence-based, or otherwise (Légaré et al. 2006). The complexity of delivering PHC and the barriers that prohibit its execution can be viewed from two perspectives, internally and externally. The internal view is driven from the delivery source, meaning the healthcare provider and those responsible for delivering the care—policymakers, physicians, administrators, nurses and other associated personnel. The external perspective is that of the patients: specifically, how they see the delivery of care and their rights within the PHC covenant of their society.

It has been suggested that there is often overlap between both barriers and facilitators when it comes to health innovation, practice guidelines and health indicators, as those responsible for decision-making are the same ones responsible for establishing and implementing them in practice. The need to measure effectiveness requires health indicators and, often, the engagement of all stakeholders to determine the priority of those indicators to measure quality and effect continuous improvements in health (Addington et al. 2010). There are numerous components to quality in healthcare and, at the clinical level, access to immunisation and epidemic control are vital (Al-Ahmadi & Roland 2005). Barriers to receiving adequate information and understanding treatments at the clinical level are a lack of programs to combat chronic disease management, lack of access, and language differences (Al-Ahmadi & Roland 2005; Albougami 2015). High-quality care includes managerial and organisational factors, along with professional development and incorporating EBP into decision-making (Al-Ahmadi & Roland 2005). These perceptions of quality and barriers within Saudi PHC services reflect inconsistent clinical procedural practices, lack of equity in health, and inadequate governance and resources.

Quality of healthcare in KSA lacks certain safety precautions; as it relates to the dispensing of pharmaceuticals, there have been cases of medical errors, wait times for treatment, and a failure to provide information regarding continuity of care at discharge (Almutairi & Moussa 2014). The level of quality-based care has been decreasing in KSA and, when considered in conjunction with an escalating population, the pressure to provide better care provides a logistical challenge (Almutairi & Moussa 2014). Further to this concern, the rising costs of advanced medical technology coupled with patient expectations of care have compounded the delivery of care (Almutairi & Moussa 2014).

The Saudi MoH need to implement broad-based educational awareness programs on preventative care as Saudi's typically only seek medical advice after they become sick. Educational programs would educate patients and also help to understand the systemic barriers to healthcare delivery (El-Bcheraoui et al. 2015). The most fundamental aspect to PHC is access to care, as this affects the determinants of an individual's health and, as such, there is an inherent need within society to provide access to PHCC facilities within a reasonable distance so patients can access that healthcare (El-Bcheraoui et al. 2015; Mumenah & Al-Raddadi 2015). A 2014 study by Alshammari (2014) noted a direct correlation between access to medical care and patient satisfaction. Furthermore, the study found a significant correlation between age and income. Aged patients in the middle-income category were more satisfied with their relationships with doctor and staff (Alshammari 2014).

When access is impeded, patient satisfaction levels can be affected by more than just distance to the facility; they can include the facility's operating hours, lack of speciality services, length of time waiting for service, and preserving patient confidentiality (El-Bcheraoui et al. 2015). Further to the dissatisfaction of service, patients often find that the characteristics of staff, communication barriers brought about by language differences, and the lack of understanding of health issues impact patient satisfaction levels (Albougami 2015; El-Bcheraoui et al. 2015). Given the findings of Mohamed et al. (2015), where the educational level was a factor in patient dissatisfaction, this may be correlated with communication barriers, language differences and a lack of health awareness.

Just as patients fail to take preventative measures for care, administrators only appear to take reactive action after a negative event that compromises safety for the facility and the patient (Al-Ahmadi 2010). The significance of how negative events are treated in the KSA healthcare sector extends to the under-reporting of mistakes made and a widespread culture of blaming those responsible (Al-Ahmadi 2010). This reflects a failing of governance for safety procedures and a support network derived around training and education to reduce the number of occurrences of error.

#### *2.10.16 MEETING PATIENT SATISFACTION: A MAJOR CONCERN FOR PHCCS*

Quality of healthcare can be assessed and determined (Alzolibani 2011; Mansour & Muneera 1996; Mohamed et al. 2015; Prakash 2010) by patient satisfaction, and patient surveys are a tool for quality improvement (Alabri & Albalushi 2014). While Alabri and Albalushi (2014) noted that

defining patient satisfaction is difficult, it is regarded as a highly valued quality-care indicator. Alzolibani (2011) found that in one university hospital in Saudi Arabia, only two-thirds of patients reported satisfaction. Primary concerns affecting satisfaction included wait time, appointment booking, consultation length and limited opportunities to state their condition to the physician (Alzolibani 2011). The latter is a fundamental requisite for the patient–physician principle focus of PHC.

Al-Omar and Bin Saeed (1998, p. 23) stated that it was necessary for PHC facilities ‘*to meet the expectations of their patients*’ and in doing so, this means that PHCCs should focus on what influences expectations. Patient expectation can be directly attributed to a lack of understanding of what PHC service entails and what the objectives are in terms of services and its associated limitations. Therefore, an educational program would be suitable for increasing patient knowledge (Aldoghaither et al. 2001).

Sufficient staff of both genders are needed as well as improved training to generate higher quality physicians (Al-Omar & Bin Saeed 1998; Mandil et al. 2015). The importance of gender equality of physicians is related to caring for female patients who prefer female physicians, as the disproportion of genders translates into lower levels of care (Al-Eisa et al. 2005; Mandil et al. 2015). Further to this, physicians from both genders need training, as women favour female physicians, except when surgery is required when they believe the male surgical physician is more knowledgeable (Mandil et al. 2015). Mandil et al. (2015) also showed a preference for a female physician for obstetric and gynaecological issues. Mandil et al. (2015) identified was not only the need to train both genders but to direct the training to specific medical skills and be cognisant of the patient needs.

One study indicated the importance of increased training to assure physician quality and provide economic benefits in terms of improved health service quality and usability of medical technology (Al-Omar & Bin Saeed 1998). Furthermore, the study emphasised that findings were directed toward policymakers who were critical in determining acquisitions of equipment and measuring costs. This study two decades ago illustrated the importance of quality decision-making from a policy standpoint and a clinical level, and the importance of funding to determine health outcomes. Decision quality can affect health outcomes and the level of care provided by physicians (Gibson et al. 2015; Swanson et al. 2010).

Quality of healthcare, defined by Al-Ahmadi and Roland (2005), includes access to a clinician and clinician effectiveness on an interpersonal level, which supports the notion of a patient–physician-centric approach to quality PHC. This type of care requires consistent access across all services, particularly chronic disease management programs that include non-communicable diseases and health education. However, these may be challenged by factors such as communication and language barriers (Al-Ahmadi & Roland 2005). Quality care also relies on EBP and professional staff development, which varies across Saudi PHCs (Al-Ahmadi & Roland 2005). To achieve quality care, a clear professional education program to develop staff knowledge and skills is required (Al-Ahmadi & Roland 2005).

Swanson et al. (2010) stated that a suitable level of satisfaction requires responses to stakeholder needs and concerns, a high degree of accountability, and appropriate feedback mechanisms to measure the quality of health system across services and between patient and provider. For health systems and PHCCs to reach satisfaction, everyone concerned must be satisfied with the programs and the system (Swanson et al. 2010). Dissatisfaction of either the healthcare provider or patient is directly attributable to the lack of funding and poor health system management and leadership, which in turn reduces the level of quality-based care and translates to lower levels of participation and reduced overall health quality. To achieve satisfaction, high accountability is needed, including a high degree of responsiveness to all concerns, health or otherwise (Swanson et al. 2010).

Patient satisfaction has been viewed both in terms of pre- and post-clinic periods (Ghazwani & Al Jaber 2014). Pre-clinic issues include accessibility, waiting areas, wait times and pre-physician diagnostic checking. Post-clinic issues include the physician’s investigatory techniques, laboratory access, and availability of the required pharmaceuticals (Ghazwani & Al Jaber 2014). Therefore, patient satisfaction at pre- and post-clinic levels needs to be checked. Successful PHCCs require sufficient resources, appropriate infrastructure, adequate funding, and highly trained and educated healthcare professionals. However, PHC services cannot be solely reliant on these factors to provide patient care (Gibson et al. 2015). Nevertheless, shortages of oral and dental doctors are imperative for patient satisfaction (Al-Jaber & Da’ar 2016).

Further to providing quality services in PHC, it is essential to understand the patient’s needs and engage them in the decision-making process from the outset, which is a fundamental aspect of the patient-centred approach to care (Othman et al. 2015). Understanding whether the healthcare system is meeting the client’s needs is crucial for quality-based care. From this, it possible to

gauge and measure the degree of compliance to procedures and level of care prescribed to that patient as a means for determining the quality of care practiced (Othman et al. 2015), but merely adhering to procedural guidelines does not guarantee outcomes as health is contingent on a multitude of factors (Othman et al. 2015). Continuity of care is another valuable aspect of quality of care (Othman et al. 2015) that raises concerns about the lack of staffing and its impact on the follow-up process. Consequently, disruptions to the continuity of care can weaken the patient–physician dynamic and affect patient outcomes as to satisfaction levels (Othman et al. 2015). Further to this, certain ‘for profit’ health service offerings, such as franchising, have not delivered the expected levels of quality-based care or patient satisfaction (Lewin et al. 2008). While governments strive to reduce the cost of healthcare delivery, or at least manage it, seeking solutions in the private sector may not yield the expected levels of service delivery.

#### 2.10.17 CRITICAL ANALYSIS OF PRIMARY HEALTHCARE SERVICES IN KSA

It is clear that for successful assessment of PHC delivery in Saudi Arabia, critical aspects should be examined under a framework developed from nine criteria of the *Ouagadougou Declaration on Primary Healthcare*. A detailed analysis of each of the nine criteria as they relate to KSA has been done in this study, and a general understanding of the effectiveness of PHC policymaking and operational efficiencies has been ascertained. The issues of most importance are related to policymaking by the MoH in 2009 and 2013, and the policy’s efficiency, delivery and implementation. Other significant aspects include the need to question those directly responsible at policy and operational levels within PHC.

Further, the driving force behind PHC at a global level is the WHO. The Alma-Ata Declaration established benchmarks that countries can use to evaluate their healthcare. The nine criteria of the *Ouagadougou Declaration on Primary Healthcare* serve as a theoretical framework for stipulating what factors influence PHC in Saudi Arabia. Adopting the nine criteria as a framework model can help to ‘*explain, predict, and understand the phenomena*’ (Swanson & Chermack 2013). This theoretical framework provided structure to the thesis and the survey questionnaire, but more importantly is a suitable model for evaluating PHC (Barry et al. 2010; Du Toit et al. 2013; WHO 2010a).

The central purpose of PHC is to provide an equal distribution of health resources. Thus, the need for efficiency is paramount regardless of whether a country is deemed low, middle, or high-income (Starfield 2012). Since 2010, the mechanisms that influence equity, efficiency and

effectiveness have been better understood. Consequently, factors such as economic wealth and the number of health professionals do not necessarily result in improved health performance levels. What has been identified as significant for PHC policy and outcomes is the need for universal coverage managed by government regulation or control, equitable distribution of resources, scope of services provided and low- or no-co-payments for PHC, where all these factors contribute to improving PHC outcomes (Starfield 2012).

In particular, these factors are highlighted in this research and discussed specifically with regard to KSA. What is of significance is the notion of universal coverage under government regulation or control such that KSA is pushing for privatisation to decrease direct control. While such privatisation is not a recent development, it is a key issue when considered alongside low- or no-co-payments, as the two are opposed. Individuals who cannot afford private care will remain a burden to the state, and those with the freedom to choose will be met with the question of affordability and return. This then raises concern over equity in health: all this has done is shift the burden. What is also known is that the prevalence of these factors improves access to care, use of services, patient–physician focus, efficiency of coordinated care, and service offerings (Starfield 2012).

As far as the barriers to the delivery of PHC in Saudi Arabia are concerned, there are many. Socially entrenched cultural beliefs threaten the efficiency and effectiveness of PHC in Saudi Arabia. Such cultural beliefs include undermining care by female nurses and forbidding male doctors to treat women. These issues call for the government to change its centralised control, and switch to a fee-based system; by privatising some services and increasing private health coverage, these changes could be paradigm shifts across all levels of government and society. Such a shift is not unlike the paradigm shift that has taken root since the 2008 World Health Report and publications by the Commission on Social Determinants of Health, which increased the awareness of broader factors influencing PHC and health outcomes (Bhatia & Rifkin 2013).

This literature review identified the significance of the nine criteria in the 2008 Declaration, which are a generic framework for countries to use to address health system challenges (Sambo & Kirigia 2014; WHO 2010a). The importance of identifying weaknesses in health service delivery and developing strategic initiatives to address and strengthen health service delivery can only be undertaken with supportive leadership and governance. Leadership and governance are directly related to government policy and ensure any strategic initiatives and policy framework are

enacted (Sambo & Kirigia 2014). While Saudi Arabia's health system is not fragile, ministerial changes—with two in the 2017—and current threats to funding can be destabilising; therefore, leadership and governance are imperative for developing sustainable and long-term strategic policies (Joyal 2014). There is also a need for effective oversight, which requires regulatory policymaking and decision-making to support initiatives (Sambo & Kirigia 2014). Thus, stable leadership and governance are essential for establishing long-term strategies for sustainable health service delivery.

Moreover, policymaking in the PHC sector requires a more decentralised approach, whereby issues and challenges are communicated upward. This is distinct from the current top-down, autocratic and centralised decision-making approach. Policy frameworks cannot be solely about political or financial directives to meet fiscal constraints, nor can they be viewed in isolation or as a means to an end (WHO 2015). In establishing a national health policy within the current economic climate, the role of leadership and governance within the parameters outlined in 2009 is of greater significance (WHO 2015).

## **2.11 CHAPTER SUMMARY**

This chapter detailed the Saudi primary healthcare system from a historical viewpoint, as well as how it fits within the present worldview of PHC evolution. By extending this to consider the current global and regional aspects of PHC, including similarities within the GCC, and looking at other effective PHC systems, this chapter served to frame the Saudi system and help to identify key attributes that are imperative in a fully functional PHC as part of a broader healthcare system. It also provided a comprehensive understanding of the principal actors driving PHC policy, and how effective PHC has been in selected countries.

By identifying successful implementation strategies, and those countries viewed as having successful PHC, characteristics and traits of successful health systems were identified. It is clear that Saudi healthcare is part of a centralised control system albeit within a matrix management reporting echelon, and this poses limitations for achieving a similar level of success for PHC within KSA.

The primary driver in delivering healthcare, including PHC, is that of funding and fiscal management. The ambitious desires to meet the Alma-Ata Declaration and provide preventative PHC for all in KSA could be unrealistic as globalisation, and technological development have brought increased and perhaps unforeseen barriers to delivering that notion. There are however

opportunities to improve the functionality of existing PHCCs by embracing alternative thinking and examining the existing system for its inherent frailties and faults.

The healthcare system in Saudi Arabia has undergone significant changes and begun to recognise the need for a collaborative approach to preventative healthcare delivery. However, there are major challenges that stem from fiscal, human and physical resources. The literature shows that existing societal and political problems are impeding progress, policy directives and remedial ICT infrastructure, and the growing population is challenging current healthcare service demands. With increasing challenges of disease prevention and management, the healthcare sector is, despite growth in facilities, experiencing excessive demands that lead to capacity issues, and patients are experiencing significant wait times. As Saudi Arabia population grows through migration and as a venue for pilgrims, this will exacerbate the delivery of care and continue to threaten the overall system. The government needs to be more creative in terms of managing costs. The delivery of care has seen the government extend their interest in collaborating with private sector initiatives and investment, which are central to future planning, to alleviate fiscal pressures. The next chapter presents pragmatism's theoretical perspective, mixed methods research design, the theoretical framework and qualitative descriptive exploratory design.

## CHAPTER 3.

### RESEARCH APPROACH AND FRAMEWORK

#### 3.1 INTRODUCTION

The previous chapter reviewed the literature relevant to this study. This chapter presents the research approach, its theoretical and philosophical underpinnings, and the choice of research design methods, including ethics, data collection and data analysis.

#### 3.2 MIXED METHODS RESEARCH APPROACH

This study aimed to investigate the effectiveness and challenges of implementing PHCCs in Saudi Arabia. A mixed methods approach was chosen as an appropriate research design as it uses the strengths of both qualitative and quantitative methods (Curry, Nembhard & Bradley 2009) and is a mechanism for capturing information that could otherwise be missed when using only one design method (Caruth 2013). The resulting data from a mixed methods design offers greater knowledge and information for current and future research because it can address a broader spectrum of research questions (Caruth 2013). The data generated is more complete, and the findings from one method can increase the understanding of information gleaned from the complementary method (Creswell & Plano Clark 2007; Morgan 2006).

There are different mixed methods research designs that include exploratory, explanatory, transformative, embedded, multi-phase, and convergent or triangulation design (Creswell & Plano Clark 2011). Mixed methods can be applied concurrently or sequentially. If they are applied simultaneously, the collected data can complement each other, and the validity of the data will be strengthened as the quantitative study tries to answer the 'what' of a problem and the qualitative methods answer the 'why' and 'how'. Using two methods sequentially can help researchers to better understand an issue. A qualitative study can be used to answer a research question and develop a questionnaire to explore participants' views.

##### 3.3.1 MULTI-PHASE CONVERGENT DESIGN

This study used a multi-phase convergent mixed methods design. A key principle of convergent design is that it ensures equal weight to both qualitative and quantitative methods; data are collected concurrently but independently, and convergence occurs during the interpretation or discussion of the findings (Creswell & Plano Clark 2007; Morgan 2006). Converging both

quantitative and qualitative data concurrently provides a comprehensive analysis to answer the research questions (Creswell 2003). Simultaneous data collection and integration enables a broader and deeper interpretation of the results (Creswell 2003).

Convergent research design, also known as the triangulation design model, is frequently adopted in the PHC setting (Creswell, Fetters & Ivankova 2004; Twohig & Putnam 2002). Using this complementary strategy enhanced the validity of a mixed methods study, as both methodological approaches answer some aspects of the issue being assessed using relevant methodology (Morse, Wolfe & Niehaus 2006).

A multi-phase approach is used in the development of a convergent research study design (Creswell & Plano Clark 2007). This means that the data collections were not dependent on each other, and would be analysed separately, reported in the results and interpreted within the discussion, where integration and comparisons could be drawn (Creswell, Fetters & Ivankova 2004). Merging the results and any overlaps would increase the significance of the findings. In some instances, one set of quantitative or qualitative data may address specific answers to research questions, while the other does not draw any results, thereby achieving the research objectives.

By adopting a mixed methods approach, the researcher sought to benefit from the qualitative research to better understand the participants' perceptions of different aspects of the study (Curry, Nembhard & Bradley 2009). The value of mixed methods research is when the researcher wishes to explore statistically linked variables, especially to understand what causes specific outcomes and what influences that effect, particularly in organisational settings (Curry, Nembhard & Bradley 2009).

### 3.3.2 *NEITHER EXPLANATORY NOR EXPLORATORY DATA*

This study did not use an explanatory sequential design as it is a dominant quantitative method, where quantitative data is collected first followed by the collection of qualitative data (Creswell 2009). An explanatory design emphasises that the quantitative data inform the qualitative data, with the qualitative data inform the interpretation of the quantitative data (Creswell 2009). In a convergent design, the data are merged at some point, such as during the discussion in the present study, unlike explanatory and exploratory design where the data sequentially build on the previous set (Fetters, Curry & Creswell 2013). This method is suitable when quantitative data present surprising finding (Morse 1991).

### 3.3.3 TRIANGULATION OF DATA

There are four distinct approaches for integration—connecting, building, merging and embedding: connecting is where one data cohort is connected to the other via sampling, building is where one set of data is used to inform the data collection method for the other data set, merging is where the two data cohorts are integrated when analysed, and embedding is where the data sets are linked at several points in both the collection and analysis phases (Fetters, Curry & Creswell 2013). Triangulation enables the collection of both sets of data simultaneously and integration of the data sets is considered the best method of approach for addressing research problems (Tashakkori & Teddlie 1998). Within convergent design, some disagreements have occurred about whether giving equal weight is a must. Baskerville, Hogg and Lemelin (2001), in their convergent study, gave priority weighting to the qualitative data set despite concurrent data collection and analysis in the integration phase.

This method of data integration is known as *weaving*, as findings are associated with similar themes that compare the two data sets on a central theme (Fetters, Curry & Creswell 2013; Meurer et al. 2012). In this study, the researcher gave equal weight to both qualitative and quantitative methods, as they were essential for answering the research questions and objectives. Having different perspectives from PHC regional directors (qualitative data) and responses to specific survey questions from PHCC directors (quantitative survey) was essential for meeting the research questions in this study.

The process flowchart in Figure 3.1 indicates simultaneous data collection as shown by the '+' sign, as noted by Creswell (2009). The researcher justified this approach over other approaches as the quantitative survey covered all 90 PHCCs, and the survey instrument was directly applicable to the PHC sector.

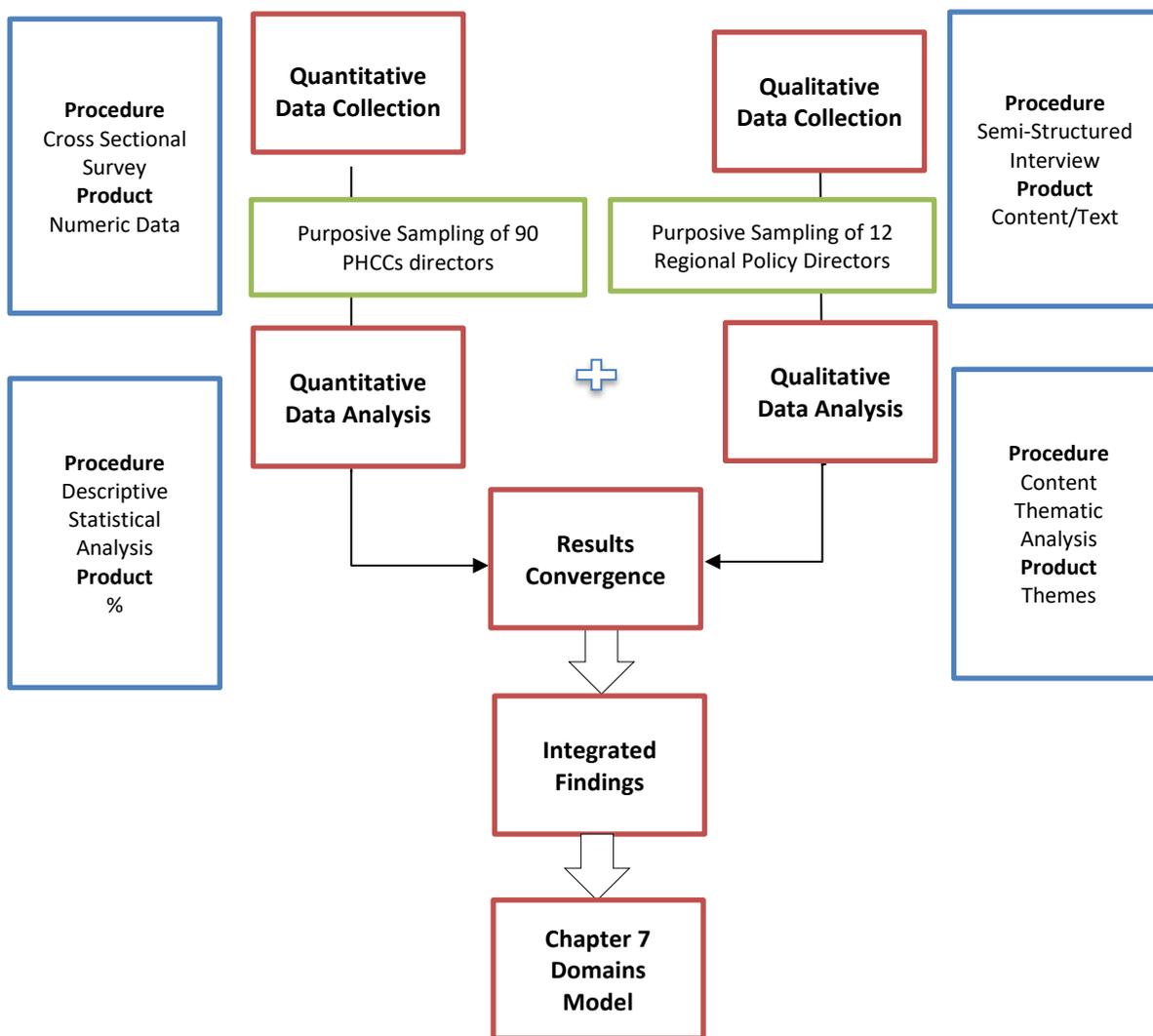


FIGURE 3.1. METHOD OF DATA COLLECTION AND ANALYSIS USED IN THIS THESIS

### 3.3 PRAGMATISM AND ITS THEORETICAL AND PHILOSOPHICAL POSITIONING

The philosophical doctrine of pragmatism has been used effectively in mixed methods research (Feilzer 2010; Morgan 2007). The pragmatic approach centres on the research problem and how it affects the research (Creswell & Plano Clark 2011; Tashakkori & Teddlie 1998). Pragmatism is the primary paradigm applied in mixed methods research studies (Feilzer 2010; Morgan 2007; Morse 1991; O’Cathain, Murphy & Nicholl 2007; Tashakkori & Creswell 2007).

Applying pragmatism to mixed methods research increases the practical relevance of the research methodology (Feilzer 2010). Since mixed methods research integrates two fundamental research strategies, the research framework needs to accommodate the integration of quantitative and

qualitative data (Creswell & Plano Clark 2011). A principal tenet of pragmatism is the compatibility of quantitative and qualitative methods (Azorín & Cameron 2010).

The pragmatic approach stresses that the research questions are the preeminent feature for studying a research problem, while the method is a secondary criterion (Tashakkori & Teddlie 1998). Creswell (2003) stated that the research framework should be correlated with the type of research questions being asked; thus, pragmatists look at the purpose of the questions and what information they will yield. Traditionally, the pragmatic approach, when used in mixed methods research, requires a sequential or simultaneous collection of both quantitative and qualitative data (Creswell 2003).

The association between theory (pragmatism) and methods research is essential for validity; when the two are closely associated, the degree of validity increases (Hanson 2008). The association between pragmatism and mixed methods research extends to health sectors, e.g. in population health research as it is problem-solving orientated and adept at focusing on the environment (Greene & Hall 2010).

Employing a worldview affords the opportunity to benefit from a mixed methods approach by eliminating the choice between logic and epistemology (Maudsley 2011; Tashakkori & Teddlie 1998). This has been referred to as 'epistemological ecumenism' (Onwuegbuzie 2000). Maudsley (2011) stated that the pragmatism paradigm resolved the dilemma of either/or approaches by using mixed methods and provides a 'what works' approach to 'truth' solution to research. This holds especially true when both qualitative and quantitative methods are combined through the study design, data collection and analysis (Maudsley 2011). Pragmatism is a rational choice of paradigm when convergence or triangulation of findings occurs, as it yields greater insight into what is being investigated and uncovers different facets of interest (Maudsley 2011).

### **3.4 THEORETICAL FRAMEWORK APPLIED TO THE OUAGADOUGOU DECLARATION**

A research framework model was needed that could examine the associations between the domains. A framework can be used to examine related constructs or when devised domains need to be tested or examined (Evans, Coon & Ume 2011; Miles & Huberman 1994). According to Evans, Coon and Ume (2011, p. 3), theoretical frameworks can support concurrent mixed methods research, especially when integrating methods as they can serve to *'provide a map for combining the what with the why to gain a multidimensional understanding of causal mechanisms'*. In this case, using a framework and mixed methods can serve to explore those domains that were

devised. Creswell and Tashakkori (2007) suggested a mixed methods design to integrate the findings, where inferences could be drawn to support and benefit a framework model that explored related domains.

The research questions (Chapter 1) have a specific focus on PHC with two overriding themes: (1) the WHO Alma-Ata Declaration and its influence on shaping PHC in Saudi Arabia, and (2) the barriers that preclude the effective delivery and achievement of healthcare goals. The research questions are then considered from two perspectives, the policymaking directives and the operational implementation, which would focus on policymakers and PHCCs operational directors.

With regard to PHC policy initiatives, the questions consider the level of understanding of the set policy and effectiveness of implementing that policy both in the broadest terms and individually. By understanding the level of knowledge of the policy and an individual role, the necessary level of acumen can be applied to plan both strategically and operationally to achieve desired outcomes. This aspect is served specifically by one criterion within the theoretical framework, that of leadership and governance, to consider accountability and adherence to policy frameworks. It is from the KSA 2005 National Policy for Health that the implementation strategy is derived. All operational PHCs support the intent to provide levels of healthcare services to meet the Alma-Ata Declaration objectives; therefore, it is essential that leadership at every level fully understand the overriding goals and their role in directing and achieving those targets.

This study used the nine criteria of the *Ouagadougou Declaration on Primary Healthcare* (Table 3.1). Designing a theoretical framework using these nine criteria provides a structure and order to examine the domains. If the linked findings provide coherency for the phenomena that are discovered by identifying the 'what' and 'why' of these occurrences, this will increase the understanding of their conjoined action (Evans, Coon & Ume 2011; Polit & Beck 2008).

The model was devised with eight domains, designated D1, D2, D3, D4, D5, D6, D7, and D8 (Table 3.1), to evaluate the specific relationships of each criterion. The causal relationships between the variables (*the nine criteria*) are shown in Figure 3.2. The arrows in that diagram show how each proposed criterion/variable interacts with other indicators that make up the model. If a specific latent variable is frequently related to a cause then there is a causal relationship. The effects of the variables were measured by correlating the scores from the survey questionnaires, and their item scores indicated the strength of that association.

Table 3.1 shows the eight domains that were derived from inferences from the literature review and represents the possible associations that will be examined and gleaned from the data. If any of the domains were deemed significant, this would infer a valid relationship based on factual evidence as opposed to one that occurred randomly. The implication of significant associations will be illustrated by a real practical value. Determining the association through deductive reasoning based on the literature. Gulati (2009) stated that a deductive means the reasoned from the particular to the generalisation. In the case of possible causal associations or connections, that the resulting belief derived from implications in specific case examples is true in more than that individual case, a generality may exist. Phenomenological research looks to make generalisations, with the deductive reasoning worked to determine such patterns from the literature. The deductive reasoning approach gives rise to the domains, by creating premises, and the researcher looks to deduce conclusions from these domains within the data (Babbie 2013). By examining the known phenomenon with deductive reasoning, the research looked to validate the domains. The use of a logical approach using deductive reasoning helps to identify a theory of phenomena that yields new domains, which then is tested through further research, where it is confirmed or rejected (Snieder & Larner 2009).

TABLE 3.1. THE NINE CRITERIA AND EIGHT DOMAINS

Domains	Variable Path Flow	Criterion Path Flow
D1	a) → b)	Leadership and Governance for Health → Health Service Delivery
D2	c) → b)	Human Resources for Health → Health Service Delivery
D3	d) → f)	Health Financing → Health Technologies
D4	f) → e) → b)	Health Technologies → Health Information → Health Service Delivery
D5	f) → l) → b)	Health Technologies → Research for Health → Health Service Delivery
D6	c) → g) → b)	Human Resources for Health → Community Ownership and Participation → Health Service Delivery
D7	a) → d)	Leadership and Governance for Health → Health Financing
D8	h) → d) → b)	Partnerships for Health Development → Health Financing → Health Service Delivery

By using this criterion as others have done (Du Toit et al. 2013; Sambo & Kirigia 2014), the present research investigated a broad spectrum of factors that impeded policy implementation and the operational efficiency of PHCCs in the two cities of KSA. The *Ouagadougou Declaration* guided the researcher in designing the research questions for this thesis. The framework was well-aligned

with the theoretical perspective—pragmatism—and the anticipated research outcomes. A review on how the nine criteria have been considered in Africa and how each criterion can be included within the five research questions was conducted. Since Saudi Arabia is committed to extensive investment in healthcare and continued expansion of the PHC component, and given the continual challenges of increasing population, rising health costs and the propensity for increased non-communicable diseases like obesity and diabetes, understanding the effectiveness and ways to improve the efficiency and effectiveness of PHCCs is imperative. Understanding the factors that influence and possibly prohibit the efficient delivery of care can offer insight and, therefore, increase the effectiveness and value-added benefits, especially given recent budgetary constraints. This can help in policy formulation in the future and reduce long-term expenditure.

#### *3.4.1 RESEARCH QUESTIONS—DEVELOPMENT OF DOMAINS*

- #1:** What effect has the 2005 National Policy for Health had on the overall health system in KSA?
- #2:** What is the PHC managers' knowledge about the role of PHCCs and healthcare workers within the National Policy for Health system?
- #3:** What are the major factors that influence the planning and implementation strategy and evaluation of PHCCs in KSA?
- #4:** What are the barriers to and facilitating factors for accessing PHC services?
- #5:** How has the national strategic policy and establishment of PHCCs improved health service delivery in KSA?

The research questions were designed to consider both policymakers and operational leaders. The justification is that policymakers are responsible for PHC planning and operational directors/leaders are responsible at the local PHCC within the two most-populated cities in KSA.

Regarding the PHC policy initiative, the questions considered the level of understanding of the policy and its effectiveness in a broader sense as well as an individual sense. Understanding the evidence base of the policy and its role can determine the necessary level of sharpness needed in planning both strategically and operationally to achieve desired outcomes. This aspect is being served by one criterion within the theoretical framework, i.e. leadership and governance, to consider accountability and adherence to policy frameworks and make sure that all operational PHCCs support the intent to provide levels of healthcare services to meet the Alma-Ata Declaration objectives. Therefore, it is essential that leadership at every level be fully understood with regard to its overriding goals and role in directing and achieving those targets.

Furthermore, the research questions consider the operational success of policy implementation as it relates to service delivery and challenges or barriers that impede its progress. Understanding whether the challenges or barriers occur at the policy or operational level can facilitate an increased understanding of the need to enact changes to correct existing PHC operational planning or future implementation strategies. Similarly, measuring the effectiveness of the implementation of PHCCs will establish the value added and success of the national policy for future policy initiatives. Thus, the research questions will be answered within the framework of the nine criteria of the *Ouagadougou Declaration on Primary Healthcare* to enable a broad evaluation of those factors that contribute to both the implementation and operational planning of PHCCs. The need to understand those barriers will provide specific insight into the issues that operational directors face in delivering healthcare to the two regions and determine any correlations with those factors that circumvent successful implementation of PHC services.

When considering these domains in connection with the research questions, the correlation between health service delivery and Research Question #1 is important for understanding how well the 2005 National Policy for Health has shaped PHC service delivery in KSA. Research Question #2 focuses on understanding the role of resources in implementing policy initiatives and daily management in the delivery of PHC services for determining the effectiveness of the primary directive to improve healthcare services within the PHC policy.

For Research Question #3, (Figure 3.2) shows the criteria influence health service delivery and reveal that planning is critical to the strategic operations of PHCCs with many factors influencing its effectiveness. This leads to Research Question #4 and the barriers that prohibit the effective implementation and delivery of PHC services. Understanding how criteria such as health financing can be prohibitive in meeting targets to determine whether the 2005 policy directive from a decade ago has worked. This is captured within Research Question #5 as a means of assessing the success of that directive and the investment afforded to PHC.

To support the research study questions, a development model made up of domains was formulated and used to categorise the collection and analysis of data that influences PHC policy and operational capacity, and understand the factors that act as barriers to the delivery of care. This model looked for associations between framework variables. Principally, the domains were designed from the nine criteria outlined in the *Ouagadougou Declaration on Primary Healthcare* and constructed and symbolised as D1, D2, D3, D4, D5, D6, D7 and D8. These constructs enable

the researcher to suggest a domain model, and thereby investigate any potential associations that could answer the research questions. These constructs form the basis of the framework used in this study. The associated constructed domains are illustrated in Figure 3.2 along with the nine criteria:

*Ouagadougou Declaration on Primary Healthcare* – nine criteria:

- a) Leadership and Governance for Health
- b) Health Service Delivery
- c) Human Resources for Health
- d) Health Financing
- e) Health Information
- f) Health Technologies
- g) Community Ownership and Participation
- h) Partnerships for Health Development
- i) Research for Health (WHO 2010a, p. 4).

Domains:

- a) → b)
- c) → b)
- d) → f)
- f) → e) → b)
- f) → i) → b)
- c) → g) → b)
- a) → d)
- h) → d) → b)

How the eight domains were derived from the literature and the combining of the nine criteria in the *Ouagadougou Declaration* are outlined in Table 3.2.

TABLE 3.2. DEVELOPMENT OF THE DOMAINS

<b>The Eight Domains Outlined from the Nine Criteria of the <i>Ouagadougou Declaration</i></b>	<b>Domains: Derived from Literature and the <i>Ouagadougou Declaration</i></b>
<b>1. (a→b) considers governmental leadership and governance from both a macro and micro level.</b>	At the macro policy level, initiatives like Alma-Ata and the role of global NGOs like the WHO have shaped the direction that states have chosen to implement PHC service delivery (Al-Mazrou 2002; Almalki, FitzGerald & Clark 2011; Ministry of Health 2011). Similarly, at a micro level, leadership of PHCCs is critical in understanding their functionality at a daily operational level (Gilson & Daire 2011; Shabila et al. 2012).
<b>2. (c→b) postulates the impact health resources have on health service delivery.</b>	This is of particular significance given the abundance of research that has identified the shortage of effective resources within the health system (Alshammary, Ratnapalan & Akturk 2013; Ministry of Health 2012). WHO (2010b) stated that human resources and their skill levels were critical in determining and achieving positive health results and integral to the quality of healthcare delivered. In light of the current situation in KSA, assessing these domains is imperative to understanding the level of success that PHCCs have had since their implementation.
<b>3 (d→f) postulates the importance of health financing in both delivering and supporting health technology.</b>	As health technology is instrumental for increasing productivity, streamlining case management records, providing cost-effectiveness, and clinically (WHO 2010a), it is important to maintain those systems (Du Toit et al. 2013). Thus, health technology is highly dependent on health finance, not only to be implemented but sustained.
<b>4. (f→e→b) shows the causal connection between health technology, health information and health service delivery.</b>	Health information is highly dependent on health technology as a mechanism for delivering health data. For example, e-Health can provide access to prescription and test data (Anikeeva & Bywood 2011). In Saudi Arabia, health information systems, such as e-Health, are in the early stages (Almaiman et al. 2014). As such, it is imperative to understand to what extent these systems are in place within the PHC sector and how they are used.
<b>5. (f→i→b) is similar to Domain 4 in that there is a significant dependency on health technology to provide health research in improving health service delivery.</b>	The WHO stated that there is an inherent need to establish health technology that can provide access to health research to meet health goals (WHO 2012b). Moreover, the lack of understanding regarding the value of health research in achieving health outcomes, and health technology is deemed essential in this equation (WHO 2012b). The value of health research can be extended from the policy level to improve health service delivery (Jahan et al. 2014).
<b>6. (c→g→b) extends the idea of human resources and their impact on health service delivery by considering how</b>	(De Maeseneer et al. 2008) suggested the need for specialist physicians who are focused on community issues, like family medicine, as these physicians would be more culturally aware of the community's specific needs. By integrating health professionals within the community sector, positive health outcomes have been proven when policy supports such programs

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<b>human resources in the health sector can influence and support community awareness and participation in this outcome.</b>	(Magawa 2012; Magnussen, Ehiri & Jolly 2004).
<b>7. (a→d) postulates the most important domain as it relates to most of the criteria, either directly or indirectly. How leadership and governance influence health financing.</b>	Whether in KSA or elsewhere, state-supported healthcare is dependent on funding mechanisms that are allocated by federal and state governments. In KSA, the current healthcare structure predominantly dictates the levels of funding and distribution. For KSA, funding is highly dependent on oil revenues (Alkhamis, Hassan & Cosgrove 2014). Historically this has been profitable, but funding has not adequately addressed needs or been fairly distributed, particularly given the region's health demands (Albejaidi 2010).
<b>8. (h→d→b) considers how by forging new health partnerships through Public-Private Partnerships (PPPs) can reduce the financial burden on the health system and, in doing so, increase the efficiency of health service delivery (WHO 2010a).</b>	PPPs can provide increased access to health information systems, which in turn provide a mechanism for increased health education and research (Kirigia & Barry 2008). Furthermore, PPPs can expand health infrastructure and provide access to vaccines and medicines (Kirigia & Barry 2008).

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Figure 3.2 illustrates the *Ouagadougou Declaration's* nine criteria and eight domains as a path flow diagram. Most notable is the dependency of health service delivery, as 75% of the analysed domains affect this criterion. Next, health financing critically influences health resources and technology, which also affect service delivery. This indirect impact on health service delivery will be affected by KSA's new governmental health budget (Sahoo 2016). Health financing is influenced by one criterion, leadership and governance, which has a significant effect on health service delivery.

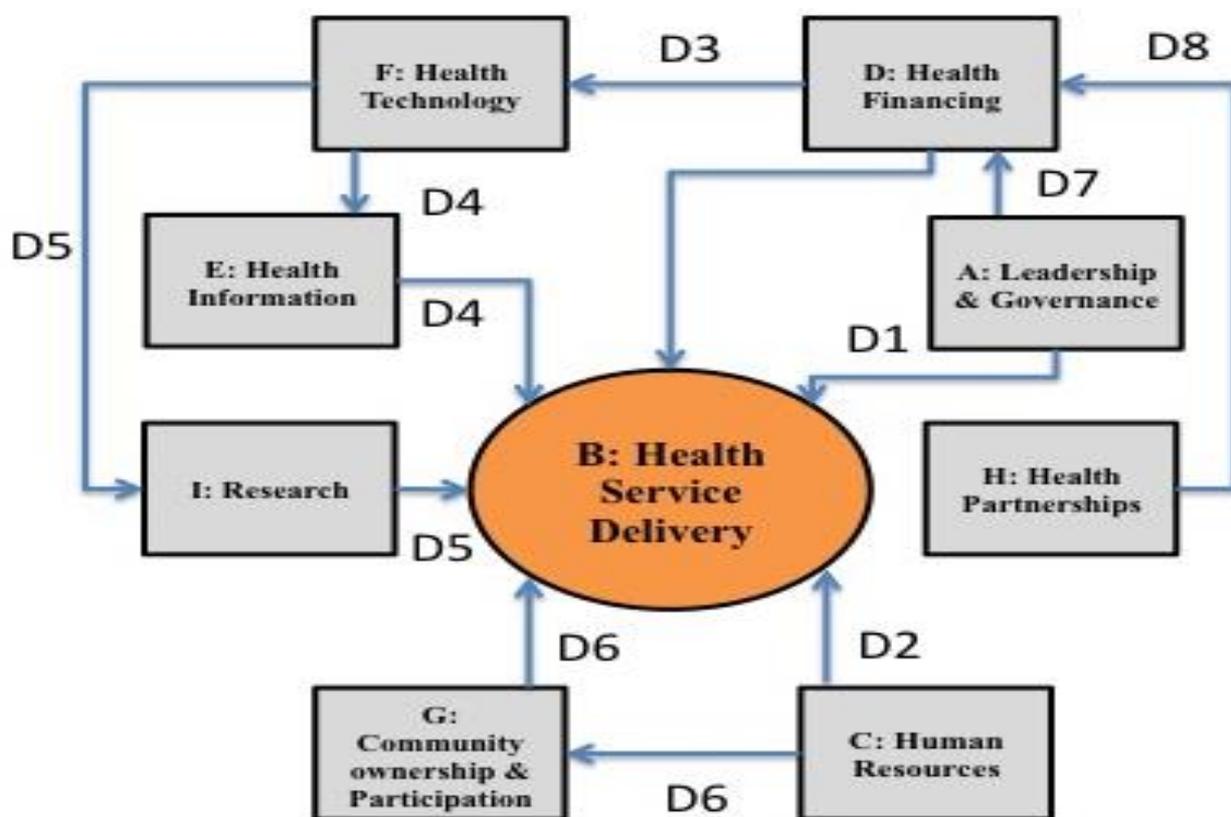


FIGURE 3.2. THE OUAGADOUGOU DECLARATION'S NINE CRITERIA AND DOMAIN PATH FLOW

There are limitations to this type of statistical analysis; despite the theorised causal connection, correlation analysis does not provide sufficient evidence for those causal connections (Hair, Ringle & Sarstedt 2011). Therefore, further evidence of the correlated variables/criteria is needed to understand the extent of their associations.

### **3.5 METHODOLOGY – QUALITATIVE**

There are various qualitative methodological designs, namely grounded theory, ethnography, phenomenology, narratives and case studies (Creswell 2013). All of these designs bring with them their key principles: the formulation of a theory and data collection, coding and analysis as simultaneous activities in grounded theory; prolonged and intensive fieldwork with participant observation in ethnographic work; collection and analysis of participants' lived experiences in phenomenology; vivid representations of participants' stories in narrative methodology; and a mixed methods approach, usually with a confined unit in terms of geography or organisation, in case study design (Thorne 1991).

This study used a qualitative descriptive design, being a categorical qualitative methodological design as discussed by Sandelowski (2000) and Thorne (1991). They argued that qualitative descriptive designs as opposed to 'non-categorical alternative' when a study is not situated within the above-mentioned methodological designs. Sandelowski (2000) clearly stated that a descriptive qualitative design is best suited when a straight description of the phenomenon is required. The researcher chose this design because this study aimed to make a straight description of the functionality (effectiveness) of Saudi PHC and PHCCs, particularly after the release of the 2005 National Policy for Health. The researcher did not intend to formulate a theory or purely describe the lived experiences of the participants, the PHC directors in this case. According to Sandelowski (2000, p. 335), a categorical qualitative methodological design does not 'require researchers to move as far from or into their data'. This not only allows the researcher to describe and interpret the data based on the facts, but to accurately represent the facts for descriptive validity and how the selected participants have understand that information. By recording and interpreting the facts, the researcher can report a truth that originates from the participants' experiences (Thorne 1991, 1997).

### **3.6 QUALITATIVE DESCRIPTIVE EXPLORATORY DESIGN**

Qualitative describing exploratory design was employed to ensure that the data collected retains its objectivity, achieves reliability and validity. Sandelowski (1986, p. 35) suggested strategies that could be applied to the data to ensure the appropriateness of the qualitative data. Furthermore, the researcher paid particular attention to the reporting process, which is essential in interpretative descriptive research (Sandelowski, Davis & Harris 1989). Interpretive descriptions in the health science sector ensure the process by following the general principles of analytical

frameworks, sampling procedures, data sources and data analysis (Thorne, Kirkham & MacDonald-Emes 1997, p. 173).

In the case of an analytic framework, the researcher used existing knowledge of the nine criteria from the *Ouagadougou Declaration on Primary Healthcare* as the basis for building the qualitative design. This focused the research inquiry, directed the survey questions and provided natural themes to be explored, which served as research boundaries for the analysis (Thorne, Kirkham & MacDonald-Emes 1997, p. 173). For this qualitative study, the researcher adopted what Sandelowski, Holditch-Davis and Harris (1992) described as purposive as it targeted specific participants with information-rich data. For Sandelowski, Holditch-Davis and Harris (1992), selective sampling targets specific participants based on specific criteria, as was the case in this thesis; the information-rich directors of the PHCCs and the regional policy directors were purposively selected. The interpretive description is deemed effective when it identifies *'eccentricities from commonalties within its process and outcome'*; as such, it identifies discrete themes as well as the broad-based themes from the data sources (Thorne, Kirkham & MacDonald-Emes 1997, p. 174). For data analysis, an interpretive description using an inductive method is recommended as this generates reliable, trustworthy reports (Sandelowski 1986; Thorne, Kirkham & MacDonald-Emes 1997).

### **3.7 STUDY SETTING**

This study was conducted in the PHC department of two local MoH departments in Riyadh and Jeddah. Participants who met the inclusion and exclusion criteria for the study had no restrictions in terms of length of service, only that they held positions at managerial or director level at either PHCC or a regional policymaking department. Those interested in participating in the study were asked to attend a 60-minute face-to-face interview at the local MoH department in either city.

### **3.8 PARTICIPANT SELECTION**

This study applied a purposive sampling method to select participants for semi-structured (qualitative) interviews. In qualitative research, purposeful sampling aims to select 'information-rich' participants who can provide information, based on specific characteristics, such as their discrete knowledge and/or direct experience as it relates to the research objectives (Curry, Nembhard & Bradley 2009; Pope & Mays 1995). Purposive sampling looks to cover a broad spectrum of participants within a population to include a range of perspectives (Curry, Nembhard & Bradley 2009; Patton 2002).

The researcher selected purposive sampling to yield detailed information from which interpretations and explanations could be ascertained (Maxwell 2013). Purposive sampling is useful when the research questions are focused on a central phenomenon within a specific setting (Guetterman 2015). The purposive sampling strategy adopted here was convenient as the researcher could collect information from easily accessible, targeted participants (Palinkas et al. 2015). According to Creswell (2013), there are three considerations of purposive sampling:

- 1) Choice of participants or sites.
- 2) Selection of sampling strategy.
- 3) Determination of sample size.

With purposive sampling, the importance of setting, events or people is significant (Maxwell 1997). In this instance, the participants and settings of PHCCs were deliberately selected to provide relevant and important information, which was representative and based on the specific purpose, rather than randomly selecting participants (Maxwell 1997; Tashakkori & Teddlie 2010; Teddlie & Yu 2007).

It is a widely held belief that the ideal number of respondents is at saturation (Charmaz 2006; Glaser & Strauss 1967; Jette, Grover & Keck 2003; Ritchie, Lewis & Elam 2003). However, a researcher's definition of saturation is not always explained, so it can be deemed inexact (Bowen 2008a; Morse 1995). Ritchie, Lewis & Elam (2003, p. 84) went further to suggest that there are seven aspects that influence sample size:

“the heterogeneity of the population; the number of selection criteria; the extent to which 'nesting' of criteria is needed; groups of special interest that require intensive study; multiple samples within one study; types of data collection methods use; and the budget and resources available”.

Jette, Grover and Keck (2003) noted that the expertise of participants could affect the number of participants required to conduct the study. For phenomenological research, Creswell (2013a) recommended between five and 25 participants, while Morse (1994) suggested a minimum of six participants. Given this is a highly 'information-rich' research study where expertise is prevalent, it is reasonable to assert that the researcher achieved saturation by having 12 respondents for the qualitative portion of the study.

### **3.9 ETHICAL CONSIDERATION**

This study received ethics approval from the Flinders University Social and Behavioural Research Committee (Approval number 7050) (see Appendix 8). Saudi Arabia MoH ethical approval was obtained from the Institutional Review Board at King Fahad Medical City, Riyadh (Approval number 15-453) (see Appendix 9). Collaboration for participation was sought from multiple channels, including three MoH departments, and required approval across multiple hierarchical levels from the Research Ethics Committee at the MoH to specific Directorates General of Health Affairs, Riyadh and Jeddah region (see Appendix 9) before the study commenced in December 2015.

All participants received an information sheet containing the aim and objectives of the study. The information sheet and consent form were translated into Arabic so that the participants could choose between English and Arabic. All participants were asked to sign a consent form (Appendix 4). They were informed that their participation was voluntary, and they could withdraw at any stage. The participants remained anonymous, and their information remained confidential. The recorded interview was saved on a flash drive. The transcripts and consent forms will be kept in a safe place (external flash drive), which only the main researcher can access, for five years. The participants would not be identified in any publication or report that arises from this research, and the Australian National Health and Medical Research Committee (NHMRC) Act of 2007 was followed throughout the study.

### **3.10 DATA COLLECTION**

#### *3.10.1 STUDY POPULATION*

The qualitative population of this study fit within the purposive sampling methods, whereby those selected had characteristics that met the study objectives, i.e. all PHC directors in the MoH in Saudi Arabia. The sample of the study included males and females who are PHC directors or managers at one of the two PHCCs or regional directors of a PHCC from the two cities, Riyadh and Jeddah, in KSA.

#### *3.10.2 DATA COLLECTION METHOD: QUALITATIVE INTERVIEWS*

A open-ended questionnaire comprising 18 semi-structured questions was used to collect the data. The semi-structured questions allow the researcher to develop new questions based on the participants' answers. The 18 questions (Appendix 7) were derived by following the nine criteria as

outlined in the *Ouagadougou Declaration* (WHO 2010a). This framework helped to develop relevant questions to answer the five research questions of the present study. The framework also helped to simplify the analysis, by providing the most relevant information on policy initiatives from policy directors, which was transcribed and analysed (Lukewich et al. 2014).

The researcher arranged to meet the potential participants after obtaining the relevant ethical approvals. A flyer was posted to inform participants about the study. An information sheet with inclusion and exclusion criteria was developed to recruit appropriate participants. The criteria were assessed for those participants who were willing to participate in this study.

The introduction letter (Appendix 5) described the aims and objectives of the research study, and provided information about the informed consent. The participants were informed that they could withdraw from the study at any time. Those willing to participate in the study were interviewed at a convenient place, date and time. A quiet room was chosen for interviewing to remove any noise. The researcher interviewed five regional supervisors in Jeddah and seven in Riyadh.

The interviews were recorded, and notes were taken during the interview process. The researcher was aware of the participants' confidentiality throughout the interview. Each interview took between 45 and 60 minutes. The researcher clearly explained each question and confirmed that the participants understood the questions. He also probed the participants' responses and allowed them time to ponder and respond.

The potential to lose meaning in context was reduced because the researcher is bilingual, a native Arabic speaker and proficient English speaker. The questions were formulated in English and translated into Arabic by the researcher during the interview. The interviews were later translated into English. A process of transliteration was employed, whereby words in Arabic that had no meaning in English were replaced with complimentary words of similar meaning (Nida & Taber 1969; Regmi, Naidoo & Pilkington 2010).

### 3.10.3 DATA ANALYSIS

The qualitative data analysis serves to '*validate one form of data (typically quantitative) through the other forms (typically qualitative data)*' (Creswell & Plano Clark 2011, p. 119).

After collecting the data, the audio recording was transcribed and then translated into English before coding and applying thematic identification. The qualitative data analysis involved analysing the responses from the chosen cohort of regional PHC directors, from a comprehensive

set of questions designed specifically around the nine criteria, to focus the research problem specifically at a policy level (Spicer 2012). The policy directors answered open-ended questions based on their varying degrees of knowledge of the PHC sector. The analysis commenced in stages and aimed to explore the scope and level of understanding of each of the participants.

The researcher used a thematic structure of the nine criteria as major categories, and the transcripts of the responses were analysed within these categories. The responses were then coded, and common themes identified and grouped within those categories by each question. Sub-themes were then identified. Thematic analysis is used when a researcher wants to draw themes to represent participants' views and experiences (Smith, Bekker & Cheater 2011; Vaismoradi, Turunen & Bondas 2013). By adopting this method, the researcher could identify and associate themes from the data that were pertinent to the research study and specific to the research questions (Braun & Clarke 2006). Thematic analysis is a flexible technique for analysing qualitative data and suitable for this type of research study (Onwuegbuzie & Combs 2011; Padgett 2012; Tashakkori & Teddlie 2010). The researcher became familiar with the data, having read and re-read it many times in the processes of transcribing and translating, which increased his knowledge and understanding of the data.

The researcher followed Braun and Clarke (2006)'s six-step process, which involved reading and re-reading the text for familiarity and making copious notes. Data codes were arranged across the data set. Following this, the themes were identified and organised into categorical groupings by question. For example, leadership and governance served as a category, where themes and sub-themes would be organised within each of the five questions asked. Themes were then reviewed and revised within each coded extract, and a thematic map was generated for analysis. Each theme was then named and defined, after which they were described (Figure 3.3).

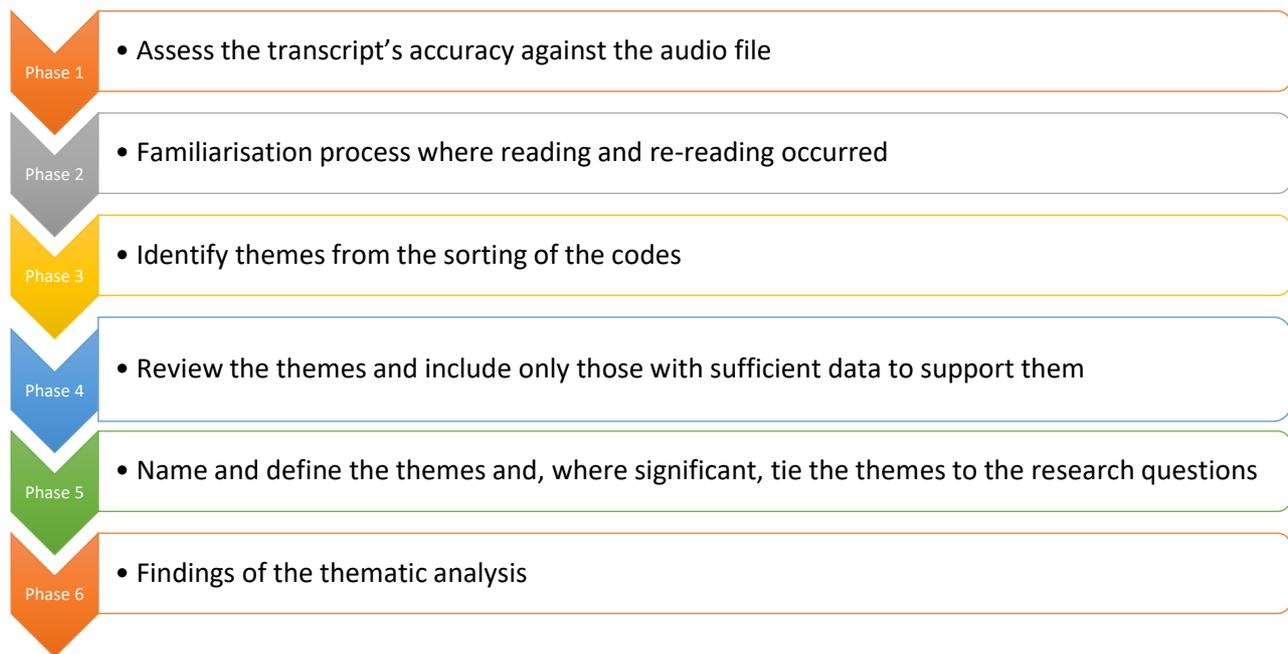


FIGURE 3.3. SUMMARY OF THE SIX-STEP PROCESS

Source: Braun and Clarke (2006)

The first step of the analysis process was to assess the accuracy of the transcripts against the audio files. The researcher looked for discrepancies, as well as correcting grammatical errors. Some corrections were made for verification purposes and to increase data quality, thereby improving the validity of the data. The researcher transcribed the qualitative audiotapes from Arabic to English. This aspect of the data analysis can be problematic, as the validity of qualitative research is tied directly to the meaning conveyed by the participant based on their discrete experience (Polkinghorne 2007). Further to this, when those meanings are interpreted from the findings, this must be as close as possible to ensure validity. With translation, the essence of meaning can be misinterpreted or lost completely, especially when there are cultural differences (Van Nes et al. 2010).

The second step of the analysis process was data familiarisation where reading and re-reading occurred to increase familiarity and identify patterns within the data. This enabled the researcher to commence manual open coding, where similar expressions or terminology formed linked ideas and concepts. No computerised software was used as there are arguments against such processes (Patton 2002). Conducting this manually served to eliminate any possible omissions, thus increasing trustworthiness and improving the interpretation of data.

The third step was to identify themes from the sorting of the codes, which were organised for analysis. During the sorting, major themes and sub-themes were noted when combinations of codes occurred. Where relationships between codes occurred, they were reorganised to form major themes. All themes were later re-assessed and finalised after further reviewing the themes.

The fourth step involved reviewing the themes; only those with sufficient supporting data were included. Amalgamating themes was important to make them more concise, clear and distinguishable. For example, under leadership and governance, question one Alma-Ata was a dominant theme as was the WHO, so the latter was incorporated under Alma-Ata. This made sense since the Alma-Ata Declaration has remained the driving force of the WHO relating to PHC, while the WHO is a broader concept. It also served directly to address the actual intent of the question and establish a historical landmark. This approach has been used throughout the thematic analysis as it substantiated evidence from the face-to-face interviews and served as a building block for addressing the research questions and domains.

The fifth step involved naming and defining the themes and, where significant, the themes were tied to the research questions. This served to ensure that there were links to the objectives and that the extracted data was 'fit for purpose'. Also, reviewing the thematic relationships ensured that themes did not overlap and were clarified for meaning. The final step, the findings of the thematic analysis, are in Chapter 4, section 4.2.

### **3.11 TRUSTWORTHINESS**

#### *3.11.1 CREDIBILITY*

This study triangulated data collection techniques using both qualitative and quantitative methods, via interviews. Regarding participants, the study applied regional directors' views on PHC contexts and those of PHCC managers on PHC implementation. This study used a triangulated methodological design, i.e. the mixed methods research design, to answer research questions with both objective and subjective data. The researcher is a native Arabic speaker with more than nine years of professional experience in the Saudi Arabian health system. All of the qualitative interviews for this study were conducted by the main researcher. To complete the fieldwork for this study, the researcher spent three months in Saudi Arabia. Translation of the interviews was undertaken by the researcher and verified by an Arabic English bilingual expert who was a colleague undertaking a PhD at Flinders University and a lecturer from the School of Healthcare

Management at the King Abdulaziz University. The survey and interviews were modified to meet the Saudi Arabian context and overcome linguistic barriers given the original survey was in English.

### 3.11.2 TRANSFERABILITY

The findings of this study can be transferred to other Middle Eastern countries because they share many commonalities in terms of their health system design, customer behaviour, language and culture. This is much like the GCC who provides PHC through governmental programs and is struggling with funding to support PHCC infrastructure (Deloitte 2015). The recommendations made by this study, such as extending the nine criteria to evaluate other PHCCs, can be conceptually generalised in many other Middle Eastern countries.

### 3.11.3 CONFORMABILITY

It is essential that the researcher remain objective when evaluating and extracting themes from the qualitative research data so that no personal values/beliefs are used to qualify the information or twist the data. This ensures that the participants' responses and opinions are not corrupted by the researcher's values or opinions (Lincoln & Guba 1985). No preference would be given to participants whose opinions were the same as the researcher, and those with opposing views would be treated in the same way. In short, the participants' exact responses are extracted to support the qualitative findings and illustrate exactness and to ensure that the researcher's opinion did not taint the findings (Lincoln & Guba 1985). Quotations are direct translations of the participants' responses and reflect the discussion that transpired in answering the qualitative face-to-face questions, from which inferences are made and conclusions are based (Creswell & Plano Clark 2011).

### 3.11.4 DEPENDABILITY

Chapters 3, 4 and 5 describe in detail the data collection methods, instruments used and data analysis techniques. The instruments used in this thesis are appended (Appendices 6 and 7). Details on the procedures and data collection steps are thoroughly described. The researcher clearly outlined how the themes emerged from this study, using the *Ouagadougou Declaration on Primary Healthcare* framework and the thematic analysis technique of Braun and Clarke (2006).

## 3.12 CHAPTER SUMMARY

This chapter described the overall study design, which situates this thesis within the framework of pragmatism. The chapter outlined the methodological approach of the qualitative portion of the

study. The qualitative study used a descriptive exploratory design and semi-structured interviews to collect data from PHC regional directorates. The chapter also described the analytical technique for qualitative data using Broun and Clarke's thematic analysis. The next chapter presents findings from the qualitative study.

## CHAPTER 4.

### SEMI-STRUCTURED IN-DEPTH INTERVIEWS WITH REGIONAL DIRECTORS

#### 4.1 INTRODUCTION

This chapter discusses the findings from the qualitative study. The chapter starts by describing the nine themes that emerged from the data, each directed from the *Ouagadougou Declaration on Primary Healthcare* and health systems in Africa framework, which included nine criteria; a) leadership and governance for health, b) health Service delivery, c) human resources for health, d) health financing, e) health information, f) health technologies, g) community ownership participation, h) partnerships for health development, and i) research for health (WHO 2010a, p. 4). The chapter concludes with a summary of how each of the five research questions were addressed in the present study.

#### 4.2 FINDINGS

This section presents the findings of the thematic analysis of the transcribed audio transcripts, which were derived from face-to-face semi-structured interviews with 12 PHC regional directors who met the inclusion and exclusion criteria (Table 4.1); the participants' verbatim quotations are in *italics*. This section presents the thematic findings from the interview content.

TABLE 4.1. DEMOGRAPHICS OF THE PARTICIPANTS

No	City	Gender	Participant's role related to PHC	Years of experience	Education
1	Riyadh	Male	Regional director at the MoH	>20	Consultant family physician
2	Riyadh	Male	Regional director at the MoH	>20	Consultant family physician
3	Riyadh	Male	Regional director at the MoH	10–14	Bachelor of Medicine/family physician
4	Riyadh	Male	Regional director at the MoH	10–14	Bachelor of Medicine/family physician
5	Riyadh	Male	Regional director at the MoH	10–14	Bachelor of Medicine/family physician
6	Riyadh	Male	Regional director at the MoH	15–19	Bachelor of Surgery
7	Riyadh	Male	Regional director at the MoH	>20	Consultant family physician
8	Jeddah	Male	Manager at the administration office of public health	>20	Consultant family physician
9	Jeddah	Male	Manager at the administration office of Public Health	>20	Consultant family physician
10	Jeddah	Male	Manager at the general directorate of health affairs	15–19	Bachelor of Medicine/family physician
11	Jeddah	Male	Manager at the general directorate of health affairs	5–10	Bachelor of Medicine/family physician
12	Jeddah	Male	Manager at the general directorate of health affairs	5–10	Bachelor of Medicine/family physician

#### a) Leadership & Governance for Health

##### 4.2.1 DISPARATE LEVEL OF PHC KNOWLEDGE

**Interview Question 1.** What do you know about the PHC program, its history and aims in the KSA?

Analysis of the participants' responses to questions on their understanding of the PHC program in KSA revealed two central themes: 1) the disparate level of knowledge of PHC, and 2) the national health policy strategies. First, there were mixed levels of knowledge surrounding the history of the

PHC program and how it had developed within KSA. Seven of the 12 participants understood that the PHC program stemmed from the Declaration of Alma-Ata.

*...based on the recommendations of the Declaration of Alma-Ata. The primary goal of the PHC program is to make the PHC the first point to be connecting patient. (Participant-2)*

Another participant highlighted that:

*Healthcare Centres began in the Kingdom of Saudi Arabia at the end of the 1970s after the Declaration of Alma-Ata of the World Health Organisation (WHO) and after they announced that primary healthcare is the cornerstone of the healthcare system. (P4)*

*...global programs, which held the Alma-Ata in 1978 and the World Health Organisation (WHO). (P12)*

This was supported by participants having direct knowledge of how this initiative was adopted in KSA with the intent of providing broad-based universal health service delivery. While their knowledge on the development of the PHC program may not be clear or universally understood, overwhelmingly the participants knew the value and aim of PHC in providing basic services, with vaccinations being a central theme.

*Vaccinations were one of the first objectives of the primary healthcare in the Kingdom. (P1)*

*The beginnings were very limited in addition to the presence of some of the programs, I think it achieved considerable successes such as child vaccinations. (P5)*

*There were essential elements for the service delivery, including basic vaccinations, infection control...Each year there has been a significant improvement in the service provision till we arrived to provide Supportive Program, field visits, vaccinations. (P7)*

Conversely, five of the 12 participants had little knowledge of PHC's history, how it developed or its aims.

*At the beginning the primary healthcare wasn't understood in the Saudi Arabia healthcare system and it was called Clinic. (P7)*

*Sorry I don't have sufficient information about the establishing of the primary healthcare program in the Kingdom of Saudi Arabia. (P3)*

*I do not have adequate information on the history of the primary healthcare (PHC) program but to my knowledge it is been established 40 years ago in Saudi Arabia. (P1)*

#### 4.2.2 ISSUES WITH PLANNING FOR NATIONAL STRATEGIC HEALTH POLICIES

**Interview Question 2.** What does the national strategic health policy mean to leaders of PHC? And how does it relate to PHC?

Analysis of participants' responses to questions on the meaning of the national strategic health policy and its relationship to PHC revealed two key themes: (1) the lack of a KSA strategic plan for PHC, and (2) poorly communicated health policy strategies.

##### 4.2.2.1 Lack of KSA Strategic Plan for PHC

The overriding understanding was that, while there is an overreaching strategic plan for healthcare within KSA, there is no provision solely for the PHC sector. This was predominantly seen as an opportunity to improve PHC, albeit driven by the MoH, by increasing PHC involvement and enhancing future planning activities. However, there were destabilising factors such as staff turnover and policies that were not shaped to deliver services.

*...we generally followed the strategy that came from the Ministry of Health. And for the PHC it's followed the directories of health affairs in the region. (P2)*

*The ministry strategies are comprehensive and many of them relatively depending on the plan but mostly five-year plan. (P12)*

*...a decline in the level of service is the fluidity of staff and a lack of attention for the effectiveness of the service provided. (P8)*

##### 4.2.2.2 Poorly Communicated Strategies

Furthermore, it could be construed that communication of these strategies was not clear.

*Strategies are still not clear... and we need to form a committee meeting to discuss the PHC strategies and it should be through the Ministry of Health and its follow-up and to know if applied or not. (P7)*

*As a director, I do not know where the PHC strategies and policies that are made by the Ministry of Health are. (P1)*

#### 4.2.3 NEED FOR TAILORED PHC MANAGEMENT TRAINING

**Interview Question 3.** How can leadership training and development improve your knowledge and skills as a leader of a PHC?

Leadership training and development was identified as needing specific, tailored managerial training, especially at the PHC level. While several aspects were prevalent—including managerial training, administration and leadership—certain types, such as Six Sigma, efficiency training and on-the-job training, were highlighted as necessary.

*...there is one of the distinctive programs that managers needs that is Six Sigma where I think it is one of the most important programs needed by the leaders in order to identify how to work...(P6)*

*We are missing training programs either for leaders or other staff. The leaders of course are affecting the medical services and the lack of leadership and the weakness of the efficiency of some lead to weakness of health services in general. (P9)*

*First I see that the admin qualification is required and it is very important to people who want to work in PHCs as managers. In job training is one of the most important strategies that the MoH could offer. (P10)*

**Interview Question 4.** How would you summarise decision-making authority within the national health policy for PHCCs?

The question exposed a clear response, and the general theme was that this was centralised and controlled by the MoH. Certain sub-themes emerged as being problematic in understanding the impact of those decisions, such as the lack of medical knowledge, confusing decisions and lack of implementation.

*Decisions issued sometime from some officer without any expectance and they did not work in healthcare before. Also, they did not know the progress of the services so most of the decisions issued by the ministry or public health are random decisions and not commensurate with the ministry plans. (P8)*

*The decisions of MoH take time to issue to the PHCs and they have long process and procedures to reach the centre:*

- 1. The MoH and the affairs departments of the centres*
- 2. The Directorate of Health Affairs*
- 3. Public health departments*
- 4. The affairs department of the centres*
- 5. Regional supervision of the centres*

### 6. *The PHCCs. (P7)*

*The minister or other responsible officer without a medical background specialist even if they are professional and qualified they will face severe shortcomings in dealing with the health problems. (P6)*

*The MoH role does not allow responsible employees to engage in formulating the legislation or even the decision-making. It means that the MoH issued the decisions according to the director's view and sometimes doesn't meet the ministrie's vision. (P3)*

**Interview Question 5.** How do you evaluate the governance procedures that have been enacted at PHCCs?

Much like Question #4, this question received a majority response with nine participants stating a lack of clear control, monitoring or follow-up with regard to governance. Sub-themes again cropped up as bureaucratic processes, which overlapped with Question #4, as well as being levels of overlap within the bureaucracy and lack of internal control. Levels of governance can be identified through the findings, such that the respondents knew the various types of governance, administrative, versus clinical, versus policy and regulatory governance.

*If there is no internal control (Autonomous) of the person itself nothing can be done to adjust the control, especially with the size of the MoH. (P1)*

*Controlling and monitoring in the Saudi Health System are very weak and this is not a secret. (P5)*

*I think it is not working properly say that it works but separately Auditing\ Monitoring, if there are no strong departments for following up and trustful the projects will not succeed. (P9)*

*Procedures for monitoring and follow-up are good but there is a problem, which is, taking a long time. Once we found any issue at any health departments we are responsible to report it, but that goes through a long process till it gets to the MoH. (P10)*

#### b) Health Service Delivery

##### 4.2.4 CHANGE IN DEMAND FOR HEALTH SERVICE DELIVERY

**Interview Question 6.** Please tell me what you think are the major factors related to the demand for PHC in the KSA?

Accessibility and vaccinations were two prevalent themes that emerged from the qualitative interviews. The advent of PHCCs as the first point of contact provides patients access to care and treatment, especially vaccinations. This translated into high demand for those services.

*The MoH is the main provider of the services with 60% of the service in the Kingdom of Saudi Arabia. So that is why we are getting huge demands on the services, particularly for the PHCs since it is the first line of the healthcare. (P10)*

*Dental care, vaccinations, pregnancy follow-up, and chronic disease services are more than the demand for the service, especially PHCs. (P11)*

*The citizen when sick went to the primary health centre without taking the trouble to go to hospitals and facing the overcrowding at hospitals. That is why patient must receive the service the easy way. (P6)*

*The services provided by the PHCs such as vaccinations and comprehensive follow-up increased the demand for the service. In addition, the recognition of the PHCs as the primary point responsible and authorised to issue a medical certificate increased the number of patient visits. (P7)*

**Interview Question 7.** What is your opinion about the role of PHCCs in supporting healthcare delivery in the KSA?

There seems to be a lack of cohesive understanding of the PHCC role, other than providing vaccinations and a referral system; despite the expansion of PHCCs, there is no clear vision that has been communicated across the health sector. While there is acknowledgement of what PHCCs do, there is a disconnect between PHCCs and the hospitals beyond the initial point of entry to care and to act as a means to referral. The scope of services provided by PHCCs was not clear and became a sub-theme.

*PHCs play an excellent role in the service of society in terms of preventive and curative services. (P11)*

*Currently, the networking relationships between the PHCs and hospitals are very limited. So there is no clear link between PHCs and the hospital. Even the PHCs doctor can't communicate with hospital doctors when needed because there is no sort of connection between them. (P9)*

*I think that the health centres are very late providing their primary roles. The question here is: Do the PHCCs configured to play their full role? Here is the problem. Is it a Community Centre or point of entry? I am not sure with the capabilities of the PHCCs! (P5)*

*Play a very big role, whenever the primary healthcare is strong it is impacted positively on the other healthcare levels and alleviate the pressure on services such as the pressure on hospitals. (P4)*

**Interview Question 7, section A:** What are the barriers to health service delivery at PHCCs?

Three themes emerged from this question that of trained staff, the scope of specialised services offered—suggesting a direct correlation with the first theme—and poor patient follow-up.

*That because the lack of availability of the trained cadres (Staff), lack of medical equipment, as well as the negligence perceived of some PHC staff, which resulted in the lack of confidence of the patient in PHC. (P3)*

*If we are talking about the role of the PHCs I believe it is less than what we expected. It does provide good services but still needs more improvement to reach the basic standards of primary healthcare. Especially with the absence of certain specialties such as gynecology and internal medicine and they are basic and objectives of the PHCs (P10)*

The latter statement suggests that the role of PHCCs is not clearly defined or communicated as a health service delivery. Four distinct barriers were identified: the scope of services offered, adequate resources, properly trained, and poor communications. The notion of poor follow-up would suggest that the available resources (human or technological) cannot support this level of service and can be construed as part of a communication tool to support healthcare services.

*Does not play its role properly and doesn't provide the required services. We have problems in the follow-up mechanisms as well as the way in which we deal with patients. (P8)*

**Interview Question 7, section B:** And how can we increase health service delivery?

Unquestionably the means to improving health service delivery involves staffing, equipment and technology. The issue of staffing, including specialisations such as family doctors, is a significant barrier to the delivery of healthcare, and medical equipment and technology are needed to facilitate support services for staff. Staffing, equipment and technology are intertwined with common themes. Even when respondents stated that the use of PHCCs as a referral system is a positive aspect of PHC, there is often no means to provide the referral due to a lack of technology,

which will reduce access to health service delivery. Sub-themes like the internet also emerged as a barrier as it is not widely available in KSA:

*On the one hand the PHC's obstacles are the simple capabilities in the centres, lack of medical equipment and the lack of medical staff. Increase in the number of centres to cover the largest number of the population group in order to raise the health service delivery. (P1)*

*The lack of medical cadres. There are plenty of PHCs which do not have a family doctor even if there was a doctor, they does not abide by the working hours. The lack of services requested by the community and the lack of medical equipment. (P3)*

*They asked the PHCs to implement the referral programs and facilitated the centre without all the technologies needed and without providing Internet access. (P7)*

*The Ministry made a big effort to work processing and building or renting centres but does not provide Internet access at the centre; this leads to the loss of service. (P5)*

**Interview Question 8.** How do you evaluate the role of the national strategic policy for PHCCs in the KSA?

The MoH has tight control over PHC operations, which has led to the expansion of facilities but no clear communication of the strategic vision and a lack of independent financial control and operational support. The 2005 National Policy for Health is considered outdated.

*The objectives of ministry sometimes are not clear and it is always looking to expand and the solution is by financial support. (P12)*

*Some of the national policies and strategies are not working in accordance with the plan. There are many strategies and plans which did not succeed such as the plan put in 2005 which has the planning and establishing of more than 2000 Primary Healthcare Centre. (P11)*

*What was built in the previous years must be changed at the present time. The visions must change and we must cope with this change since the needs have changed to. I wish that the MoH would focus on the basis of the PHCs in their policies. I think that the health system in Saudi Arabia has not changed for the last 20 years. (P9)*

*Ministry of Health is mere documented of the service and not implemented. If you go to any centre in any place you will find that there is no one of the staff aware about the policies thus the implementation is often wrong. (P5)*

*Written policies are very good, but not on the ground, it is an acceptable use policy. It is formulated and written beautifully. Highlighted and including all the points and covers all systems details. But when functional, we found many of the written policies do not apply or could not be applied. (P3)*

It is apparent from the transcripts and remarks that, while there is an albeit outdated clear vision, it has not translated to the reality of the present service demands. The 2005 National Policy for Health, which advocated the building of facilities, in many cases rented, has not resulted in the levels of support needed to meet the demand for those services. The broad-based policies that have driven development failed to provide specific PHC support at the micro level; rather, they focused on one aspect, that of building the facility, not its functionality. The needs of PHCCs have not been addressed or met with the pressures and demands of the last 20 years.

#### c) Human Resources for Health

##### 4.2.5 DIFFICULTIES WITH HUMAN RESOURCES ALLOCATION

**Interview Question 9.** What do you think are the challenges and opportunities for PHC in the KSA in terms of human resources?

The two main themes that emerged from the interviews were a lack of resources and poor allocation of resources. Sub-themes that appeared were the need for greater levels of specific training, e.g. family medicine.

*Let's say that we have sufficient workforce but we do not work to our full capability in the PHCs. Nonetheless, the misdistribution of the employees is one of the most important problem that we are facing. (P8)*

*We have a deficiency of human resources mainly the family medicine specialists and consultants. There is a very huge shortage in the family physicians specialisation and if we took the Riyadh region as an example: Riyadh has more than 7 million citizens in contrast there are 12 consultants of family physicians only. (P4)*

*For the perfect result it is important to organise the numbers of staff and regroup them properly depending on the shortages, I think this will create the opportunity to take the advantage of the existing number. There is overcrowding in the current medical and administrative staff. (P1)*

*If we talk about the current PHC numbers I believe that it is reasonable but the problem here is the shortage of human resources (Cadres). The provision of medical staff is not impossible but it is where they will be appointed. The human resources distribution is one of the greatest challenges of the ministry. (P3)*

*There is a massive lack of doctors and nurses presumably resulting not achieve the objectives of the primary healthcare. (P5)*

There is a direct correlation here to the previous question in that the development of PHCCs according to the 2005 National Policy for Health has not been augmented with sufficient resources. Furthermore, what is emerging is that the resources may well be there, just not allocated efficiently. Again, a sub-theme of the need for specialised trained staff, i.e. family medicine, emerged.

**Interview Question 10.** What training and development have been undertaken to improve the knowledge and skills of PHC employees?

Training is an issue in terms of new staff, management and specialisations, e.g. family medicine. Again, family medicine transcends as a sub-theme that emerged across several questions.

*Increasing the number of family doctors who are qualified will be reflected in the services provided. (P5)*

*Most PHC managers don't have a medical background, however this is not a problem in the practical way but there must be staff of medical competence to refer to them. In addition to that the PHCs managers must have a minimum of medical information and for that the MoH is sought at the present time to provide basic medical information training courses to the PHC managers. (P3)*

*Provide specialised courses for each category and then give them the opportunity to apply what they learn (P8)*

*Each category (nursing – Doctors – Administrative) should have a training program that is distributed is them. If there is no training program appropriate then they must be developed for the staff. (P10)*

d) Health Financing

#### 4.2.6 HEALTH FINANCING

##### 4.2.6.1 Lack of a Core Budget to Support PHC Operations

**Interview Question 11.** What do you think about the current health funding and possible changes that could improve PHC delivery in the KSA?

The need for specific PHC budget allocations to support operational capacity and not just build PHCCs was a clear theme that arose.

*We need consistent and clear budgets for the PHC operation for each centre separately to know the total expenses. (P1)*

*The Ministry of Health (MoH) is focused on the building of hospitals and medical cities but for the primary healthcare and PHC doesn't have any significant development. (P2)*

*I believe that there is a huge waste of the financial resources and too much money going to the wrong place. There are many important things that the MoH has to spend money for, such as spending on PHCs, but the fact there is no clear planning of the PHCs budget. (P3)*

*One of the solutions that has been discussed and comes from several meetings for adoption is the diversification of financial resources and give the PHCs more financial authority, but this always comes back with rejection. (P5)*

*There is no stable and fixed budget funding for PHCs. All these PHCs get their budget from different sources such as some of the hospitals and specialised centres budget. This is the problem of the primary healthcare. (P6)*

*Health financing was initially through the Ministry of Finance 100% but now the Ministry of Health started to change their policies and is trying to diversify resources. (P12)*

The utilisation and centralised control of PHC funding were sub-themes, with the latter supporting previous findings that bureaucracy is causing operational inefficiencies. The process of accessing funds is lengthy and protracted by various levels of approval, and there are no clear operational budgets; the focus is clearly on continuing to build facilities without appropriate staffing, training, equipment and technology.

## e) Health Information

4.2.6.2 *Lack of Health Information*

**Interview Question 12.** To what extent can the delivery of health services benefit from health information technology? What do you think about its current barriers and do you have any suggestions to improve it in KSA?

There is a lack of health information, which has created inherent inefficiencies, misinformation, and repetition in processes. No one theme emerged, but there were many issues affected by a lack of health information. What did emerge was that the generated information is manually driven and paper-based. It was clear that health information was seen as adding value and necessary.

*PHCCs are the most important resource that feeds health information not only health but also benefits from the many ministries such as the general authority of statistics. There is still a lack in the facilities as well as the absence of statistical programs and that it is very weak. (P12)*

*The adoption of HI programs to help in the collection of data and information on health and unfortunately we rely on the paper-based system. (P2)*

The lack of technology-driven health information systems impedes the provision of accurate data such as statistical information. The current paper-based system is prone to inaccuracies, and is inefficient, as it takes longer to process information. The second essential theme is the misinterpretations of the health information within a healthcare system and can provide specific information like medical records which are a cornerstone to healthcare service delivery. Knowing a patient's record is essential for the delivery of care.

*The medical records are still very weak. (P8)*

*The level of health information is still not clear where there is no registration system. (P5)*

*We are still relying on paper-based information it is true that it takes a longer time to search for information. Sometimes there could be a problem in the accuracy of the information, but according to what we have available it is good. (P10)*

*Any health system or health strategy must rely on the data. If there is no accurate health data any plans or strategies will be affected and will not work properly. (P9)*

*Statistics and health information is very important and considers the main gate of the work of any study of the health situation of the country. So we are concentrating on the process of statistics and data collection on a monthly basis even though it is manual based it is better than nothing. (P7)*

**Interview Question 13.** How do you evaluate the use of health information to improve health service delivery?

The paper-based system fails to meet the needs of a modern healthcare system, such as having a central database and referral system. Furthermore, the paper-based system is fraught with accuracy issues. The lack of a technology-based health information system directly impacts other sub-themes such as overall operational inefficiencies, management of the supply of drugs, and the accuracy of data management and health records.

*There are annually and monthly statistics provided by the PHCs but unfortunately still a paper-based system and we didn't use technology to assist us. Information is not accurate. (P11)*

*There are internal statistics at the PHCs and we are always sending them to the public health department. But I do not think it is accurate and I am not happy with the methods of collecting them. (P8)*

*Very weak as I said the MoH overlapping due to the lack of accurate data. There is a huge waste in the health budget for example the amounts of drugs are linked to health information. (P2)*

*Sometimes we get the data we want but not precise and sometimes it is wrong and often this leads to the weakness of the results. (P3)*

*Even sometimes the money wastes is a result of inaccurate records for the children less than 5 years old in some PHC. (P5)*

#### f) Health Technology

##### 4.2.7 LACK OF TECHNOLOGIES INFRASTRUCTURE

**Interview Question 14.** To what extent can health technology influence PHC? What do you think about its current barriers and suggestions to improve it in KSA?

The scope of issues identified in health information systems in KSA stems from the natural lack of technology infrastructure, and extends beyond information systems to basic phones, internet and medical equipment. This was an overriding theme, with sub-themes that suggested that attempts in the past had resulted in extensive investment with a lack of follow-through by management in its implementation and a failure to maintain those systems. In all cases, the respondents referred to a lack of system integration and networking. There is no electronic patient records system in the study areas. If a patient is referred to a hospital for treatment, the hospital has to report patient information using paper-based records, which is time-consuming and does not help providers to make efficient decisions about care plans/diagnoses. Therefore, the technological impact causes significant inefficiencies within the entire health system, as well as impacting on patient care, as information must be gathered multiple times for each patient. There is a significant opportunity to invest and improve efficiencies.

*No technical facilities in the centres and no health programs or Internet. (P12)*

*There is no electronic record of the patient and his visit. (P10)*

*PHC doesn't have a computerisation system and they lack the most essential basics such as phone presence in some. (P1)*

*If we take the PHC especially we believe that the technical side is very neglected and still working in primitive ways and paper-based. The patient does not follow with their record or history and hospital doesn't rely on feedback from PHCs. (P2)*

*It is possible to reduce the size of human resources in some places which can be dispensed with. As well it will help us in the process of data analysis. Facilitate the linkage between different departments and divisions such as hospitals and PHCs, which is currently not existed. (P3)*

*We have worked in the northern region and we were working to complete networking of all the PHCs in the region (more than 30 PHCs) at that time. The project stopped even though it was launched. The reason that was found out later, there was no maintenance contract provided by the company following the establishment. (P5)*

*There had been previous attempts of the electronic programs that will link the patient information from entering the PHCs till receiving medicine, but this did not succeed for several reasons. (P8)*

## g) Community Ownership and Participation

## 4.2.8 COMMUNITY OWNERSHIP AND PARTICIPATION

**Interview Question 15.** How can community ownership and participation improve health service delivery? What do you think are the barriers to people participation and how can we improve it?

There is a need to clarify which community programs are supported, increase awareness on a national level and communicate this to all PHCCs. Programs have been periodically started, including 'Health Passport' and 'Friends of PHC', which were/are working in some cases, but specific programs for the aged, parents, seat belt use, smoking and diabetes need to be identified. These issues support the need for greater communication and the adoption of mechanisms to communicate with patients, the wider community and all stakeholders through a health information system. Again, communication is critical to ensure that communities are aware of the programs on offer. Identifying specific communication program will support the community needs, especially given the ageing population, the effects of smoking and the rise of diabetes within KSA. Sub-themes that arose were cooperative partnerships between MoH, PHCC and the community, along with private partnerships, which would be an area of opportunity.

*Through seminars held regularly for the PHC neighbourhoods and the public events to raise people awareness. One of the most important obstacles facing the community participation is that the community does not have adequate information about the services provided by the PHC even sometimes the neighbourhood doesn't have any idea If they do have a PHC close to them, I mean close to their area. (P1)*

*There is an excellent program in the joint cooperation between society and the PHC called friends of the centre. This program has been initialised in some PHCs and continues to ensure the effectiveness of the program before circulating to the rest. (P2)*

*Awareness is not the only MoH responsibility, but the community has an important relationship to raise health awareness too. The private associations must work together with the community to educate people through free health programs. (P4)*

*In the past, there was a program under the name of the PHCs friends of the centre which was aware of its concerns and contributed to the respect of the centre but there were lack of effectiveness. (P6)*

*Follow-up of the health practices and behaviour and create regulations that assist in the applying of these behaviours. Smoking, for example, PHCs have formulated a strong program to prevent it from the public but when it comes to the implementation still does not it applied correctly? We miss the health behaviour. (P12)*

*Awareness is not the only MoH responsibility, but the community has an important relationship to raise health awareness too. (P4)*

#### 4.2.8.1 Current Community Programs as Part of the PHC

**Interview Question 16.** What community programs are currently part of the PHC?

*Many programs and services such as the aged care services, and provide a service to the community. There are volunteers involved in the service of society, especially in the vaccination campaigns. (P11)*

*We need to activate the friends of PHCs committees, the centre programs and provide awareness programs. (P10)*

*The Health Passport program takes a record from the beginning of pregnancy till the child gets to the age of 5 years. So the child will have a health passport with everything recorded. (P8)*

*Currently, we are working on the implementation of the program called Friends of the PHC and we are trying to involve the largest possible number of influential people in the district such as the mayor of the neighbourhood. (P1)*

#### h) Partnerships for Health Development

##### 4.2.9 PARTNERSHIP RELATIONSHIPS FOR HEALTH DEVELOPMENT IS UNCLEAR

**Interview Question 17.** To what extent can primary care partnerships increase health service delivery? And how can public–private partnerships (PPP) work to support and improve PHCs?

It was deemed unclear as to what level of involvement should be given to private corporations', yet there is a feeling that the private sector could add value to health service delivery. Sub-themes were suggested for how public–private partnerships could add value in terms of mobile clinics, vaccinations, private insurance, delivering community programs and, in some instances, it was felt that the private sector could operate more effectively in the infrastructure and facilities. This came

from the belief that the private sector had more experience. It was also considered that the MoH could be the barrier to integrating the private sector into the healthcare framework.

*Integrations between the private health sector and government health sectors are very important and contribute to raising the level of the services provided. When there is integration between the public and private sector the consequences will have large impact and change in the quality of the service provided. (P12)*

*The private sector is a very important aspect in any society. Of course, we know that the private sector supports many social services projects including health services. Health needs any participation from the private sector, whether medical or non-medical. Private sector can support hospitals and PHCs with very large choices such as mobile clinics. (P9)*

*Why don't hospitals go with the private sector and insurance (privatisation)? And then if the country focuses only on primary healthcare it will provide better services. In particular the infrastructure of hospitals and this facilitates the process of transition to involve the private sector. (P6)*

*If the MoH rearrange and redefine the service method, it could provide an opportunity for the private sector to enter the competition. Currently there is no clear cooperation and the reason is that the MoH did not allow them to participate in helping to provide the service. (P5)*

*The private sector mostly participated in community programs either on the organisational or logistics ways. (P2)*

#### i) Research for Health

##### 4.2.10 LACK OF UNDERSTANDING OF HEALTH RESEARCH RESPONSIBILITIES

**Interview Question 18.** How can research for health benefit PHC services? And how can it help in health education as an education strategy?

There was a lack of understanding about whether the MoH should be responsible for research; some participants stated that universities are and should be the focal point, but the MoH needed to support health research. Without information technology, this cannot be accessed to benefit PHC and health service delivery. In some cases, participants were unsure of the value of research. Invariably, the overriding theme was that health research does not occur, does not add value, and is the responsibility of the MoH. An opportunity exists for partnerships between universities and

the MoH to develop a research culture to take advantage of the expertise at university health faculties.

*Research is still weak and I do not see a real role in offering their services to us. (P11)*

*I believe that specialist people with qualified with research skills are fully absent at the Ministry of Health. (P10)*

*Research is large part that reflect the realities and the MoH needs to support it. (P9).*

*Research for health if there is no benefit from the result there is no reason for its existence. The role of the MoH in supporting scientific research is very weak. (P8)*

*I did not see any research published through the MoH and I do not see that there is funding of research through the Ministry. (P7)*

*The partnership between the Saudi universities and the MoHs is very important and must be activated. There must be a referral university for the MoH. We must take the advantage of the experience and expertise people to benefit the MoH. (P6)*

*I wish that the MoH would support the research: financially and administratively and the intensification of the resources and the commissions to do so. The joint cooperation with the Saudi universities could result in an excellent research. (P5)*

*Research can be supported through universities because it is the main environment of research. Even the MoH doesn't have the tools and the elements of scientific research which are found at the universities. (P4)*

*Research is very important for us and we always consider the results, but the MoH is still very negligent in financial support and administration or even to facilitate the projects. (P2)*

### **4.3 DISCUSSION**

The discussion will consider the findings in Section 4.2 within the context of the research questions and the WHO nine criteria. The general themes identified are associated with the translated text from the interviews, and the associated findings are discussed with reference to the literature.

#### **4.3.1 LEADERSHIP AND GOVERNANCE FOR HEALTH**

Since the KSA's 2005 National Policy for Health set the framework for PHCC development for more than a decade, it would be reasonable to assume that it is intrinsic not only to policy setting but to

understanding the objectives of the policy. As such, there should be an inherent need to understand how this policy came about, its relevance to the history of PHC in KSA, and how the policy was derived from the Alma-Ata Declaration. Evidently, from the qualitative findings, this is not universally the case. Internationally, after the Alma-Ata Declaration, it was clear that each country would follow the Alma-Ata principles of primary healthcare. The KSA government was also a signatory to the Alma-Ata Declaration. Al-Mazrou (2002, p. 15) emphasised that KSA's national policies should have been guided by the Alma-Ata principles long before its 2005 National Policy for Health so that it could shape PHC implementation in the country. Subsequently, after the 2005 National Policy for Health, Almalki, FitzGerald and Clark (2011) wrote a landmark paper commenting on the Saudi healthcare system and, as stated by the Ministry of Health (2011), echoed that KSA should take a stewardship role to provide UHC. Assuming that UHC is inextricably linked with the essence of primary healthcare, then without PHCCs, there is no access to UHC. It would, therefore, be reasonable to suggest that this is a fundamental level of understanding as to how PHC came about, what its objectives were and are, and why PHC in KSA is undertaking the national policy, and as such, this should be universally known. Furthermore, it suggests that this knowledge is critical for achieving those objectives. Shabila et al. (2012) and Gilson and Daire (2011) suggested how leadership at the PHCC operational level can impact healthcare service delivery.

Shabila et al. (2012), Al-Rabeeah (2003) and Al-Ahmadi and Roland (2005) stated that poor communication across healthcare systems results in dysfunctionality. As such, policy directors who are unclear about the strategic initiatives of the MoH or unhappy about the lack of a discrete PHC strategic plan beyond building facilities will be less effective in their work. This also transcends governance. Effective leadership at both policy and operational levels are necessary for the implementation of PHC reforms (Alyemeni 2010). Poor leadership or understanding of critical strategic plans can transcend to poor governance. It is not known why the respondents were unclear about the history of PHC, but it is likely that the MoH regional policy directors focus more on the MoH, and that the MoH is the source of a leadership vacuum (Atun et al. (2006); Al-Ahmadi and Roland (2005); Deghaither (2006); Alyemeni (2010); Al-Falieh, Al-Freihi and Al-Rabeeah (2009) Sebai (2011).

The leadership void is attributed to excessive central control by the MoH; unlike in Brazil, where the MoH and MoF predominantly dictate policy and funding initiatives. In contrast to Brazil's decentralised health services, which promote increased participation by all healthcare providers,

the MoH is seen as dictatorial and bureaucratic. This would seem counterintuitive to the desire to foster broader private participation as part of a new strategic plan. This finding of centralised control by the MoH and the need to decentralise decision-making along with the desire for PHC's strategic plan is similar to other Arab nations such as Sudan, Lebanon, Syria, Tunisia and Oman; however, any changes would require a paradigm shift by the government and the MoH, and infers a need to change the approach to management (Jabbour et al. 2012).

Additionally, the qualitative findings suggest that the 2005 National Policy for Health focused on building facilities and has not been adjusted to the current demands for service. Further to this, the highly centralised, controlled leadership by the MoH needs to change, with provision for PHC to have some autonomy, especially at a planning level. If PHC had its own leadership, decision-making and planning capabilities, rather than be dictated to by the MoH, then it would be accountable for delivering the strategic objectives it set. This would require strong leadership across every operational aspect including governance, policy initiatives, regulatory control and measurements, and the PHC would be solely responsible for the delivery of UHC (Sambo & Kirigia 2014).

The mass development of PHCCs as a result of the 2005 National Policy for Health increased immunisation through vaccinations. Beyond the initial baseline vaccinations issued to children, immunisations for controlling the mass spread of viruses caused by the effects of mass gatherings such as the Hajj, where viruses spread at a rapid pace, curtailed potential pandemics. PHCCs are now able to support the health system in preventing the spread.

#### 4.3.2 HEALTH SERVICE DELIVERY

Vaccinations were identified as a positive result of the 2005 National Policy for Health. While the 2005 National Policy for Health highlighted vaccine coverage, the validity of the coverage records is questionable. First, the recorded coverage figures are not based on a household survey. Second, the current paper-based recording system is unlikely to be accurate.

Another aspect of health service delivery was identified, that of the referral system. While there was acknowledgement of its intent, it needed significant improvement as it was predominantly ineffective given its manual-based approach. With the primary purpose of linking a patient from the PHCC to a hospital, it was generally not working, which was somewhat counter to the Ministry of Health (2013a) and Alalfi et al. (2007). After extrapolation, this referral program has limited functionality in select cities, such as Riyadh.

*There is a program applied within Riyadh city called the Referral System, it links the patients appointments between PHCs and hospitals. (P4)*

Another respondent stated that:

*At the present time there is not any link with the services of healthcare in the Kingdom of Saudi Arabia, such that government or private hospitals cannot accept the referral service and it is still very simple and weak. (P1)*

Thus, it can be concluded that there is a fundamental attempt to use PHC as the first point of contact, and therefore, it requires a universal referral system otherwise it is counterproductive in its intent. If PHCCs are to serve as the first point of contact and truly support the healthcare system, the means to communicate on all levels, especially to hospitals when their mandate is to act as a primary point of referral, this system must work across all PHCCs. Furthermore, it is well-known that referral systems are integral to optimising high-quality primary care (Aantjes, Quinlan & Bunders 2014; Samb et al. 2010). This study identified that this is still an aspect that needs addressing.

A poor referral system can be a barrier to health service delivery, with widespread implications, but a good referral system can be an effective communication tool as part of a health information system. This aspect of health service delivery links directly with one of the main barriers identified, that of patient follow-up. A referral system is a form of patient follow-up. Patient follow-up was supposed to be implemented under the amalgamation of services in 1984 (Alharthi et al. 1999; Almazrou & Salem 2004). Therefore, for it to be considered a success of the 2005 National Policy for Health would be erroneous. It is without question an area that remains a barrier to efficient PHC services and the health system as a whole (Al-Ahmadi and Roland (2005); Jarallah (1998).

Additional barriers, such as a lack of trained staff including specialised staff, remain issues. Coupled with the need for equipment and technology, a lack of trained staff is an inherent problem that poses significant barriers, as identified in this research study and Al-Ahmadi and Roland (2005), De Maeseneer et al. (2008), Alghanim and Alomar (2015), Mumenah and Al-Raddadi (2015) and (Alabbad & Alhaidary 2016). More than two decades ago, Alosimy (1994) stated that two-thirds of the clinics in Riyadh, Saudi Arabia needed more equipment. Mahfouz et al. (2007) similarly noted this issue and confirmed these findings. This suggests that the numerous building facilities serve no purpose or have a limited function if not fully equipped and operated by

trained staff. These components are of equal and perhaps higher value in delivering PHC and can affect staff and patient morale, as well as PHCC performance (Mumenah & Al-Raddadi 2015).

#### 4.3.3 HUMAN RESOURCES FOR HEALTH

The lack of staff resources and the allocation of those resources were identified as primary concerns from the responses focused on human resources for health. With training and specialisation of staff resources as sub-themes, it brings to the forefront the need to assess available staff resources to support concerns about the allocative efficiency of existing staff before investing significant funds to address training and specialisation needs. Atun et al. (2006) noted the importance of patients being able to select their family physician; while Moosa et al. (2014) and the WHO support this, there have been issues with the training of specialised family physicians.

The allocative efficiency of staff resources can affect patient satisfaction and levels of care (Aloufi & Bakarman 2016). It is simply not enough to have resources; the correct resources are needed to provide specific care like family physicians. Training and hiring additional staff, specialised or not, purely to meet demand is not an adequate response when there could be suitable staff available for redeployment. This suggests that too many PHCCs are operating and expanding too quickly. And yet, the government has plans to expand the number of PHCCs to 2,750 by 2020 (Ministry of Health 2015), which would impose greater demands on the lack of staffing resources and further support the need to assess current allocations of staff to determine what training and hiring practices should be employed.

#### 4.3.4 HEALTH FINANCING

Primarily PHC is dependent on the centralised authority of two Ministries, Health and Finance; it has no independent autonomy with regard to financial operations. It requires allocation from the central MoF to provide government-appointed budgeted amounts to the MoH for the entire MoH healthcare system. Requests are made to the MoH after a lengthy bureaucratic process. Therein the sentiment expressed by respondents was that this was problematic in terms of the effective delivery of PHC and delays when requests were made. The operational efficiency of PHCCs was impeded by this centralised control. Decisions are subject to hierarchical approval regarding staffing, equipment and technology; this then translates into limiting decision-making at the local level, which is inefficient.

The lack of an efficient referral system has been problematic. Health technology is essential for establishing a health information system so that production efficiencies can improve with access to case management records (WHO 2010a). A decentralised approach to decision-making and independent funding could achieve this sooner, allowing PHCCs to determine their own efficiencies. A referral system that is not manually driven requires technology, and this is highly dependent on health finances (Du Toit et al. 2013).

Decentralisation is imperative for autonomous decision-making at the PHCC level. Developing the PHCC's capacity for financial management and ensuring institutional autonomy in resource planning, program budgeting and expenditure will create powerful decentralised units (Meessen & Malanda 2014). Only then can support be provided, as part of a broader new PHC strategy. Mufti (2002) noted that decentralisation was a government health goal that required autonomy in hospitals to improve quality of healthcare, but no such change has been afforded. For this to happen, a paradigm shift at the government level is needed, not just the MoH. This infers the need for policy reform to establish decentralised budgetary control for PHC to empower local decision-making similar to that in Lebanon, Syria, Tunisia and Oman (Jabbour et al. 2012).

#### *4.3.5 HEALTH INFORMATION*

The lack of a fully integrated health information system appears to be causally linked to a general lack of health technology, and any specific allocation for such a system is unclear. There have been attempts in the past to develop such systems; it is unclear why these attempts have failed but may be due to a failure of implementation strategies, maintenance contracts, lack of follow-through or lack of skilled staff. The high dependency on health information systems and health technology means that one is not likely to occur without the other (Anikeeva & Bywood 2011). In KSA, for the recently implemented e-Health, previous pitfalls must be avoided, and essential support provided to ensure its success (Almaiman et al. 2014).

The potential value of a health information system, besides case management and a referral system, can be found in other health aspects like health education and health research (Kirigia & Barry 2008). This can transform the delivery of care across all PHCCs and the health system as a whole. However, despite the obvious benefits, such demands place significant pressure on fiscal health budgets (Bhutta et al. 2010; Du Toit et al. 2013).

#### 4.3.6 HEALTH TECHNOLOGIES

Health technology is a major contributor to increasing productivity, by streamlining case management records and providing cost-effective means of operating efficiently and clinically (WHO 2012b). The lack of basic technological infrastructure like phones and the internet only serves to impede basic communications and the sharing of information and knowledge (Alshammary, Ratnapalan and Akturk (2013). Health technology is a means of providing access to health research to meet health goals (WHO 2012b). While the issue of budgetary constraints may be a barrier, technology requires continual investment to support system maintenance and frequent advancements (Du Toit et al. 2013). This translates into the need for specialised staff and additional expense, at a time when budgetary issues are most prevalent. The repeated failings from the past suggest a reluctance to invest when sums have already been provided with little or no return on that investment. Even with an official policy declaration, as was the case under the Saudi Arabian Ninth Development Plan (2010–2014), to advocate for advanced information technology to support a health information system (WHO 2013), this has not been fully realised.

#### 4.3.7 COMMUNITY OWNERSHIP AND PARTICIPATION

Mechanisms for communities to influence policy are integral to reform (WHO 2010a) and require broader planning and cooperation between health actors like the MoH and PHCCs. Under the current structure, several community programs such as the ‘Health Passport’ and ‘Friends of the PHCCs’ are not universally used. Whether this is due to a lack of awareness, the lack of trained staff or some other prime directive is unclear. Community participation should be encouraged so that communities can take ownership of their health and influence their behaviour in a preventative manner (WHO 2010a).

There is a lack of understanding as to the role and scope that PHCCs play within the community and what services they offer. Increasing awareness would help to augment the delivery of primary healthcare at the community level, thereby supporting social welfare services for patients (Aantjes, Quinlan & Bunders 2014). Community participation is viewed as essential by the WHO for providing universally accessible care (Littlewood & Yousuf 2000). By actively integrating the community and healthcare, the community should have the means to influence decisions at the local level, which would allow them to actively participate (Kathleen, Laetitia & Trinette 1999). The lack of health awareness means a lack of disseminated information and engagement in their own health decisions. Programs such as those for the aged, smokers and road traffic accidents do not

reach those at risk. Whether this is possible solely by having adequate resources is debatable, but not having the infrastructure to send information through the internet or through a health information system certainly impedes those mechanisms of delivery.

#### 4.3.8 PARTNERSHIPS FOR HEALTH DEVELOPMENT

While there have been many suggestions, partnerships for health development is one criterion that perhaps has the most potential for government support and inclusion. Partnerships can contribute resources, technical and financial support (WHO 2010a). Certainly, attempts by the KSA government and MoH to develop PPPs are at the forefront of health agendas, as they will aid in policy development and strategic planning, meeting health determinants and supporting health equity. Public–private partnerships in KSA are an opportunity to help reduce healthcare expenditure (Watson 2012).

The role of PPPs within the current health structure is unclear; suggestions include simply increasing private health insurance or delivering community programs. It is believed that PPPs would add value, but it is clear that PPPs would require a theoretical change to both public and health policy formulations (Azétsop & Ochieng 2015). Given that existing public health infrastructures and systems are deemed inadequate, PPPs could be a solution for meeting the demand to improve health service delivery (Baig et al. 2014).

#### 4.3.9 RESEARCH FOR HEALTH

The survey respondents did not universally understand the perceived value of research for health, which supports the findings of Saleh et al. (2015) who found a lack of evidence-based decisions at the primary healthcare level. Furthermore, the overall research output was low and could not provide the basis for evidence-based decisions in primary healthcare (Saleh et al. 2015). It is not surprising that there is a skewed understanding of who is responsible for developing research, and how research for health can add value, particularly with PHCCs lacking basic internet connections and misunderstanding the role of the MoH. Fortunately, several participants noted the need to create partnerships with universities, as they are at the forefront of training, to augment health service delivery.

The lack of infrastructure is a common barrier to achieving high levels of quality care in western societies, so KSA is not isolated in this respect (Heath et al. 2009). It follows on from the WHO (2012b) strategy on research for health, that KSA must meet the capacity to conduct research for health to improve policy formation and clinical decision-making (Swanson et al. 2010). There is a

need to re-educate those who cannot see value in research for health, which could be achieved with health technology.

#### **4.4 CONCLUSION**

The qualitative findings provided information that was interpreted to answer the five research questions set out earlier. Following is an analytical discussion within the context of those findings and the literature review (Table 4.2).

##### **Research Question #1: What effect has the 2005 National Policy for Health had on the overall health system in KSA?**

The qualitative research found that the development of PHCCs has expanded the delivery of healthcare in terms of access to health. Coupled with the delivery of vaccinations, this could be construed to have added value to the delivery of care to patients and achieved the objective of universal health delivery, or at least had the intent of doing so. Questions remain as to the quality of care provided by the PHCCs due to issues around staffing and equipment needs, which raise concern about equity of care when one PHCC may have sufficient resources, but another may not.

This issue extends to the strategic implications of the 2005 National Policy for Health being fit for purpose more than a decade after it was mandated. There are questions as to whether the policy should be reformed with a new directive addressing subsequent changes in the demand for health and how this is coupled with the development of those PHCCs that can be equipped to meet those demands. There is a level of expectation by patients attending PHCCs, and this must be met. As Al-Omar and Bin Saeed (1998) stated two decades ago, PHCCs must meet patients' expectations, and focus on the factors that prohibit delivering care. The need for a policy paradigm shift requires changes in strategic thinking that address the imbalance of resource equity, and decisions made at a policy level. This will effectively change funding allocations for resources and provide improved health outcomes (Gibson et al. 2015). This policy reform should consider decentralised control and power afforded locally to PHCCs and empower them to address allocation efficiency issues. Only then can the value of the 2005 National Policy for Health be evaluated fairly in terms of improving the overall health system and the effectiveness of PHCCs to deliver quality-based universal primary healthcare.

**Research Question #2: What is the PHC managers' knowledge about the role of PHCCs and healthcare workers within the National Policy for Health?**

The disconnect between PHCCs and hospitals and the lack of adequate human resources were identified as issues on two levels, systemic and resource based. These two factors impinge on the effectiveness of PHCCs to perform optimally within the national health system. While PHCCs provide a mechanism for referrals in a paper-based system, they fail to provide adequate means to communicate with hospitals effectively. While the general intent of PHCCs to serve as the first point of contact and provide referrals to secondary and tertiary hospitals is seen as effective in principle, in reality, the system is failing and often ineffective. While Alalfi et al. (2007) and the Ministry of Health (2013a) reported high usage of PHCCs as a point of referral, this study identified that Riyadh had a referral system that works while other PHCCs do not.

*As mentioned, the patient can follow-up with the hospital through the PHC Referral Program that allows people to obtain an appointment as well as transferring from hospital to PHC. This program was implemented in Riyadh only in 2012. (P2)*

Thus, there is a need to expand and integrate an electronic network referral system that links all PHCCs rather than have a system that works in isolation. Simply relying on antiquated paper-based manual systems affects the performance of PHCCs and fails to provide an efficient system that can deliver streamlined communication to hospitals, thereby affecting patient care.

*I can tell the hospital has a paper-based system and the reason for that is the absence of a computer system. The hospital is still new it was launched in 2015! Where that if the patient came from one of the near PHCs by referral letter the hospital also received the patient with a referral letter. (P5)*

The inefficient referral system requires repeated assessments of patients' needs, as secondary patient consultations and assessments are required, but this is not the case with an efficient automated referral system (Alalfi et al. 2007). Indeed, having sufficiently trained staff resources reduces workloads and increases the ability to deliver care. However, mixed findings relating to whether there are too few resources or a need to reallocate existing resources requires further examination. Just as Khaliq (2012) suggested that there was a disproportionate allocation of hospital beds, there are also resource allocation inefficiencies. While it was acknowledged that there was a lack of trained family physicians, the overriding sentiment was the need for more trained staff in specialised areas, but not without considering the redistribution of staff. Margolis

et al. (2003) found that patient satisfaction was affected where there was a disproportionate allocation of resources. While human resources was a prime consideration and one that bodes examination given the development of PHCCs, this shortage or unequal distribution is likely to result in patient dissatisfaction, which is an essential aspect of the physician–patient-centric delivery of care (Al-Eisa et al. 2005). There are resource issues can impede the operational effectiveness of a PHCC and, therefore, impact patient satisfaction. It follows that patient satisfaction and the level of care provided is a paramount directive of PHC. If a patient has to travel further to receive the care required, due to a lack of staff resources or specialised staff, then this will affect their satisfaction (Saeed et al. 2001).

**Research Question #3: What are the major factors that influence the planning and implementation strategy and evaluation of PHCCs in KSA?**

The policy initiatives and strategic direction for PHCCs are under the centralised control of the Ministry of Health. They set out to achieve the 2005 National Policy for Health directive of building PHCCs and are striving to develop 2,750 PHCCs by 2020. The qualitative findings identified a belief of decentralisation of control and decision-making to PHCCs. Issues of budgetary control and rethinking of the policy directive would shift the focus to enabling PHCCs to make independent decisions based on their needs rather than responding to those dictated by the MoH.

The 2005 National Policy for Health has been supported by the five-year development plans (Kayed & Kabir Hassan 2011), which have provided funding for PHCC expansion (Ram 2014). The allocated funding has increased from 2.7% to 4.8% of GDP (Jeddah Economic Gateway 2014)—this represents total funding and is not reflective of any discrete PHC operational funding; an issue that came through in the interviews.

*We need consistent and clear budgets for the PHC operation each centre separately to know the total expenses. (P1)*

*At the regional level, actually we are still limited in decision-making especially when it comes to the financial matters or preparing for the PHC budgets. The department responsible for that is the MoH itself and they contact directly with the Ministry of Finance. There are no fixed budgets for PHCs as well as the budgets are not clear in the expenses of the separate centres we rely on the hospitals budgets. (P2)*

The lack of independence in decision-making for PHCCs could be a function of the constraints that current economic conditions have placed on KSA (Sahoo 2016; SUSRIS 2015). Despite significant

investments since the 2005 National Policy for Health, resulting in rapid expansion of PHCCs, the economic climate has changed the current budgetary allocations. As such, it is less likely that there will be a decentralised budgetary control for PHCCs despite the participants' desiring this change. This change in economic circumstances could result in significant changes to future MoH allocations. In the past, despite increases to the health budget, this did not translate into additional PHC funds.

*Unfortunately, this increase doesn't reflect directly on the primary healthcare sector (PHC). (P1)*

*There are many important things that the MoH has to a crucial role of spending, such as spending on PHCs, but the fact there is no clear planning of the PHCs budget. (P3)*

Without question, the impact of the changing economic climate, which translates to health spending, will affect policy decisions moving forward. This will shape the planning and implementation strategy, and as Kerr (2016) suggested, increase KSA's desire to increase PPPs to address health service demands.

#### **Research Question #4: What are the barriers to and facilitating factors for accessing PHC services?**

Barriers that have impeded access to PHCC services were identified as primarily the lack of specialised staff services and process-related issues such as poor communication and follow-up procedures. These factors were compounded by a belief that there were resource allocation inefficiencies and a lack of health technology and health information systems. These seven specific factors were deemed prohibitive for accessing and delivering PHC services. Azétsop and Ochieng (2015) suggested that an efficient and effective health system needs adequate staff and staff training. Furthermore, they noted that funding was integral to supporting these factors, something that was addressed in Research Question #3 (Azétsop & Ochieng 2015). Since this is a fundamental requirement for having sufficient staff, specialised staff and training, it follows that this would impact the continuity of care when there are inadequate resources to deliver that care. This holds for follow-up visits and care (Othman et al. 2015).

Since continuity or follow-up care is seen as a barrier to accessing secondary care, this was identified as an issue that would support the improvement of patient–physician relationships, and translate into improvements in the quality of care provided (Almutairi & Moussa 2014; Alshammari 2014). In fact, given the poor follow-up care, it suggests a breakdown in

communication or lack of information, which could be readily addressed by improving the existing manual paper-based systems. The need to improve the continuity of care through advanced communication methods could be achieved with improved health technology and health information systems. Whether the implementation of e-Health can provide the necessary framework to achieve this is open for debate, given that it is in the early stages of rollout (Almaiman et al. 2014; Anikeeva & Bywood 2011).

What is known is that health technology is a prerequisite for any health information system to operate, and this serves to support clinical health information data and improves organisation functionality and the delivery of care (Levesque et al. 2014). Health information systems are a tool that can bridge facets on multiple levels, from clinical practice to case management and records management, so it follows that they could support continuity of care (Davis, Davis & Bloch 2008; Du Toit et al. 2013).

**Research Question #5: How has the national strategic policy and establishment of PHCCs improved health service delivery in KSA?**

Without question, the accelerated development and building of PHCCs since the 2005 National Policy for Health has increased access to care. Despite the issues, barriers and challenges, the foundation has been established to increase the support structure to MoH hospitals and provide patients with alternative access that did not previously exist. This is particularly the case for rural locations of PHCCs. However, these rural PHCCs face challenges of insufficient human resources, including doctors and nurses, that are significant barriers to delivering healthcare.

Positive aspects that were conveyed were the referral system in Riyadh and the reduction of patient visits to hospitals for treatments such as vaccinations. Despite the lack of a universal electronic referral system, any referral system will be an improvement. The increased access to vaccinations has been discussed and represents a significant aspect of the basic PHCC services, and has resulted in increased usage of PHC (Lewin et al. 2008).

Despite the significant investment in terms of funding to increase PHCCs, there are still major issues to realising the operational functionality of PHCCs due to staffing, training and technology shortfalls. Until these aspects are addressed, the benefits of the 2005 National Policy for Health cannot be fully measured. Only then will the levels of health service delivery be able to be judged based on quality, effectiveness and efficiency. Even the Ministry of Health (2014) has acknowledged the shortfall of physicians; with that and the demand for family physicians, the

need to increase training to support PHCCs is integral to achieving and realising the aims of the 2005 National Policy for Health mandate.

TABLE 4.2. MATCHING THE QUALITATIVE FINDINGS TO THE RESEARCH QUESTIONS

Research Questions	Qualitative Findings
<b>Q1. What effect has the 2005 National Policy for Health had on the overall health system in KSA?</b>	Development of >2,280 PHCCs but need to update the policy to account for new developments and demands placed on the policy directives, such as the need for greater autonomy for PHC, in terms of budgets, a decentralised decision-making authority and to augment PHCC development with greater resource support.
<b>Q2. What is the PHC managers' knowledge about the role of PHCCs and healthcare workers within the 2005 National Policy for Health?</b>	Disconnect between the role of PHCCs in the healthcare system, how they work with hospitals and what services they offer. This is affected by the need to re-evaluate staffing allocation and provide greater resources where necessary, along with training support.
<b>Q3. What are the major factors that influence the planning and implementation strategy and evaluation of PHCCs in KSA?</b>	This is the essence of the prime directive of the 2005 National Policy for Health—the role, control and centralised influence of the MoH.
<b>Q4. What are the barriers to and facilitating factors for accessing PHC services?</b>	A multitude of reasons including that of trained staff, the scope of specialised services offered, and poor patient follow-up. Additional issues of staff allocation, poor communication, lack of technology and HIS prohibited access and delivery of PHC services.
<b>Q5. How has the national strategic policy and establishment of PHCCs improved health service delivery in KSA?</b>	Unquestionably, the building and expansion of PHCCs since the 2005 National Policy for Health has increased access to care and serves to provide highly valued services, especially in terms of vaccinations.

## CHAPTER 5.

### METHODOLOGY — QUANTITATIVE

#### 5.1 INTRODUCTION

The previous chapter discussed the findings of the qualitative phase of the study. This chapter describes the quantitative research design methods adapted for this research study to achieve the aims and research questions posed in Chapter 1. It specifically addresses the research design, including setting and population sample, instrumentation, translation and validation of the instrument.

#### 5.2 QUANTITATIVE DESCRIPTIVE METHODOLOGY

The quantitative phase used an extensive survey questionnaire derived from the Canadian primary healthcare practice-based survey and devised by the Canadian Institute for Health Information (CIHI) (Levesque et al. 2014). This practice-based survey was specifically designed for PHC organisational assessment. It focused on the quality and delivery of PHC (Levesque et al. 2014). In using this quantitatively designed survey tool, the researcher used a proven reliable instrument to measure the constructs of PHC (Levesque et al. 2014; Lukewich et al. 2014). The survey tool was modified using the *Ouagadougou Declaration's* nine criteria for PHC, which enabled the researcher to organise data in accordance with the framework model for synthesis when collating the findings for interpretation.

The quantitative research methodology and design used a research survey questionnaire to collect demographic data from PHCC directors (Leedy & Ormrod 2001). Creswell (2009) stated that using a survey is a common approach for collecting descriptive research data, and Williams (2007) stated that descriptive research is where the examination of two or more variables is studied for any possible relationships. With descriptive research, the intent is to explain the data and characteristics of the variables that are being investigated (Knupfer & McLellan 1996).

Using a quantitative research design involves asking questions about 'how', 'what', and 'why' certain specific occurrences exist (Green & Thorogood 2009). The data derived from asking those questions were analysed to determine frequencies and arithmetic means. These descriptive statistics help to describe the key features of study participants and enable the researcher to answer research questions.

The methodology of the quantitative phase of this study is framed under ‘positivist’ paradigm (Creswell 2008; Sobh & Perry 2006). The process of positivist research involves the gathering of data for analysis and transformation and is highly correlated with quantitative research as it requires the use of closed-ended questions and measurement scales (Henn, Weinstein & Foard 2006). Survey methods of research often require transformation into numerical values for interpretation (Henn, Weinstein & Foard 2006), which in this case were analysed using SPSS v.23, a statistical software application. The data for this research study were gathered using a specific survey instrument from the Canadian primary healthcare practice-based survey ‘Measuring Organizational Attributes of Primary Healthcare: Saudi Arabia’, which meets the criteria of a positivist research approach (Creswell 2008). Maintaining objectivity and independence increases the validity and reliability of the data collected, and thus the generalisations of those derived findings (Pather & Remenyi 2005).

### **5.3 STUDY POPULATION**

The quantitative phase was conducted in the two most densely populated cities in KSA: Riyadh and Jeddah. The two cities have 50 PHCCs each; however, only 46 are currently operational based on the information provided by the MoH in Jeddah, so the quantitative sample was 96. This number was used to derive the response rate for this section of the study. The participant inclusion criteria for the quantitative phase were: (i) professionals currently working in PHCCs (Riyadh and Jeddah), irrespective of the length of service, (ii) those working at a managerial/director level, and (iii) being part of i) or ii).

### **5.4 SAMPLE SIZE**

The managers from all functioning PHCCs in Riyadh and Jeddah were recruited for this study, which equated to 96 PHCC managers. From which, the 95% confidence level with an error margin of 5% yielded a recommended minimum sample size of 80. If the confidence level increased to 99%, then the sample size would need to be 87. If the confidence level remained at 95%, but the error margin was reduced to 3%, then the sample size would need to be 89. The actual sample size was 90. The inclusion criterion was any director/manager currently holding a position within an open PHCC but limited to one person from each PHCC. Additional responses from other managers within PHCCs could have skewed the findings, as there may not have been an equal number of responses, and a degree of bias could have occurred.

For this study, the quantitative response rate yielded a sample of 90; given that Nulty (2008) deems a 95% confidence level and 3% margin for error as normal, this sample exceeded the required number of 89 by 1. Sitzia and Wood (1998) indicated that high response rates were achievable and Fincham (2008) concurred and noted this in ‘many studies’. The response rate for this quantitative sample yielded a rate of 93.75% (90/96) (Fincham 2008), which affirms Nulty (2008) that face-to-face administration of surveys results in higher responses. Increased participation increases the validity of the generalisations made by the researcher (Babbie 1990; Fowler 1998).

## 5.5 INSTRUMENTATION

The quantitative survey questionnaire was developed by CIHI (Levesque et al. 2014). The quantitative questionnaires were developed and adapted around the *Ouagadougou Declaration’s* nine criteria, which provided a theoretical framework. The researcher intended to align the quantitative survey questionnaire with the *Ouagadougou Declaration’s* nine criteria to provide a framework to ascertain confirmatory results. Harris and Brown (2010, p. 1) stated that to do this, it was necessary to ‘...*tightly align and structure instruments; present the construct in a simple, concrete, and highly contextualised manner; collect the two types of data with a minimal time gap...*’.

All questions were directed at PHCC managers and focused on gathering information based on their expertise and experience in these areas. The Canadian primary healthcare practice-based survey has been used in several research studies (Haggerty 2011; Haj-Ali & Hutchison 2017; Levesque et al. 2014; Lukewich et al. 2014).

## 5.6 SURVEY QUESTIONNAIRE

Surveys can be administered by multiple means—mail, telephone, in person, or electronically (Hawe, Degeling & Hall 1990). While electronic or email-based surveys can alleviate logistical challenges, are cheap to administer and can have a wide reach, they do have low response rates (Nulty 2008). To facilitate the broad reach of prospective participants for this quantitative phase, the researcher hand-delivered surveys—since web-based surveys typically yield low response rates (Dommeyer, Baum & Hanna 2002; Nulty 2008). When survey questionnaires are preceded by direct communication, mail or notification, response rates have increased for both web-based and mailed surveys (Kaplowitz, Hadlock & Levine 2004).

Surveys are a way to capture large amounts of data from a broad spectrum (Hawe, Degeling & Hall 1990). In this instance, the 96 potential PHCCs posed a potential logistical challenge for the quantitative surveys.

Survey questions for the quantitative phase were derived from the Canadian primary healthcare practice-based survey but reduced in number to address specific dimensions of the nine criteria and allow sufficient time for the participants to address the questions. The Canadian primary healthcare practice-based survey has some 69-plus questions; this would have proven problematic for the timely completion of this study. Thus, the questions were reduced and modified from the Canadian survey to meet the specific needs of the research objectives and fit the framework of the study. However, having open-ended questions gave participants the opportunity to express their experiences, perceptions, opinions and knowledge of PHC strategy and implementation and provide insightful contextually rich information (Creswell & Plano Clark 2011; Neuman 2011).

The survey was modified for the Saudi Arabian context, by translating into Arabic and adding some questions. The researcher modified the questions, which were cross-checked by an expert academic from King Abdulaziz University, Saudi Arabia. Furthermore, the survey was modified to fit with the nine-criteria framework model, and specific sections deemed not relevant to the framework model were left out. The included sections were sections 1, 2, 3.3, 4, 5 and 7. These questions were either yes/no or 5-point Likert scales questions. The response options were (1) strongly agree to (5) strongly disagree. Likert scales serve to measure latent variables by associating a value (1–5) from which inferences can be deduced (Appendix 6). Likert scales look to extract different perspectives from the participants (Norman 2010). It was essential to provide a broad range of intervals to account for differing perspectives, and ensure equality within variables represented by each value on the scale and preserve the normality of the data (Creswell 2008).

## **5.7 TRANSLATION AND VALIDATION OF THE INSTRUMENT**

The survey questionnaire serves to collect information that is pertinent to the research study. This provides a database resource for analysis; therefore it must be relevant, clear, understandable and precise (Rubin et al. 2009). The questionnaire was written in English and translated into the participants' language (Arabic), thereby enabling participants whose native language was Arabic to participate. While this assured contextually rich information, it increased the processing time for translation of transcripts from Arabic to English. To avoid any potential discrepancies, the researcher followed the WHO (2012a) translation process that outlines a three-step process when

translating and adopting an instrument between languages to assure validation. Figure 5.1 shows the procedural steps required when translating an instrument.

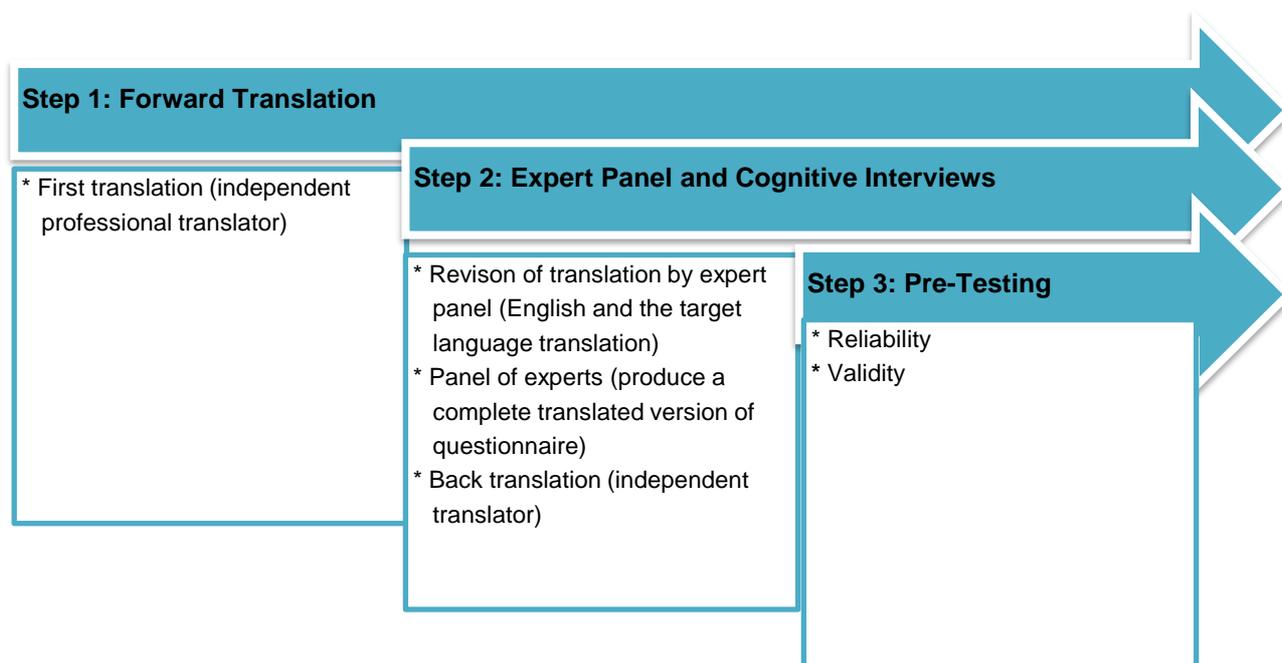


FIGURE 5.1. WHO THREE STEPS, TRANSLATION AND VALIDATION PROCESS

Source: World Health Organisation (2012a)

The first step of the WHO (2012a) Translation and Validation Process requires translation of the survey questionnaire from English to Arabic, after which the translated version must be proofed for cultural equivalency (WHO 2012a). This was done by a professional translator with dual language skills in English and Arabic.

The second step required a bilingual expert panel comprising the researcher and two healthcare professionals with dual language skills that had specific experience with translation and survey development to review the translation. This process required multiple meetings covering all sections of the questionnaire, clarifying terminology and the meaning of unclear questions. As many words and meanings were not transferable, several inadequate words, concepts and meanings required additional review and revision to have comprehensible sentences. This process of back-translation confirms adherence to the original English version (Cha, Kim & Erlen 2007).

The final step in the process focused on the content validity of the Arabic version. To assess the relevance of the translation, a content validity index was used (Lynn 1986). The expert panel proceeded to validate and affirm the reliability of the finalised translated version of the

questionnaire (Lu, While & Barriball 2007). The panel comprised the researcher and an academic from the King Abdulaziz University of Saudi Arabia; they went back and forth through the translated version and the original English questionnaires. Additional discussions were held, and a third member was consulted if one of the panel members was not sure whether an exact or close enough translation (in terms of its meanings and concept) was preserved in the Arabic language. The third member was an Arabic language teacher.

## **5.8 PILOT STUDY**

Pilot studies are intrinsic and a fundamental phase in research studies as they provide feasibility of the intended research data-gathering phase of the study (Creswell 2003; Leon, Davis & Kraemer 2011). Given that the survey had been used in previous research studies with success (Haggerty 2011; Haj-Ali & Hutchison 2017; Levesque et al. 2014; Lukewich et al. 2014) indicated prior validation. Since the quantitative phase using the survey instrument targeted the total population of PHCCs in Riyadh and Jeddah, the researcher undertook a pilot study to avoid contamination, data collected from the same population may have been included in the main survey results (Van Teijlingen & Hundley 2002).

The researcher considered the clarity of the questionnaire and made sure it was readable and understandable in the participants' language (Arabic). Nine PHC professionals who met the study inclusion and exclusion criteria (for face validity) and six ( $n = 6$ ) experts (for content validity) were chosen randomly and asked to read the questionnaire and add any comments. The experts were academics from King Abdulaziz University, Saudi Arabia and MoH directors related to primary healthcare. The experts were confident with the questionnaire's clarity and made some useful comments, which were valuable for the researcher.

The survey was modified to not only meet the Saudi Arabian context but to overcome linguistic barriers given the original survey was in English. In addition, the survey underwent structural changes to Section 5 and an additional section was added (Section 7). The changes to Section 5 included adding questions 21–28 discussing specific criteria, e.g. the Hajj, whether emergency care is provided at the PHCC, how patients are categorised, and payment information.

It is important that survey instruments be thorough otherwise they will be unsuitable and not provide the necessary data to answer the research questions; this could lead to misleading conclusions (Boynton & Greenhalgh 2004). Section 7 was added to provide data regarding HIS, as this is one of the nine criteria. The use of a standardised survey and adapting it by constructing

bespoke questions reduced the need to develop an entirely new survey instrument and the need to validate the survey (Artino Jr et al. 2014; Boynton & Greenhalgh 2004; Gehlbach & Brinkworth 2011). With regard to the procedural steps to address cross-cultural language barriers, a structural approach was followed from preparation to forward translation, reconciliation, backward translation, review of the backward translation, and review by an expert panel (Guillemin, Bombardier & Beaton 1993).

## **5.9 IBM SPSS**

Having collected the quantitative data and manually entering it into MS Excel, the data was uploaded into IBM SPSS v.23. From this, a statistical analysis was undertaken of the participants' demographics, as well as their responses to the survey. The inputted data was screened and cleaned to identify any missing values. This included any 'no responses' that were initially noted as blanks in the MS Excel spreadsheet. Identification of these values will avoid any potential bias in the results derived from the statistical analysis. Missing Value Analysis in SPSS focuses on using Little (1988) 'Missing Completely at Random MCAR test' using descriptive tools with multiple imputations. A more robust analysis was undertaken. The missing values were imputed by replacing the value with the mean score for the appropriate corresponding item. The mean value is frequently used for replacing questionnaire scores (Hair et al. 2010).

The responses from the quantitative surveys were processed, and there was minimal data reduction. The individual answers were entered into a data table that merged the answers into a larger data file, aggregated the respondents' answers and proofed for errors. In cases where data were missing, due to the participants not answering questions, these were left blank (Creswell 2003).

When variables were not accurately operationalised or where values were missing, they were replaced by a zero. This enabled the variable to be counted since the assigned value can be counted in the mean score using the 'Transform-Replace Missing Value' command within SPSS. The consequence of imputing a zero for a missing value can skew the data when the variables are normally distributed; the determination is that the imputation value of zero did not bias the results (Hair et al. 2010).

## 5.10 DATA COLLECTION

The data collection process involved gathering participant information from the research methods employed; in this instance, the survey questionnaire and face-to-face interviews provided the answers to the research questions (Creswell 2008). These multiple sources of data served to explain the barriers to PHCC implementation in the two principal cities of Riyadh and Jeddah in KSA. The quantitative research survey provided demographic data of PHCC directors and their understanding of the organisational attributes of the PHCCs that they managed. The target population was identified as actively working at PHCCs in the two cities and MoH regional policy directors. There were no restrictions on how long they had held their current positions and written permission (Appendix 4) was sought from all parties prior to undertaking the survey.

## 5.11 RECRUITMENT OF PARTICIPANTS

Collaboration for participation was sought from multiple channels including nine MoH departments, with some 23 internal Arabic letters written. This process required approval across multiple hierarchical levels from the Research Ethics Committee at the MoH to specific health directorates. After approval had been received, sealed envelopes with cover letters outlining the research, informed consent, and approval letters ascertained by the appropriate ministerial departments (Appendices 3, 8 and 9) were distributed in the three months prior to collecting data. Distribution was to one representative from each of the 96 PHCCs participating in the study. The researcher elected to hand deliver the research study information and participation consent and surveys since mail delivery is not reliable and subject to lost mail and delays. This process took place from January to March 2016.

The introductory letter described the research study, its objectives and the survey and provided information about the signing of the informed consent and that participants could withdraw at any time. Each participant then provided a signed consent in a sealed envelope to the quality management department. Follow-up SMS were sent to remind the participants to complete the survey within four weeks. Punch (2003) recommended a response rate of 60% as a representative sample.

## 5.12 QUANTITATIVE DESCRIPTIVE ANALYSIS

For the quantitative analysis, the dependent variables are the nine criteria and barriers. The independent variables are a subset that included demographic data and organisational variables.

The SPSS software program was used to analyse the quantitative data. Descriptive statistics allow the researcher to determine more details in the study sample and the performance of required data diagnostics, after which multivariate data analysis was completed.

The initial stage of the quantitative data analysis was conducted using MS Excel to compile the demographic information and compute statistical means, medians, etc. The next stage was to input the data into an extractable file for computational analysis in IBM SPSS v.23. This provides real-time charts and graphs, has access to the inbuilt analysis tools that use crosstabs and filtering, and provides opportunities for data operation. The stages of input and transfer from Excel to SPSS increase data handling and provide an opportunity to transform variables and correct any missing data values. From this, the data were analysed using descriptive analysis, which involves measuring central tendencies, such as mode, median and mean. It also measures for spread or dispersion, such as variance and standard deviation. The domains were not tested through statistical analysis. However, they can be accepted or rejected through the analysis of the data for the strength of correlations and, given the mixed methods approach, if new domains are identified, then they will be reported (Cronholm & Hjalmarsson 2011). The descriptive analysis of the data, when accumulated, is presented in histogram charts that illustrate the frequency distributions. By using SPSS, the researcher can verify the statistical averages of each variable. Descriptive analysis is used to summarise the findings of the data by using a combination of techniques such as graphs and charts, which can all be achieved in IBM SPSS, a statistical tool that automates the functionality of analysis.

### **5.13 CHAPTER SUMMARY**

This chapter described the quantitative descriptive methodological and design processes of this phase of the study, specifying in detail the study population of PHCC managers, sample size from Jeddah and Riyadh in KSA, and the analytical approach for the descriptive analysis of the study variables. The next chapter details those study variables and the findings from the survey.

## CHAPTER 6.

### SURVEY QUESTIONNAIRE

#### 6.1 INTRODUCTION

This chapter describes and adds context to the findings of the quantitative research data captured in the survey questionnaire. It presents the findings in a non-linear fashion, by segregating those questions that have been specifically mapped from those that are descriptive. The findings from the modified survey questionnaire are reported sequentially as per the survey:

- Section 1: Identification of the Organisation
- Section 2: Organisational Vision
- Section 3: Organisational Resources (subsections 3.1 Human Resources and 3.2 Technical Resources)
- Section 4: Organisational Structure
- Section 5: Services Provision and Clinical Practice
- Section 6: Organisational Context
- Section 7: Health Information System (Appendix 2).

#### 6.2 RESPONSE RATE

The response rate for the quantitative sample was 93.75% ( $n = 90/96$ ), which illustrates high-quality data (Meterko et al. 2015). Surveys with non-responses are subject to high rates of statistical bias (Groves 2006; Meterko et al. 2015). Studies with low response rates are prone to self-selection bias (Aschengrau & Seage III 2003). Conversely, while 100% response rates are rare from targeted populations, the higher the response rate, the more the findings are perceived to have credibility (Rogelberg & Stanton 2007). Higher response rates yield more data samples, which increases statistical power and reduces confidence intervals (Baruch & Holtom 2008). Wyatt (2000) stated that response rates >80% were essential for making generalisations about the survey findings and affirming validity, while Punch (2003) noted that a response rate of 60% was necessary for a representative sample.

The high response rate to these surveys can be attributed to being paper-based and hand-delivered in person, coupled with diligent follow-up. According to Nulty (2008), hand-administered paper-based surveys have higher response rates, as has been the case in other research studies

(Dommeyer et al. 2004; Naira, Wayland & Soediroc 2005). The researcher allowed the prospective participants two weeks to fill in the survey before follow-up, as recommended by Mathers, Fox and Hunn (2009), with a window of 4–6 weeks for the submission of responses. It is important to note that the survey instrument was clearly defined with simple instructions, which bodes well for high completion rates (Mathers, Fox & Hunn 2009).

### **6.3 QUANTITATIVE FINDINGS**

#### *SECTION 1: IDENTIFICATION OF THE ORGANISATION*

The survey questionnaire and findings of this study benefitted from discrete knowledge of the head doctor and/or manager of the PHCC. In 90% of cases (Table 6.1), the information gathered was from a person in a position of responsibility with specific knowledge as to the operation of that PHCC. This section also sought to identify whether the PHCC had merged with another PHCC and the efficiency levels of those PHCCs in operation. The participants were asked whether the PHCC had merged with any other PHCC and goes into the efficiency levels of the PHCCs in operation; overwhelmingly they had not merged (92.2%). Thus, it brings into question, why not? Was it a factor of staffing levels, was the facility too small, rented or lacked the resources required, was there redundancy due to proximity of the PHCCs that merged.

More than two-thirds of the surveyed PHCCs (76.7%) have been in operation for more than five years (Table 6.1). More than half have been at their current location for more than five years, and the largest cohorts were those based at their present location for more than ten years (42.2%). This could be explained by the MoH attempts to reduce the number of built PHCCs and control both budgetary and efficiency levels of the PHC. It may also suggest that the focus of new builds was not in the two surveyed cities (Jeddah and Riyadh).

What can be construed when looking at PHCC duration (time that the PHCC has been open in a year and the time that it has been in its latest location in a year as some have moved), (8) participants responded that they had only been at their current location for less than one year given that PHCCs are new, and in PHCC duration was 13.3% this could be highly feasible. Despite this, the survey question identified a significant trend that could be directly related to PHCCs in rented facilities. It could also be explained by the number of new builds, such as those that had previously been in rented facilities and may have moved to a new purpose-built PHCC.

TABLE 6.1. DEMOGRAPHICS OF 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Variables	N=90	%
<b>Designation of Respondents</b>		
Head doctor/physician-in-charge	15	16.7
Manager	66	73.3
Other PHC professional within PHCC	2	2.2
Other	7	7.8
<b>PHCC Merged in the Last Five Years</b>		
Yes	7	7.8
No	83	92.2
<b>PHCC Duration (time/years)</b>		
<1	8	8.9
1–4	13	14.4
5–9	19	21.1
≥10	50	55.6
<b>PHCC Duration (location/years)</b>		
≤1	12	13.3
1–4	20	22.2
5–9	20	22.2
≥10	38	42.2
<b>PHCC Location</b>		
Primary healthcare centre	61	67.8
Physician group practices	6	6.7
Community PHC	7	7.8
Walk-in PHCC	16	17.8

The participants were asked whether their PHCC was a part of the national healthcare policy and had benefitted from special funding or government support; a majority (63.3%) said yes (Figure 6.1) though this answer could have two possible explanations. First, the participants' understanding of the difference between the terms 'special funding' and 'government support'; second, what the 'no' category represented, were they private PHCCs or were they not directly affected by the 2005 National Policy for Health.

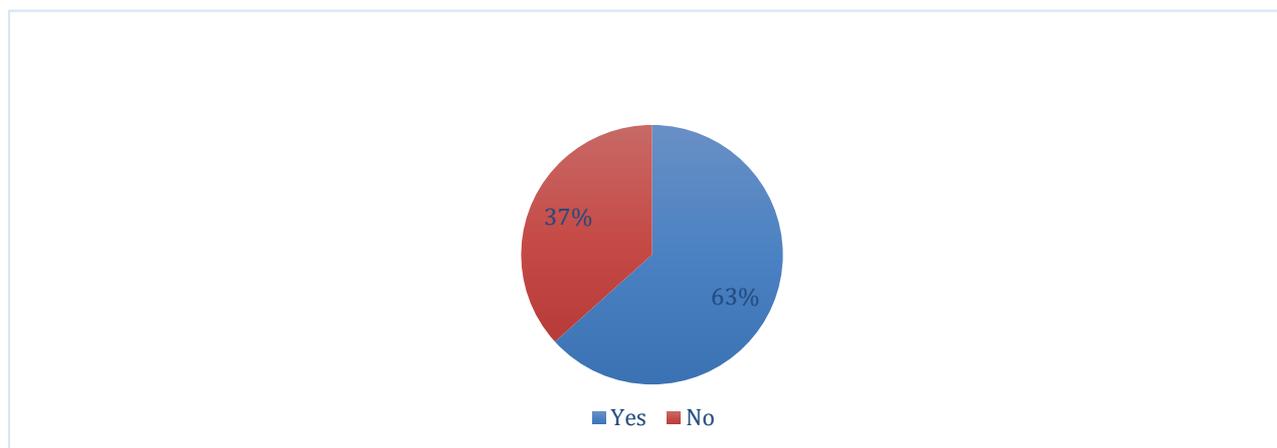


FIGURE 6.1. THE PROPORTION OF PHCCS THAT ARE PART OF THE 2005 NATIONAL POLICY FOR HEALTH, KSA, 2016

#### SECTION 2: ORGANISATION VISION

The first question in Section 2 looked at the type of patient the PHCC sees—whether they are local or not—51.1% were defined as in the ‘neighbourhood’ (i.e. local) to the PHCC (Figure 6.2). However, the categories were somewhat misleading as a patient might be from another neighbourhood district with an active record. In terms of having a universal healthcare equality approach, almost one-third (31.1%) stated that they would attend to the patient’s needs whether they had an active record or were local. Given the high-density populations in the two cities, these findings suggest that further analysis is warranted to determine whether the 48.9% who are not local have a PHCC near where they live. In addition, those with active records, a mere 12.2%, suggests that they are returning patients, so does this mean that the other 87.8% are new patients.

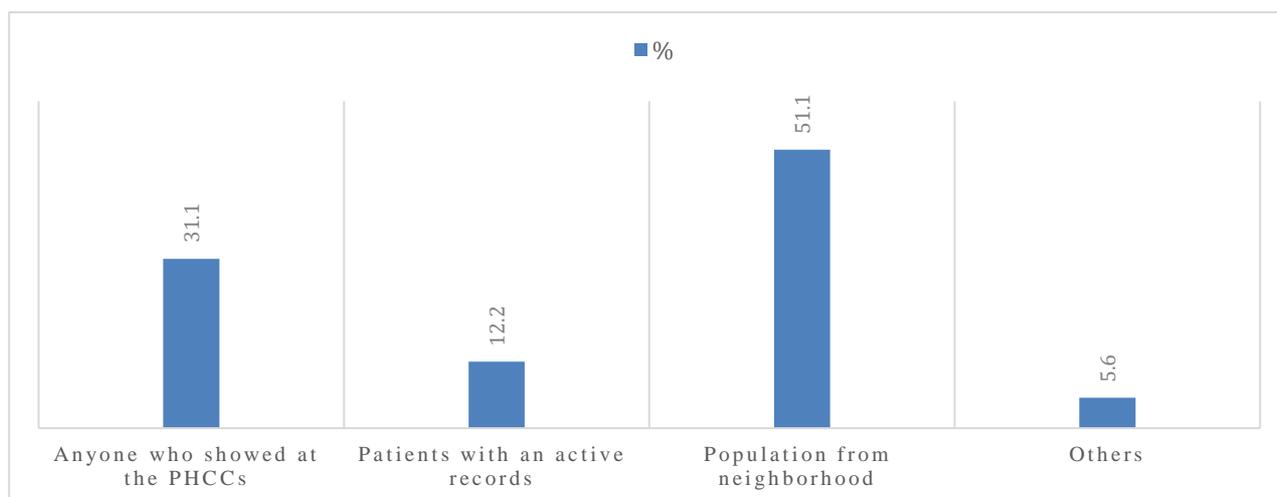


FIGURE 6.2 POPULATION TYPE RECEIVING HEALTHCARE AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

The provision of direct access for care and treatment was an important factor for PHCCs (91.1%) (Table 6.2). The majority of PHCC directors and managers (80%) stated that patient relationships were important. However, one in five stated that this was not important, which supports Survey Question #1 in Section 2, and transient patients would use different PHCCs, which suggests an issue with patient follow-up procedures. The majority of responses from the managers (81.1%) showed that they understand the importance of providing patients with comprehensive care. However, almost one in five did not see this as an important part of PHCC responsibility for patient care.

In addition, the category pertaining to PHCC profitability is for just over 75% of the respondents. Given that the PHCCs are publicly funded by the government, the response suggests that profitability should not be a concern. Since PHCCs are treated as cost centres, they should not have to be profitable as 21 of the selected PHCCs stated it was not important. Almost a quarter responded that PHCC profitability was important—understanding their perceptions and motives would be beneficial.

The next category served to address the notion of providing health education material and providing information to patients; overwhelmingly, 92.2% stated that it was important. While preventative care and communicating information about specific health needs was important from a PHCC director/manager perspective, it is unknown whether this is actively undertaken.

TABLE 6.2 MANAGER RESPONSES ON THE IMPORTANCE OF PHCC GOALS IN JEDDAH AND RIYADH, KSA, 2016

Variables	N=90	%
<b>Services Accessibility</b>		
Important	82	91.1
Not Important	8	8.9
<b>Continuous Relationship with Patient</b>		
Important	72	80.0
Not Important	8	20.0
<b>Comprehensive Approach to Address Patient Needs</b>		
Important	73	81.1
Not Important	17	18.9
<b>Profitability of the PHCC</b>		
Important	21	23.3
Not Important	69	76.7
<b>Preventative and Health Promotion Delivery</b>		
Important	83	92.2
Not Important	7	7.8
<b>Importance of Guidelines</b>		
Important	82	91.1
Not Important	8	8.9
<b>Respect, Courtesy and Confidentiality</b>		
Important	88	97.8
Not Important	8	2.2
<b>Absence of Discrimination</b>		
Important	80	88.9
Not Important	10	11.1
<b>Teamwork of Family Physicians</b>		
Important	86	95.6
Not Important	4	4.4
<b>Consideration of Environmental or Occupational Causes when Assessing Patients</b>		
Important	79	87.8
Not Important	11	12.2
<b>Consideration of Social Problems when Providing Care for Patients</b>		
Important	79	87.8
Not Important	11	12.2

The next question revealed the managers’ level of understanding of the PHCC mission, values and objectives (Figure 6.3). The first part of the question related to whether the clinic had an explicit mission, values and objectives, and 100% of respondents disagreed. The second part asked whether the professional staff at the PHCC shared the clinic’s values and objectives. Given the unanimous negative response to the first part of the question, it would be reasonable to expect a similar response to the second part; however, 85.6% responded either ‘partly disagree’ and ‘totally disagree’ and 14.4% responded ‘partly agree’ (Figure 6.3). This brings into question that if none of the clinics had a mission, values or objectives, then how could 14.4% ‘partly agree’ with them?

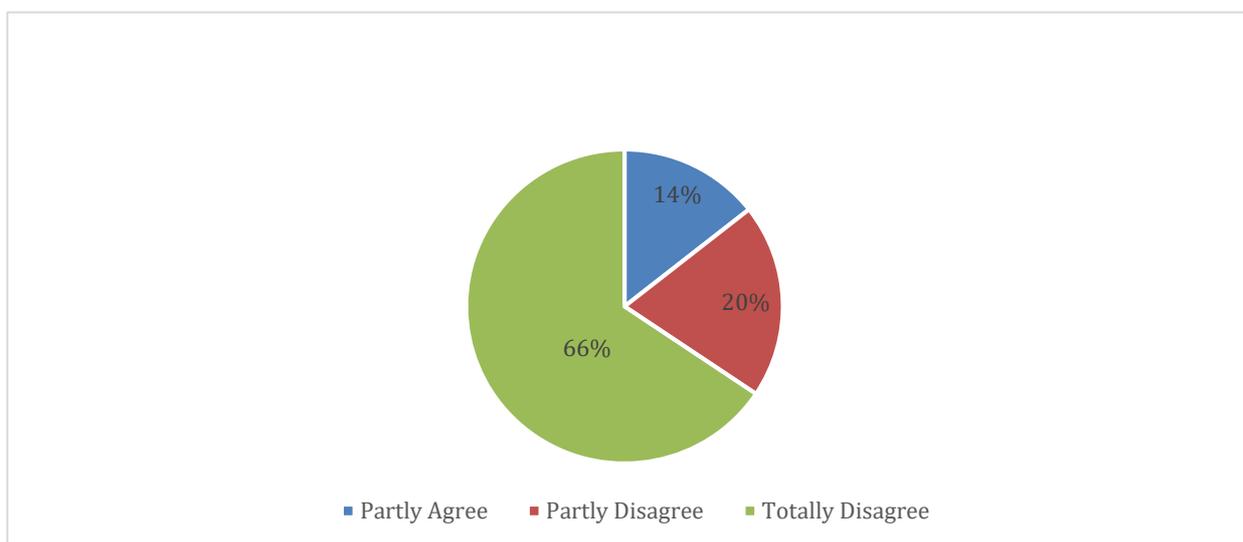


FIGURE 6.3 PHCC MANAGERS ON MISSION, VALUES AND OBJECTIVES, JEDDAH AND RIYADH, KSA, 2016

The participants were then asked how they felt about the responsibility for health services in the community. This question also had two parts: a) responsibility for health and b) access to services, with two choices within each part (Figures 6.4 and 6.5).

*(a) Responsibility for Health*

The PHCC managers’ view on this issue suggests that they must drive the responsibility for care, by being proactive; yet, almost 1 in 4 (23.3%) stated it was the individual’s responsibility (Figure 6.4).

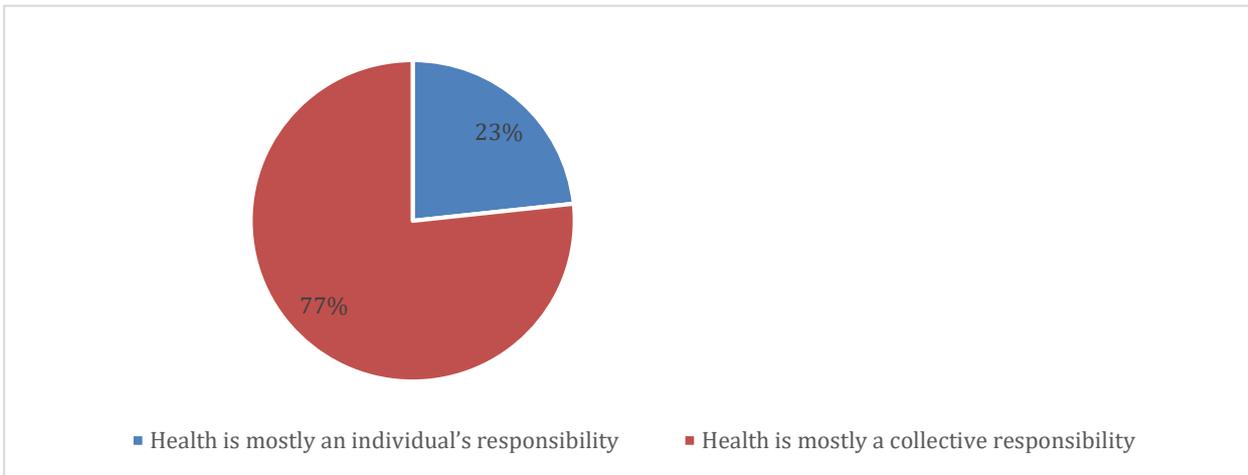


FIGURE 6.4. PHCC MANAGERS' OPINION ON THE RESPONSIBILITY FOR HEALTH IN THE COMMUNITY, JEDDAH AND RIYADH, KSA, 2016

*(b) Access to Services*

The participants were asked whether it is absolutely or relatively right for patients to have access to services; 84.4% of the respondents agreed with equality in healthcare, while 15.6% believed that those who can afford to pay for care should do so. This argument seems to reflect the growing trend of promoting private care for those that can afford it (Figure 6.5).

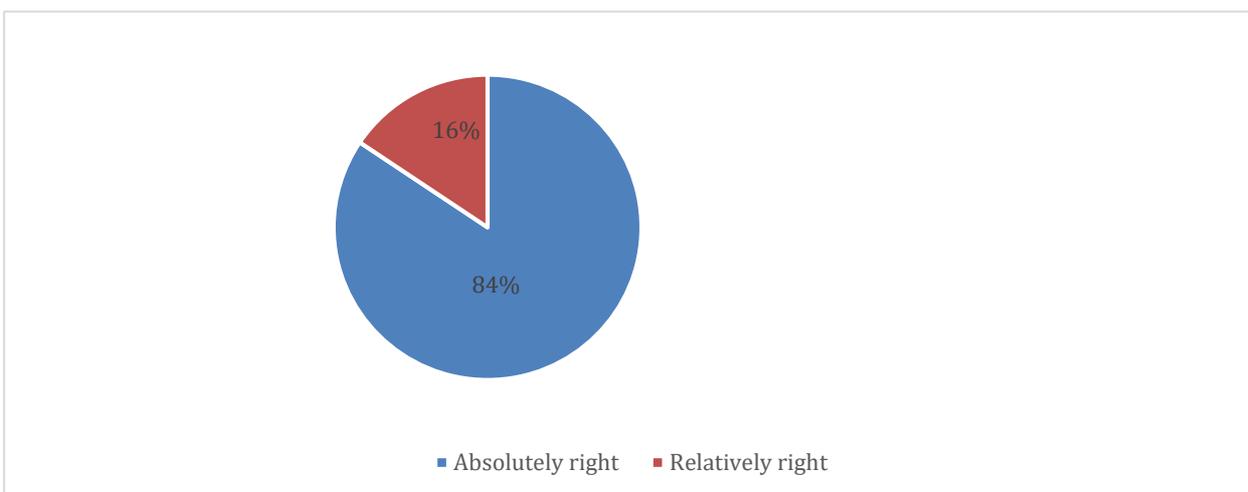


FIGURE 6.5. MANAGERS' OPINION ON THE RIGHT TO ACCESS PHCC SERVICES, JEDDAH AND RIYADH, KSA, 2016

*SECTION 3: ORGANISATION RESOURCES**Part 3.1 Human Resources*

The total number of staff in the selected PHCCs was 1,169 (Table 6.3). With a total of 229 GPs/FPs, each PHCC has 2.5 GPs/FPs on average: 65.1% of the GPs/FPs work full-time (>35 h/week). There are no young GPs, 42.4% of the PHCCs have GPs <34 years and only 2.6% have GPs >65 years.

The total number of male GPs working at PHCCs was 109 and females was 120. The data implies a certain level of staff stability, and when looking at the physicians' experience  $\leq 5$  was (54.6%).

More than two-thirds of the respondents stated that their PHCC was understaffed by family physicians. The data revealed that 12.2% of the selected PHCCs have no nurse practitioner, despite 413 nurse practitioners being employed across the 90 PHCCs or an average of 4.6 per PHCC.

*Part 3.2 Technical Resources*

The eight variables listed in Table 6.4 indicate a lack of basic electronic information management systems. Thirty-four PHCCs reported having internet and email access, while only 24 could make computer-based appointments. Even fewer (10) could store patient records electronically. This indicates a lack of front-end administrative and clinical support infrastructure, which extends to the clinical decision-making equipment, diagnosis imaging laboratory services, electronic pharmacy prescription system, web-based patient appointment capabilities and IT support, of which only 11% of the PHCCs had these capabilities.

TABLE 6.3. HUMAN RESOURCES AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Variables	N	%
<b>Staff in Selected PHCC (n=1169)</b>		
Physicians	229	20.8
Registered Nurses	413	37.6
Pharmacist	103	9.4
Administrative Staff	336	30.6
Others*	18	1.6
<b>Physicians Working Hours/Week</b>		
<10	10	4.3
10–24	16	7.0
25–35	54	23.6
>35	149	65.1
<b>Sex of Physicians</b>		
Male	109	47.6
Female	120	52.4
<b>Age of Physicians</b>		
≤34	97	42.4
35–49	90	39.3
50–64	36	15.7
≥65	6	2.6
<b>Physicians Experience (years)</b>		
≤5	125	54.6
>5	104	45.4
<b>Physician Team Complacence</b>		
Yes	62	27.1
No	28	72.9

Others: Audiologists, Chiropractors, Dietitians, Occupational Therapists, Physician Assistants, Psycho-geriatric Physicians, Physiotherapists, Psychologists, Optometrists, Social Workers, Speech–Language Pathologists, Respiratory Therapists

TABLE 6.4 ACCESSING TECHNICAL RESOURCES AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Variables	N=90	%
<b>Manage Appointment</b>		
Yes	24	26.7
No	66	73.3
<b>Internet and Email</b>		
Yes	34	37.8
No	56	62.2
<b>E-medical Records</b>		
Yes	10	11.1
No	80	88.9
<b>Computerised Tool</b>		
Yes	10	11.1
No	80	88.9
<b>Electronic Interface</b>		
Yes	9	10.0
No	81	90.0
<b>E-system to Transmit Prescriptions to Pharmacies</b>		
Yes	11	12.2
No	79	87.8
<b>A Web-based Appointment System</b>		
Yes	8	8.9
No	82	91.1
<b>Info-technology Support</b>		
Yes	11	21.2
No	79	87.8

***Ease of use of the current medical system as a part of the PHCC technical resources***

Table 6.5 shows that 92.2% of the PHCCs did not have a computerised list of patients by diagnosis and almost half (43.3%) could not generate information on a list of patients by laboratory results.

More than one-third of respondents (36.7%) said that it was difficult to generate a list of all medications taken at the PHCC, 17.8% indicated that it was 'somewhat difficult', and 34.4% said it was 'impossible'. Almost all (91.1%) said the list of medications was not computerised. Of the seven variables in Table 6.5, most participants' answered 'no' to data at their PHCC being computerised.

TABLE 6.5. MEDICAL RECORDS SYSTEM/USE OF COMPUTERS AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Variables	Level of Difficulty for Generating Information (%)				Computerised (%)	
	Easy	Somewhat Difficult	Difficult	Cannot Generate	Yes	No
Patients by Diagnosis or Health Problems (e.g. diabetes, cancer) (n=90)	5.6	12.2	22.2	60	7.8	92.2
Patients by Laboratory Results	10	15.6	31.1	43.3	7.8	92.2
Patients who are Due or Overdue for Tests or Preventative Care (e.g. flu vaccine)	10	17.8	33.3	38.9	10	90
All Medications Taken by an Individual Patient (including those that may have been prescribed by other doctors)	11.1	17.8	36.7	34.4	8.9	91.1
All Patients Taking a Particular Medication	20	20	35.6	24.4	10	90
All Laboratory Results for an Individual Patient (including those ordered by other doctors)	17.8	17.8	28.9	35.6	8.9	91.1
Clinical Summaries to Give Patients After Each Visit	13.3	22.2	28.9	35.6	10	90

#### SECTION 4: ORGANISATION STRUCTURE

The first part of Section 4 investigates the organisational structuring of the selected PHCCs. Eight discrete policy-based questions related to administrative and clinical functionality were asked. Of the 90 PHCCs, 54.4% were aware of a human resource management policy, and 58.9% were aware of a training and development policy. When asked if the PHCCs had a policy of performance appraisal for the staff, most of the participants (93.3%) said that it existed, while the others (6.7%) said that it did not. The participants were then asked if the PHCCs had a policy of procedures for reporting medical errors. A majority (70%) said that the policy was in place, while the rest (30%) said that it did not exist. They were then asked to state whether or not there was a procedure for assessing patient satisfaction. A majority (78.9%) said that it existed, while the rest (21.1%) said that it did not. They were then asked to state if the PHCCs had a policy of procedures for assessing quality of care. A majority (67.8%) of the participants said that the policy existed, while the rest (32.2%) said that they were not aware of its existence.

Of the eight variables in Figure 6.6, on average, 63 PHCCs have some form of policy or policy-related material. Performance assessment was the highest reported category with 92.3% of PHCCs having a system in place, but only 54.4% have a policy for human resource management. The five clinical assessment categories—medical errors, patient satisfaction, quality of care, protocols with other healthcare services, and medical procedures—all averaged 70%, indicating a higher level of importance placed on patient care.

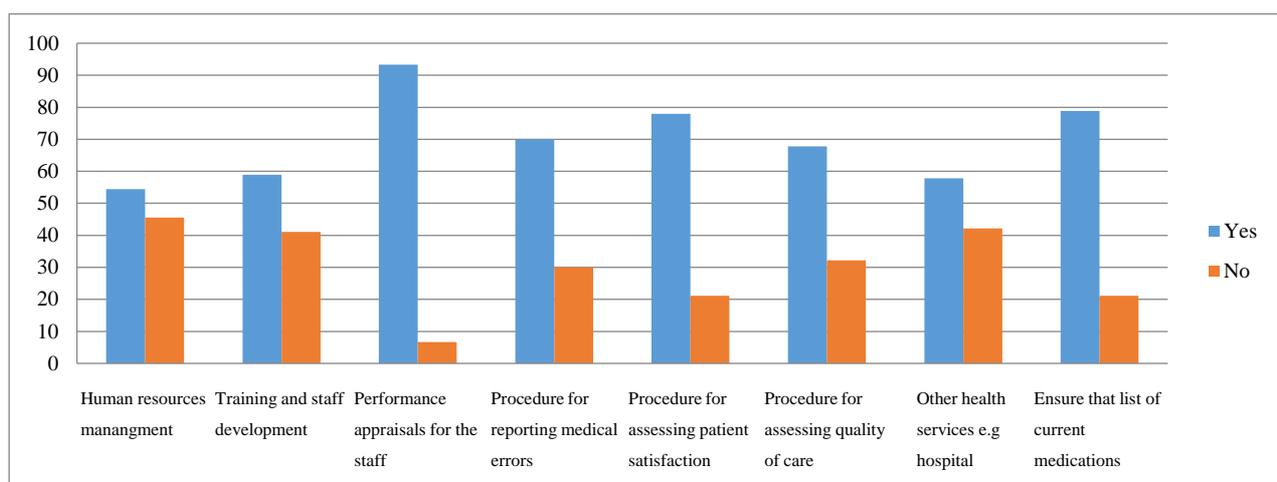


FIGURE 6.6. POLICY-BASED QUESTIONS ACROSS ADMINISTRATIVE PROCESSES IN 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

In the past 12 months, 78.9% stated that some form of inspection had occurred at their PHCC (Table 6.6). As to the type of inspection, this is unknown. The scope of compliance regarding the facility—infrastructure, administrative or clinical—would be valuable. However, only 47.8% of the selected PHCCs have any formalised process in place. Similarly, a formal process for self-assessment was in place for one in five of the PHCCs.

In 30% of the PHCCs, a decision-making physician sets up the call lists, schedules and vacations, which increases to 47.8% when combined with a collective group of physicians (Figure 6.7). Alarming, 33.3% of the PHCCs responded ‘not applicable’, which suggest that they have no such process. At 35.5% of the PHCCs, a physician or collective group of physicians organises meetings to discuss cases. Furthermore, 36.6% answered ‘not applicable’, suggesting that this process does not occur, which does not bode well for clinical management, compliance or accountability.

TABLE 6.6. INSPECTION ACTIVITIES AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Variables	N=90	%
<b>Inspection of Medical Files or Prescription by Health Authority</b>		
Yes	71	78.9
No	19	21.1
<b>Formal Process to Obtain Feedback from Colleagues</b>		
Yes	43	47.8
No	47	52.2
<b>Formal Process for Self-assessment</b>		
Yes	19	21.1
No	71	78.9

In 82.2% of the PHCCs, recruitment of physicians and the assignment of practice privileges are handled by either a physician-in-charge or a collective group of physicians. In 14.4% of the PHCCs, the response was 'not applicable', which suggests that some external party is responsible.

The largest cohort(s) were the 'group of physicians' and 'not applicable', accounting for half of all PHCCs reporting at 51.2%. The combined physician cohorts equalled 42.3% of PHCCs: the combined 'no' and 'not applicable' equalled 34.5%. More than one-third of all PHCCs do not evaluate whether they are meeting standards or delivering quality-based medical care. In 33.3% of the PHCCs, continuing medical education activities are not organised, as indicated by the 'not applicable' responses. In 43.3% of the PHCCs, these activities were organised by a physician or group of physicians. In 42.3% of the PHCCs, a physician or group of physicians represented the PHCC on committees. In 62.3% of the PHCCs, a physician or group of physicians developed medical protocols.

Table 6.7 shows that 68.9% of the PHCCs receive, record and review the clinical outcomes for patients with diabetes or asthma, of which, 81.1% reported that this was not computerised, and therefore a manual process (Table 6.7).

Data were routinely received and reviewed for patients who were admitted or used the EDs at 63.3% of the PHCCs, but only 11.1% indicated that this was a computerised process. For patient care, as it relates to the frequency of ordering diagnostic tests, 12.2% of the PHCCs were computerised.

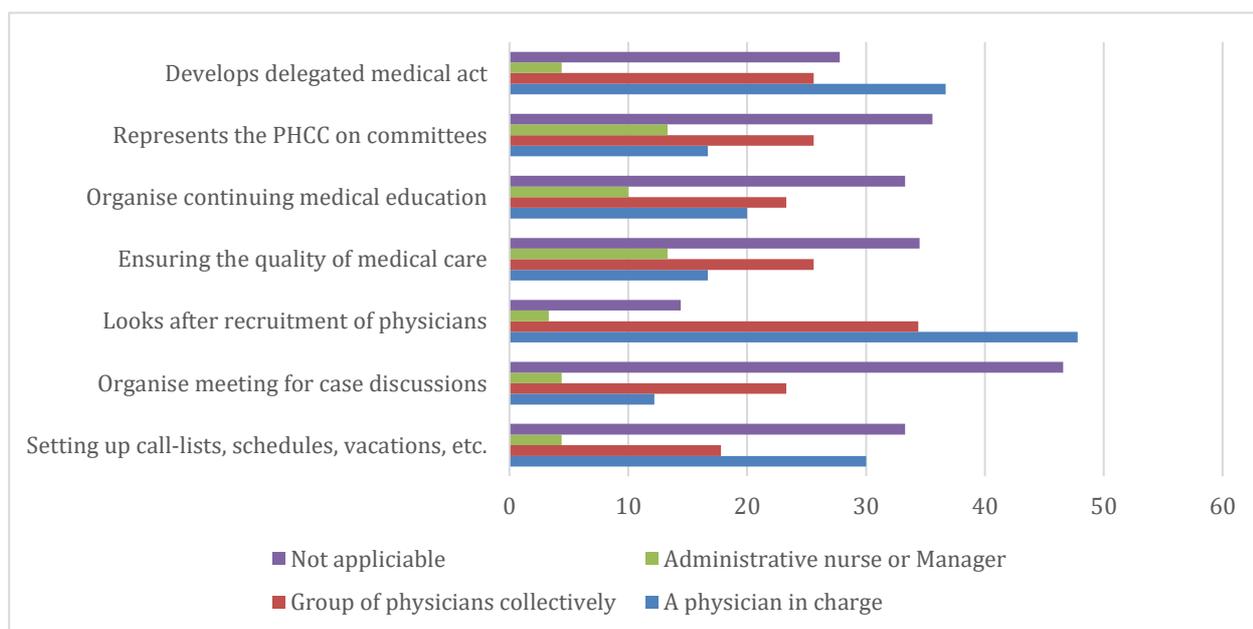


FIGURE 6.7. STAFF RESPONSIBILITIES BASED ON SEVEN CATEGORIES AT 90 PHCCs IN KSA, 2016

TABLE 6.7. LEVEL OF ROUTINE DATA RECEIVED FOR PATIENTS AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Attributes/Variables	Routinely Receive and Review Data (%)		Computerised Process? (%)	
	Yes	No	Yes	No
Clinical Outcomes	68.9	31.1	18.9	81.1
Surveys of Patient Satisfaction	53.3	46.7	17.8	82.2
Patient Hospital Admissions	63.3	36.7	11.1	88.9
Frequency of Ordering Diagnostic Tests	43.3	56.7	12.2	87.8

The survey questionnaire not only identified that only 16% of PHCCs had reminder systems but that only 7.8% had a computerised system. Overwhelmingly, more than 80% of the selected PHCCs had no system in place for the categories shown in Table 6.8. 83.3% of the PHCCs indicated that they had ‘no’ computer for the patient follow-up system, and 80% stating that they had ‘no’ system in place for the preventative clinical care checklist. Only 4.4% stated that their PHCCs had a computerised system. Again, the ‘no’ response to the support lifestyle system was overwhelming (82.2%), and of those PHCCs that did only (4.4) PHCCs were computerised. However, very few

PHCCs had systems to track laboratory tests (5.6%), which exposes a potential risk for lost tests and poor process management.

TABLE 6.8. SYSTEMS USED AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Type of System	Yes				No	
	Computer		Paper			
	N	(%)	N	(%)	N	%
<b>Patient Follow-up System (n=90)</b>	7	7.8	8	8.9	75	<b>83.3</b>
<b>Check List for Preventative Clinical Care</b>	4	4.4	14	15.6	72	<b>80.0</b>
<b>System to Support Lifestyle Counselling Programs</b>	4	4.4	12	13.3	74	<b>82.2</b>
<b>System to Track Laboratory Tests</b>	5	5.6	11	12.2	74	<b>82.2</b>

More than one-third (37.8%) of the PHCCs received no benchmarking information on performance relative to other PHCCs (Figure 6.8).

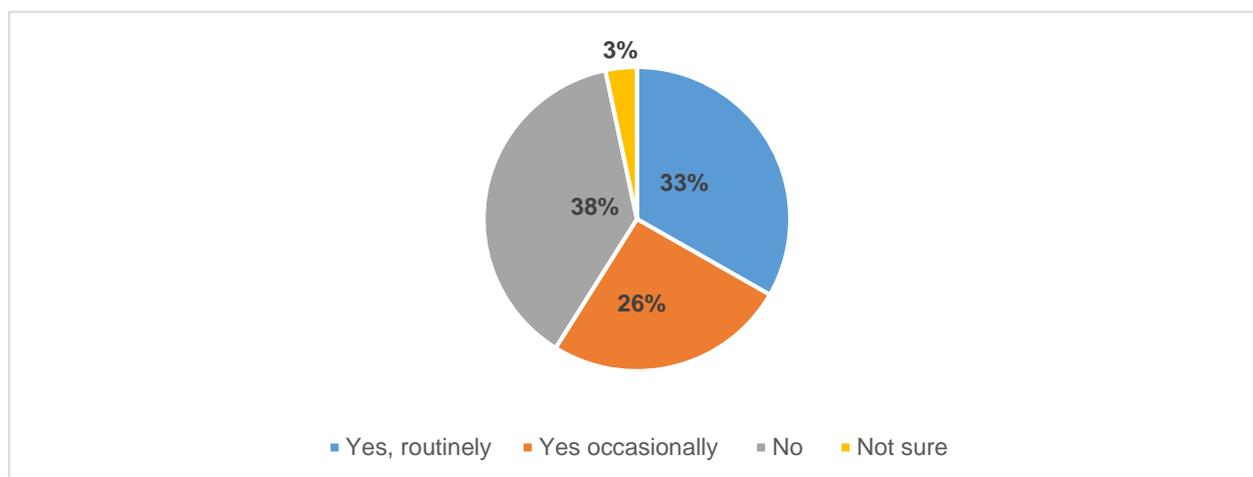


FIGURE 6.8. FREQUENCY OF RECEIVING BENCHMARK INFORMATION ON PHCC PERFORMANCE, JEDDAH AND RIYADH, KSA, 2016

Half of the GPs at the PHCCs share an office (Figure 6.9). Only 4.4% stated that this did not apply due to only having one GP; whether this means that they typically do, or that only one GP is on duty is unclear. At 58.9% of the PHCCs, the GPs share support staff. Furthermore, GPs at 72.2% of the PHCCs share nursing staff, 40% share information technology tools (57.8% did not), and 40%

share the use of an appointment system (52.2% did not, but it was not clear whether they have such a system).

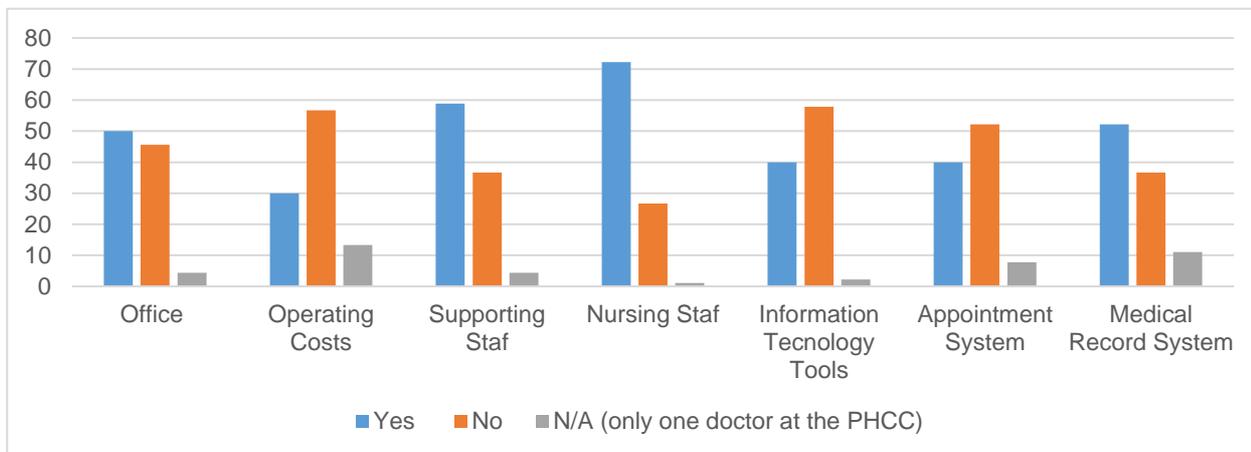


FIGURE 6.9. SHARING (%) OF PHCC FACILITIES AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

Five payment type categories were analysed across the 90 PHCCs. Most of the physicians (63.3%) are paid a salary (Figure 6.10).

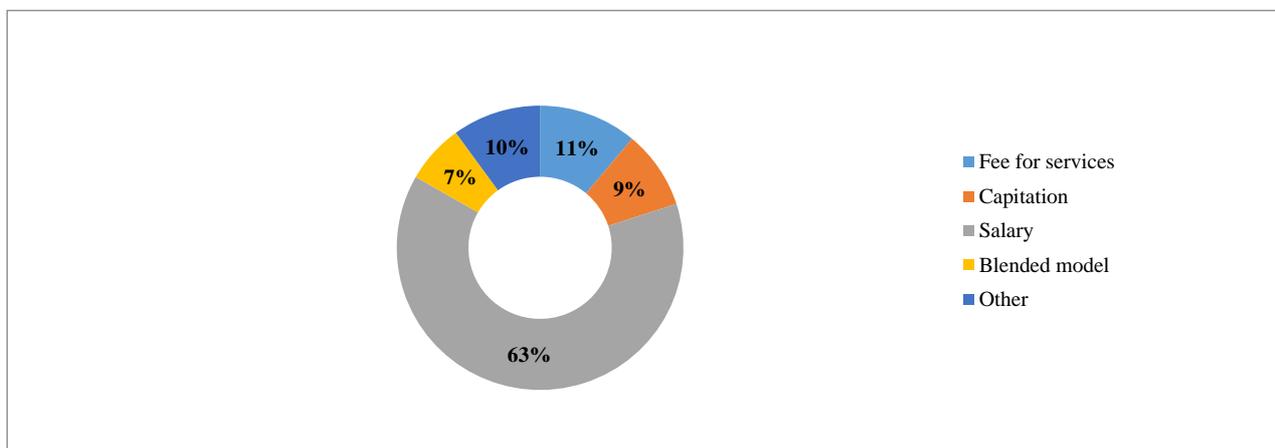


FIGURE 6.10. PAYMENT METHODS FOR PHYSICIANS AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

The five variables in Table 6.9 illustrate how the PHCCs are funded. Revenue for funding operational costs from overhead charges for physicians only occurred at 5.6% of the PHCCs. Most of the PHCCs (98.9%) did not receive private funding, which supports the fact that this survey

targeted public health system PHCCs. Most of the PHCCs (96.7%) stated that the funding mechanism for operations was not funded by patient fees.

Surprisingly, the ‘yes’ response to the publicly funded from health system budget was not 100%, but only 53.3%. In this instance, the responses for funding from government programs indicated an equal distribution (50%) for both sets of answers. Thus, these two sets of publicly funded answers account for the majority of the funding mechanisms for the operating costs of the PHCCs.

TABLE 6.9. FUNDING MECHANISMS FOR OPERATING COSTS AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

Variables	<i>N=90</i>	%
<b>Revenue from Overhead Charges</b>		
Yes	5	5.6
No	85	94.4
<b>Funding from Private Sources</b>		
Yes	1	1.1
No	89	98.9
<b>Revenue Derived from Patient Fees</b>		
Yes	3	3.3
No	87	96.7
<b>Funding from Health System Budget</b>		
Yes	48	53.3
No	42	46.7
<b>Funding from Government Programs or Operation Grants</b>		
Yes	45	50.0
No	45	50.0

Table 6.10 indicates whether the selected PHCCs have other types of funding for setting PHCC costs—the responses were predominantly ‘no’, with most stating that they did not receive any other funding.

TABLE 6.10. OTHER TYPES OF FUNDING AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Variables	N=90	%
<b>Funding from Programs, Activities or Grant Funding</b>		
Yes	7	7.8
No	83	92.2
<b>PHCC Staff Funding from Grants</b>		
Yes	3	3.3
No	87	96.7
<b>PHCC Performance-based Financial Incentives</b>		
Yes	9	10.0
No	81	90.0

The last question in Section 4 asked how the participants used information for improving care services: 56.7% indicated that over the past 12 months they had not used information on their PHCC population to allocate resources for programs. Further detail could have provided information on the efficiency and utilisation of those resources and a pattern of what programs or services required additional support.

#### SECTION 5: SERVICES PROVISION AND CLINICAL PRACTICES

Section 5 of the questionnaire investigated service provision and clinical practices at the PHCCs. Of the 90 PHCCs, 63.4% 'rarely' or 'never' use of a tracking system to follow-up patients with a chronic disease and just over one in four PHCCs (25.6%) do any follow-up (Figure 6.11).

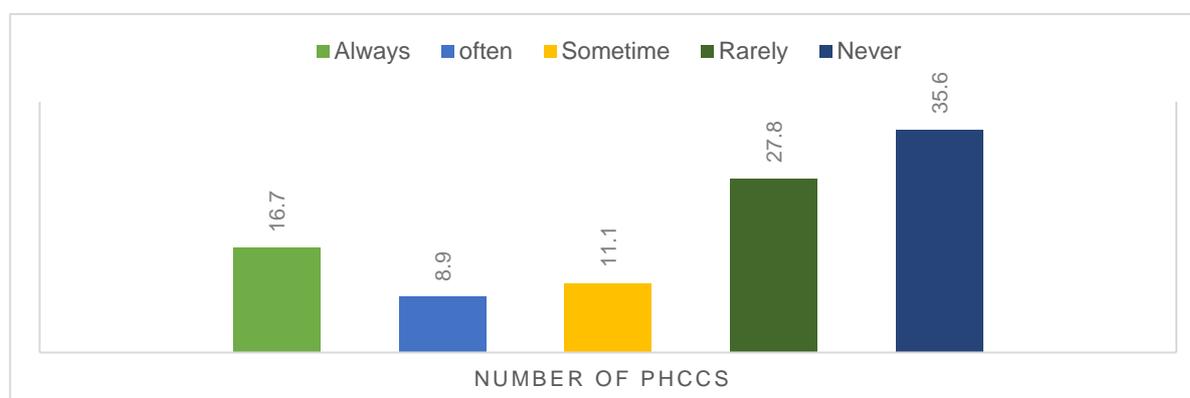


FIGURE 6.11. USE OF TRACKING SYSTEM FOR PATIENT FOLLOW-UP AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Figure 6.12 shows the proportion of selected PHCCs with patient telephone follow-up. The ‘rarely’ and ‘never’ categories indicate that 50% of the PHCCs do not follow-up patients.

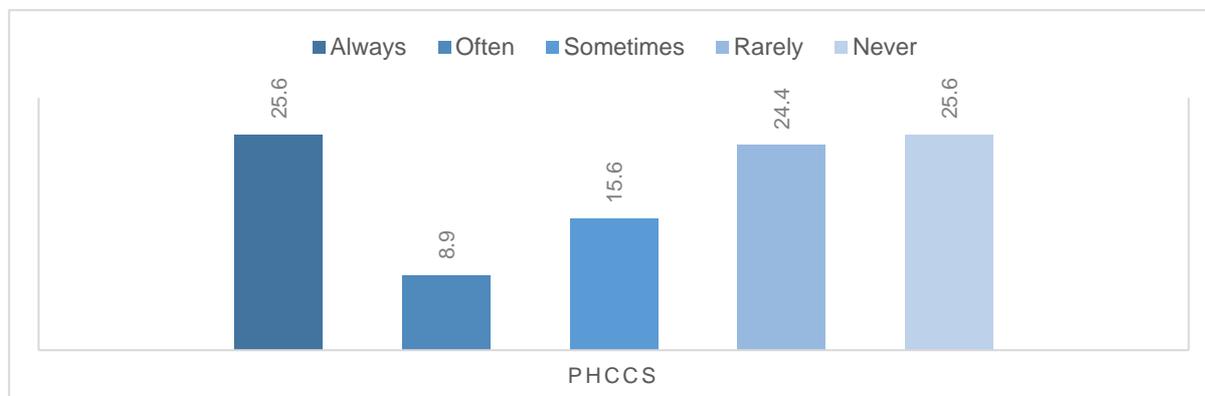


FIGURE 6.12. NUMBER OF PHCCS THAT FOLLOW-UP WITH PATIENTS BY TELEPHONE AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

Figure 6.13 shows the level of referrals provided by the selected PHCCs: 81% stated they ‘rarely’ or ‘never’ refer patients to other physicians within the 90 PHCCs, and 45.5% ‘rarely’ or ‘never’ refer patients to physicians outside the selected 90 PHCCs. However, this presupposes that patients need a referral. Only 6.7% of the selected PHCCs ‘always’ or ‘often’ referred patients to other physicians internally. This suggests that the PHCC either did not have cause to refer a patient or lacked sufficient resources to refer a patient. If the latter is the case, then it would be fair to assume that they would receive an external referral. The percentage of PHCCs that ‘always’ or ‘often’ referred patients to physicians outside the PHCC was 43.4%.

Of the 90 PHCCs, 92.2% did not offer preventative health and education by the GPs at the selected PHCC (Figure 6.14).

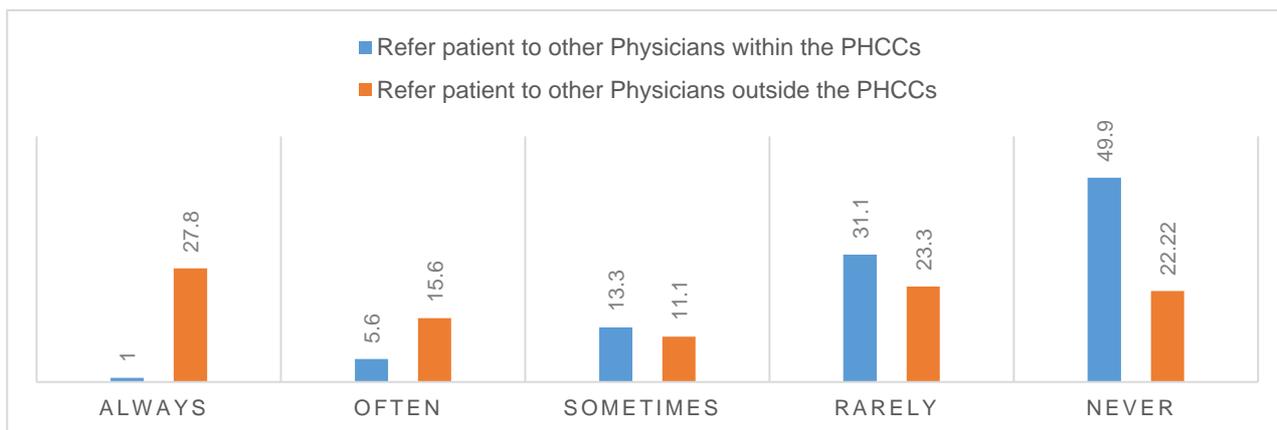


FIGURE 6.13. INTERNAL AND EXTERNAL PATIENT REFERRAL SYSTEM AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

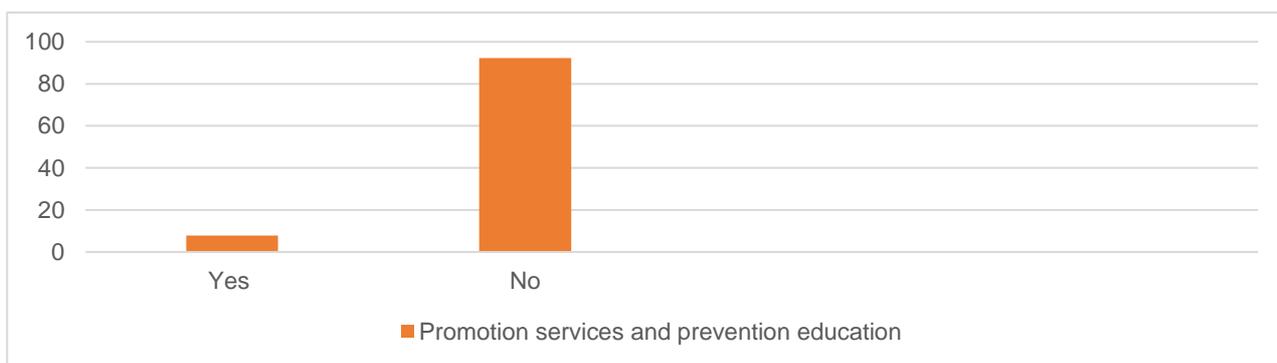


FIGURE 6.14. PREVENTATIVE HEALTH PROMOTION AND EDUCATION BY GPs AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

The 11 variables in Table 6.11 show the availability of services at the 90 PHCCs, of which 70 did not provide or have the resources to offer these services. The highest ‘no’ response was 97.8% for computed tomography, and the highest ‘yes’ response was 58.9% for spirometry. Overall, in ten of the 11 categories, ‘no’ was the dominant response (average 90.9%). The most alarming is the inability to draw blood (85.6%), which suggests a lack of trained nurses. The overall findings suggest a lack of trained staff or necessary equipment.

TABLE 6.11. SERVICES AVAILABLE AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Variables	N=90	%
<b>Blood Draws</b>		
Yes	13	14.4
No	77	85.6
<b>Radiology</b>		
Yes	31	34.4
No	59	56.6
<b>Electrocardiography</b>		
Yes	12	13.3
No	78	86.7
<b>Spirometry</b>		
Yes	53	58.9
No	37	41.1
<b>Colonoscopy</b>		
Yes	10	11
No	80	88.9
<b>Bone Densitometry</b>		
Yes	3	3.3
No	87	96.7
<b>Magnetic Resonance Imaging (MRI)</b>		
Yes	8	8.9
No	82	91.1
<b>Ultrasound</b>		
Yes	23	25.6
No	67	74.4
<b>Echocardiography</b>		
Yes	28	31.1
No	62	68.9
<b>Computed Tomography (CT)</b>		
Yes	2	2.2
No	88	97.8
<b>Mammography</b>		
Yes	5	5.6
No	85	94.4

The survey questionnaire sought to understand the level of coordinated care among clinical professionals (Figure 6.15). The responses indicated that 65.6% ‘always’ or ‘often’ communicate electronically using electronic medical records, a surprising result given the lack of computerised management systems.

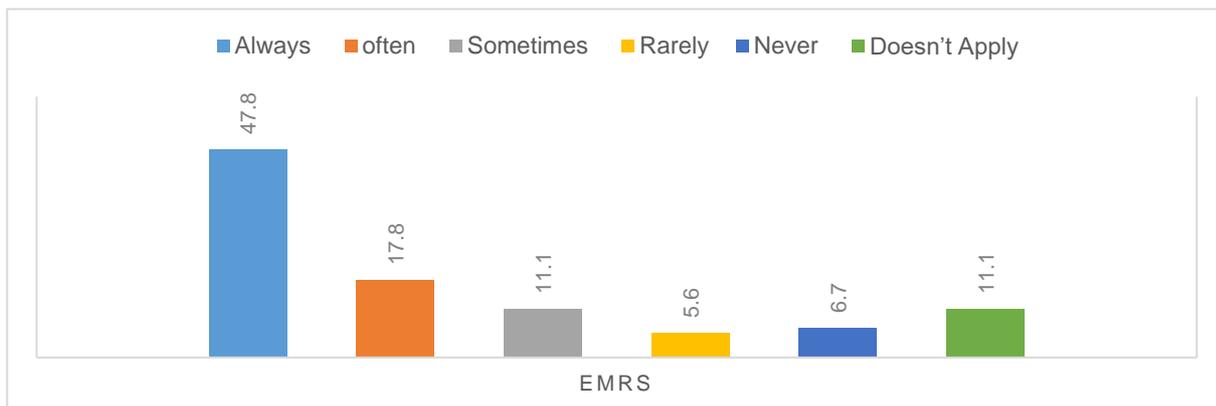


FIGURE 6.15. COORDINATION OF CLINICAL CARE AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

More than three-quarters of the PHCCs (76.7%) stated that they did not have anyone to manage medical records (Figure 6.16). In addition, 72.2% of the PHCCs stated that the patient is unable to contact a physician or nurse by telephone during operating hours, which could be interpreted that either the physicians and nurses are not contactable, or they do not have access to them via telecommunications or internet services. The latter cannot be overlooked, as evidence from this survey has indicated the lack of patient follow-up and equipment. Indeed, 91.1% of the PHCCs indicated that a patient could not leave a voicemail and get a return call.

The 90 PHCCs have more than 250,000 registered patients, each with on average 2,791 active files. In 2015, more than 1.7 million patients were seen at the 90 PHCCs or an average of 19,000 per PHCC.

The mean patient waiting time to see a physician was 10.03 minutes for an emergency, with a standard deviation of 14 minutes (Figure 6.17). In non-emergency situations, the mean waiting time increased to 19 minutes. Furthermore, 75.6% of the PHCCs had wait times of  $\leq 20$  minutes, and 45.6% had wait times of  $\leq 10$  minutes.

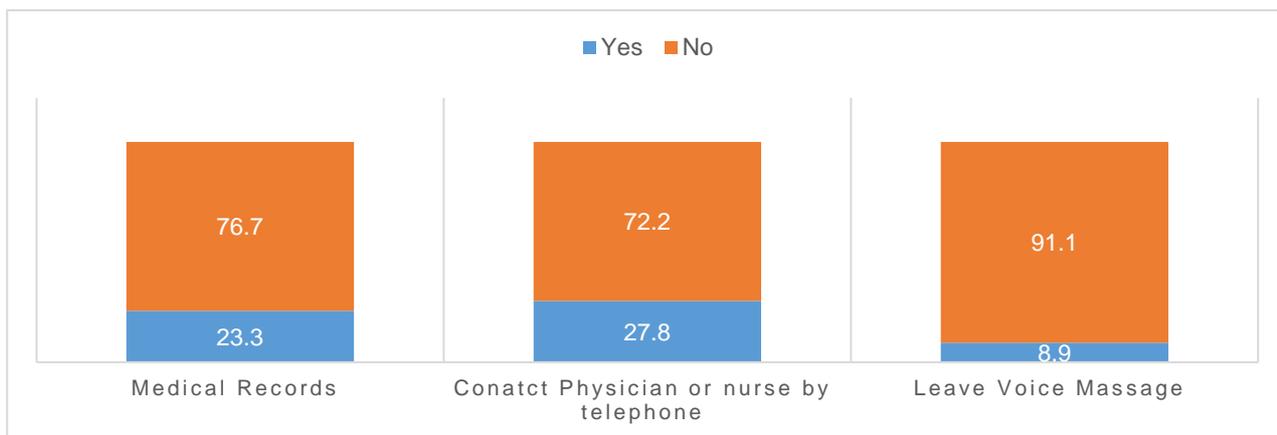


FIGURE 6.16. TELECOMMUNICATION EQUIPMENT AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

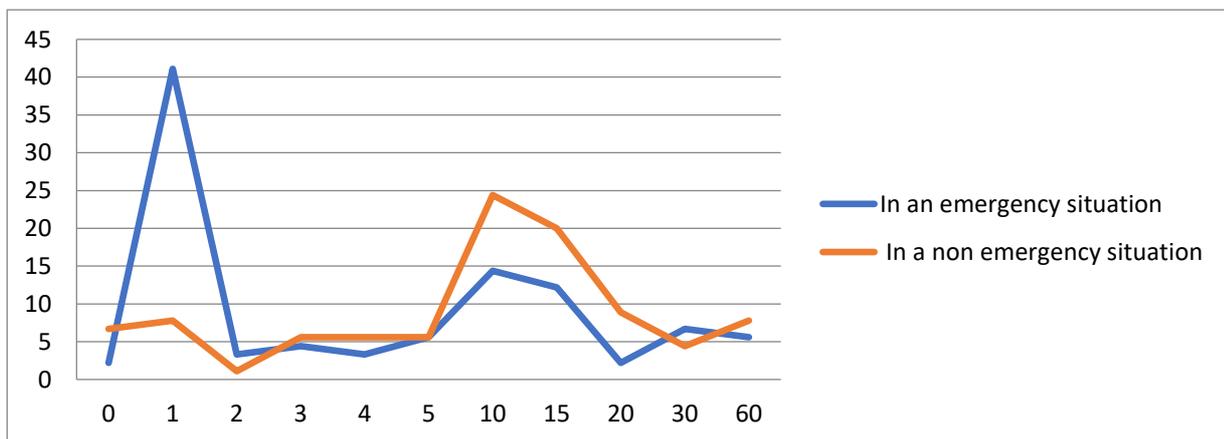


FIGURE 6.17. WAIT TIME TO SEE PHYSICIAN AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

Almost half (48.9%) of the PHCCs had no means to request appointments or referrals online (Table 6.12). Surprisingly, 38 of the directors/managers did not know whether this was possible, indicating a lack of knowledge about their operations. In addition, 91.1% of the PHCCs had no way to send a medical question or concern via email, 95.6% had no way to refill prescriptions online, and 88.9% had no way to view test results using a secure website.

The participants were asked to state the impact of specialised events, such as Hajj, on service delivery at their PHCC (Figure 6.18): 30% of PHCCs reported that Hajj ‘almost always’ or ‘sometimes’ had an impact on resources, while 53.3% reported that this was ‘rarely’ or ‘never’ the case. These findings may be because Hajj is held in Makkah, not Riyadh or Jeddah.

Despite only 30% of the PHCCs stating that they ‘almost always’ or ‘sometimes’ were impacted by events like the Hajj, more than 50% stated that they do increase resources. In 37.8% of cases, they rarely or never increase resources.

TABLE 6.12. ELECTRONIC OPTIONS OFFERED TO PATIENTS AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

Variables	N=90	%
<b>Patient Access to Online Appointment or Referral</b>		
Yes	8	8.9
No	44	48.9
Don't Know	38	42.2
<b>Patient Access to Send Email Questions</b>		
Yes	4	4.4
No	82	91.1
Don't Know	4	4.4
<b>Patient Access to Online Prescriptions Refills</b>		
Yes	2	2.2
No	86	95.6
Done Know	2	2.2
<b>Access to View Online Test Results</b>		
Yes	3	3.3
No	80	88.9
Don't Know	7	7.8

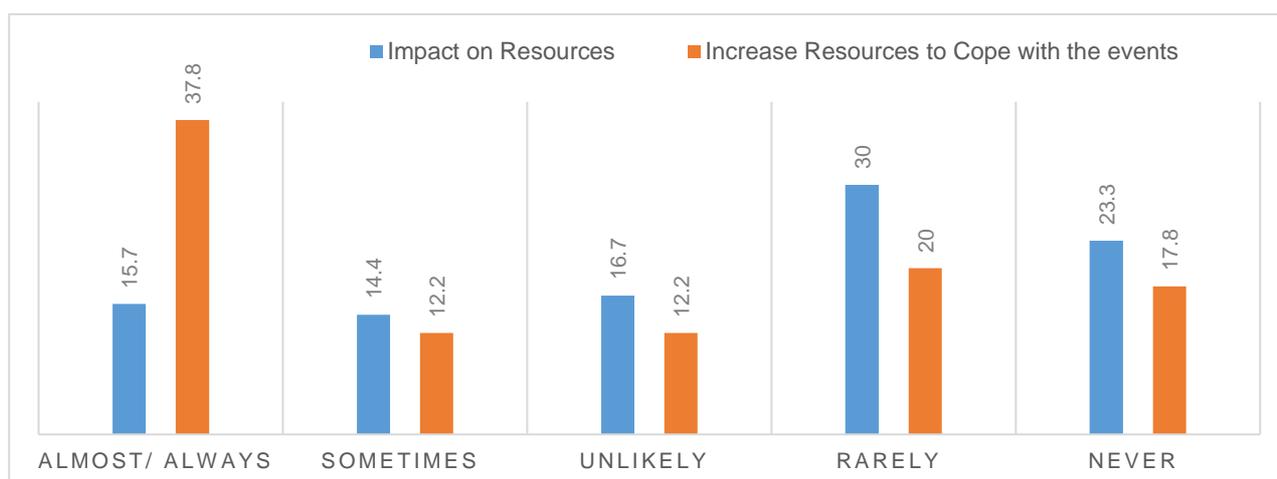


FIGURE 6.18. HAJJ IMPACT ON HEALTH SERVICE RESOURCES AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

The average number of opening hours during Hajj is 8.18 hours per day with a standard deviation of 2.819 (Figure 6.19). The mode was 8 hours, and the median was 9 hours, which represented 84.5% of the selected PHCCs.

More than two-thirds (68.9%) of the PHCCs are not equipped to provide emergency services (Figure 6.20).

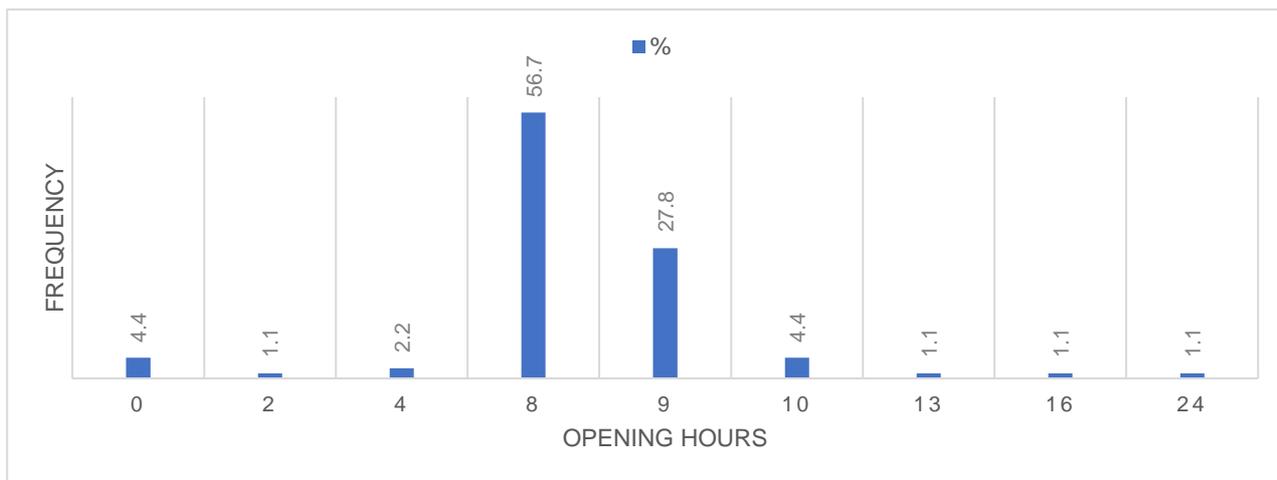


FIGURE 6.19. PHCC OPENING HOURS AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

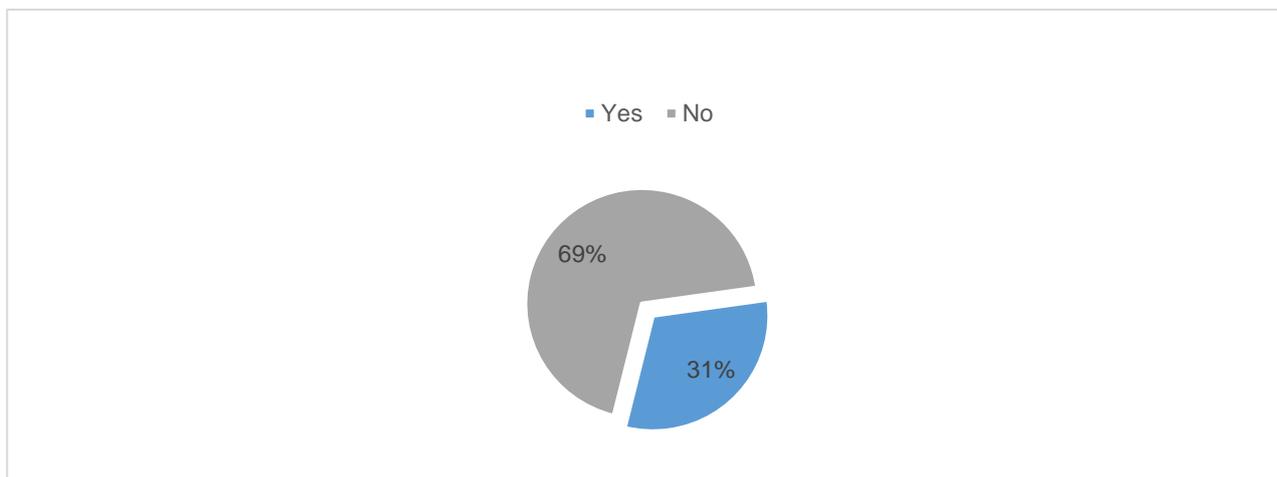


FIGURE 6.20. EMERGENCY EQUIPMENT AT 90 PHCCS IN JEDDAH AND RIYADH, 2016

Despite only 31.1% of the PHCCs being equipped to provide emergency services (Figure 6.20), 93.3% of the PHCCs ‘always’ or ‘often’ provide emergency care regardless of whether they are

equipped to do so (Figure 6.21). This suggests a significant impact on non-emergency care resources, which could impact health service delivery.

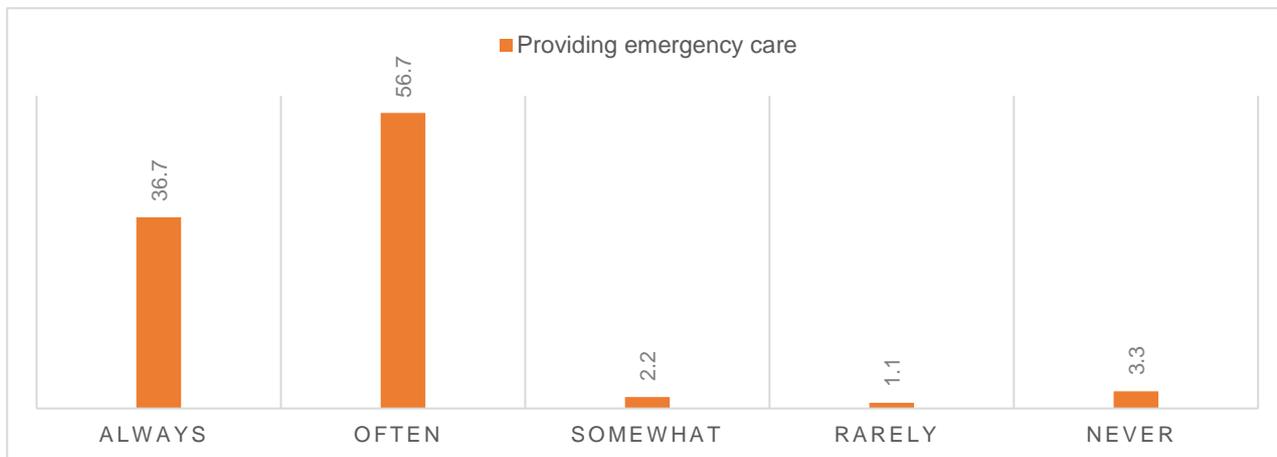


FIGURE 6.21. CAPACITY TO PROVIDE EMERGENCY CARE AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

Of the patients seen by the PHCCs, 43.3% are Saudi nationals followed by international Guest Workers (22.2%) who, when combined with their family members, equalled 38.9% (Figure 6.22). This indicates that more than one-third of the patients seen at the PHCCs are not Saudi, which could be a significant drain on resources and operating costs.

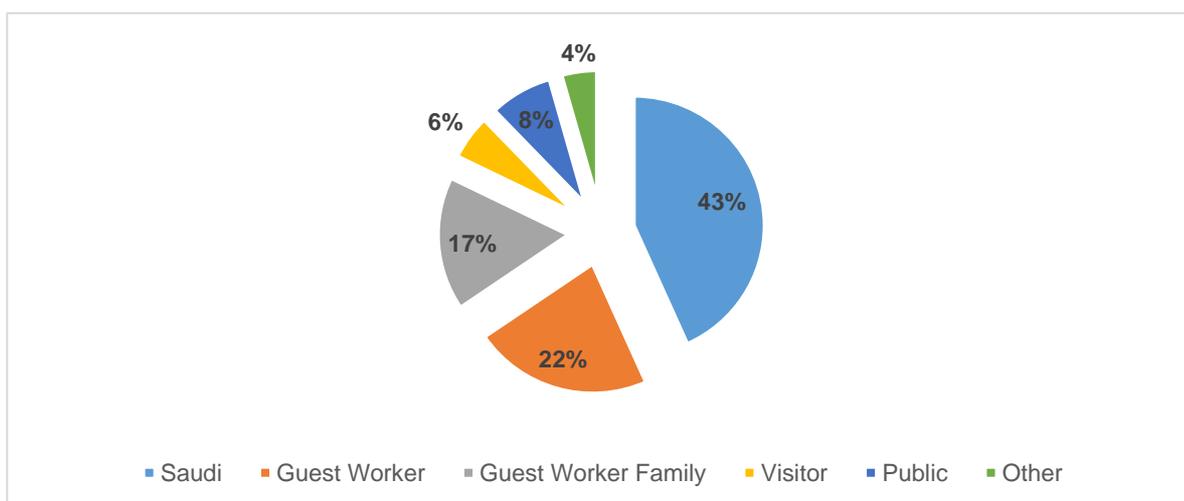


FIGURE 6.22. PATIENT CATEGORIES AT 90 PHCCS IN JEDDAH AND RIYADH, KSA, 2016

The next question sought to establish how each of the categories in Figure 6.22 paid for their services. For the Guest Workers and their families, 13.3% pay by cash but 83.3% of Guest Workers and 95.6% of Guest Worker families elected to pay by Bill Later (the bill is sent through the PHCC to MoH). This supports the theory that Guest Workers and their families have an impact on operating costs, and that PHCCs are burdened with collecting the monies owing. Further research is needed to determine how much of those fees are collected.

Significant percentages of other cohorts also elect to pay their bills via Bill Later (Visitors 95.6% and Others 37.8%). Only 31.1% of the Saudi cohort do not pay, as their fees are covered by the MoH, while 28.9% use cash and 38.9% use Bill Later, which raises the question as to what services are not covered by the MoH. Only 1.1% of Saudis paid using private health insurance, indicating the lack of private health cover in the general population in Saudi Arabia (Figure 6.23).

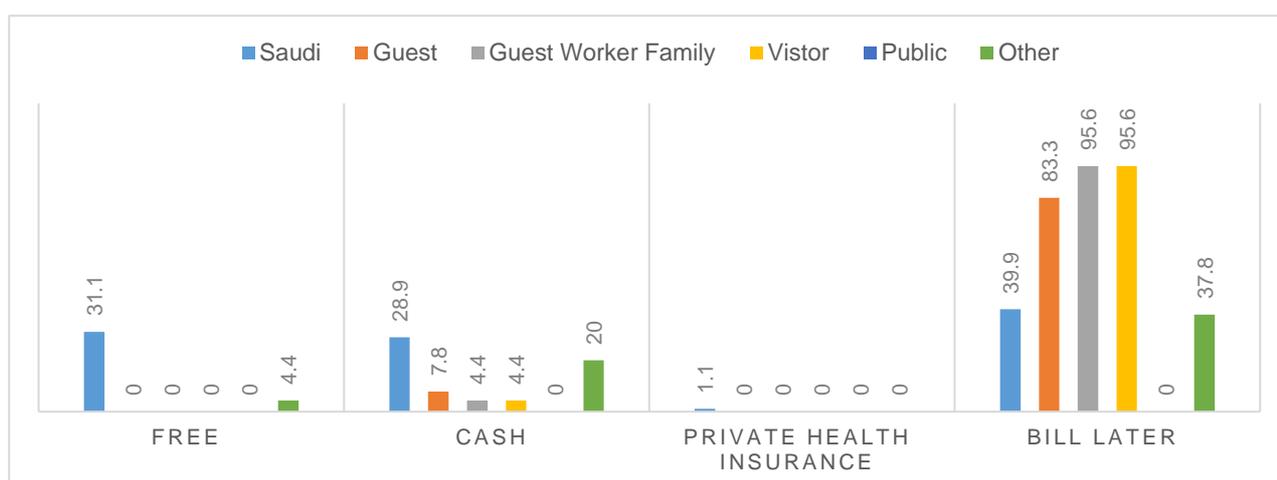


FIGURE 6.23. PATIENT PAYMENT METHODS AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

SECTION 6: ORGANISATION CONTEXT

More than half of the PHCCs (57.8%) are located in the suburbs, and 38.9% are in cities (Figure 6.24). Given that this research was conducted primarily in the two cities of Riyadh and Jeddah, these findings are not surprising.

More than 50% of the buildings are owned by private entities, and 43.3% are owned by the government (Figure 6.25).

In 90% of the PHCCs, there are no other PHC medical teams or FPs that are part of the PHCC (Figure 6.26).

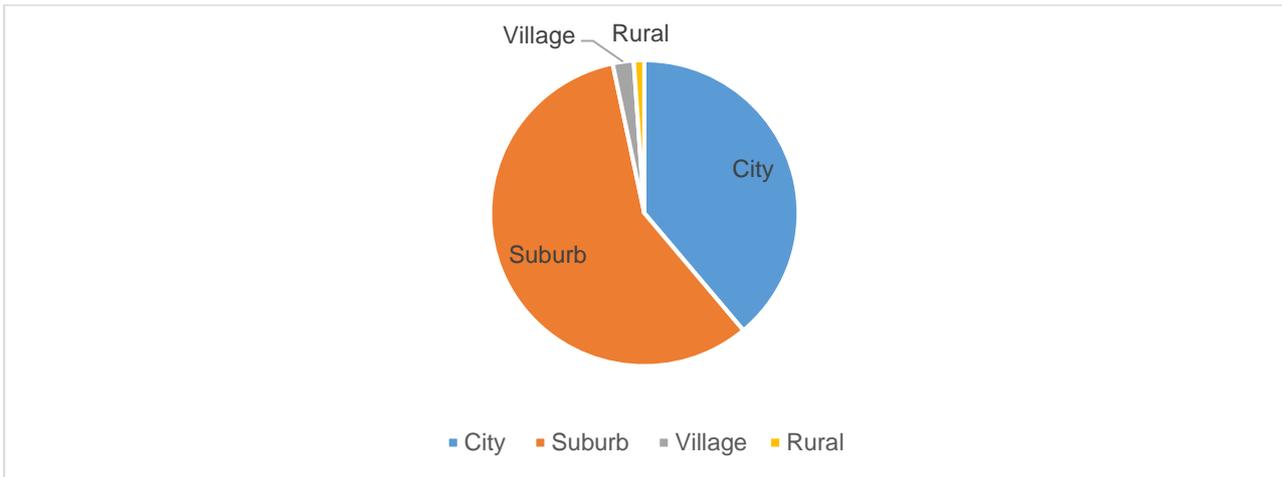


FIGURE 6.24. LOCATION OF 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

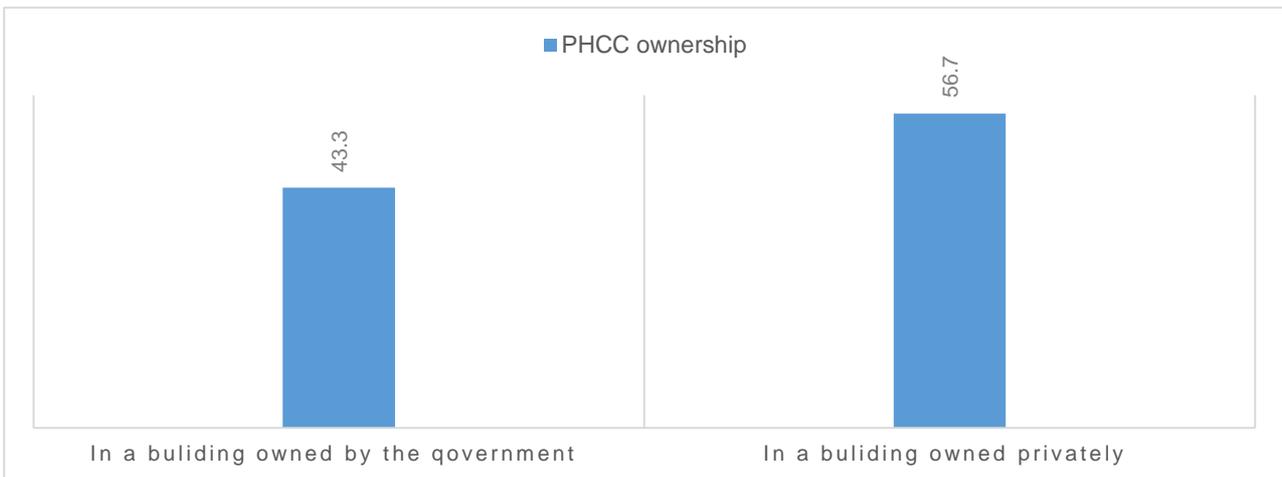


FIGURE 6.25. OWNERSHIP OF 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

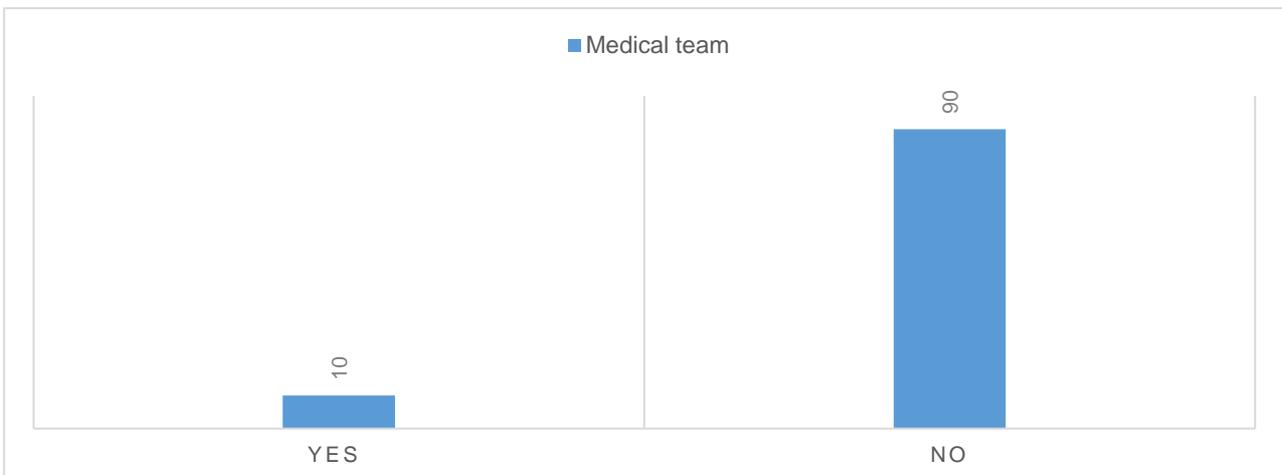


FIGURE 6.26. PERCENTAGE OF MEDICAL TEAMS WHO SHARE THE PHCC, JEDDAH AND RIYADH, KSA, 2016

*SECTION 7: HEALTH INFORMATION SYSTEM*

Most of the PHCCs (61%) stated that they did not have a health information system (Table 6.13). Almost half (47.8%) thought that a HIS would add value by ‘improving strategies’, but only 3.3% felt that it would improve ‘professional development’. Improving strategies was not defined in the questionnaire but could be broadly interpreted to include ways to improve operational efficiencies. Unquestionably, the PHCCs directors and managers felt that HIS could improve health service delivery (91.1%).

TABLE 6.13. HEALTH INFORMATION SYSTEMS AT 90 PHCCs IN JEDDAH AND RIYADH, KSA, 2016

Variables	N=90	%
<b>PHCCs with a HIS</b>		
Yes	35	38.9
No	55	61.1
<b>Access to the Internet</b>		
Yes	34	37.8
No	56	62.2
<b>Perceptive Value of a HIS</b>		
Logistical	9	10.0
Supplies	12	13.3
Training	10	11.1
Professional Development	3	3.3
Clinical Reporting	13	14.4
Improving Strategies	43	47.8
<b>HIS and Health Service Delivery</b>		
Yes	82	91.1
No	8	8.9

**6.4 GENERAL DISCUSSION**

The findings of the survey questionnaire are considered in three stages: (1) a general discussion of the findings, (2) a comparative interpretation of the findings with the nine criteria, and (3) an examination of the findings as they relate to the research questions. General trends identified from the tables and figures, and the associated findings are discussed with reference to the literature.

The MoH undertook an aggressive plan to build 824 new PHCCs from 2010–2020, with an overall objective of 2,750 by 2020 (Ministry of Health 2012, 2013a). As of 2012, there were 2,279 PHCCs across Saudi Arabia. This research focused on 90 PHCCs in the two principal cities of Riyadh and Jeddah, representing 3.9% of the total, of which 44.4% were less than ten years old.

From this research, generalisations were made from the quantitative findings. While there has been significant progress in building new PHCCs, there has been a lack of efficiency in their development, evidenced by the fact that only 7.8% of the studied PHCCs have merged, and that 51 PHCCs (56.7%) are privately owned. Given the investment in new buildings and that more than half of those surveyed are privately owned suggests a lack of strategic planning to maximise returns on that expense/investment and achieve considerable cost savings. Some of the private facilities could be closed, and levels of operational efficiencies improved, as identified in studies over two decades (Kathleen, Laetitia & Trinette 1999; Kerr 2016; Telmesani, Zaini & Ghazi 2011).

Inefficiencies are not purely a function of PHCCs being state-owned or rented privately; they extend to the operational utilisation of resources and the ability to manage services during significant events. Such events, like Hajj, bring excessive numbers of people to the area, with the potential for disease and impact on PHCC services. In 2016, 1.8 million pilgrims attended Hajj (Ministry of Health 2016), which impacts 30% of the surveyed PHCCs in this study, with 50% indicating an impact on resources. Of those surveyed, the average percentage change in the number of PHCC visits during Hajj increased by 28.64%.

The effect of Hajj, as indicated by Jannadi et al. (2008) and Walston, Al-Harbi and Al-Omar (2008), can have a far-reaching national effect on existing resources when disease is prevalent. While the findings are not conclusive, there should be some consideration that the two cities studied are not the primary region where Hajj is held. In addition, there has not been a disease outbreak such as malaria since 2008, and the major risks at Hajj 2015 were crushing injuries and stampedes. The greater preparedness of pilgrims and government planning reduced the risk of such an events (Shafi et al. 2016).

Continuing with the concept of efficiency and utilisation of resources, PHCCs are not seen as primary emergency care facilities, like those typically associated with hospitals (OECD 2015). However, 84 of the 90 surveyed PHCCs indicated that they provided emergency care, even though 62 stated that they did not have the resources to provide such care. This finding contradicts Elkum et al. (2009) who found that the lack of PHCC GPs was one factor why patients go to EDs. This does

not appear to be a deterrent for patients who seek emergency care. However, this finding does confirm Alghanim and Alomar (2015), who found that patients used both PHCCs and hospitals for emergency health needs. Of the surveyed PHCCs, 68.9% stated that they lacked resources for emergency care, which supports the findings of Alghanim and Alomar (2015) that there was and is a need to provide resources to meet patient demand, which could reduce the burden placed on EDs.

The increased burden placed on PHCCs from Hajj and the lack of resources to treat emergency patients is exacerbated by the cost of providing care for non-Saudi nationals. Despite the government mandate that non-Saudi workers must have comprehensive health insurance (Alfaleh et al. 2015), this study found that 38.9% of PHCC patients were Guest Workers and their families that predominantly used a Bill Later method of payment (83.3% and 95.6%, respectively). Despite a government mandate that is not being enforced, non-Saudi workers are not taking out private health insurance but rather opting to pay themselves, which means that the PHCC must absorb the cost of care until it is paid, and in the interim act as a lender and try to collect the debt. Strategically enacting policies that have no means of enforcement makes the policies ineffective and places an additional burden on PHCCs and drains resources.

## **6.5 DISCUSSION OF THE NINE CRITERIA**

### *6.5.1 LEADERSHIP AND GOVERNANCE FOR HEALTH*

Central to governance is understanding the vision for a health system (WHO 2010a) so that it is effectively communicated by the state government across all levels. In this study, the question was asked, and unequivocally 100% of the PHCCs agreed that they did not have a mission or explicit values or objectives. A vision for health is often seen as different from a mission or value statement for health; however, they are fundamentally how and what actions are needed to deliver that healthcare system in both the short- and long-term. There is a lack of understanding of this aspect and thus, a lack of communication as to what it is at the PHCC level. Additionally, the survey asked whether the staff shared these values and 85.6% indicated they did not—this lack of effective communication from government to the leaders at PHCCs, which transcends to staff, impacts on the understanding and delivery of care, which decreases clinical effectiveness (Tait 2004).

Similarly, there was a lack of broad understanding and knowledge of policies regarding human resource management, performance appraisals, medical errors reporting, patient satisfaction, the

level of the quality of care provided in no instance were 100% of these policies in place. Only 63 PHCCs, just over two-thirds, had some form of policies in place. A lack of policies is directly associated with leadership and strategic initiatives and overall governance; if the policies are not in place, the PHCC is not operating effectively (Sambo & Kirigia 2014). Conversely, 78.8% of the PHCCs were inspected in the past 12 months, but it is unclear what sort of inspection occurred, whether it was for infrastructure, clinical or administrative reasons, so no assumptions can be made as to what level of governance this inspection served.

There is an overriding lack of procedures, communication and lack of oversight, which elevates the levels of risk as there are no universal management procedures in place (Du Toit et al. 2013). This extends to a lack of governance, monitoring and accountability; policies are a mechanism to ensure that certain actions are taken and decisions made to reflect the overall vision of the PHCC. Having policies in place that are monitored effectively provide governance and accountability, and useful data to inform policy decision-making (WHO 2010a). This is a two-way mechanism; government-led policies provide frameworks to implement procedures at the local level where data is assimilated and feeds back from the clinical level to inform those policymakers, thereby increasing efficiency (WHO 2010a). In the case of PHCCs that lack resources, increasing efficiency and accountability is imperative (Du Toit et al. 2013). The lack of consistency of processes, due to a lack of policies and procedures, will invariably create inefficiencies. With the lack of medical errors reported, changes to poor clinical practice are unlikely, which can affect patient care.

### 6.5.2 HEALTH SERVICE DELIVERY

Access to PHCCs is an important aspect of healthcare delivery and one that Saudi Arabia has emphasised and is a national priority for many countries (Beaglehole et al. 2008; Walston, Al-Harbi & Al-Omar 2008). More than 51.1% of the surveyed PHCCs provide services for their neighbourhood, being accessible to local patients. Having universal healthcare as a driving goal is only as good as making it accessible to all, and most importantly equality is needed: 94.4% of the PHCCs will see anyone who shows up, has an active record or who lives in the neighbourhood, which supports the MoH's principle of ensuring equity in healthcare (Ministry of Health 2009). Of the surveyed PHCCs, 91.1% indicated that this was the most important goal of their PHCC. The development of more PHCCs has provided greater access, and the PHCCs predominantly agree with the importance of access and equality in delivering healthcare.

Furthermore, 80% of the PHCCs felt that continuity of care was an important goal, which affirms Othman et al. (2015). Continuity of care is a barrier to secondary care, suggesting the need for an understanding of the patient–physician relationship, and recognising its role in delivering quality-based care (Al-Ahmary 2014; Almutairi & Moussa 2014). However, how this continuity of care is managed was not discussed in this question, whether it is a manual or automated process remains unknown, but it must be considered a highly important, if not integral part of the process. An extension of comprehensive care is prevention services, and both were important goals for 81.1% of the PHCCs who stated that a comprehensive approach to patient care was important, and 92.2% who stated that providing health promotion services as a form of preventative care was essential, which reflects the World Health Organisation’s (WHO 2013) view that health promotion is a social determinant of good health and a way to provide disease prevention material.

Additionally, the surveyed PHCCs emphatically agreed (95.6%) that physician teamwork was important, and as Ahmad and Maqbool (2013) noted, a key component in TQM when looking to enact change and improve efficiency in the delivery of healthcare. A central aspect of comprehensive care is to consider all factors including the environmental and occupational factors that affect it; 87.8% of PHCCs acknowledged this, which shows acute awareness and acknowledgement of the impact the environment can have on health (Ministry of Health 2010; WHO 2013).

While Alma-Ata set specific goals to deliver universal healthcare, the vision set forth by this declaration did not need to be adopted by governments but was implemented across the PHC sector (WHO 2010a). The need to understand that, to achieve such goals, all stakeholders, including governments, PHCC managers/directors and patients need to take ownership of the responsibility for health question (Section 2, Question #4a), yet more than three-quarters of the PHCCs felt that this was a collective issue. To achieve this, the vision and goals need to align, with the acknowledgement that this requires a cooperative effort (Sambo & Kirigia 2014). While this study identified that understanding and communication of the vision was unclear, the overriding intent of access to universal coverage and the collective responsibility was clear.

Nevertheless, the methods employed to deliver the intent of universal access to health service delivery are not readily available, with 64.4% of the PHCCs stating that they had no tracking system to remind patients about visits or services. This brings into question the concept of continuity of care and follow-up visits and how these are managed and tracked (Othman et al.

2015). With such a high number of patient visits, there is a risk that patients will miss appointments and not receive the treatment needed; the lack of a tracking system impacts health service delivery, as was evidenced by the 57 PHCCs indicating that there was rarely or never any patient follow-up. This brings into question the intent of government policy enacted to integrate curative and preventative care including patient follow-up; despite having the best intentions, they have failed to meet their objectives in implementation (Alharthi et al. 1999; Almazrou & Salem 2004).

This issue extends to how the PHCCs are providing preventative health information and education, where 92.2% indicated that they did not do this. The Saudi MoH has attempted to provide preventative health strategies since Alma-Ata as part of the health plan and health education and a primary function of the PHCC (Sheikh, Mahamoud & Househ 2015). This suggests two issues, the vision to promote health education has not been communicated effectively and/or a lack of resources to deliver the message. While it could be construed as beneficial to have promotional health education services, it must be deemed essential to have a system in place to manage patient follow-up for chronic diseases, especially diabetes. However, 93.3% of the PHCCs indicated that this was not the case. This aspect is part of a curative and preventative program for PHCCs, as increasing public awareness is essential for reducing those most at risk, and increasing active engagement can only be achieved through such programs (Midhet, Al-Mohaimed & Sharaf 2010).

The survey further revealed that the PHCCs lack the basic ability to provide facilities for the drawing of blood, along with resources to take x-rays and perform electrocardiograms. The lack of resources creates inefficiencies and reduces the effectiveness of the PHCC (Gibson et al. 2015). Whether this is a result of the escalating cost of medical technology or not, it impacts the health service delivery (Almutairi & Moussa 2014). With an inability to provide preventative care programs, follow-up for curative chronic illnesses, and lack of technological equipment, these issues must be viewed as barriers at the clinical level to health service delivery (Al-Ahmadi & Roland 2005; Albougami 2015). When considering that PHCCs see on average >19,000 patients per year, the impact on health for those patients is considerable. As such, the effectiveness of the PHCCs is diminished, and they do not deliver the universal care that the policy mandated.

### *6.5.3 HUMAN RESOURCES FOR HEALTH*

PHCCs are seeing, on average, >19,000 patients per year, with an average of only 2.5 GPs per PHCC in the selected cities, meaning that each physician normally sees about 9,500 patients per

year or, assuming 50 weeks per year, some 191 per week or 24 per day, or about 4 per hour. This would infer about 15 minutes per patient for all patients, emergency and non-emergency. This assumes that the volume of patients does not allow time to perform minor surgeries, regardless of training or resources (Alshammary, Ratnapalan & Akturk 2013).

While it could be inferred that there is a heavy demand placed on GPs, particularly as 28.9% of the PHCCs do not have any young GPs, it further compounds the need for more trained staff and support (Alshammary, Ratnapalan & Akturk 2013; Elkum et al. 2009). Further, the lack of GPs increased patient volume and decreased time spent with patients, exacerbating the patient–physician divide as there is less time spent on information exchange, which affects the level of healthcare provided (Saleh et al. 2015). Additionally, when taken in context with other findings, there is now perhaps an explanation as to why there is a lack of manual processes in place for preventative promotional information and follow-up, which would suggest a greater need to implement a technological system to support the delivery of care.

The findings also show a lack of specialised trained staff, suggesting an increased need to train and integrate these services at PHCCs. Specifically, the findings noted that, on average, there are ~1.1 pharmacists for every PHCC or 103 in total for the surveyed PHCCs. Based on the 1.7 million annual patients reported, this equates to 13,000 patients per pharmacist, which is contrary to the figure reported by the Ministry of Health (2015) of 7.23 pharmacists for every 10,000 patients. For the 13,000 patient records, there should be ~9.26 pharmacists, which is a significant deviation from the reported figures. Two issues arise from this, first the accuracy of the MoH reports, and second whether there is a shortage of pharmacists.

The potential issue of a lack of pharmacists may well represent a microcosm of a staffing issue. The 31.1% of PHCCs that indicated that their staffing teams were not fully staffed reported a reduction in the efficiency and effectiveness of the PHCC in delivering quality healthcare, as a lack of staff resources means that a greater burden is placed on existing staff, and compounds the problems of a lack of programs, technology, follow-up, and systems (Azétsop & Ochieng 2015; Othman et al. 2015). Organisational issues such as these will impact across all levels of the PHCC operation and staff shortages affect how services are managed: resource allocation is essential for meeting patient needs. From the study findings, 51 PHCCs indicated that they did not use patient population information to allocate resources, which could be construed as mismanagement, or a lack of time to undertake the task, or that it was unnecessary. In any case, the need to gather and

use population information and maximise staff efficiency when there are staff shortages is imperative to the delivery of patient care, as it affects staff morale and patient satisfaction, and creates inefficiencies (Alghanim 2012).

#### 6.5.4 HEALTH FINANCING

Recent changes in the global economic commodities market have seen a significant change in Saudi oil revenue, which translates into reductions in government spending across all levels of the healthcare system (Sahoo 2016). As a consequence, spending initiatives for projects have been curtailed (Sahoo 2016), and the MoH is now looking for ways to operate more efficiently by changing the funding mechanism through increased private health insurance, operational efficiencies and by establishing PPPs. Therefore, the impact of changes to funding allocation to PHCCs is of prime importance. Nevertheless, only 18 PHCCs indicated any effect of the changes to funding allocation, while most (56.7%) stated no effect, and 23.3% felt that the financial situation had improved. The survey also confirmed that 36.7% of the PHCCs did not receive any special funding or funds from any government reform program.

The increased pressure exerted by budgetary changes increases the importance of changing the funding mechanism and increasing the adoption of private insurance. The intent to establish a new health insurance model that includes a private health component (Alsubaie et al. 2016; Mourshed, Hediger & Lambert 2006) has not been implemented nor has it taken root. The research findings showed that only 1.1% of Saudis were paying bills with private insurance. The other cohorts, including Guest Workers and their families, had no private insurance methods and were using the 'Bill Later' option for payments as a preferred method. This increases processing at an administrative level, but compounded with additional budgetary changes, must increase the effect.

The impact of such financial constraints coupled with deferred payment systems increases the focus on the ownership of the facilities that the PHCCs occupy. The 51 PHCCs in facilities that are privately owned are paying rent, adding another level of operational costs to the budget. The 56.7% of PHCCs in privately held facilities is significantly lower than the 80% reported by Alrabiyah and Alfaleh (2010). An upside to this is that if the correlation between rented facilities and patient satisfaction holds, then patient satisfaction will have also increased.

### 6.5.5 HEALTH INFORMATION

Health information systems provide a wealth of data both administratively and clinically, as well as a way to report information for decision-making, policy development and health education to patients. The extent to which health systems function would similarly include a referral system. The lack of a referral system impedes access to healthcare services, and manual referral processes tend to lack important clinical information (Al-Ahmadi & Roland 2005; Alalfi et al. 2007; Jarallah 1998). This study noted that only eight PHCCs had an online referral system.

While the lack of a referral system reflects a lack of health information systems in general, the fact that 91.1% of the PHCCs could not send questions via email signifies a greater problem, that of access to the internet. Alshammary, Ratnapalan and Akturk (2013) stated the need to invest in internet access and this study confirmed this with 89% of PHCCs lacking any sort of technology to access the internet, appointment management systems or emails. However, while there is an apparent lack of computerised data, reviews of clinical data on chronic diseases are performed manually in 62 PHCCs, and 48 PHCCs manually review patient satisfaction. Given that the delivery of quality healthcare is measured through patient satisfaction (Alzolibani 2011; Mansour & Muneera 1996; Mohamed et al. 2015; Prakash 2010), the use of patient surveys is fundamental to measuring the success of that care. However, using a manual process, as 53.3% of the PHCCs indicated, is another inefficient process and, again, requires a health information system.

When it comes to any sort of process, whether automated or manual, to remind patients of screenings, 75 of the surveyed PHCCs (83.3%) indicated that they had no process at all, and 80% said they did not have checklists for clinical practices. This latter issue requires examination as it reflects consistent procedural guidelines that could be followed for every patient. While 91.1% of the PHCCs stated that they conformed to established PHCC guidelines, the answer here would suggest that they do not necessarily have a clear indication of what they are or how to communicate them to patients. While establishing and adhering to procedural guidelines does not guarantee health outcomes (Othman et al. 2015), they do provide an effective means of preventative care for chronic non-communicable diseases (Farzadfar et al. 2012).

The extent to which the lack of health information impacts on clinical care is evidenced by the fact that physicians cannot track laboratory tests, as 74 PHCCs indicated. Clinical information provides data that can be monitored for evaluation and is central to any healthcare system, which has been needed for more than two decades (Bhutta et al. 2010; Du Toit et al. 2013; Wagner, Austin & Von

Korff 1996). Some ambiguity arose in this research as to electronic medical records, which brings into question the 65.6% of PHCCs that stated they did use this type of method to coordinate between professionals. This raises a question about the scope of HIS and whether, and to what level, electronic databases exist when so much information is reported as not being computerised. Section 7 of the questionnaire (*Health Information System*) directly asked questions relating to this and found that only 35 PHCCs had some form of health information system, which supports previous findings that there is predominantly a lack of an integrated HIS. Surprisingly, the use of a health information system showed only 14.4% of existing HIS were used for clinical reporting, while strategic improvements showed 47.8%. Other categories for the uses of health information system included logistics, supplies, training and professional development showed 37.8%. This data suggests the importance of the HIS, which can provide valuable information for improving the quality of health services (Rowe 2009). Certainly, HIS has been used to improve strategies for policy and program development, strategic planning, and improvement (Nutley & Reynolds 2013). Data provided from HIS can be used to improve decision-making (Patton 2008). Mutale et al. (2013) stated that HIS not only improves decision-making but can improve health system operations, strengthen various levels within the health system, namely management, clinicians and the community, and improve health service delivery. Of the surveyed PHCCs, 91.1% believed in the value of HIS and its ability to deliver improved health services to advance the delivery of care and optimise efficiency.

#### 6.5.6 HEALTH TECHNOLOGY

With only eight PHCCs able to offer patients online appointments or referrals, there is an opportunity to increase technology to support clinical and administrative operations. The ability to send and receive email queries, request prescriptions, and view test results via a website would be considered part of an e-health system integrated within a national health plan (WHO 2010a). It can deliver efficiencies by providing access to laboratories and diagnostic services thereby increasing reliability and affordability of use (WHO 2010a).

Health technology as part of a national strategy requires levels of safety to ensure that the need for medicines and vaccines is a fundamental component of a national health system (WHO 2010a). However, 95.6% of the surveyed PHCCs had no way to request prescription refills online, and 88.9% had no way to view test results on a website. Anikeeva and Bywood (2011) stated that having the correct health technology in place to support an e-health system, where prescription information and test results are available at a clinical level, is essential.

The lack of overall health technology was evident in that 40% of GPs had to share what technology tools they did have at their PHCC. Despite KSA establishing an e-health program (Almaiman et al. 2014), there is little evidence to support its operational impact, and while such initiatives can enhance productivity, this does not appear to be the case. The changes to the MoH budget seem to suggest some impact, but health technology requires continual investment; besides the initial rollout, the system needs support maintenance and continual advancements or upgrades (Du Toit et al. 2013). Therefore, if this infrastructure has not been rolled out, it brings into question whether it will get funded, but the impact of not doing so will only increase the barriers to health information systems since there will be no framework in place to establish it.

#### *6.5.7 COMMUNITY OWNERSHIP AND PARTICIPATION*

Part of providing universal access to PHC requires community participation (Littlewood & Yousuf 2000). As a fundamental aspect of PHC, community participation requires access for influencing policy (WHO 2010a): not being able to directly communicate through electronic means limits community participation. Failure to engage communities results in decreased health service delivery that is less responsive to health needs (WHO 2010a).

Of the surveyed PHCCs, 51.1% indicated that they saw people from local neighbourhoods, which provides direct access to those in their local community. Garnering active participation without technological support requires active participation from both sides, the clinic and the patients in the community; by encouraging and supporting this, the clinic can empower their decision-making. Having the means to implement those decisions is a fundamental aspect of active participation (Kathleen, Laetitia & Trinette 1999). The lack of an integrated HIS has an impact at multiple levels including community, stressing the need for such a system (Mutale et al. 2013).

#### *6.5.8 PARTNERSHIPS FOR HEALTH DEVELOPMENT*

Saudi Arabia is a country in an economic crisis as world oil prices have dropped, resulting in significant changes to the MoH budget. Partnerships, including PPPs, are one way to reduce the financial burden on health systems while increasing the efficiency of health service delivery (WHO 2010a). Furthermore, partnerships are a way to ensure community awareness and increase governance, accountability and transparency (WHO 2010a). Public–private partnerships are an opportunity for Saudi Arabia to reduce 60% of their healthcare expenditure (Watson 2012). Accessing the private sector is one way to develop partnerships (Meessen & Malanda 2014), yet only 10% of the PHCCs share their facilities with outside care providers. This presents an

opportunity to increase partnerships that could effectively provide necessary resources and specialisations not currently provided.

A decade ago, Saudi Arabia entered into a partnership with the UK to help alleviate staff shortages by attracting healthcare professionals to the region (Merghalani 2005). Given the lack of specialisations, it would seem that this sort of program would be highly beneficial in the short-term. Establishing formal or informal partnerships could alleviate resource, systems and staffing issues. However, 31.1% of the PHCCs had no planning services established with other PHCCs, hospitals or specialist centres, 50% had no technical services, and 58.9% had no exchange of resources. When it came to the PHCC participating in a healthcare access network to coordinate hours, 80% stated that they did not do this with any other facility. Two overriding themes are apparent, which could be dictated by the MoH. First, a lack of initiative to undertake any sort of partnership at any level, whether that is restricted is unknown. Second, PHCCs wait to be told what to do, which is guided by government policy, and there is a disconnect between what is required to operate effectively at the PHCC and what is needed to manage at the macro level. Partnerships can transcend all levels and effect change, thereby delivering greater operating efficiencies and health outcomes, but perhaps above all, they can provide solutions to existing problems that could otherwise take longer to be resolved (Watson 2012).

#### *6.5.9 RESEARCH FOR HEALTH*

Research for health was not specifically addressed in the survey questionnaire but can be implied from the findings in other categories. Since PPPs can provide access to health information systems, thus providing a means to access health research (Kirigia & Barry 2008), it follows that if there is a lack of PPPs and a universal HIS, it is unlikely that any research for health is being conducted at the surveyed PHCCs. This suggests that it is not a priority of the national health policy, and would impact health service delivery (Jahan et al. 2014).

For the 2005 National Policy for Health to deliver its health goals, it must be highly functional and have effective disease management programs in place, which was not identified in this study (Samb et al. 2010). Further research is needed to determine the latest evidence-based research, which is not possible without the necessary infrastructure in place. When there is a lack of evidence-based research, it affects clinical decision-making (Saleh et al. 2015). WHO (2012b) stated the need for 'capacity' to support health research priorities, including information systems, as an integral way to achieve health objectives, such that there is a dependency on information

technology to support health research, which enables greater clinical decision-making, which in turn affects health outcomes.

## **6.6 QUANTITATIVE FINDINGS: THE FIVE RESEARCH QUESTIONS**

RESEARCH QUESTION #1. WHAT EFFECT HAS THE 2005 NATIONAL POLICY FOR HEALTH HAD ON THE OVERALL HEALTH SYSTEM IN THE KSA?

The 2005 National Policy for Health has been instrumental in the development and expansion of PHCCs in the KSA in the past decade. In 2006, there were 1,925 PHCCs (Albejaidi 2010), and in 2014 there were 2,301, representing a 19.7% increase in nine years (Ministry of Health 2015). The Saudi government has forecast this to increase to 2,750 by 2020, which is somewhat aggressive given the current economic climate and budgetary constraints. However, the value in undertaking such a forceful policy could secure long-term facilities and reduce the dependency on privately owned facilities, being 51 PHCCs or 56.7% in the study area. Thus, the 2005 National Policy for Health can be viewed as reshaping the PHCC landscape and setting the groundwork for the sustainability of PHC in the region.

Viewing the effectiveness of the 2005 National Policy for Health (eighth development plan) solely on the development and building of PHC facilities, it could be construed as successful. This aspect of the strategic implementation has provided access to healthcare across cities, suburbs, rural and regional areas that once lacked any healthcare facilities. However, certain other initiatives that were part of that plan are yet to be implemented: the increase in physicians and nurses, and immunisation rates (Ministry of Economy and Planning 2010). There remains some ambiguity in MoH reporting figures of the number of physicians in the region, be it 68,747 or 82,175 or 67,170. When considering the findings of Al-Falieh, Al-Freihi and Al-Rabeeah (2009), the figure drops substantially to 27,861. Hence, there is a range of unsubstantiated figures as to whether the 2005 National Policy for Health has been successful in this regard, which is indeterminable until accurate reporting is provided. This survey across two cities revealed 229 doctors for 90 PHCCs; which equates to an estimated 5,854 physicians for the 2,301 PHCCs in KSA in 2014, assuming that there are a standard number of physicians across all PHCCs. This figure is considerably less than the estimated 51,253 by Al-Falieh, Al-Freihi and Al-Rabeeah (2009), which included physicians based at hospitals.

Determining the appropriate level of physicians requires an accurate headcount and a determination of resources based on the number of patients seen at each clinic. This dilemma

represents the beginning of a theme that has emerged from the 2005 National Policy for Health, that of resource utilisation efficiency; given the economic considerations that have placed pressure on the healthcare system and PHCCs to find more efficient ways to operate, this can only be achieved through accurate reporting. It is, therefore, reasonable to conclude that strategic implementation of the 2005 National Policy for Health has failed to recognise the need to measure resource allocation and subsequent growth associated with the development of PHCCs.

RESEARCH QUESTION #2. WHAT IS THE PHC MANAGERS' KNOWLEDGE ABOUT THE ROLE OF PHCCS AND HEALTHCARE WORKERS WITHIN THE 2005 NATIONAL POLICY FOR HEALTH?

The level of understanding of the role of PHCCs within the national health system and how this translates to the management and staff reflects the vision, values and objectives being communicated. However, the MoH in 2010 acknowledged certain threats to their vision, including an outdated policy that lacked a clear vision (Ministry of Health 2010). Wright et al. (2000) made it clear that a lack of awareness of an organisation's vision and values reflects the overall leadership and inability to communicate effectively. This study found that the vision and goals were poorly aligned, and poor communication of that vision; since this is a top-down driven health system, there would be little opportunity for each PHCC to enact their own goals or have input into the formulation of those goals (Sambo & Kirigia 2014). Given the 100% agreement by the PHCCs that there was no clear mission or goals, it is hard to see how the PHCCs, management and staff can effectively know their role within the health system or measure how successful they are at achieving those goals when there are no clear goals identified.

RESEARCH QUESTION #3. WHAT ARE THE MAJOR FACTORS THAT INFLUENCE THE PLANNING, IMPLEMENTATION STRATEGY AND EVALUATION OF PHCCS IN THE KSA?

Achieving the planning objectives and measuring the implementation strategy assumes a clear direction, as in the goals that must be achieved. Besides the development and construction of new PHCCs, understanding those factors is somewhat unclear. This is due to poor communication from the top (MoH) down to the local PHCC level. Economic change has affected budgetary allocations to the healthcare sector, with a view to increasing efficiency and reducing healthcare costs (Watson 2012). This, coupled with the desire to increase dependence on privatised services, must be strategic in its implementation (Kerr 2016). However, there is little evidence of private healthcare accounting for services offered in the 90 surveyed PHCCs, as only 1.1% of users paid using private health insurance funds.

The economic climate is and will dictate strategic policy formulation; the need to develop and take advantage of PPPs requires a paradigm shift in the design of public health policy. Furthermore, how it is communicated, implemented and measured needs to improve if it is to have a positive effect on healthcare delivery (Azétsop & Ochieng 2015; Baig et al. 2014). Economic challenges are just one of the challenges that strategic planning faces. The increasing population and escalating demand for services, and lack of adequate resources to equip the current level of PHCCs will exert undue pressure on any strategic plan and impact how it is implemented (Alsalloum, Cooper & Glew 2014). The lack of resources in 68.9% of the surveyed PHCCs, coupled with the 19,000 patients per year on average, supports the lack of PHCC accessibility as found by Alghanim and Alomar (2015), which must be central to any future strategic plan.

#### RESEARCH QUESTION #4. WHAT ARE THE BARRIERS AND FACILITATING FACTORS IN ACCESSING PHC SERVICES?

Barriers to access services should not be viewed as solely a negative benchmark, but as an opportunity to improve the delivery of health, achieve operational efficiencies and deliver cost savings. The findings suggest a system-wide issue with health technology, which in turn affects the ability to develop a health information system. While some challenges are more long-term, such as the training of Saudi nationals to become physicians and nurses, cultural restrictions and perceptions need to be overcome (Aloufi & Bakarman 2016). Implementation of health technology and a HIS could have an immediate impact and be achieved as a short-term goal. The lack of basic technology to access email, the internet, conduct health research and so on limits any opportunity to provide a framework for a HIS. Furthermore, it prohibits professional development, health reporting and the ability to administer records or access a patient's health information when referred to hospital or specialised care facilities (Alshammary, Ratnapalan & Akturk 2013).

The fact that only 10% of the PHCCs can provide online appointments or referrals in the two largest cities in KSA indicates the severity of the problem. This barrier transcends to not only an inability to have an automated HIS, but forces the manual collection of medical records, requires manual referrals and increases the likelihood of inaccurate reporting of health data, all of which increase the risk to a patient. This then transfers to how data is gathered and the inability to conduct efficiency studies for staff resource allocation, as evidenced by inconsistencies in the data from the Ministry of Health (2014) on the number of physicians and nurses. The need for a universal Saudi-national HIS would further support clinical care and help to manage and effectively monitor health indicators (Alanazi et al. 2015).

The impact of not having health technology and a HIS will lead to further inability to effectively track patients. This issue extends to overall health service delivery and the inability to ensure that patients are receiving the necessary follow-up and continuity of care, which 80% of the PHCCs felt was an important goal, but could not be achieved, something Othman et al. (2015) similarly stated. Not being able to follow-up on patient care impacts the health system as it transcends primary and secondary care and diminishes the level of care provided (Al-Ahmary 2014; Almutairi & Moussa 2014). With a national directive to provide both curative and preventative care, the ability to deliver health information is a requisite for achieving the national goal, but this cannot be done when there is no infrastructure in place; 92.2% of the surveyed PHCCs stated that they could not deliver health, despite being an initiative of the PHCC health plan (Sheikh, Mahamoud & Househ 2015).

This overriding trend of a lack of resources from health technology to health information systems, and inability to deliver health information and educational material, is compounded when we consider the lack of the PHCC's clinical ability to draw blood; 85.6% of the surveyed PHCCs could not do this, or take x-rays (65.6%), or perform an electrocardiogram (86.7%). A lack of resources creates ineffectiveness and inefficiencies in a health system; when plagued by serious budgetary constraints, this becomes more imperative and impacts on health service delivery (Almutairi & Moussa 2014; Gibson et al. 2015). The inability to provide preventative and curative care and follow-up must be considered a major barrier at a clinical level as it impedes on all levels of health service delivery (Al-Ahmadi & Roland 2005; Albougami 2015).

RESEARCH QUESTION #5. HOW HAS THE NATIONAL STRATEGIC POLICY AND ESTABLISHMENT OF PHCCs IMPROVED HEALTH SERVICE DELIVERY IN THE KSA?

Unquestionably, the expansion of PHCCs must be viewed as an improvement to the health service delivery of healthcare across KSA. The realisation of the changes to the healthcare budget was only felt in 20% of the surveyed PHCCs, and this must be considered in the context that the effect may not yet have reached all the PHCCs. The overall majority (56.7%) has seen no effect, but this could change drastically over time as the changes and continued effect of the policy shift is realised. The fact that the 2005 National Policy for Health has had success in terms of PHCC development but not implementation must be viewed in context. Having buildings without resources to deliver care is a strategic failure, and not having technological resources, systems and equipment to perform the functions expected of them is a significant shortcoming.

While the 2005 National Policy for Health aggressively set out to build facilities, it failed to recognise the demand for care, as evidenced by population growth. The demand for service where 9,500 patients per physician are seen on average per year places a significant burden on how health services are delivered. This is where the MoH hierarchy is solely to blame for failing to empower PHCC leaders and provide them with the means to communicate the levels of demand. Given the lack of a communicated vision, which comes from the top (MoH), and not providing a means for input into policymaking affects overall leadership and governance (Sambo & Kirigia 2014). When this is exacerbated by a lack of clearly defined procedures, it increases the ineffectiveness of the PHCC operationally and, in turn, elevates patient risk (Du Toit et al. 2013). Clearly, a new approach is needed for policy formulation that encourages participation from the bottom up, not just top-down, and shifts from a PHCC development approach to one of infrastructure, with a view to increasing operational efficiencies and improving comprehensive patient care that 81.1% of PHCCs are attempting to deliver (Mumenah & Al-Raddadi 2015).

## **6.7 CHAPTER SUMMARY**

This chapter presented findings from the survey questionnaire and discusses them across the nine PHC criteria as stipulated in the PHC *Ouagadougou Declaration* framework. The next chapter presents a compelling discussion of the key findings that emerged from both the survey and qualitative interviews.

## CHAPTER 7.

### DISCUSSION

#### 7.1 INTRODUCTION

Despite the emphasis on and movement toward mixed methods research, its adoption in the health sector and its perceived value, questions remain with regard to its implementation (Barbour 1999; Evans, Coon & Ume 2011). Frequently, integration is not performed by researchers (Bryman 2007; O'Cathain, Murphy & Nicholl 2008). With mixed methods research, the key aspect of integration is the convergence of two sets of data, and the need to maintain transparency during the data analysis. As such, Plastow (2016) suggested that the analysis should be undertaken separately as done here in Chapter 4 (qualitative analysis) and Chapter 6 (quantitative analysis). Chapter 7 serves to facilitate the integration and discussion of those findings.

#### 7.2 APPROACH TO INTEGRATION

Design consensus that includes empirical and conceptual work has not received prominence; as such, there is no universal agreement for which integration method to use for data analysis or how to justify its validity (Evans, Coon & Ume 2011; Green & Thorogood 2009; Johnson, Onwuegbuzie & Turner 2007). While this could be problematic, the researcher believes it is an opportunity to concisely analyse both sets of data independently before integrating and discussing the findings and answering the research questions, addressing the research objectives and validating the domains. The purpose of integration is intentional and serves to create interdependency of the data in answering the research questions (Bazeley 2012; Creswell 2015; O'Cathain, Murphy & Nicholl 2008).

The approach adopted here is that of interpretative integration, where the data generated through the two methods—which are combined and triangulated after each set of findings have been derived. In doing so, methodological pluralism provides both a pragmatic and epistemological implication, given the framework by which the integration stage is applied within the research study. What this means is that the generalisations and epistemological claims must be understood within the context of methodological pluralism and at juncture the integration occurred as this can affect its value (Moran-Ellis et al. 2006). Outlining the process is essential, as noted in Chapters 4 and 6, and how this is conducted serves to add value to the emergence of

mixed methods research design, which can have both a theoretical and epistemological value when answering the research questions.

There are two ways to primarily conduct data integration: (1) by discussing the data separately as done in Chapters 4 and 6 in this study (Stange, Crabtree & Miller 2006) and (2) by presenting the quantitative and qualitative findings in a table so that it can be viewed, analysed and discussed, as illustrated in Section 7.4 'Discussion of the Integrated Findings'.

### **7.3 TRIANGULATION OF THE FINDINGS**

Statistical associations garnered from quantitative research can be explained through qualitative findings, as quantitative results will not necessarily offer insight into the relationship between those variables.

Triangulation increases the level of confidence when the implied outcomes from the research are measured. Where there is a convergence of those findings, the validity increases due to the triangulation approach (Moran-Ellis et al. 2006). The triangulation of two methods yields an interpretive integration and focuses on combining sets of findings (Moran-Ellis et al. 2006). The resulting explanation can then be used to support and answer research questions and be applied to domains. Kelle (2005) approached this somewhat differently by applying triangulation of the datasets at the analytical stage. This poses challenges to understanding contradictions, convergences and divergences of one set of findings as opposed to addressing them separately in independent analyses (Kelle 2005; Moran-Ellis et al. 2006).

Developing a table to help explain and integrate these findings would be innovative and support the advancement of this integration method (Guetterman, Feters & Creswell 2015). While there is a lack of application of display tables in health sciences (Guetterman, Feters & Creswell 2015), this approach provides a summative overview of the findings as related to the domains identified. After researching the types of visual display tables used, no set standard or format appears to have been adopted, only a 'fit to purpose' approach; as such, the researcher endeavoured to combine both the qualitative narrative findings with quantitative statistics to illustrate the key findings as related to the research questions and domains.

## **7.4 DISCUSSION OF THE INTEGRATED FINDINGS**

### *7.4.1 INTEGRATION AND THE NINE CRITERIA*

This section presents the integrated findings by first considering the two sets of data as related to the nine criteria. Undertaking an orderly approach enables the association of relevant findings and develops a singular triangulated finding for each criterion that can be used to correlate with Section 7.3. This Quant-Qual approach, as suggested by Johnson, Onwuegbuzie and Turner (2007), focuses on the quantitative findings first as the weighted strength of the integration, then looks for associations within the qualitative findings that are relevant to each criterion.

#### *Leadership and Governance*

Emerging themes from the quantitative findings analysed in Chapter 6 showed a lack of understanding of the strategic vision, something WHO (2010a) stated as critical to ensuring governance and must be communicated effectively across all levels. The quantitative findings showed that the PHCC directors categorically agreed that the strategic vision was unclear and that they did not know their mission, the explicit values or objectives. The qualitative findings of the regional MoH directors stated that they understood the 2005 National Policy for Health as a strategic framework to enable the vision of UHC; how this relates to PHC was unclear. This supported the findings of Tait (2004), and how the lack of effective communication of strategic plans, vision, mission, core values and objectives can impact on the operation of the PHCCs, thereby affecting the clinical effectiveness and delivery of care.

Similarly, Al-Rabeeah (2003), Al-Ahmadi and Roland (2005) and Alyemeni (2010) noted that poor communication could impede functionality in the health system. Du Toit et al. (2013) noted that a lack of effective communication increases the level of risk as there is a lack of procedures to follow, which can create a lack of consistency of processes, and thereby result in inefficiencies at the PHCC level. Poor communication and the lack of a clear vision and procedural policies reflect not only poor leadership but the poor flow of information controlled by the MoH. This was revealed in the qualitative findings—supported by Al-Ahmadi and Roland (2005), Sebai (2011), Deghaither (2006), (Alyemeni 2010), Al-Falieh, Al-Freihi and Al-Rabeeah (2009) and (Khursani, Buzuhair & Khan 2011)—and clarifies that the centralised control of the MoH restricts local decision-making, which supports the argument that PHCCs should have a level of autonomy to enact control over the delivery and oversight of PHC.

Poor and restricted communication, identified in both sets of findings, affects leadership at the PHCC level, transcending into clinical operations and limiting policy development. For effective reforms, there must be effective leadership (Atun et al. 2006). Moreover, this leadership must be empowered to not only shape reforms but to implement them; there must be a shift in power from the MoH to PHCCs for sole responsibility of UHC delivery, as suggested by Sambo and Kirigia (2014).

### *Health Service Delivery*

The WHO has stressed that healthcare should be accessible to everyone and that universal healthcare was a goal of the Alma-Ata Declaration. This belief in equality in terms of access was held by more than 94% of the surveyed PHCCs, which not only bodes well for the Ministry of Health (2009) directive, but was similarly asserted by Walston, Al-Harbi and Al-Omar (2008) and Beaglehole et al. (2008) as a national priority for countries. This quantitative finding of low coverage/access is unequivocally supported by the qualitative evidence from this study. The gap in access to universal care remains despite repeated policy statements about universal access in national policies in 1994 and 2005. What can also be construed is that, with such universal agreement, there is support for the assertion that PHCCs do know what their objectives are, which then contradicts the evidence presented previously where they were unclear of the vision, mission, values and objectives. More than 91% of the surveyed PHCCs stated that access to healthcare was the most important goal of the PHCC, which asserts the belief that PHCCs have some notion of a mission.

The second issue of importance for health service delivery that emerged was that of continuity of care, as asserted by Othman et al. (2015). While 80% of the PHCCs agreed that this was essential for health service delivery, a referral system between health system providers, PHCCs, hospitals, and specialist centres is needed, and this was not universally the case outside Riyadh. The inability to communicate effectively across all levels of the health system stems from a poor initial point of contact and registration. This transcends after the first consultation between patient and physician; without a universal referral system, there is no continuity of care, so the delivery of health services is currently inefficient. Both sets of findings reiterated that the referral system needs significant improvement, especially because any existing system is manually driven.

Just as the lack of a universal referral system is a barrier to health service delivery, so too is the lack of technological resources. Both sets of findings noted the need for equipment and human

resources to provide specialised services, basic tracking of patient care and follow-up, and the ability to draw blood and take x-rays. These barriers to basic operational and clinical care are collective barriers to universal health service delivery. Furthermore, it raises concern over the perceived acceptable levels of care. Simply offering and having access to PHCCs, where specific procedures cannot be undertaken, is not providing universal healthcare for every citizen, it is merely providing the facility to do so, not the ability to do so.

This extends to whether the MoH policy of offering both preventative and curative care is effective, when there is no ability to provide preventative care, patient follow-up or even curative care for those who need it. Therefore, the findings indicate that the policy is failing its objective, as Alharthi et al. (1999) and Almazrou and Salem (2004) noted. With more than 92% of the PHCCs stating that they did not provide preventative care and more than 93% stating that they could not follow-up with patients with chronic diseases, the functionality of PHCCs must be questioned. This ineffectiveness of PHCCs to provide basic levels of care due to a lack of resources brings inefficiencies and impacts on the delivery of care (Almutairi & Moussa 2014).

#### *Human Resources for Health*

The impact of a lack of resources on operational and clinical efficiencies and the delivery of healthcare extends to the inability to perform minor surgeries. The current average volume of patients seen annually is ~19,000 patients, with an average of 9,500 patients per PHC physician, supports the qualitative findings that not only was there a lack of staff resources for specialised treatments but the allocation of those staff resources was a concern. With such a high volume of patient care, while on the positive side provides some level of care for patients and therefore affords access, the shortage and increased workload of staff may not provide the level of care when a patient does not necessarily have their own GP. The WHO, Atun et al. (2006) and Moosa et al. (2014) all stressed the importance of a family physician in providing primary healthcare. Aloufi and Bakarman (2016) identified a lack of human resources and training, particularly of family physicians.

The quantitative findings similarly noted that the demand for young GPs was evident. When taken in isolation, the situation could be seen as serious, but when taken in conjunction with the need for specialised staff, which the quantitative and qualitative findings supported, some degree of allocative efficiency is needed, as suggested by Margolis et al. (2003). The situation is dire in terms of meeting the standards of level of healthcare necessary, especially when one considers the vast

investment in PHCCs. Notwithstanding the scale of investment in facilities, there is an enormous challenge to fund the necessary resources and infrastructure needed for a continual supply of highly trained staff, both in the short- and long-term. As the qualitative findings suggested, it is not enough to have the resources but to have the right ones allocated efficiently.

### *Health Financing*

Given that the PHCCs are largely dependent on governmental budgetary allocations, the current economic impact on the MoH has not directly impacted PHCCs, based on the quantitative findings. Only 20% of the PHCCs stated that they had been negatively impacted by the economy, but the qualitative findings identified issues in the funding amounts allocated to PHC and the centralised control. In the context of other issues already identified, such as operational inefficiencies and a lack of resource staffing, the funding amounts and allocation are extremely important for optimal operational and clinical efficiency levels regarding health service delivery. When considered in the context of continued PHCC expansion and the cost of achieving 2,750 PHCCs by 2020, the issue is focused on whether the sums allocated for those projects should be redirected. Given the qualitative findings that stated an excess of centralised decision-making, perhaps greater input and control at the PHCC level could resolve some of those inefficiencies at the expense of building additional PHCCs.

The centralised control identified in the qualitative findings alluded to the fact that PHCC control of decision-making would facilitate the allocation of funds to address specific needs, like referral systems, as also stated in the quantitative findings. For the PHC sector to have independent financial control, they need a decentralised decision-making structure, which would be a paradigm shift in thinking, and while Mufti (2002) noted that it was a governmental goal more than a decade and a half ago, this is yet to occur.

This change in strategic thinking is not the only goal to not be implemented. The quantitative findings found that only 1.1% of Saudis paid for services with private health insurance, yet the government is desperate to change the funding mechanism by finding cost-cutting measures and increasing the efficiency levels and uptake of private health insurance. However, they are slow to establish and implement these changes. In a time when drastic measures are being considered to reduce government spending, financial policy reform is needed that redresses the control of budgetary allocations to the PHC sector and how that money is spent, but the government is

lagging behind other Muslim states, including Oman, Tunisia, Lebanon, and Syria, and the findings support this.

### *Health Information*

Both sets of findings acknowledged the lack of a health information system, be it a referral, tracking, appointment booking or simply access to the internet, as 89% of the PHCCs stated was the case. The lack of an integrated health information system follows that of previous findings in this study, where there was a lack of infrastructure resources even to conduct x-rays. Thus, health technology seems to be causally connected to the lack of a health information system.

Without basic services, such as email afforded via internet access, the ability to monitor patient satisfaction levels—an essential measure of the success of healthcare delivery—is not achievable. While the ability to measure patient satisfaction levels is an essential benchmark for measuring performance, it is not a basic clinical level function. However, being able to remind patients of the need for testing and screening is, and with more than 83% of the PHCCs stating that they had no way to undertake such notifications, coupled with the inability to access health research information or provide health education, this impacts on healthcare delivery. Having a HIS is necessary infrastructure with significant associated costs, but financial constraints are an issue on the overall health budget (Bhutta et al. 2010; Du Toit et al. 2013).

The qualitative findings indicated that previous attempts at implementing a universal HIS had not been successful; with that came a reluctance to waste funds by trying again. Perhaps the implementation strategy was wrong, there were issues with system support maintenance, a lack of follow-through or a lack of skilled staff, or simply a lack of funds allocated to implement an integrated HIS, the fact remains that this is a critical mechanism for improving operational efficiencies across the PHC sector, and this study found that one simply does not exist.

### *Health Technology*

The findings identified a high correlation and indeed a dependency between a HIS and health technology. Understanding that technology such as the internet can provide access to a multitude of information for research, email and a communications tool for patients and staff, it is not health technology in the literal sense. The evidence has shown that the lack of technology to even undertake x-rays is not achievable. This is despite the Saudi government stating in the Ninth

Development Plan (2010–2014) that there was a need to establish advanced information technology to support a HIS (WHO 2013).

Not being able to provide online patient appointments and referrals with a lack of technology impedes operational capacity and reduces productivity, both in operational performance and clinical delivery. Not having effective case management records and the inability to communicate and share information limits the ability of PHCCs to meet health goals (Alshammary, Ratnapalan & Akturk 2013; WHO 2010a, 2012a). The fact that 91.1% of the surveyed PHCCs do not have automated patient bookings or electronic requests for prescriptions, illustrates the need for an e-health system.

#### *Community Ownership and Participation*

An essential element of the universal delivery of healthcare is access to a PHCC to facilitate community participation, as the PHCC becomes a conduit to provide care and educate that community. Of the surveyed PHCCs, 96.7% provide local communities in Riyadh and Jeddah access to PHC; therefore, it can be inferred that those communities have active engagement with a PHCC, at least in terms of care. Beyond that, WHO (2010a) stated that community participation must include an opportunity to influence policy and that communities who are not actively engaged beyond meeting health needs, do not have a health system that is delivering the level of service required or to meet that community's needs (Littlewood & Yousuf 2000).

The PHCCs in the study areas do not have active engagement with their local communities. Only 51.1% of PHCC managers stated that they saw people from local neighbourhoods, which is far below the universal coverage target for every country (WHO 2010a). This study found no evidence of universal programs like 'Health Passport' or 'Friends of the PHCC' and the communities are not actively engaged with the local communities (Littlewood & Yousuf 2000).

There is no question that the lack of health technology, a health information system and universal internet are barriers to engaging community participation. This not only impacts on operations and clinical care management but transcends to community participation and stresses the imperative need to implement one (Mutale et al. 2013). Implementing such a system provides a mechanism for encouraging active community engagement, which translates into communities taking ownership of their care and behavioural changes that affect health outcomes and foster preventative health measures (WHO 2010a). This failing of the PHCCs could be due to the lack of mechanisms in place to promote community awareness and participation but also to the lack of

resources. Being able to implement such programs universally would increase the delivery of PHC for patients (Aantjes, Quinlan & Bunders 2014).

### *Partnerships for Health Development*

Partnerships for health can exist on many levels from private health insurance to health service delivery at the administrative level and the provision of specialised clinical care. In Saudi Arabia, it could be argued that the largest public–private partnership is facility ownership (56.7%). The need to develop and expand private partnerships is essential for reducing healthcare expenditure (Meessen & Malanda 2014; Watson 2012). Currently, PHCCs need specialists and specialised care, yet only 10% share their facilities with other non-MoH health providers. Partnering with other private specialist providers could increase the levels of service delivery while helping to reduce healthcare costs.

While Saudi Arabia has stated a desire to establish greater PPPs in health, this intent to reduce the impact on health expenditures has not materialised. What is clear is that whether the PPPs are solely offering private health insurance, providing specialised services or delivering a HIS, they will add significant value, but the formulation of the public health policy must change to accommodate the delivery and implementation of community health needs. This would mean a paradigm shift from the direct control of delivering healthcare and reallocating funds to support PPPs. PPPs are a solution for improving healthcare delivery (Baig et al. 2014), but as the quantitative findings illustrated, there may be a desire but there is little practical intent or delivery. The fact remains that all the control and decision-making are centralised and this could well be a barrier to establishing and implementing any PPPs.

### *Research for Health*

While the quantitative research survey did not specifically address research, certain facts were inferred, namely the lack of a HIS and internet access, which suggests that limited, if any, evidence-based decisions and research for health are being undertaken, which could be construed to not represent a priority for health service delivery. This was affirmed in the qualitative findings which identified that the value of research for health was not completely understood. This integrated finding supports the findings of Saleh et al. (2015), who reported that PHCCs did not employ evidence-based decision-making in clinical practice.

The impact of not having a HIS or internet access, and thereby not undertaking EBP, means that clinics are unlikely to have an effective disease management program, one of the benchmarks for delivering health goals (Samb et al. 2010). Failing to have an effective functioning HIS and being able to conduct EBP will impact clinical decision-making (Saleh et al. 2015). Again, there is an opportunity to deliver a PPP that could alleviate the shortcomings of a lack of infrastructure by partnering with a private provider or, in the case of some of the participants surveyed, developing partnerships with universities to take advantage of their facilities. Overall, Saudi Arabia may be failing to understand the need of research for health, or even conduct it, and communicate this effectively, but a policy shift is needed to improve clinical decision-making for Saudi Arabia to meet the level of expectation outlined by the WHO (2012b) strategy on research for health, which will ultimately translate into improved health outcomes.

#### *7.4.2 INTEGRATION AND THE RESEARCH QUESTIONS*

Table 7.1 shows the five research questions, stated in Chapter 1, that this study investigated. The two columns provide summarised findings of the qualitative and quantitative investigations that were conducted using a mixed methods approach.

TABLE 7.1. INTEGRATION AND THE RESEARCH QUESTIONS

Research Questions	Qualitative Findings	Quantitative Findings
<b>Q1. What effect has the 2005 National Policy for Health had on the overall health system in KSA?</b>	Development of >2,280 PHCCs but need to update the policy to consider new developments and demands placed on policy directives, such as the need for greater autonomy for PHC in terms of budgets, a decentralised decision-making authority and further development with greater resource support.	The building of PHCCs has expanded the health system in terms of coverage, and improved the delivery of vaccinations, particularly for children, which has had a significant, positive impact on health outcomes. The central focus on PHCC development has not addressed infrastructure, which now requires policy reform directed by input from PHCCs and focused on improving operational and clinical efficiencies that can translate into improved health service delivery.
<b>Q2. What is the PHC managers' knowledge about the role of PHCCs and healthcare workers within the National Policy for Health?</b>	The findings suggest a disconnect between the role of PHCCs in the healthcare system, how they work with hospitals and what services they offer. This is confined by the need to re-evaluate staffing allocations and provide greater resources, where necessary, and training support.	There is an issue of centralised control, as such the MoH is responsible for distributing information and communicating the vision, mission, values and objectives to PHCCs, which is not understood or reaching PHCC directors and their staff, therefore their role is unclear.
<b>Q3. What are the major factors that influence the planning, implementation strategy and evaluation of PHCCs in KSA?</b>	This goes to the essence of the prime directive of the 2005 National Policy for Health—the role, control and centralised influence of the MoH.	A lack of resources and financial constraints limit the ability to affect strategic planning, as this is primarily directed downward by the MoH.
<b>Q4. What are the barriers to and facilitating factors for accessing PHC services?</b>	A multitude of reasons was identified in the qualitative analysis—that of trained staff, the scope of specialised services offered, and poor patient follow-up. Additional issues of staff allocation, poor communication and the lack of technology and HIS were prohibitive for accessing and delivering PHC services.	A lack of HIS and internet to establish mechanisms to communicate effectively, such as patient tracking and referral systems, and the inability to perform basic health tests such as x-rays and drawing blood, limits services. With a few specialised services and a lack of qualified staff resources, this impacts health service delivery.
<b>Q5. How has the national strategic policy and establishment of PHCCs improved health service delivery in KSA?</b>	Unquestionably, the building and expansion of PHCCs since the 2005 National Policy for Health has increased access to care and provided highly valued services especially in terms of vaccinations.	The facilities have provided access, as evidenced by the volume of patients seen, but this has increased the burden on existing staff and created demand for more staff and resources.

*Research Question #1*

Research Question 1 posited how the 2005 National Policy for Health affected the healthcare system in KSA. This landmark policy reshaped the healthcare system landscape by developing a plan to build new PHCCs, establish an accreditation board, increase staffing levels, and broaden the scope of immunisations for preventable diseases, and reduce child mortality rates (Almasabi 2013; Ministry of Economy and Planning 2010; WHO 2013a).

The outcome of this initiative under the Ninth Development Plan has seen KSA open 2,301 PHCCs with a goal of 2,750 by 2020. However, forecasted growth demands show that at least 2,800 PHCCs are needed, which was supported by this research, as the average number of patient visits per PHCC was >19,000 per year. Albejaidi (2010) reported an average of 8,727 patient visits per year since 2006 when there were 1,925 PHCCs. The Ministry of Health (2014) reported that inpatient volumes had risen to 13,490 with four GPs on average for each PHCC. Since then, population growth has placed an increased demand on health service delivery, which warrants additional PHCCs.

Beyond the development of PHCCs, the 2005 National Policy for Health identified that immunisation was a primary goal and the participants in this study confirmed that this had improved. The issue of staffing levels remains a prime concern, with demand for GPs and specialists at the forefront of demand. Each of the surveyed PHCCs had an average of 2.5 GPs, of which half (45) had ageing GPs. Considering the lack of trained specialists, staffing levels need to increase, as the GPs at the surveyed PHCCs were seeing on average 14,000 patients per year.

From both PHCCs and staffing issues, most of the surveyed PHCCs (51) are privately held, it is important to determine how best to provide equitable and efficient staffing, which may be possible via reallocation rather than simply increasing staffing levels. As new PHCCs are built, the opportunity to close leased facilities and reallocate staff is a potential solution. However, with the forecasted demand for PHCCs and ageing GPs, the demand for GPs will continue, regardless of reallocation. Therefore, this would only serve to improve service delivery in the short-term, not the long-term.

*Research Question #2*

Understanding the role of PHCCs, the directors and staff, and how this fits within the healthcare system should flow from the MoH to the various levels. The overriding vision for universal

healthcare, as prescribed by the WHO and the Saudi government, and how it provides access to care through the delivery of PHC at PHCCs, has not translated well into a clear mission statement, core values and objectives that are widely known or understood. It is clear that this has not been communicated well to reach the PHCCs; more specifically, how the PHCCs should work with the hospitals within the system is not understood. While there is centralised control, the lack of telecommunications and health system infrastructure is a barrier to disseminating information, which limits the ability of the MoH to distribute this information.

The impact of not having a well-understood mission statement and known core values and objectives impedes operational efficiency and policy development. If there are no mechanisms in place to evaluate the effectiveness of core objectives, then evaluating policies for reform is not possible. This is evidenced by the identified staffing allocation issues and operational ineffectiveness of the PHCCs due to the lack of internet, HIS, and systems to refer, track or support service delivery. Not having mechanisms for communication means that feedback on what is and is not working is not transparent or readily accessible. The information flow should be two-way but with no information coming from the policy level, or flowing back, on how the operations are functioning means that policy development it is not reflecting need.

### *Research Question #3*

The planning and implementation strategy of PHCCs in KSA can be directly linked to the 2005 National Policy for Health, and in that context, the continued growth and planning to 2020 could be construed as successful. The primary factor for implementation has been the continued financial commitment and support by the government and administration by the MoH. From the outside, it appears to have worked, but that is a short-sighted view. The centralised control and perhaps singular vision of the 2005 National Policy for Health has meant that certain aspects have been excluded, e.g. the implementation of a HIS. The centralised control means policy dissemination and communication is tightly restricted and input into policy formation is limited. As such, the reallocation of funding to provide infrastructure support such as specialised staffing, a HIS, basic internet and health technology equipment has not been fully funded. There seems to be a disconnect between policy formation and communication levels and frontline operational levels, such that the identified issues have not been considered at the planning level and not accounted for in the budget, and therefore not strategically implemented. The consequence is that the MoH

has a major influence on planning and implementation, not only the development and building of PHCCs but the support infrastructure and operational efficiency of health service delivery.

#### *Research Question #4*

Research Questions #2 and #3 identified that the MoH is a barrier to communication and the planning and implementation of the PHC strategy, but other factors are affecting access to PHC services. While there is no disputing the value of building PHCCs to provide access to a facility, these facilities lack trained staff, health technology, an integrated HIS and basic internet, and are expected to meet high levels of patient volumes that continue to increase and place pressure on health services. Without proper equipment like x-rays, MRIs and blood testing, these problems mean that patients must be sent to hospitals for secondary visits, which decreases the efficiency of the PHCC and increases the burden placed on hospitals.

Additionally, having patients referred to hospitals for basic testing increases the costs of services, while there are budgetary pressures to find more efficient ways to operate and reduce costs.

Therefore, such problems are exacerbating the levels of inefficiency and increasing costs.

Moreover, when there is no automated referral system in place, no HIS to track patients and no automated patient records, the amount of manual processing time increases workload inefficiencies adding further costs. When this is considered in the context of health service delivery, the inconvenience to the patient having to make two visits and re-state their issues, as the hospital does not have access to their records, impacts on continuity of care. This was alluded to by Davis, Davis and Bloch (2008), Du Toit et al. (2013), Almutairi and Moussa (2014) and Othman et al. (2015), and stated as important by 80% of the surveyed PHCCs. This extends to the notion of preventative care, which the Ministry of Health (2013b) stressed was important in support of curative care, but cannot be readily achieved when systems and support are not in place.

#### *Research Question #5*

It can be construed from the 2005 National Policy for Health that the development and building of PHCCs have provided access to health services, with 2,301 facilities as of 2015 (Ministry of Health 2015), and a foundation to deliver preventative care beyond the immunisation programs for preventable diseases that were previously offered. The PHCCs are currently delivering care to high volumes of patients but could improve efficiencies and provide higher levels of preventative care

with increased system and infrastructural support, be it through efficiency studies to reallocate resources, increased levels of staffing including specialised staffing, and/or an integrated HIS.

The 2005 National Policy for Health has delivered on its core objective, but changes to the MoH budget directive now offer the opportunity to refocus the policy to achieving higher levels of efficiency and improved health service delivery. The only way to achieve this is for greater input by the PHCCs or decentralised control as seen in countries like Brazil, Lebanon, Syria, Tunisia and Oman (Jabbour et al. 2012; Meessen & Malanda 2014). However, to change the current decision-making structure would require a paradigm shift in approach and both the MoH and MoF to relinquish control, which would enable changes to funding allocations and reprioritise how PHC funds are distributed and used to improve health outcomes (Gibson et al. 2015; Swanson et al. 2010).

## **7.5 INTEGRATION AND THE EIGHT DOMAINS**

Table 7.2 outlines the integration of findings and the eight domains. The table describes how the eight domains were derived from the literature review and the *Ouagadougou Declaration's* nine criteria, and provides an integration summary of the qualitative and quantitative findings.

TABLE 7.2. INTEGRATION AND THE EIGHT DOMAINS

Results	Domains: Derived from Literature and <i>Ouagadougou Declaration</i>	Qualitative Findings (Interviews)	Quantitative Findings (Survey Questionnaire)
<b>1. (a→b) was derived by considering government leadership and governance from both a macro and micro level.</b>	At the macro policy level, initiatives like Alma-Ata and the role of global NGOs, such as the WHO, have shaped the implementation of PHC service delivery (Al-Mazrou 2002; Almalki, FitzGerald & Clark 2011; Ministry of Health 2011). Similarly, at a micro level, PHCC leadership is critical in understanding their functionality at a daily operational level (Gilson & Daire 2011; Shabila et al. 2012).	The policy directors were unclear about the strategic direction of PHC and the importance of Alma-Ata. The lack of knowledge as to the mission, core values and objectives of PHC means that they cannot effectively communicate to PHCC directors and managers any changes initiated at the policy level of the MoH. Their inability to understand and effectively communicate means that PHCC directors are unable to impart clear directions, which impacts the goals of health service delivery, and that the clinical effectiveness of health outcomes are compromised, as Tait (2004) suggested. Poor communication from top to bottom transcends across the health system and contributes to inefficiencies and promotes dysfunctionality.	All of the PHCC directors were unclear as to the core mission, values and objectives of PHC. Further to this, there was a lack of consistent policy development at an operational level; for example, no human resource management policy, no performance appraisals, no medical error reporting and no patient satisfaction reporting. Given that operational policies are a leadership responsibility and not universally in place will inevitably impact on health service delivery, and the PHCC will not operate efficiently in providing effective health service delivery (Sambo & Kirigia 2014).
<b>2. (c→b) postulates the impact health resources have on health service</b>	This is of particular significance given the abundance of research that has identified the shortage of adequate resources within the health system (Alshammary,	The qualitative results affirmed the two distinct issues reported by Ministry of Health (2012) and Alshammary, Ratnapalan and Akturk (2013). First, staff shortages	The quantitative survey revealed shortages in specialised staffing, such as pharmacists, physician assistants and dieticians. Of the surveyed PHCCs,

Results	Domains: Derived from Literature and <i>Ouagadougou Declaration</i>	Qualitative Findings (Interviews)	Quantitative Findings (Survey Questionnaire)
<b>delivery.</b>	Ratnapalan & Akturk 2013; Ministry of Health 2012). WHO (2010b) stated that human resources and their skill levels were critical in determining and achieving positive health results and integral to the level of quality of healthcare delivered. In light of the current situation in KSA, assessing these domains is imperative to understanding the level of success that PHCCs have had since their implementation.	and a specific lack of certain specialisations. Second, inefficiencies in staff allocation, which are compounded by a lack of staff training. Poorly allocated resources delay the assessment of patient needs and treatment. The lack of specialised staff means certain procedures cannot be performed (WHO (2010b), which impedes quality health service delivery and affects health outcomes.	31.1% had staffing needs and incomplete teams, which impacts on patient services. Given the high volume of patients per PHCC per year (estimated average >19,000), this will cause delays in care, an inability to deliver care, and burden existing staff, which increases inefficiencies in PHCC operations and reduces the quality of healthcare delivered (Azétsop & Ochieng 2015; Othman et al. 2015; WHO 2010b).
<b>3 (d→f) postulate the importance of health financing in both delivering and supporting health technology.</b>	As health technology is instrumental in increasing productivity, streamlining case management records and reducing costs (WHO 2010a), it is important to maintain those systems (Du Toit et al. 2013). Thus, health technology is highly dependent on health finances, not only to be implemented but sustained.	Concerns were raised over the centralised control of the MoH budget and that the lack of an autonomous budget impacted operational concerns at the PHCC level. Given the inherent lack of health technology, including referral systems and the inability to make financial determinations as to how money is allocated to address operational inefficiencies, there is a need to invest in health technology to improve PHC effectiveness.	Global economic events have impacted the KSA MoH budget; with that, greater fiscal controls have been established. With 20% of the PHCCs indicating that this had had an adverse effect, along with the centrally controlled funds, the requirement for specifically allocated funds to address the lack of technology is a barrier to improved health service delivery. Only eight of the surveyed PHCCs offered online appointments, and none had referral systems; these systemic infrastructural issues are

Results	Domains: Derived from Literature and <i>Ouagadougou Declaration</i>	Qualitative Findings (Interviews)	Quantitative Findings (Survey Questionnaire)
<b>4. (f→e→b) shows the causal connection between health technology, health information and health service delivery.</b>	Health information is highly dependent on health technology as a mechanism to deliver health data. For example, e-Health can provide access to prescriptions and test data (Anikeeva & Bywood 2011). In Saudi Arabia, health information systems such as e-Health are in the early stages (Almaiman et al. 2014). As such, it is imperative to understand to what extent these systems are in place within the PHC sector and how they are used.	The research showed a lack of basic technology, including phones and the internet. Overwhelmingly, there was no HIS, and given the causal dependency of a HIS on a health technology system (Anikeeva & Bywood 2011), it follows that without such infrastructure, health service delivery will be impacted.	essential for improving operational efficiencies and reducing costs, yet the current fiscal approach and structure prevents the PHCCs from allocating funds to address those needs.  Of the surveyed PHCCs, 91.1% had no online appointment booking system, and 89% could not communicate via email. The lack of a referral system indicates that the lack of a HIS and its associated infrastructure is prevalent within the surveyed PHCCs. Of the surveyed PHCCs, 91.1% believed that a HIS could improve health service delivery and care outcomes and increase efficiencies.
<b>5. (f→i→b) is similar to Domain 4, with a significant dependency on health technology to provide health research in improving health service delivery.</b>	The WHO stated an inherent need to establish health technology that can provide access to health research to meet health goals (WHO 2012b). Moreover, understanding the value of health research in achieving health outcomes and health technology are essential in this equation (WHO 2012b). The value of health research extends from the policy level all the way	The health technology issues and lack of the internet limit the ability to conduct health research. The findings showed a lack of awareness of the value of health research and a belief that it was not the responsibility of the PHCCs, rather the MoH or universities.	The reported lack of health technology and technology infrastructure limits how research for health can be achieved. The quantitative study did not directly ask questions on research for health; the lack of health technology infers that limited if any, research for health is being conducted at the PHCC level. The lack of evidence-based research affects

Results	Domains: Derived from Literature and <i>Ouagadougou Declaration</i>	Qualitative Findings (Interviews)	Quantitative Findings (Survey Questionnaire)
	down to improve health service delivery (Jahan et al. 2014).		clinical decision-making (Saleh et al. (2015), such that the health service delivery of PHCCs is affected by the lack of health technology and research.
<b>6. (c→g→b) considers how human resources in the health sector can influence and support community awareness and participation.</b>	De Maeseneer et al. (2008) suggested the need for specialised physicians who are focused on community issues, such as family medicine, as they would be more culturally aware of the community's specific needs. By integrating health professionals within the community sector, positive health outcomes occur when policy supports such programs (Magawa 2012; Magnussen, Ehiri & Jolly 2004).	Not only was there a lack of staff resources in PHCCs, but a lack of broad-based community programs. The two programs 'Health Passport' and 'Friends of the PHCC' were not being used universally. There was a lack of awareness of the value of community health programs and how they can add value to health service delivery.	Of the surveyed PHCCs, 51.1% saw locals from surrounding neighbourhoods. The implementation of PHCCs has provided access to local communities on some level. However, staffing issues and a lack of specialisations, coupled with a demand for services, means that there are limited resources to actively engage in the community. The lack of a HIS to create awareness of health education programs affects preventative care and health service delivery.
<b>7. (a→d) relates to most of the criteria either directly or indirectly. How leadership and governance influence health financing.</b>	Whether in KSA or elsewhere, state-supported healthcare depends on funding mechanisms that are allocated by federal and state governments. In KSA, the current healthcare structure predominantly dictates the levels of funding and distribution. For KSA, funding is highly dependent on oil revenue (Alkhamis, Hassan & Cosgrove 2014). Historically, this	The regional directors were unclear as to the national strategic policy direction, and there was no autonomy for PHC as it was part of the MoH. With little influence over strategic planning, it could be construed that the PHC sector has little input into budget allocations for spending. The high levels of bureaucracy and centralised decision-making impede the delivery of	Most of the surveyed PHCCs stated that the changes to government budgets had had no adverse effects: 56.7% stated their situation was unchanged, and 23.3% stated they were better off. However, the PHCC directors acknowledged the lack of clear strategic direction and communication from the top; thus, it can be inferred that PHCCs

Results	Domains: Derived from Literature and <i>Ouagadougou Declaration</i>	Qualitative Findings (Interviews)	Quantitative Findings (Survey Questionnaire)
	has been profitable, but the funding allocation has not adequately addressed needs or been fairly distributed, particularly given the region's health demands (Albejaidi 2010).	PHC.	have little influence or ability to communicate on health policy as it relates to PHC or affect strategic planning, including how finances are allocated at the PHCC level.
<b>8. (h→d→b) considers how forging new health partnerships through Public–Private Partnerships (PPPs) can reduce the financial burden on the health system and increase the efficiency of health service delivery (WHO 2010a).</b>	PPPs can increase access to health information systems, which in turn provides a mechanism for increased health education and research (Kirigia & Barry 2008). Furthermore, PPPs can expand health infrastructure and access to vaccines and medicines (Kirigia & Barry 2008).	There was no real understanding as to how the PPP nexus would be implemented within the current health structure. Suggestions were made that PPPs could provide private health insurance, which would positively affect the MoH budget, and deliver community health programs. Furthermore, it was a widely held belief that PPPs would add value in whatever capacity they were established, but doing so would require changes to the operation of the health system the centralised control, which would affect the funding mechanism and health service delivery.	With only 1.1% of healthcare bills being paid by private health insurance in the surveyed PHCCs and only 10% sharing facilities with other medical care providers, there are opportunities to expand these relationships to reduce costs. When the shortage of specialised care providers, establishing a partnership to provide services where there are none would alleviate training and staffing needs and expand service delivery. With 50% or 45 PHCCs stating that they had no technical services, this could be a way to address health technology by establishing PPPs to reduce the total cost burden of implementation and maintenance, which is instrumental in delivering HIS, and would help to improve access to health services.

*DOMAIN (D1): A) → B) WHERE A) LEADERSHIP AND GOVERNANCE FOR HEALTH → B) HEALTH SERVICE DELIVERY*

From a government policy perspective, this domain can be asserted as factually evident simply because the 2005 National Policy for Health formed the basis for the expansion of the PHCCs over the past decade. On a macro level, leadership in the policy formulation created a policy that, when implemented, resulted in 2,301 PHCCs (as of 2014) that have provided access to PHC services. However, under the Alma-Ata Declaration 1978, the objective of delivering efficient universal healthcare is yet to be achieved. While KSA has recognised the need for a preventative, as well as a curative, approach to healthcare, the mechanisms for support infrastructure and systems are not yet in place. However, if KSA were judged solely on the development of PHCCs as a way to provide access to universal healthcare, then that could be seen as successful implementation of the Alma-Ata Declaration.

At a micro level, leadership has not fully effected health service delivery, given certain operational constraints, such that operational efficiencies and effectiveness have limited functionality. The inflexibility of the centralised leadership of the MoH has failed to recognise the need to expand policy thinking and that simply building facilities is not meeting universal healthcare in terms of levels of quality of care. In this context, the 2005 National Policy for Health as applied by leaders of the MoH, has been too rigid and single-minded with quantity expansion rather than focusing on the quality of services provided. With regard to communication of the mission, core values and objectives, this has not occurred. Regional directors have not been clear about the strategic plan, with 100% of PHCC directors stating that this was not communicated effectively.

*DOMAIN (D2): C) → B) WHERE C) HUMAN RESOURCES FOR HEALTH → B) HEALTH SERVICE DELIVERY*

Two factors emerged from the research with regard to human resources for health and health service delivery. First, that high volumes of patients (>19,000 per year on average) are being seen at PHCCs by just 2.5 GPs, resulting in limited time per patient and creating stress and burden on existing staff. This was supported by the qualitative findings that identified a lack of staff resources and how they were allocated as an issue. The second factor, identified in the quantitative findings, emerged as a sub-theme, that the level of care provided is limited by the lack of provision of or accessibility to certain specialised services. Specialisations such as dieticians, pharmacists and physiotherapists are not broadly available across the surveyed PHCCs.

This brings into question how access to universal care is measured and the meaning of universal care: it is simply not enough that the presence of a facility is a measure of access. The domain identified shortages of skilled resources, as supported by others (Alshammary, Ratnapalan & Akturk 2013; Ministry of Health 2012), and the need to train existing staff and employ more GPs, particularly as 28.9% of the surveyed PHCCs had no GPs under 35 years. These factors support the assertion by WHO (2010b) that a lack of specialised staff and limited skill levels has a negative impact on the level of healthcare services provided. Saleh et al. (2015) also reported the need for more GPs and the high levels of patient volumes (5,897 patients seen per GP per year) affect patient–physician relationships and the level of health service delivered.

*DOMAIN (D3): D) → WHERE D) HEALTH FINANCING → F) HEALTH TECHNOLOGY*

The health financing of health technologies is an essential if not critical component for the delivery of healthcare services since health technology can improve productivity and efficiencies that translate into improving levels of effectiveness (WHO 2010a). The findings suggested that despite the economic changes that have affected the MoH budgets, only 18.9% of the surveyed PHCCs noted a financial impact in the quantitative study and 20% in the qualitative study, offering some consistency in the findings. The control exerted by the MoH and MoF needs to be decentralised to increase the resource allocation efficiency.

When taken in isolation, there is no reason for the statistical findings for health technology. When considered in the context of the need for MRI and x-ray equipment, and that the government is looking to reduce costs and institute a greater role for private insurance within the sector, management of efficient health infrastructure and technology will not occur unless the PHC sector has some degree of control on spending.

The PHCCs are not technologically empowered to manage HIS even though the Saudi government stated the need to establish health technology to support HIS in the Ninth Development Plan (2010–2014) (WHO 2013). This raises the question of whether government has specialised funding to enable PHCCs in managing HIS. Certainly, empowering the PHC sector with some degree of control to redirect funds to establish a health technology platform could be a catalyst for change. It would also enable the PHCCs to implement phone and internet access, an issue stated by Alshammary, Ratnapalan and Akturk (2013) and the case in this study. Clearly, the lack of health technology or otherwise shows a lack of spending priority, which has otherwise been directed to building PHCCs and not infrastructure needs.

*DOMAIN (D4): F) → E) → B) WHERE F) HEALTH TECHNOLOGY → E) HEALTH INFORMATION → B) HEALTH SERVICE DELIVERY*

The lack of a referral system illustrates the direct link between health technology and health information and its impact on health service delivery. Referral systems are integral to managing patients who need secondary care, whether by a specialist or a hospital. In either case, a referral system, preferably automated, to set appointments, send reminders and track patients, as part of the continuity of care, is paramount. To achieve this, there must be health technology in place for a HIS to operate. In this study, both sets of data revealed a high priority need for such a system. Since a HIS cannot work without health technology, whether through the remote internet or otherwise, there must be electronic access, which is currently not available in 89% of the surveyed PHCCs. Health information systems were only available at eight PHCCs.

This study also uncovered previous attempts to develop a HIS, which had failed for multiple reasons, including implementation strategies, maintenance contracts and lack of follow-through or skilled staff. Notwithstanding, the value that a HIS can provide in delivering increased health information for PHCC operation, clinicians and patients has been reported (Al-Ahmadi & Roland 2005; Alalfi et al. 2007; Jarallah 1998). The lack of a HIS and its impact on health service delivery is further evident when examining the provision of clinical information that is deemed critical for health systems to operate; for example, tracking laboratory testing, which was not possible in 82.2% of the surveyed PHCCs.

*DOMAIN (D5): F) → I) → B) WHERE F) HEALTH TECHNOLOGY → I) RESEARCH FOR HEALTH → B) HEALTH SERVICE DELIVERY*

The research identified a lack of health technology, health information systems and internet access; thus, it can be confidently asserted that evidence-based research was not widely accessible, and PHCCs could not conduct research to inform clinical decision-making for health service delivery. This finding supports this domain, based on WHO (2012b) who asserted that health technology was essential for accessing health research to deliver health goals and that health service delivery must be inherently considered a health goal as it is a core value of any health system (WHO 2010c). The research identified no clear understanding of what value research for health could provide, which supports WHO (2012b), and that will impact health research and affect health outcomes.

Furthermore, Saleh et al. (2015) found that evidence-based research was not universally adopted into practice in primary healthcare and this was the case in this research study. It can be concluded that there is no clear understanding of its value at the operational/clinical level and it is not supported at the regional level. Given that Jahan et al. (2014) noted the value of health research extends from the policy level (MoH) to the health service delivery level (PHCC), the lack of understanding of health research and its importance for the health service is pervasive across all levels.

The research also found that participants did not understand who was accountable for developing or conducting research. Some indicated that the MoH was responsible, rather than understanding the clinical relevance of evidence-based research at the PHCC level. There was some indication that the value of research for health could be achieved by partnering with universities, as they were perceived as having the infrastructure. The fact remains that without health technology, a health information system and internet access, clinicians cannot access research data or contribute to the discourse, and do not have easy access to consult with colleagues; this can only be done by direct conversation or telephone. Thus, the impact of the lack of systems to provide access to research for health has broad implications at the clinical level but can add value to decision-making at the policy level.

At the clinical level, research for health can provide significant benefits, particularly for PHCCs, as it relates to health service delivery by improving a clinician's knowledge, reducing the cost of care, and improving health outcomes. Furthermore, Jahan et al. (2014) noted that research for health could provide evidence and inform decision-making in primary care settings and foster collaboration between health department levels. Thus, information that is accessible can be shared between PHCCs, hospitals and speciality centres to improve health service delivery.

*DOMAIN (D6): C) → G) → B) WHERE C) HUMAN RESOURCES FOR HEALTH → G) COMMUNITY OWNERSHIP AND PARTICIPATION → B) HEALTH SERVICE DELIVERY*

The universal lack of a HIS means a greater dependency on human resources at PHCCs to foster community involvement to further health service delivery. The lack of specialised physicians and specific resources to support community health education supports the findings of De Maeseneer et al. (2008). Despite the development of community programs—'Health Passport' and 'Friends of the PHCC'—which have not been universally adopted, there is limited community development or participation. The failure to implement programs universally could be due to a lack of a universal

health system or internet access, or it not being identified as an objective and therefore not a priority. The lack of specialised health professionals aligned to support community health denotes a lack of policy support for existing health programs, which impacts health service delivery and health outcomes (Magawa 2012; Magnussen, Ehiri & Jolly 2004).

PHCCs are unclear about their role, due to poor communication of their mission, core values and objectives. Making PHCCs aware of their intrinsic role and informing staff would augment health service delivery at the community level, as noted by (Aantjes, Quinlan & Bunders 2014).

Encouraging community participation as part of delivering universal care (Littlewood & Yousuf 2000) can improve health service delivery.

*DOMAIN (D7): A) → D) WHERE A) LEADERSHIP AND GOVERNANCE FOR HEALTH → D) HEALTH FINANCING*

The impact of leadership on health financing is evidenced by the fact that decision-making is centralised between the MoH and MoF, which is highly dependent on the country's oil revenues (Alkhamis, Hassan & Cosgrove 2014) that have been subject to global economic forces resulting in decreased revenue. Subsequently, the government has been looking for efficiencies and cost-cutting (Sahoo 2016), and despite plans to continue to build 2,750 PHCCs by 2020, control over the allocation of the assigned healthcare budget is still a function of the MoH. The study revealed the desire for either the PHCCs or PHC to be assigned their own budget that can be appropriated based on their decision-making rather than dictated by the MoH.

Despite the intent to reduce spending and find efficiencies, only 20% of the PHCCs felt this had had a negative impact. The study showed that bureaucracy caused delays when requesting funds, with lengthy process times, which then impacted PHCC operations. With centralised decision-making, the process is hierarchical and, given the lack of specific fund allocation for PHC, certain operational needs are not prioritised, and thus not budgeted. Therefore, decision-making for fund allocation does not reflect the needs of the PHCCs. This is inefficient as it does not address barriers such as staffing shortages and systemic issues such as health technology, health information systems or the internet, which could improve health service delivery.

Many operational issues, such as the lack of a referral system, requires health technology, which is dependent on health finance (Du Toit et al. (2013). This study found a lack of a health referral system and that no direct allocation to finance one, such that decision-making to address this requires leaders to appropriate funds to improve service delivery. Thus, leadership is affecting health finance at the policy level in determining how funds are allocated and spent. To have

independent control of a PHC budget and facilitate decision-making of how those funds are spent would require a decentralised approach to how the health system is managed and accounted for, instead of the centralised MoH.

While the KSA government indicated that decentralisation was a goal (Mufti 2002), there has been no move toward this in the past 15 years. Meessen and Malanda (2014) noted that decentralisation was needed to implement health technology and improve health communication with a referral system. This will need a shift in strategic thinking, like that of Lebanon, Syria, Tunisia and Oman (Jabbour et al. 2012). While there are budgetary concerns, this appears less likely to happen.

*DOMAIN (D8): H) → D) → B) WHERE H) PARTNERSHIP FOR HEALTH DEVELOPMENT → D) HEALTH FINANCING → B) HEALTH SERVICE DELIVERY*

Part of the health funding challenge facing KSA is changing the mechanism of how the funds are allocated. Currently, there is a predominant reliance on the government, despite the desire to 'enforce' private insurance, which only accounted for 1.1% of payment methods at the surveyed PHCCs. Fostering more PPPs could reduce the burden of health costs and increase health service delivery. It has been argued that the lack of decentralised decision-making for fund allocation to PHC impacts on resource provision for improving health service delivery. Currently, there is a shortage of specialised care centres, and only 10% of PHCCs share their facilities with outside MoH medical providers; expanding these associations and encouraging partnerships at facilities would reduce costs and increase service delivery. This would reduce the reliance on PHCCs and the MoH system on providing specialised care and, therefore, reduce the demand for specialised staffing.

More than 31 of the surveyed PHCCs lack any planning capabilities and communication with other specialised health centres, which could be alleviated by sharing a common location or facility. Furthermore, this could be expanded to include technical services, such as radiology and laboratories to conduct tests, as 45 PHCCs stated that they had no technical services, and 58.9% of the PHCCs did not share their resources. Fostering a partnership with private providers could make up these shortages and increase access to resources, which would reduce future costs of these resources and have an immediate impact on health service delivery.

Partnerships with existing providers can offer immediate solutions by providing resources, financial respite and technical support (WHO 2010a), particularly while funding constraints limit KSA from resolving current needs. The research identified a lack of HIS, which could be resolved by

a PPP, in turn providing access to health research and education, and increasing health service delivery (Kirigia & Barry 2008). PPPs are a viable solution for reducing health costs, something the KSA government is aggressively pursuing. Improving the health infrastructure and health service delivery, while attempting to reduce costs when there are significant barriers, means that partnerships can add significant value to the funding mechanism and fill that gap in the health system.

However, as with the reluctance to decentralise control, unclear missions and lack of perceived value of research for health, there is also uncertainty as to how PPPs can work within the current health system structure. It will need a shift in public health policy (Azétsop & Ochieng 2015). For KSA to change its funding mechanism for healthcare will require PPPs; given the issues with service delivery and the lack of health infrastructure, PPPs are a viable solution to address those needs, reduce costs, and improve health service delivery (Baig et al. 2014).

## **7.6 CHAPTER SUMMARY**

Chapter 7 discussed the key study findings and linked them to the nine criteria and eight domains of the *Ouagadougou Declaration* framework, which were developed from the literature review undertaken for this study. This chapter also highlighted how each of the research questions was answered by this study. The next chapter provides recommendations and concludes the thesis.

## CHAPTER 8.

### CONCLUSIONS AND RECOMMENDATIONS

#### 8.1 CONCLUSIONS

This research studied the effect of the KSA 2005 National Policy for Health under the Ninth Development Plan and how it has impacted on the health system. Until now, there has been no assessment of how this policy has reshaped the health system with the expansion of PHCCs. Furthermore, the study investigated what factors influenced this reform and the challenges and barriers affecting the operating effectiveness of PHCCs to provide universal care and the delivery of health services. To undertake this research, the study adopted a framework model using nine criteria from the *Ouagadougou Declaration on Primary Healthcare* and health system in Africa (Barry et al. 2010): leadership and governance for health, health service delivery, human resources for health, health financing, health information, health technologies, community ownership and participation, partnerships for health development, and research for health (WHO 2010a).

The framework model provided a structured approach for analysing the effectiveness of and challenges for PHCCs. Furthermore, the framework formed the basis of the literature review, research methodology and data analysis. In addition, the researcher devised eight domains from the literature that had logical associations with the research questions, which were deductively reasoned with the findings. To undertake this research, a mixed methods convergent design was used, and the findings triangulated. The research sought to understand the operating environment from an administrative and clinical perspective within the surveyed PHCCs and a regional policy level by studying two discrete cohorts, 12 PHC Regional MoH directors and 90 PHCCs in two principal cities in KSA, Riyadh and Jeddah.

The literature review identified specific issues relating to the operation of the PHCCs in terms of efficiency and effectiveness. The Ministry of Health (2014) stated that PHCCs serve 13,400 people, but the research found that the surveyed PHCCs averaged more than 19,000 patients at each centre studied, despite the increasing number of PHCCs in KSA. In 2005, there were 1,905 PHCCs (Ministry of Health 2015) which had grown to 2,301 in 2015 under the 2005 National Policy for Health (Ministry of Health 2015). This growth of 396 PHCCs reflects a 20.78% increase but does not reflect the real impact of the national policy.

It is reasonable to state that the 2005 National Policy for Health has been successful in implementing a significant change in the health system by providing more facilities, which enables people to access health services. Additionally, the national policy has increased immunisations, which in turn improves health outcomes (Almasabi 2013; WHO 2013), and was confirmed as an effect of the development of the PHCCs. This is significant, as it not only meets the objective of the 2005 National Policy for Health but also improves long-term health outcomes and is a preventative measure that can have a positive effect on health costs (Sheikh, Mahamoud and Househ (2015).

While the 2005 National Policy for Health provided a stimulus for delivering increased PHC, that was over a decade ago, and the findings noted the need for a new policy, which should reflect the development of PHC and its inherent need to be considered in policymaking, rather than being consumed within the MoH health system. It was felt that the MoH was a barrier with its centralised control and poorly communicated mission, core values and objectives of PHC within the health system.

Decentralised control would allow the responsibility for the delivery of health and accountability to come under the PHC sector and would follow that of other countries like Brazil, Sudan, Lebanon, Syria, Tunisia and Oman (Jabbour et al. 2012; Meessen & Malanda 2014). Decentralised control of the PHC sector would require a significant shift in the government's approach to the accountability for healthcare policymaking and policy reform. This approach would not only benefit PHC but would be a way for the government to broaden the role of PPPs and address escalating health costs (Kirigia & Barry 2008; WHO 2010a) which has failed to take hold, as evidenced by the low payment of fees from private insurance (1.1%).

This study showed that the lack of input into policymaking and ability to determine how to spend funds is a serious issue, as there is no knowledge of a specific PHC budget. Not knowing what and how the funds can be spent was identified as an issue by the research participants. The bureaucracy of the MoH inhibits effective PHCC management, which affects health service delivery. Moreover, not knowing what funding is available and how to best use those funds, or not being able to plan to address inefficiencies at the PHCC level when the government is calling for efficiency increases and cost reductions, is not logical. The regional MoH directors stated the need for a PHCC budget and decision-making autonomy, as noted by (Khaliq 2012).

The 396 newly developed PHCCs need to be better equipped to function as proper healthcare facilities. Most of the surveyed PHCCs lacked basic telecommunications including phones and internet, which impacted on both the operating capability of the PHCCs, the ability of staff to communicate, and the ability of patients to access appointment systems, send enquiries and communicate effectively with clinical staff. There is an immediate need to address this basic equipment shortage.

Technological constraints extending to health technology and health information systems are essential aspects of achieving health goals (WHO 2012b). Despite the initial investment and commitment to support the infrastructure needs of health technology, continued support for maintenance, training and advancements is needed (Du Toit et al. 2013). The research study confirmed a universal lack of technological infrastructure, including health technology, as well as an integrated HIS. Anikeeva and Bywood (2011) stated the high dependency of HIS on health technology to support its functionality and maximise its potential, and the benefits of an integrated HIS means that it can be extended beyond administrative reporting and patient referrals to supporting professional development and training, and educating staff while supporting clinical care (Davis, Davis & Bloch 2008; Du Toit et al. 2013). The value of an integrated HIS affects decision-making at both policy and clinical levels, as it can provide accurate health information data that reflects the levels of care provided and measures the effectiveness of that care being provided (Levesque et al. 2014). Of the surveyed PHCCs, 89% lack any sort of technology, be it internet access or an appointment management system; the inherent benefits of multiple technologies, including health and an integrated HIS, are imperative to improving health service delivery.

The most prevalent issue is staffing. The staffing level is essential for the delivery of healthcare services. A lack of staff resources impedes efficiency and effectiveness of the care provided (Azétsop & Ochieng 2015). Furthermore, a lack of trained staff, including specialised staff, as found in this study, coupled with high patient volumes can affect the delivery of care (Alabbad & Alhaidary 2016; Alghanim & Alomar 2015; De Maeseneer et al. 2008; Mumenah & Al-Raddadi 2015). This extends to continuity of care as it affects the patient–physician relationship and health outcomes (Othman et al. 2015). A lack of trained staff, a lack of specialised staff, and continuity of care were identified as concerns, as well as the allocative efficiency of existing staff, which was specifically identified as a theme in the qualitative findings.

Recruiting trained human resources, such as family physicians, in the health sector is crucial for the Saudi MoH. The PHC regional directors selected for the qualitative study warrants investigation across all PHCCs and could offer increased efficiencies given the potential for the redistribution of staff resources, given the changes to MoH funding and the government looking to increase efficiency levels and reduce healthcare costs. This issue needs to be addressed before increasing staffing levels in specific areas.

The exception is for the specialised areas discussed previously, such as the lack of radiologists and x-ray equipment, as patients must be referred to a specialised centre or hospital. Not being able to draw blood in 85.6% of the surveyed PHCCs is compounded by the lack of lab technicians and 50% of the surveyed PHCCs lacked a laboratory to conduct tests. There is a significant correlated issue across the 90 PHCCs surveyed in the two cities (Jeddah and Riyadh) selected for this study; while this only represents 4.4% of all PHCCs in the KSA, it is important given that these are the two most populous cities in KSA.

#### *8.1.1 THE INFLUENCE OF SPECIFIC CRITERIA*

While all nine criteria were identified as having independent impacts on health service delivery and contribute to impeding the quality of universal care provided by the PHCCs, five criteria were deemed the most influential and likely to effect change.

- I. Leadership and Governance: with the MoH not communicating the PHC mission, core values and objectives, and the PHCCs not being able to influence policy decision-making.
- II. Human Resources for Health: the recognised specialised staff shortages and the burden placed on existing staff requires an assessment of the allocative efficiency of existing staff and redistribution where overstaffing exists.
- III. Health Financing: the need for an autonomous budget to support administrative and clinical operational needs. The PHC sector needs to be able to prioritise spending to include criteria e) Health Information and f) Health Technology, which would increase PHCC efficiencies and effectiveness.
- IV. Health Information: to improve health service delivery and as the basis of a multitude of health services programs, e.g. referral system, case management, patient tracking.
- V. Health Technologies: extending to basic technological needs such as phones and the internet that form the basis of operations. There is an inherent need for health technology to provide specific testing and improve patient care and improve health service delivery like x-rays, ECGs and MRIs.

## 8.2 RESEARCH CONTRIBUTION

This research study has contributed to the scholarly discourses by adding to the theoretical value and practical findings that could help to shape healthcare policy.

### 8.2.1 PRACTICAL VALUE

- I. Evaluation of the effectiveness of the 2005 National Policy for Health and its impact on PHCCs within the cities of Riyadh and Jeddah.
- II. Identification of significant barriers to delivering PHC to patients and the challenges that prohibit effective health service delivery.

### 8.2.2 SCHOLARLY AND THEORETICAL VALUE

- I. Confirmed previous studies and identified new figures, e.g. patient volumes exceed 19,000 per annum on average at the surveyed PHCCs and their impact on health service delivery.
- II. Contributed a new framework model for assessing PHCCs by using existing criteria from the *Ouagadougou Declaration on Primary Healthcare*.
- III. Developed eight domains from the literature, and with reasoned associations from the data, identified that correlations of one criterion with another can increase the ineffectiveness of health service delivery at the PHCC level.

## 8.3 LIMITATIONS

The limitations of this research study are:

- I. The quantitative data were not cross-tabulated and Pearson's correlation using SPSS was not conducted.
- II. Fifteen of the 96 survey questionnaires were distributed to PHCC managers via regional managers because the researcher was unable to visit each PHCC site due to their geographic location within the region. The quality of the responses on each questionnaire may have been compromised without a face-to-face interview. Moreover, the responses may have differed to an interview as their senior manager ordered them to respond to the questionnaire. Ethically, this may have compromised the voluntary participation of these respondents.
- III. At the start of the study, the researcher aimed to reach 100 PHCC managers. However, only 96 managers were available, as the other four managers had been relocated to other

PHCC sites by the MoH. This may have compromised the actual situation of the PHCCs in the study region.

#### **8.4 IMPLICATIONS FOR FURTHER RESEARCH**

This research study applied a framework model, built on the nine criteria from the *Ouagadougou Declaration on Primary Healthcare*, and developed eight domains from those criteria. Further research could be undertaken to:

- I. Evaluate other PHCCs in KSA using a similar framework model with the nine criteria. This study focused on 90 PHCCs within two principal cities in KSA, representing only 4.4% of all PHCCs in KSA. The generalisations from this study may only reflect those PHCCs and their policy directors.
- II. Undertake additional studies using the eight domains to assess their influence on health service delivery.
- III. Undertake further research to understand the effectiveness of staffing levels and determine the allocation efficiency of those staffing levels at PHCCs within KSA, which is needed to accurately reflect staffing needs.

#### **8.5 CHAPTER SUMMARY**

This study is original and significant as it focused on the PHC sector in KSA and sought to understand the effectiveness of the 2005 National Policy for Health. The study identified the barriers and challenges that affect the implementation of the universal care strategy and how they affect health service delivery at the PHCC level. The research undertook a mixed methods convergent design to examine the criteria identified within the framework model, which was applied to evaluate the effectiveness of the policy and the barriers impeding PHCCs in providing care. By developing eight domains, the researcher examined the importance of specific casual associations, and their effects on service delivery.

The research confirmed the predicted outcomes based on the literature review and confirmed the eight domains. The most illuminating findings were the lack of basic telecommunication equipment, health technology and an integrated HIS. This study also identified a lack of understanding of the PHCC funding mechanism.

The study identified specific criteria to assess the research objectives and questions to understand the effectiveness of a 2005 National Policy for Health and whether this policy was impeded in

achieving its objectives. It further considered those challenges and barriers to delivering universal care at the PHCC level. The framework model and the eight domains were used to increase understanding of the nine criteria and their associations postulated in those domains. The findings from this research revealed specific evidence from two credible sources and identified associations between the criteria.

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**APPENDICES**

<b>1.</b>	<b>Summary of the studies included for review</b>
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<b>3.</b>	<b>Survey introductory letter</b>
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<b>7.</b>	<b>Interview guide – Open-ended questions</b>
<b>8.</b>	<b>University social and research ethics approval</b>
<b>9.</b>	<b>Saudi Arabia Ministry of Health ethics approval</b>

## APPENDIX 1. SUMMARY OF THE STUDIES INCLUDED FOR REVIEW

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
1.	Mumenah, SH & Al-Raddadi, RM, 2015  Difficulties faced by family physicians in primary health care centres in Jeddah, Saudi Arabia.  Journal of Family & Community Medicine, vol. 22, no. 3, p. 145.	Saudi Arabia	A comparative analysis of family physicians working at MoH and primary care centres to determine their levels of satisfaction and challenges they face.	Two hospitals—King Abdulaziz University Hospital and King Faisal Specialist Hospital and Research Centre—and 40 MoH PHCCs	Family physicians purposive sample  <i>N</i> = 95	Structured questionnaire in three parts, demographic and professional, difficulties and satisfaction levels using a Likert scale.  A quantitative study.  RR = 92.2%	SPSS v.20 for descriptive statistics, chi-square test, <i>t</i> -test and Pearson's correlation.	Transportation issues were universal along with a lack of drivers. MoH physicians had problems with a lack of radiology specialists, internet, lab services, x-ray equipment and electronic medical records. MoH family physicians were less satisfied with work.
2.	Alghanim, SA & Alomar, BA, 2015  Frequent use of emergency departments in Saudi Public Hospitals: Implications for primary health care services.	Saudi Arabia	Determine the factors and degree of prevalence for the frequent use of emergency departments (EDs).	One public hospital in Riyadh, KSA over a two-week period	Adults >18 years  Stratified Random Sampling  <i>N</i> = 900	Cross-sectional descriptive study using a self-administered survey questionnaire designed in four	SPSS v.11 for descriptive statistics, regression analysis and chi-square test. Bivariate	31.8% identified as frequent users.  Correlation between frequent hospital users and other healthcare centres. 51.4% indicted no access to a PHCC.

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	<p><i>Asia-Pacific Journal of Public Health</i>, vol. 27, no.2, pp. 2521–2530.</p> <p>doi: 10.1177/1010539511431603</p>					<p>sections— demographic, access to services, health-related aspects and frequency.</p> <p>RR = 74%</p>	<p>and multivariate analyses were conducted.</p>	
3.	<p>Alghanim, SA, 2011</p> <p>Information needs and seeking behaviour among primary care physicians in Saudi Arabia: Implications for policy and practice.</p> <p><i>Scientific Research and Essays</i>, vol. 6, no. 8, pp. 1849–1855.</p>	Saudi Arabia	<p>Determine information needs and information-seeking behaviour among rural and urban primary healthcare physicians.</p>	<p>Physicians from suburbs, rural and urban in PHCC in Riyadh</p>	<p>Purposive sample</p> <p><i>N</i> = 432</p>	<p>Cross-sectional study with self-administrated questionnaire to collect data on demographics, type of medical and health information needed, sources sought and barriers encountered by physicians.</p> <p>RR = 66.8%</p>	<p>SPSS v.11 used to test significance between categorical variables and independent <i>t</i>-test to test significance between continuous variables.</p>	<p>81.6% vs 80.8% rural and urban with the need for clinical information</p> <p>50.6% vs 51.4% with the need for pharmaceutical information.</p>
4.	<p>Al-Abbad, HM &amp; Al-Haidary, HM,</p>	Saudi Arabia	<p>Understand the</p>	<p>42 physical therapy</p>	<p>Purposive</p>	<p>Cross-sectional self-</p>	<p>MS Office</p>	<p>85% felt physical</p>

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	<p>2016</p> <p>The perception of physical therapy leaders in Saudi Arabia regarding physical therapy scope of practice in primary health care.</p> <p><i>The Journal of Physical Therapy Science</i>, vol. 28, no. 1, pp. 112–117.</p>		<p>opinions of physical therapy leaders and how physical therapy services can be integrated into PHCCs.</p>	<p>leaders in various regions; 11 facilities were represented</p>	<p>sample N = 26</p>	<p>administered survey questionnaire in three sections— demographic and professional information, 8 Likert questions regarding participant perceptions, and open-ended question about advantages and disadvantages of the implementation of physical therapy services. RR = 62%</p>	<p>Excel 2007 and categorical data analysed using a content analysis technique then quantified into percentages. A peer examination of the data was conducted.</p>	<p>therapy would reduce wait times. 96% felt it would prevent chronicity and provide access to care sooner. A disadvantage was the concern regarding adequately trained staff to meet demand at the PHCC level.</p>
5.	<p>Alfaraj, AWA, Sebiany, AM &amp; Alharbi, W, 2015</p>	<p>Saudi Arabia</p>	<p>Determine if minor surgical procedures</p>	<p>26 PHCCs in Al-Qatif</p>	<p>Purposive sample</p>	<p>Cross-sectional study using self-</p>	<p>SPSS v.13 for statistical</p>	<p>86.9% indicated a desire to perform</p>

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	Primary healthcare physicians' attitude and perceived barriers regarding minor surgeries.  <i>Journal of Health Specialties</i> , vol. 3, no. 2, p. 67.		can be performed by physicians and GPs at PHCCs. Identify significant barriers to undertake these surgeries.		<i>N</i> = 70	administered questionnaire with a 5-point Likert scale.  RR = 87%	analysis	minor surgery.  68.6% believed they had the skills.  70.5% were not confident in referring patients to hospitals.
6.	Alhamdan, AA, Alshammari, SA, Al-Amoud, MM, Hameed, TA, Al-Muammar, MN, Bindawas, SM, Al-Orf, SM, Mohamed, AG, Al-Ghamdi, EA & Calder, PC, 2015  Evaluation of health care services provided for older adults in primary health care centres and its internal environment. A step toward age-friendly health centres.  <i>Saudi Medical Journal</i> , vol. 36, no.	Saudi Arabia	Evaluate the services provided by PHCCs in Riyadh for older patients.	103 PHCCs in Riyadh in five sectors	Random sample of 3 from each sector  <i>N</i> = 15	Descriptive cross-sectional study to identify basic clinical services provided to older patients for ease of use using the WHO PHCCs toolkit	Data converted into percentages. Results were categorised 1-clinical services and health assessments provided.  2-counselling services provided  3 -	100% testing for blood cholesterol and diabetes.  100% provided counselling for physical activity.  No centres accessible by public transport.

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	9, pp. 1091–1096.						environment accessibility.	
7.	Aloufi, MA & Bakarman, MA, 2016  Barriers facing primary health care physicians when dealing with emergency cases in Jeddah, Saudi Arabia.  <i>Global Journal of Health Science</i> , vol. 8, no. 8, p. 192.	Saudi Arabia	Evaluate the types of emergency cases that report to the PHCCs in Jeddah and identify the barriers affecting physicians in dealing with these cases.	40 PHCCs in Jeddah	Purposive sample  <i>N</i> = 247	Cross-sectional study with self-administered questionnaire along with a structured observation sheet using the Saudi MoH Quality assurance manual.  RR = 83.4%	SPSS v.20 for statistical and descriptive analysis	72.3% had previous ED experience. 97.1% had a basic life support class. 83.5% had not attended an Advanced Trauma Life Support course. 60.7% had not completed an advanced cardiac arrest course.
8.	Al Salloum, N, Cooper, M & Glew, S, 2014  The development of primary care in Saudi Arabia.	Saudi Arabia	Assess the development of KSA healthcare system and its challenges.	KSA health system	N/A	Evaluation of the challenges that face PHC in KSA	N/A	Demand for beds. Need for increased workforce. Budgetary constraints. Clinical challenges to health such as smoking,

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	<i>InnovAiT: Education and Inspiration for General Practice</i> , vol. 8, no. 5, pp. 316–318.							road accidents and obesity.
9.	(Alshammari, F 2014)  Patient satisfaction in primary health care centres in Hail City, Saudi Arabia.  <i>American Journal of Applied Sciences</i> , vol. 11, no. 8, p. 1234.	Saudi Arabia	The study aimed to identify those factors that contribute to patient satisfaction at PHCCs.	6 PHCCs in Hail City	Random sample  <i>N</i> = 453	Cross-sectional quantitative survey with six dimensions. The instrument was modified. 31 closed-ended questions in three sections—socio-demographic, attitude about services and facilities, and satisfaction levels—some questions used 5-point Likert scales.  RR = 83.8%	SPSS v.20 for factor analysis using Varimax rotation and Krieser normalisation was conducted. Reliability analysis (Cronbach's alpha) was conducted for validity and consistency.	Patient satisfaction had an average score 3.6 on a 1–5 scale.  Highest scores for services provided by doctors and staff.  Lowest scores for access to medical care and doctor availability.

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
10.	<p>Alshammary, SA, Ratnapalan, S &amp; Akturk, Z, 2013</p> <p>Continuing medical education as a national strategy to improve access to primary care in Saudi Arabia.</p> <p><i>Journal of Educational Evaluation for Health Professions</i>, vol. 10, no. 7.</p>	Saudi Arabia	Develop an educational program for GPs in PHC to increase knowledge of family medicine.	GPs in Riyadh and other regions	Purposive sample <i>N</i> = 2761	A continuing educational program Family Medicine Education (FAME), 7 modules RR = 20%	Pre- and post-testing.	Testing initially showed a 40% increase from 49–89%.
11.	<p>Alsubaie, AM, Almohaimede, KA, Aljadoo, AF, Jarallah, OJ, Althnayan, YI &amp; Alturki, YA, 2016</p> <p>Socioeconomic factors affecting patients' utilisation of primary care services at a Tertiary Teaching Hospital in Riyadh, Saudi Arabia.</p>	Saudi Arabia	Assess the main socioeconomic factors that affect patients from using primary healthcare services.	Patients at a PHCC in Riyadh at a University Tertiary Care Teaching Hospital	Random consecutive sampling <i>N</i> = 456	Cross-sectional study using self-administered questionnaire in three parts—socio-demographic and economic factors, healthcare needs and healthcare service utilisation.	SPSS v.21 for crosstabs, chi-square test and p-values.	61.5% used PHC facility. 19.6% used PHC >3 times in 12 months. Those with greater economic means used alternative private healthcare.

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	<i>Journal of Family &amp; Community Medicine</i> , vol. 23, no. 1, pp. 6–11.					RR = 80.27%		
12.	Darwish, MA, Al-Saif, G, Albahrani, S & Sabra, AA, 2014  Lifestyle and dietary behaviours among Saudi preschool children attending primary health care centres, Eastern Saudi Arabia.  <i>International Journal of Family Medicine</i> , vol. 2014.	Saudi Arabia	Evaluate the lifestyles and dietary behaviour of Saudi children aged 1–5 years who attend PHCCs in two areas in the eastern region.	Saudi Arabian preschool children with their mothers/caregivers	Systemic random sampling  <i>N</i> = 326	Cross-sectional study using structured, interviewer-filled questionnaire  RR = 92.02%	SPSS v.16 for descriptive qualitative variables, chi-square test and regression analysis for correlation.	60.3% of mothers were obese. 56.3% parents did not wear seatbelts. 32% of fathers smoked.
13.	Ghazwani, EY & Al Jaber, OA, 2014  Study of satisfaction of diabetic patients attending the diabetic clinic at primary health centres in Abha city, Saudi Arabia.  <i>International Journal of Medical</i>	Saudi Arabia	Measure patient satisfaction of PHC at a Chronic Disease Clinic and identify factors that contribute to that satisfaction.	Registered patients at 2 PHCCs	Consecutive random sampling  <i>N</i> = 600	Cross-sectional study using patient interview data sheet and patient satisfaction questionnaire comprising 27 statements using 5-	SPSS v.16 for descriptive statistics and p-values.	61.3% of patients >50 years old. 87% satisfied. Correlation between those unemployed and higher degrees of satisfaction.

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	<i>Science and Public Health</i> , vol. 3, no. 4, pp. 436–443.					point Likert scales		
14.	Jahan, S, Al-Saigul, AM, Nimir, SE & Mustafa, AS, 2014  Priorities for primary health care research in Qassim, central Saudi Arabia.  <i>Saudi Medical Journal</i> , vol. 35, no. 3, pp. 298–303.	Saudi Arabia	Assess the major research priorities in PHC in one district.	Academics, researchers and PHC program managers	Purposive sampling  <i>N = 101</i>	Cross-sectional survey using semi-structured self-administered questionnaire with a 5-point numeric scale.  RR = 84.2%	Epi Info version 3.5.4 for descriptive statistics and ANOVA for variances and p-values.	Diabetes scored the highest priority at 4.82. Hypertension was second at 4.67.
15.	Jahan, S, Al-Saigul, A & Suliman, A, 2016  Attitudes to statistics in primary health care physicians, Qassim province.  <i>Primary Health Care Research &amp;</i>	Saudi Arabia	Evaluate PHC physicians' attitudes toward statistics, self-reported knowledge level and their need for training in statistics.	All PHC physicians in Qassim province	Purposive sampling  <i>N = 416</i>	Cross-sectional survey with semi-structured self-administered questionnaire was used. Likert scales were used.  RR = 81.25%	SPSS v.21 for descriptive statistics, Pearson's correlation coefficient, paired t-test, ANOVA F-test,	59.6% studied statistics. 73.6% scored $\leq 5$ on a scale of 1–10 for knowledge of statistics. 71.14% had a positive attitude.

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	<i>Development</i> , vol. 17, no. 04, pp. 405–414.						p-value and Cronbach's $\alpha$ reliability coefficient.	
16.	Mandil, AM, Alhayan, RM, Alshalawi, AA, Alemran, AS & Alayed, MM, 2015  Preference of physicians' gender among male and female primary health care clinic attendees in a university hospital in Saudi Arabia.  <i>Saudi Medical Journal</i> , vol. 36, no. 8, p. 1011.	Saudi Arabia	Assess gender perceptions and preferences at PHCC based on healthcare specialities.	150 male and 150 female patients	Random selection  $N = 300$	Cross-sectional study using self-administered questionnaire that focused on personal data information, preference of gender of physician and 24 different healthcare specialities	Descriptive statistics and p-values were computed.	For surgical procedures both genders preferred male.  54% of internal medicine females preferred female physicians.  Years of experience were the most important characteristic.
17.	Mohamed, EY, Sami, W, Alotaibi, A, Alfarag, A, Almutairi, A & Alanzi, F, 2015  Patients' satisfaction with primary	Saudi Arabia	Determine the level of patient satisfaction with PHCC services and assess reasons for	PHCCs in Majmaah	Stratified and systematic random sampling	Cross-sectional facility-based using pre-tested questionnaire interviewer-	SPSS v.21 for descriptive statistics, chi-square test and p-values.	82% satisfaction  Top reason for satisfaction was cleanliness (33.1%) followed by technical

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	health care centres' services, Majmaah, Kingdom of Saudi Arabia.  <i>International Journal of Health Science</i> , vol. 9, no. 2, p. 163–170.		satisfaction and dissatisfaction levels.		<i>N</i> = 370	administered questionnaire RR = 100%		competency of staff (24.2%).
18.	Neyaz, Y, Khoja, T, Qureshi, N, Magzoub, M, Haycox, A & Walley, T, 2011  Medication prescribing pattern in primary care in Riyadh city, Saudi Arabia.  <i>Eastern Mediterranean Health Journal</i> , vol. 17, no. 2, p. 149.	Saudi Arabia	Analyse physicians' patterns of dispensing drugs and the level of information notes maintained in the PHC sector.	120 PHCCs in 5 sectors	Random sampling <i>N</i> = 2382	Cross-sectional survey to collect samples	SPSS v.10 for univariate analysis, chi-square test, t-test and Z-test.	Antibiotics were the most common prescription. Significant variation between notation for public and private prescriptions. Prescription issuance patterns varied.
19.	Mahmoud, MSA, Magid, MIA, Abdullah, SMA & El-Tayeb, NM, 2015	Saudi Arabia	Show how Geographical Information Systems (GIS) can be used to	PHCCs Taif and Makkah, KSA	N/A	Issues that affect PHCC planning and monitoring. How GIS could be	GIS	All the models could be applied to PHCCs and hospitals in Makkah Taif city.

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	Development of health care systems in subareas of KSA using GIS concept.  <i>Journal of Information Sciences and Computing Technologies</i> , vol. 1, no. 1, pp. 7–54.		support health planning at PHCC level.			applied to the PHC sector. Implementation of GIS application models designed for PHCCs.		Determined geographic locations of PHCCs and assessed distance to reach nearest access roads to these institutions.
20.	Yousef, HA, Koura, M & Yousef, AA, 2015  Knowledge about bronchial asthma management in primary health care physicians in Al-Khobar City, Saudi Arabia.  <i>Journal of Family &amp; Community Medicine</i> , vol. 22, no. 1, p. 1.	Saudi Arabia	Assess PHC physicians and family medicine (FM) residents' knowledge of a specific clinical condition – bronchial asthma.	All 8 PHC centres and the university family medicine clinic	Purposive sampling.  <i>N</i> = 75	Cross-sectional study using self-administered questionnaire. Followed SINA guidelines. RR = 98.3%	SPSS v.16 for descriptive analysis of data, chi-square test, and Fisher's exact P.	68% of respondents were PHCC physicians. Only 8% had good theoretical knowledge of bronchial asthma. 41% had poor levels of knowledge.
21.	Al-Jaber, A & Da'ar, OB, 2016  Primary health care centres, the	Saudi Arabia	Understand the level of access to PHCCs for oral care and the	Two large PHCCs	Convenience sampling	Cross-sectional study using modified version of	MS Excel and STATA version 12 for analysis	>53% had been to a dentist in past 12 months.

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
	<p>extent of challenges and demand for oral health care in Riyadh, Saudi Arabia.</p> <p><i>BMC Health Service Research</i>, vol. 16, no. 1, p. 628.</p>		demand for care.		<i>N</i> = 320	General Practice Assessment (GAPQ) and New York State Department of Health questionnaire. RR = 95%		High cost of private practice and access to a dentist was a determinant of non-access. Lack of dentists.
22.	<p>Alghanim, SA, 2012</p> <p>Assessing knowledge of the patient bill of rights in central Saudi Arabia: a survey of primary health care providers and recipients.</p> <p><i>Annals of Saudi Medicine</i>, vol. 32, no. 2, pp. 151–155.</p>	Saudi Arabia	Examine levels of understanding of the Patients' Bill of Rights at PHCCs in Saudi Arabia among providers and recipients.	500 PHC staff and 500 patients who had been in the profession >2 years	Systematic random sampling <i>N</i> = 1000	Cross-sectional survey with self-administered questionnaire in three sections—personal characteristics, knowledge of Patients' Bill of Rights, and specific aspects of the bill and how this was implemented. RR = 79.9%	SPSS v.11 for descriptive statistics, p-values and chi-square test.	79% of recipients and 33.9% of providers did not know about the bill of rights.

No.	Author, year, article and source information source information	Country	Aim(s) of the study	Setting	Sample	Data collection method and study design	Analysis	Results selected based on relevance to the review
23.	<p>Alzaied, T &amp; Alshammari, A 2016</p> <p>An evaluation of primary healthcare centres (PHC) services: The views of users.</p> <p><i>Health Science Journal</i>, vol. 10, no. 2, pp.1–8.</p>	Saudi Arabia	Evaluate the access and effectiveness of PHCCs.	Anyone who has used a PHCC in Riyadh City	Simple stratified sampling, a convenient sample. <i>N</i> = 426	Questionnaire created by the researcher distributed electronically – 10 questions in 2 sections—socio-demographic information, and visitation and effectiveness. RR = 91.07%	Online survey tool provided statistical analysis.	<p>76% visit a PHCC &lt;5 times a year.</p> <p>48.97% went to a PHCC for treatment.</p> <p>53.35% ranked the PHCC as ‘good’.</p>

## APPENDIX 2. MAPPING TABLE OF QUANTITATIVE RESEARCH SURVEY QUESTIONS

Sections	QUANTITATIVE RESEARCH MAPPING				
	Survey Question	Research Question	Nine Criteria	Research Objectives	Domains
<b>1</b>	6	5	G	3	6
	7	1	D	1, 2	7
<b>2</b>	1	4	B, G	3	6
	2 (a-k)	5	B	3	1
	3 (a-b)	1	A	4	1
	4 (a-b)	2	B	3	1
<b>3</b>	1 (a-c, e)	3, 4	C	2, 3	2
	2	3, 4	C	2, 3	2
	3	3, 4	C	2, 3	2
	4	3, 4	C	2, 3	2
<b>3.3</b>	6 (a-h)	4	F	3	4,5
	7	4	E, F	3	4
<b>4</b>	1	3	A	2	1
	2 (a-c)	3	A	2	1
	3 (a-g)	4	C	3	2
	4 (a-d)	3, 4	E	3	4
	5 (a-d)	3, 4	E	3	4
	6	3	E	3	4
	7 (a-g)	3, 4	C, D	2, 3	2,3
	8	3, 4	D	2, 3	7
	9 (a-e)	3, 4	D	2, 3	7
	10 (a-c)	3, 4	D	2, 3	7
	11	3	C, E	3	2,4
<b>5</b>	2 (a-b, e-f)	5	B	3	2
	3 (c)	5	B	3	2
	5 (a)	5	B	3	2
	6	5	B	3	2
	10 (d)	5	E	3	4
	11 (b-d)	5	B	3	2
	16 (a-b)	5	B	3	2
<b>6</b>	19 (a-b)	5	B	3	2
	20 (a-d)	5	B, F	3	4
	1	4	G	2, 3	6
	2	4	D	2, 3	3, 7
	3	4	H	2, 3	8
	5 (a-e)	3	H	3	8

Sections	QUANTITATIVE RESEARCH MAPPING				
	Survey Question	Research Question	Nine Criteria	Research Objectives	Domains
	6	3	H	3	8
	8	3, 4	D	3	7
<b>7</b>	1	3, 4	E, F	3	4
	2	3, 4	E, F	3	4
	3	3, 4	E, F	3	4

## APPENDIX 3. SURVEY INTRODUCTORY LETTER



Health Care Management  
School of Medicine, Faculty of Health  
Sciences  
Level 2 Health Sciences Building,  
Bedford Park South Australia 5042  
Tel: +61 882017755  
Fax: +61 882017766  
CRICOS Provider No. 00114A

Date 19/08/2015

## LETTER OF INTRODUCTION (Questionnaire)

Dear Sir/Madam/Name

This letter is to introduce Bader Aboud Alqhtany who is a PhD student in the Department of Health Care Management, School of Medicine at Flinders University. He will produce his student card, which carries a photograph, as proof of identity.

He is undertaking research leading to the production of a thesis or other publications on the subject of **“Primary Health Care Centres in the Kingdom of Saudi Arabia: Challenges in Health System Reform”**.

He would like to invite you to assist with this project by agreeing to be involved in completing a questionnaire; which covers certain aspects of this topic. No more than 30- 45 minutes on one occasion would be required.

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications. You are, of course, entirely free to discontinue your participation at any time or to decline to answer particular questions.

Any enquiries you may have concerning this project should be directed to me at the address or telephone given above or by e-mail: [Angelita.martini@uwa.edu.au](mailto:Angelita.martini@uwa.edu.au)

Thank you for your attention and assistance.

Yours sincerely

Dr Angelita Martini  
Senior Research Fellow

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7050). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au)*

**APPENDIX 4. SURVEY INFORMED CONSENT**



**Bader About Alqhtany, PhD candidate**  
 Health care Management  
 School of Medicine, Faculty of Health Sciences  
 Level 2 Health Sciences Building,  
 Bedford Park South Australia 5042  
 Tel.: +61 882017755  
 Fax: +61 882017766

**CONSENT FORM FOR PARTICIPATION IN RESEARCH**

I .....being over the age of 18 years hereby consent to participate as requested in the letter of introduction and the information sheet for the research project on "Primary Health Care Centres in the Kingdom of Saudi Arabia: Challenges in Health System Reform".

1. I have read the information provided.
  2. Details of procedures and any risks have been explained to my satisfaction.
  3. I agree to audio recording of my information and participation.
  4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
  5. I understand that:
    - I may not directly benefit from taking part in this research.
    - I am free to withdraw from the project at any time and am free to decline to answer particular questions.
    - While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.
    - I may ask that the recording/observation be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.
  6. I agree/do not agree\* to the tape/transcript\* being made available to other researchers who are not members of this research team, but who are judged by the research team to be doing related research, on condition that my identity is not revealed.
- \* delete as appropriate
7. I have had the opportunity to discuss taking part in this research with a family member or friend.

**Participant's signature.....Date.....**

I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

**Researcher's name.....**

**Researcher's signature.....Date.....**

*NB: Two signed copies should be obtained. The copy retained by the researcher may then be used for authorisation of Items 8 and 9, as appropriate.*

8. I, the participant whose signature appears below, have read a transcript of my participation and agree to its use by the researcher as explained.

**Participant's signature.....Date.....**

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (7050). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au)*

## APPENDIX 5. INTRODUCTORY LETTER



Health Care Management  
School of Medicine, Faculty of Health  
Sciences  
Level 2 Health Sciences Building,  
Bedford Park South Australia 5042  
Tel.: +61 882017755  
Fax: +61 882017766  
CRICOS Provider No. 00114A

Date 19/08/2015

## LETTER OF INTRODUCTION

Dear Sir/Madam/Name

This letter is to introduce Bader Aboud Alqhtany who is a PhD student in the Department of Health Care Management, School of Medicine at Flinders University. He will produce his student card, which carries a photograph, as proof of identity.

He is undertaking research leading to the production of a thesis or other publications on the subject of **“Primary Health Care Centres in the Kingdom of Saudi Arabia: Challenges in Health System Reform”**.

He would like to invite you to assist with this project by agreeing to be involved in an interview; which covers certain aspects of this topic. No more than 1 hour on one occasion would be required.

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications. You are, of course, entirely free to discontinue your participation at any time or to decline to answer particular questions.

Since he intends to make a tape recording of the interview, he will seek your consent, on the attached form, to record the interview, to use the recording or a transcription in preparing the thesis, report or other publications, on condition that your name or identity is not revealed, and to make the recording available to other researchers on the same conditions (or that the recording will not be made available to any other person). It may be necessary to make the recording available to secretarial assistants (or a transcription service) for transcription, in which case you may be assured that such persons will be asked to sign a confidentiality agreement which outlines the requirement that your name or identity not be revealed and that the confidentiality of the material is respected and maintained.

Any enquiries you may have concerning this project should be directed to me at the address or telephone given above or by e-mail: [Angelita.martini@uwa.edu.au](mailto:Angelita.martini@uwa.edu.au)

Thank you for your attention and assistance.

Yours sincerely

Dr Angelita Martini  
Senior Research Fellow

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 7050). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email [human.researchethics@flinders.edu.au](mailto:human.researchethics@flinders.edu.au)*

## APPENDIX 6: SURVEY QUESTIONNAIRE

# Measuring Organizational Attributes of Primary Healthcare: The Saudi Arabian Survey

The following survey about the organisation of primary healthcare, in the Kingdom of Saudi Arabian (KSA), Primary Healthcare Centres (PHC). The purpose of this survey is to understand the major factors that influence the planning and implementation of services by PHC centres in the KSA.

☐

### Who Should Answer This Survey?

This survey should be filled in by the person in charge of each PHC Centre, that is the person that is most familiar with how the clinic is organized and operated. Typically, this is the physician in charge (physician coordinator), the manager in charge or a professional of the primary health centre with a good knowledge of the functioning of the PHC centre.

### How Should the Survey be completed?

**Choose ONE answer per question, unless otherwise indicated.**

The expression “**Primary Healthcare Centre**” refers to the practice or the primary healthcare medical team (general practitioners and nurses) to which you belong or are associated with.

## Section 1: Identification of the Organization

### 1. Enter the following information about the Primary Healthcare Centre:

City: \_\_\_\_\_ Province: \_\_\_\_\_



### 2. Position of the respondent:

- Head doctor/physician in charge
- Manager of the PHC
- Other primary healthcare professional within the PHC
- Other (*please specify*): \_\_\_\_\_

### 3. Over the past five years, has your PHC merged, associated or joined with another primary healthcare organisation

- Yes  No

### 4. How long has your PHC been in operation?

- Less than 1 year  1 to 4 years  5 to 9 years  More than 10 years

### 5. How long has your PHC been at its current location?

- Less than 1 year  1 to 4 years  5 to 9 years  More than 10 years

### 6. What is the primary setting of your PHC site? (*Please select one.*)

- Primary Health Care Centre
- Physician group practice
- Community PHC or community health centre
- Walk-in PHC
- PHC affiliated with hospital or ambulatory care unit
- University PHC or teaching unit
- Other (*please specify*): \_\_\_\_\_

### 7. Is your PHC part of the national policy, which has benefited from special funding or part of a government-led reform?

- Yes  No



## Section 2: Organizational Vision

1. Which statement **best** represents the population that your PHC serves? (Check one only.)

Anyone who shows up at the PHC, no matter their place of residence

Only patients with an active record or registered at the PHC

The population in the neighbourhood, village or territory served by the PHC

Other (please specify):

2. Using the scale below, indicate the importance of the following goals for your PHC. (Choose only one answer per statement.)

	Very important	Important	N/A	Less important	Not important
a) Accessibility of services offered by the PHC	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
b) Continuous relationship with patients	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
c) Comprehensive approach to patients to address all of their individual health needs	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
d) Profitability of the PHC	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
e) Delivery of preventive and health promotion services	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
f) Conformation of services to established PHC guidelines	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
g) Respect, courtesy and confidentiality	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
h) Absence of discrimination toward individuals	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
i) Teamwork among family physicians	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
j) Consideration of environmental or occupational causes when assessing patients' health problems	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5
k) Consideration of social problems when providing care for patients	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5

3. Using the scale below, indicate your level of agreement with the following statements.

	Totally Agree	Partly Agree	Partly Disagree	Totally Disagree	Doesn't Apply Because Only 1 Doctor in the PHC
a) The PHC has explicit mission, values and objectives.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99
b) In general, PHC professionals share the PHCs' mission, values and objectives.	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 99

4. Choose the statement that corresponds best to your PHC's vision.

*(Check one only for "a" and one for "b.")*

**a) Responsibility for health**

- Health is mostly an individual responsibility; it is up to each individual to maintain his or her health or do what it takes to improve his or her health.
- Health is mostly a collective responsibility; it is up to society to create conditions that help maintain or improve health.

**b) Access to services**

- Access to health services is mostly an absolute right; everyone should have the same access to healthcare, based on need, regardless of financial ability to pay.
- Access to health services is mostly a relative right; everyone should have access to healthcare, but people who can afford it could pay for better access to healthcare.

### Section 3: Organizational Resources

**3.1 Human Resources**

1. a) Please indicate the number of Physicians (GPs/FPs) in your PHC and their FTEs (full-time equivalent = more than 48 hours/week):

\_\_\_\_\_ = number of GPs/FPs      \_\_\_\_\_ = FTEs

b) How many Physicians work at your PHC?

- i) Less than 10 hours a week \_\_\_\_\_
- ii) 10 to 24 hours a week \_\_\_\_\_
- iii) 25 to 35 hours a week \_\_\_\_\_
- iv) More than 35 hours a week \_\_\_\_\_

c) How many Physicians at your PHC are in the following age categories?

- i) 34 and younger \_\_\_\_\_
- ii) 35 to 49 \_\_\_\_\_
- iii) 50 to 64 \_\_\_\_\_
- iv) 65 and older \_\_\_\_\_

?

d) How many are

- i) Women? \_\_\_\_\_
- ii) Men? \_\_\_\_\_

?

e) How many of the Physicians at your PHC have been working there for more than 5 years? \_\_\_\_\_

2. Is your Physicians team complete?

<sub>1</sub> Yes

<sub>2</sub> No → If not, how many FTEs are missing? \_\_\_\_\_

3. Please complete the number of staff in your PHC and their FTEs:

a) Nurse practitioner:	# _____ FTEs: _____	b) Pharmacist:	# _____ FTEs: _____
c) Registered nurse:	# _____ FTEs: _____	d) Physiotherapist:	# _____ FTEs: _____
e) Audiologist:	# _____ FTEs: _____	f) Psychologist:	# _____ FTEs: _____
g) Chiropractor:	# _____ FTEs: _____	h) Optometrist:	# _____ FTEs: _____
i) Dietitian:	# _____ FTEs: _____	j) Social worker:	# _____ FTEs: _____
k) Occupational therapist:	# _____ FTEs: _____	l) Speech-language pathologist:	# _____ FTEs: _____
m) Physician assistant:	# _____ FTEs: _____	n) Respiratory therapist:	# _____ FTEs: _____
o) Psycho-geriatric:	# _____ FTEs: _____	p) Other (please specify):	_____

4. How many administrative staff (for example, managerial, clerical, reception) are currently employed at your PHC? \_\_\_\_\_

?

**3.2? EconomicResources?**

5. Please indicate the average monthly operating expenses of your PHC and the proportion assumed by the PHC and/or other financial aid monthly:

	Monthly Average (\$)	Assumed by the PHC (%)	Other Financial Aid (e.g. Government Grant) (%)	N/A
Salaries and benefits of all personnel other than physicians (e.g. salaries, health benefits, life insurance)	\$ _____?	_____ %?	_____ %?	?
Administrative operating costs (e.g. legal and audit, computer, meeting expenses)	\$ _____?	_____ %?	_____ %?	?
Building and maintenance expenses (e.g. acquisition of furniture and equipment, insurance, repair and maintenance, janitorial expense)	\$ _____?	_____ %?	_____ %?	?
Utilities (e.g. water, electricity, gas, telephone)	\$ _____?	_____ %?	_____ %?	?
Clinical operating costs (e.g. sterilization, diagnostic tests, examination material, medication)	\$ _____?	_____ %?	_____ %?	?

**3.3? TechnicalResources?**

6. In your PHC, do you have access to

- a) Computer software to manage appointments? <sub>1</sub> Yes <sub>2</sub> No
- b) Internet and email access for physicians? <sub>1</sub> Yes <sub>2</sub> No
- c) Electronic medical records? <sub>1</sub> Yes <sub>2</sub> No
- d) Computerized tools to aid medical decision-making (computerized alerts and recalls, integration of clinical practice guidelines) ? <sub>1</sub> Yes <sub>2</sub> No
- e) An electronic interface to diagnostic imaging laboratory services? <sub>1</sub> Yes <sub>2</sub> No
- f) An electronic system to transmit prescriptions to pharmacies? <sub>1</sub> Yes <sub>2</sub> No
- g) A web-based appointment system for patients? <sub>1</sub> Yes <sub>2</sub> No
- h) Information technology support? <sub>1</sub> Yes <sub>2</sub> No

7. With your current patient medical records system, how easy would it be to generate the following information about your patients? Is the process for doing so computerized?

	Level of Difficulty Generating Information				Computerized?	
	Easy <sup>2</sup>	Somewhat <sup>2</sup> Difficult <sup>2</sup>	Difficult <sup>2</sup>	Cannot <sup>2</sup> Generate <sup>2</sup>	Yes <sup>2</sup>	No <sup>2</sup>
a) List of patients by diagnosis or health problems (e.g. diabetes, cancer)	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>	<input type="checkbox"/> <sub>3</sub> <sup>2</sup>	<input type="checkbox"/> <sub>4</sub> <sup>2</sup>	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>
b) List of patients by laboratory result (e.g. HbA1C >9.0)	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>	<input type="checkbox"/> <sub>3</sub> <sup>2</sup>	<input type="checkbox"/> <sub>4</sub> <sup>2</sup>	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>
c) List of patients who are due or overdue for tests or preventive care (e.g. flu vaccine)	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>	<input type="checkbox"/> <sub>3</sub> <sup>2</sup>	<input type="checkbox"/> <sub>4</sub> <sup>2</sup>	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>
d) List of all medications taken by an individual patient (including those that may have been prescribed by other doctors)	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>	<input type="checkbox"/> <sub>3</sub> <sup>2</sup>	<input type="checkbox"/> <sub>4</sub> <sup>2</sup>	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>
e) List of all patients taking a particular medication	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>	<input type="checkbox"/> <sub>3</sub> <sup>2</sup>	<input type="checkbox"/> <sub>4</sub> <sup>2</sup>	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>
f) List of all laboratory results for an individual patient (including those ordered by other doctors)	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>	<input type="checkbox"/> <sub>3</sub> <sup>2</sup>	<input type="checkbox"/> <sub>4</sub> <sup>2</sup>	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>
g) Clinical summaries to give patients after each visit	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>	<input type="checkbox"/> <sub>3</sub> <sup>2</sup>	<input type="checkbox"/> <sub>4</sub> <sup>2</sup>	<input type="checkbox"/> <sub>1</sub> <sup>2</sup>	<input type="checkbox"/> <sub>2</sub> <sup>2</sup>

## Section 4: Organizational Structures

**1. Does your PHC have a written policy and/or policy-related materials on**

- a)  Human Resources management (hiring procedures, job descriptions)?  1 Yes  2 No
- b)  Training and Staff development?  1 Yes  2 No
- c)  Performance appraisals of the staff?  1 Yes  2 No
- d)  Procedures for reporting medical errors?  1 Yes  2 No
- e)  Procedures for assessing patient satisfaction or documenting complaints?  1 Yes  2 No
- f)  Procedures for assessing quality of care?  1 Yes  2 No
- g)  Reference protocols with other healthcare services (e.g. hospital, pharmacy, home care)?  1 Yes  2 No
- h)  Procedures to ensure that lists of current medications and problems are recorded in the patient's health record?  1 Yes  2 No

**2. In the past 12 months, have any of the following occurred in your PHC?**

- a)  Inspection of medical files or prescriptions by health authority or insurer (e.g. external audit)?  1 Yes  2 No
- b)  Formal process to obtain feedback from colleagues?  1 Yes  2 No
- ~~cccc~~  Formal process for self-assessment (e.g. physician Assessment Review)?  1 Yes  2 No

3. At your PHC, is there anyone who . . . (Choose only one answer per statement.)

	Yes				No	Not Applicable
	A Physician-in-Charge or Designated Physician	The Group of Physicians Collectively	Administrative Nurse or Manager	Other Health Professional		
a) Sets up on-call lists, schedules, vacation, etc.?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 99
b) Organizes meetings for case discussions?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 99
c) Looks after recruitment of physicians and assigns practice privileges?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 99
d) Ensures that the quality of medical care is evaluated?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 99
e) Organizes continuing medical education activities?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 99
f) Represents the PHC on committees?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 99
g) Develops delegated medical act/protocols for care?	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4	<input type="checkbox"/> 5	<input type="checkbox"/> 99

4. In your PHC, do you routinely receive and review data on the following aspects of your patients' care? If so, is this process computerized?

	Routinely Receive and Review Data	Computerized Process?
a) Clinical outcomes (e.g. percentage of patients with diabetes or asthma with good control)	<input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub> No	<input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub> No
b) Surveys of patient satisfaction and experiences with care	<input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub> No	<input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub> No
c) Patients' hospital admissions or emergency department use	<input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub> No	<input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub> No
d) Frequency of ordering diagnostic tests	<input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub> No	<input type="checkbox"/> <sub>1</sub> Yes <input type="checkbox"/> <sub>2</sub> No

5. Does your PHC . . .

	Yes		No
	Computerized	Paper	
a) Have a reminder system to invite patients to have the recommended screening tests (e.g. Pap test, mammogram)?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>
b) Have a checklist concerning the preventive clinical practices (counselling, screening, immunization) to carry out with patients, according to the guidelines in effect?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>
c) Have a tool to assist lifestyle counselling or to help modify behaviours (e.g. smoking cessation centre, health education centre)?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>
d) Track all laboratory tests ordered until results reach clinicians?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>

6. Do you receive information on the performance of your PHC compared with that of other primary healthcare centres?

<sub>1</sub> Yes, routinely   <sub>2</sub> Yes, occasionally   <sub>3</sub> No   <sub>4</sub> Not sure

**7. Do any general practitioners at your PHC share**

	Yes	No	Doesn't Apply Because Only 1 Doctor in the PHC
a) Rooms (offices, examination rooms, waiting	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>99</sub>
b) Operating costs for the PHC?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>99</sub>
c) Support staff (secretary and receptionist)?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>99</sub>
d) Nursing staff?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>99</sub>
e) Information technology tools?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>99</sub>
f) An appointment management system?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>99</sub>
g) Medical records system?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>99</sub>

**8. What funding arrangement best describes the payment model for physicians in your PHC? (Check one only.)**

- Fee-for-service
- Capitation or roster
- Salary (hourly rate, sessional payment, contract)
- Blended model (mix of different payment models)
- Other (please specify):

**9. Does the funding for your PHC's operating costs come from**

- a) Overhead charges to physicians? <sub>1</sub> Yes <sub>2</sub> No
- b) Private enterprises (companies, pharmacies, donations, foundation, etc.)? <sub>1</sub> Yes <sub>2</sub> No
- c) Fees charged to patients (e.g. fees to open or manage files)? <sub>1</sub> Yes <sub>2</sub> No
- d) Health System Budget (hospital)? <sub>1</sub> Yes <sub>2</sub> No
- e) Infrastructure operating grant or government program? <sub>1</sub> Yes <sub>2</sub> No

**10. Does your PHC receive other types of funding from**

- a) Targeted program/activity funding/grants? <sub>1</sub> Yes <sub>2</sub> No
- b) Targeted staffing funding/grants? <sub>1</sub> Yes <sub>2</sub> No
- c) Performance-based financial incentives? <sub>1</sub> Yes <sub>2</sub> No
- d) Other (please specify):

**11. In the past 12 months, did you use information on the composition of your PHC population to allocate resources for program or services?**

<sub>1</sub> Yes → 11.1 (please specify population group):

<sub>2</sub> No → 11.2 (please specify why not):

## Section 5: Service Provision and Clinical Practices

### 1. At your PHC, are the following services available?

- a) Rapid streptococcal test (strep test)  <sub>1</sub> Yes  <sub>2</sub> No
- b) Skin biopsy  <sub>1</sub> Yes  <sub>2</sub> No
- c) IUD insertion  <sub>1</sub> Yes  <sub>2</sub> No
- d) Musculoskeletal injection/aspiration  <sub>1</sub> Yes  <sub>2</sub> No
- e) Suture/minor surgery  <sub>1</sub> Yes  <sub>2</sub> No
- f) Cervical smear (Pap test)  <sub>1</sub> Yes  <sub>2</sub> No
- g) Rapid urine test  <sub>1</sub> Yes  <sub>2</sub> No
- h) Childhood vaccination  <sub>1</sub> Yes  <sub>2</sub> No
- i) Influenza (seasonal flu) vaccination  <sub>1</sub> Yes  <sub>2</sub> No
- j) Pregnancy test  <sub>1</sub> Yes  <sub>2</sub> No

### 2. At your PHC, for follow-up of people with chronic illnesses (e.g. COPD, diabetes, heart failure), how often do you (doctors or PHC staff) . . .

	Always	Often	Sometimes	Rarely	Never
a) Use a tracking system to remind patients about needed visits or services?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
b) Offer to contact patients between visits by telephone?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
c) Use recognized practice guidelines as the basis for their treatment plans?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
d) Assist patients in setting and attaining self-management goals (e.g. participation of patients in managing their care)?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
e) Refer patients to someone within the PHC for education about their chronic illness?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
f) Refer patients to someone outside the PHC for education about their chronic illness?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
g) Have flow sheets (checklists) in medical records to track critical elements of care?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>

**3. In your PHC, do any family physicians provide...**

- a) Management of care for an emergent but minor health ~~problem~~  1 Yes  2 No
- b) Non-urgent routine care (e.g. well care [baby, child, woman and/or man], chronic illness management)?  1 Yes  2 No
- c) Prevention and health promotion and/or education services?  1 Yes  2 No
- d) Prenatal care?  1 Yes  2 No

**3.1 If yes, do they attend delivery?**

- e) Healthcare for children age 5 or younger?  1 Yes  2 No
- f) Primary mental healthcare?  1 Yes  2 No
- g) Psychosocial services (e.g. counselling advice for physical/emotional/financial problems)?  1 Yes  2 No
- h) Liaison with home care?  1 Yes  2 No
- i) Rehabilitation services?  1 Yes  2 No
- j) Nutrition counselling services?  1 Yes  2 No
- k) Provision of home visits by primary healthcare physicians, nurses, nurse practitioners or pharmacists?  1 Yes  2 No
- l) End-of-life care?  1 Yes  2 No

**4. What are the roles and functions of the registered nurses on your medical team? (Check all that apply.)**

- There's no nurse on the medical team (go to question 5)
- Conduct triage of walk-in patients
- Provide counselling on tobacco use, diet and physical activity
- Provide patient education (e.g. blood glucose testing, blood pressure measurement)
- Conduct follow-up of specific patient groups (e.g. chronic diseases, age group)
- Provide counselling on sexually transmitted and blood borne infections (STBIs)
- Prescribe diagnostic examinations (e.g. radiography, blood tests)
- Liaise and coordinate with long-term care facilities, hospitals and other PHCs
- Provide support for medical activities (blood pressure and weight measurements, injections and vaccinations, etc.)
- Participate in clinical decisions
- Conduct clinical activities as part of a delegated medical act
- Prescribe medications and other substances

**5. At your PHC, do you offer systematic patient management and follow-up services for patients who have the following chronic diseases?**

- a) Diabetes <sub>1</sub> Yes <sub>2</sub> No
- b) Chronic Obstructive Pulmonary Disease (COPD) <sub>1</sub> Yes <sub>2</sub> No
- c) Heart Failure <sub>1</sub> Yes <sub>2</sub> No
- d) Asthma <sub>1</sub> Yes <sub>2</sub> No
- e) Arthritis <sub>1</sub> Yes <sub>2</sub> No
- f) Mental Disorders (depression, anxiety) <sub>1</sub> Yes <sub>2</sub> No

**6. Are the following services available in your PHC?**

- a) Blood draws <sub>1</sub> Yes <sub>2</sub> No
- b) Radiology <sub>1</sub> Yes <sub>2</sub> No
- c) Electrocardiography <sub>1</sub> Yes <sub>2</sub> No
- d) Spirometry <sub>1</sub> Yes <sub>2</sub> No
- e) Colonoscopy <sub>1</sub> Yes <sub>2</sub> No
- f) Bone densitometry <sub>1</sub> Yes <sub>2</sub> No
- g) Magnetic Resonance Imaging (MRI) <sub>1</sub> Yes <sub>2</sub> No
- h) Ultrasound/Doppler <sub>1</sub> Yes <sub>2</sub> No
- i) Echocardiography <sub>1</sub> Yes <sub>2</sub> No
- j) Computed Tomography (CT) <sub>1</sub> Yes <sub>2</sub> No
- k) Mammography <sub>1</sub> Yes <sub>2</sub> No

**7. In your PHC:**

- a) Are there any other non-physician health professionals (pharmacist, physiotherapist, speech therapist, occupational therapist, psychologist, other.) offering services?

<sub>1</sub> Yes → **If yes, which health professionals are present?**

- a) Pharmacist <sub>1</sub> Yes <sub>2</sub> No
- b) Physiotherapist <sub>1</sub> Yes <sub>2</sub> No
- c) Speech therapist <sub>1</sub> Yes <sub>2</sub> No
- d) Occupational therapist <sub>1</sub> Yes <sub>2</sub> No
- e) Psychologist <sub>1</sub> Yes <sub>2</sub> No
- f) Other: \_\_\_\_\_ ?

<sub>2</sub> No → *Go to question 8*

- b) To what degree do the physicians in your PHC collaborate (exchange information, referrals) with the other non-physician health professionals located in your PHC?

<sub>1</sub> Daily    <sub>2</sub> Weekly    <sub>3</sub> Monthly    <sub>4</sub> Not at all

**8. In your PHC:**

a) Are services offered by medical specialists?

<sub>1</sub> Yes → **If yes, which different specialties are present?**

<sub>2</sub> No → Go to question 9

b) To what degree do the general practitioners in your PHC collaborate (exchange information, referrals) with the medical specialists located in the same building as your PHC?

<sub>1</sub> Quite a bit   <sub>2</sub> Somewhat   <sub>3</sub> A bit   <sub>4</sub> Not at all

**9. How often does your PHC hold internal meetings to discuss . . .**

	More Than Once a Week	Weekly	Monthly	Never	Other (please specify)
a) Business issues?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	_____
b) Clinical issues?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	_____
c) Office operations?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	_____

**10. How is care coordinated among PHC professionals?**

	Always	Often	Sometimes	Rarely	Never	Doesn't Apply
a) Informal or ad hoc exchanges	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>99</sub>
b) Pre-established care protocols for specific client groups or problems	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>99</sub>
c) Case discussion meetings (statutory meetings)	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>99</sub>
d) Electronic communication through electronic medical records (EMRs)	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>	<input type="checkbox"/> <sub>99</sub>

**11. At your PHC**

- a)  Is someone assigned to receive patients? <sub>1</sub> Yes <sub>2</sub> No
- b)  Is someone assigned to manage medical records (open new files, manage archives)? <sub>1</sub> Yes <sub>2</sub> No
- c)  Can patients contact a physician or nurse by telephone during the PHC's hours of operation? <sub>1</sub> Yes <sub>2</sub> No
- d)  Can patients leave a voice message and get a return call from a physician or nurse? <sub>1</sub> Yes <sub>2</sub> No

- e)  1 Yes  2 No
- f)  1 Yes  2 No
- g)  1 Yes  2 No
- h)  1 Yes  2 No
- i)  1 Yes  2 No
- j)  1 Yes  2 No
- k)  1 Yes  2 No
- l)  1 Yes  2 No
- m)  1 Yes  2 No

**12. How many hours is your PHC open for patient care, on an average work day?**

\_\_\_\_\_ hours per work day

**13. What percentage of visits in your PHC are walk-in visits?**

- 1 0%  2 1% to 25%  3 26% to 50%  4 51% to 75%  5 76% to 100%

**14. At your PHC, on average, how much time is scheduled for visits for evaluation of a new patient? (Check one only.)**

- 1 Less than 10 minutes  4 20 minutes
- 2 10 minutes  5 30 minutes
- 3 15 minutes  6 More than 30 minutes

**15. At your PHC, on average, how much time is scheduled for follow-up visits? (Check one only.)**

- 1 Less than 10 minutes  4 20 minutes
- 2 10 minutes  5 30 minutes
- 3 15 minutes  6 More than 30 minutes

**16. a) How many patients are currently registered or have an active file at your PHC? (Your best estimate)**

\_\_\_\_\_ patients are currently registered or have an active file

**b) During the past year, approximately how many patients received primary care from your PHC? Please count each patient only once, no matter how much care he**

or she received. (Your best estimate)

\_\_\_\_\_ patients received primary care

**17. Is your PHC currently accepting new patients for management and follow-up? (Check one only.)**

- 1** Our PHC accepts all new patients who ask
- 2** Our PHC accepts new patients based on certain conditions only

**17.1 What conditions? (Check all that apply.)**

- 1** Must be a family member of a followed patient at the PHC
- 2** Must be referred by another doctor
- 3** Must be a vulnerable<sup>1</sup> patient
- 4** Must be an orphan patient/registered on an access list
- 5** Other (please specify): \_\_\_\_\_
- 3** Our PHC doesn't accept any new patients

**18. Which patients have access to walk-in services at your PHC?**

- All patients who present
- Only patients who have a medical record at the PHC (under a doctor's name)
- We don't offer walk-in services

**19. In general, when a patient contacts your PHC, how long (in days) does the patient have to wait before seeing a physician**

- a) In an emergency situation? \_\_\_\_\_ hours/ days
- b) In a non-emergency situation? \_\_\_\_\_ hours/days

**20. Does your PHC offer patients the option to:**

	Yes	No	Don't Know
<b>a) Request appointments or referrals online?</b>	<input type="checkbox"/> <b>1</b>	<input type="checkbox"/> <b>2</b>	<input type="checkbox"/> <b>9</b>
<b>b) Send a medical question or concern via email?</b>	<input type="checkbox"/> <b>1</b>	<input type="checkbox"/> <b>2</b>	<input type="checkbox"/> <b>9</b>
<b>c) Request refills for prescriptions online?</b>	<input type="checkbox"/> <b>1</b>	<input type="checkbox"/> <b>2</b>	<input type="checkbox"/> <b>9</b>
<b>d) View test results on a secure website?</b>	<input type="checkbox"/> <b>1</b>	<input type="checkbox"/> <b>2</b>	<input type="checkbox"/> <b>9</b>

1. *Vulnerable patients* refers mostly to groups of patients afflicted with chronic diseases, such as heart disease, stroke, cancer, chronic respiratory diseases and diabetes; mental disorders such as depression, anxiety disorders, bipolar disorder, ADHD, autism spectrum disorders, anorexia nervosa and bulimia nervosa; alcohol, drug or tobacco addiction; degenerative diseases of the nervous system; HIV/AIDS; inflammatory bowel disease (Crohn's disease, ulcerative colitis, etc.); and others. *Vulnerable patients* can also refer to groups of patients with a socio-economic disadvantage, including homelessness, poverty or unemployment, or visible minorities and elderly residents.

**21. What impact do specialised events (e.g. Hajj) have on service delivery?**

<input type="checkbox"/>	Almost Always	Sometimes	Unlikely	Rarely	Never
a) Do these events impact on resources	<input type="checkbox"/> 1 <input type="checkbox"/>	<input type="checkbox"/> 2 <input type="checkbox"/>	<input type="checkbox"/> 3 <input type="checkbox"/>	<input type="checkbox"/> 4 <input type="checkbox"/>	<input type="checkbox"/> 5 <input type="checkbox"/>
b) Do you increase resources to cope with these events	<input type="checkbox"/> 1 <input type="checkbox"/>	<input type="checkbox"/> 2 <input type="checkbox"/>	<input type="checkbox"/> 3 <input type="checkbox"/>	<input type="checkbox"/> 4 <input type="checkbox"/>	<input type="checkbox"/> 5 <input type="checkbox"/>

**22. During Hajj, how many hours per day is your PHC open for patient care?**

\_\_\_\_\_ hours per work day

**23. During Hajj, what is the percentage change of visits to your PHC Centre?**

\_\_\_\_\_ approximately

**24. Is your PHC equipped to provide emergency care services?**

1 Yes 2 No

**25. Does your PHC provide emergency care services?**

1 Always 2 Often 3 Somewhat 4 Rarely 5 Never

**26. How are patients categorised administratively at your PHC?**

1 Saudi 2 Guest Worker 3 Guest Worker Family 4 Visitor

5 Public 6 Other, \_\_\_\_\_

**27. How do patients pay for services at your PHC?**

<input type="checkbox"/> 1 Saudi	<input type="checkbox"/> 1 Free	<input type="checkbox"/> 2 Cash	<input type="checkbox"/> 3 Private Health Insurance	<input type="checkbox"/> 4 Third Party Billing	<input type="checkbox"/> 5 Bill Later (Accounts Receivable)
<input type="checkbox"/> 2 Guest workers	<input type="checkbox"/> 1 Free	<input type="checkbox"/> 2 Cash	<input type="checkbox"/> 3 Private Health Insurance	<input type="checkbox"/> 4 Third Party Billing	<input type="checkbox"/> 5 Bill Later (Accounts Receivable)
<input type="checkbox"/> 3 Guest worker family	<input type="checkbox"/> 1 Free	<input type="checkbox"/> 2 Cash	<input type="checkbox"/> 3 Private Health Insurance	<input type="checkbox"/> 4 Third Party Billing	<input type="checkbox"/> 5 Bill Later (Accounts Receivable)
<input type="checkbox"/> 4 Visitors	<input type="checkbox"/> 1 Free	<input type="checkbox"/> 2 Cash	<input type="checkbox"/> 3 Private Health Insurance	<input type="checkbox"/> 4 Third Party Billing	<input type="checkbox"/> 5 Bill Later (Accounts Receivable)

??

<input type="checkbox"/> <sub>5</sub> Public	<input type="checkbox"/> <sub>1</sub> Free	<input type="checkbox"/> <sub>2</sub> Cash	<input type="checkbox"/> <sub>3</sub> Private Health Insurance	<input type="checkbox"/> <sub>4</sub> Third Party Billing	<input type="checkbox"/> <sub>5</sub> Bill Later (Accounts Receivable)
<input type="checkbox"/> <sub>6</sub> Others	<input type="checkbox"/> <sub>1</sub> Free	<input type="checkbox"/> <sub>2</sub> Cash	<input type="checkbox"/> <sub>3</sub> Private Health Insurance	<input type="checkbox"/> <sub>4</sub> Third Party Billing	<input type="checkbox"/> <sub>5</sub> Bill Later (Accounts Receivable)

?

?

**28. As a percentage what type of patient do you see the most of?**

<input type="checkbox"/> ?	0-19%	20-39%	40-59%	60-79%	80-100%
<input type="checkbox"/> <sub>1</sub> Saudi	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?
<input type="checkbox"/> <sub>2</sub> Guest workers	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?
<input type="checkbox"/> <sub>3</sub> Guest worker Family	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?
<input type="checkbox"/> <sub>4</sub> Visitors	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?
<input type="checkbox"/> <sub>5</sub> Public	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?
<input type="checkbox"/> <sub>6</sub> Others	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?	<input type="checkbox"/> ?

?

?

**Section 6: Organizational Context**

**1. How would you characterize the locale where you are currently practicing?**

- <sub>1</sub> City     <sub>2</sub> Suburb     <sub>3</sub> Village     <sub>4</sub> Rural

**2. Where is your PHC located?**

- In a building owned by the government
- In a building owned privately
- In a building that is part of a university
- In a building that is part of a hospital
- Other (*please specify*):

\_\_\_\_\_

**3. In the building where your PHC is located, are there other primary healthcare medical teams or other health services that are not part of your PHC?**

- <sub>1</sub> Yes     <sub>2</sub> No

**4. What is the distance by road from your (main) practice building to:**

	In the Same Building	Less Than 5 km	5 to 10 km	11 to 20 km	More Than 20 km
a) The nearest GP practice (not in your group or centre)?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>
b) The nearest general or university hospital?	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>	<input type="checkbox"/> <sub>5</sub>

☐

**5. Does your PHC have formal or informal arrangements with other primary healthcare centres, hospitals and/or medical specialist clinics for any of the following? (Check all that apply.)**

	Yes ☐			No ☐
	With One or Several Primary Healthcare Centres	With One or Several Hospitals	With One or Several Specialized Centres	
a) Planning services offered (on-call activities, PHC office hours, etc.)	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
b) Access to technical services (e.g. radiology, laboratory)	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
c) Exchange of resources (e.g. loan of professionals)	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
d) Follow-up for hospitalized patients or patients seen at the PHC	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
e) Manage patients together	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
f) Others (please specify): _____	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>

**6. Does your PHC participate in a healthcare access network to ensure that your PHC's office hours are coordinated with those of other PHCs (evenings, weekends, etc.)?**

<sub>1</sub> Yes    <sub>2</sub> No

**7. Do the general practitioners at your PHC participate in a regional on-call system for vulnerable patients?**

<sub>1</sub> Yes    <sub>2</sub> No

**8. Over the past 2 years, how has the overall financial situation of the PHC changed?**

- Much worse  
 Somewhat worse  
 No change/don't know  
 Somewhat better  
 Much better

**9. In your PHC, to what extent have the following elements changed over the last 5 years?**

	Improved	No Change	Deteriorated	Not Applicable
a) Working conditions for staff in your PHC	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
b) Administrative support in your PHC	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
c) Clinical practice support for general practitioners in your PHC	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
d) Quality of care delivered to patients in your PHC	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
e) Your PHC's access to lab/imaging facility	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
f) The possibility of having one or several nurses in your PHC	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
g) Collaboration between your PHC and other primary care centres in your territory	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
h) The ease by which your patients can be seen by specialists	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
i) Collaboration between your PHC and hospitals	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
j) The possibility of recruiting new physicians to your PHC	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
k) Teamwork among professionals from your PHC	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
l) Access to information technologies	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>
m) Level of financial resources available for your PHC	<input type="checkbox"/> <sub>1</sub>	<input type="checkbox"/> <sub>2</sub>	<input type="checkbox"/> <sub>3</sub>	<input type="checkbox"/> <sub>4</sub>

## Section 7: Health Information System

### 1. Is there a health information system (HIS) at your PHC?

<sub>1</sub> Yes    <sub>2</sub> No

?

**????????? If YES, then is there sufficient knowledge and training on how to Maximize the use of the HIS**

<sub>1</sub> Yes    <sub>2</sub> No

### 2. What value do you see in having an HIS?

Check all that apply:

- Logistical
- Supplies
- Training
- Professional Development
- Clinical Reporting
- Improvement Strategies

### 3. Do you believe an HIS can improve service delivery?

<sub>1</sub> Yes    <sub>2</sub> No

---

**APPENDIX 7: INTERVIEW GUIDE – OPEN-ENDED QUESTIONS****Interview guide – Open-ended questions****Following the nine criteria as outlined in the Ouagadougou Declaration****(a) Leadership and Governance for Health;**

1. What do you know about the PHCs program, its history, and aims in the KSA?
2. How does the national strategic health policy mean to leaders of PHC's? And how is its relates to PHC?
3. How can leadership training and development improve your knowledge and skills as a leader of a PHC?
4. How would you summarise decision-making authority within the national health policy for PHC's?
5. How do you evaluate the governance procedures have been enacted at PHC?

**(b) Health Service Delivery;**

1. Please tell me what you think are the major factors related to the demand for the PHC in the KSA?
2. What is your opinion about the role of the PHCs in supporting the healthcare delivery in the KSA? What are the barriers to health service delivery at PHC's? And how can increase the health service delivery?
3. How do you evaluate the role of national strategic policy for PHCs in the KSA?

**(c) Human Resources for Health;**

1. What do you think are the challenges and opportunities for the PHC in the KSA on the base of human resources?
2. What training and development has been undertaken to improve knowledge and skills at PHCs employee?

**(d) Health Financing;**

1. What do you think about the current health funding and further possible changes that can improve PHC delivery in the KSA?

**(e) Health Information;**

1. To what extent can delivery of health services benefit from health information technology? What do you think about its current barriers and suggestions to improve it in KSA?

2. How do you evaluate the use of health information to improve health services delivery?

**(a) Health Technologies;**

1. To what extent can health technology influence PHC? What do you think about its current barriers and suggestions to improve it in KSA?

**(b) Community Ownership and Participation;**

1. How can community ownership and participation improve health service delivery? What do you think are the barriers to people participation and how can improve it?
2. What community programmes are currently part of the PHC?

**(c) Partnerships for Health Development;**

1. To what extent can primary care partnerships increase health service delivery? And how can public-private partnerships (PPP) work to support and improve PHC's?

**(d) Research for Health**

1. How can research for health benefit PHC services? And how it can help in health education as an education strategy?

## APPENDIX 8: UNIVERSITY SOCIAL AND RESEARCH ETHICS APPROVAL

Dear Bader Aboud,

The Chair of the [Social and Behavioural Research Ethics Committee \(SBREC\)](#) at Flinders University considered your response to conditional approval out of session and your project has now been granted final ethics approval. This means that you now have approval to commence your research. Your ethics final approval notice can be found below.

---

### FINAL APPROVAL NOTICE

Project No.:	7050		
Project Title:	Primary Health Care Centres in the Kingdom of Saudi Arabia: Challenges in Health System Reform		
Principal Researcher:	Mr Bader Aboud Alqhtany		
Email:	<a href="mailto:alqh0001@flinders.edu.au">alqh0001@flinders.edu.au</a>		
Approval Date:	11 December 2015	Ethics Approval Expiry Date:	12 August 2018

The above proposed project has been **approved** on the basis of the information contained in the application, its attachments and the information subsequently provided with the addition of the following comment(s):

## APPENDIX 9: SAUDI ARABIA MINISTRY OF HEALTH ETHICS APPROVAL

Kingdom of Saudi Arabia  
Ministry of Health  
King Fahad Medical City  
(162)



المملكة العربية السعودية  
وزارة الصحة  
مدينة الملك فهد الطبية  
(١٦٢)

IRB Registration Number with KACST, KSA: H-01-R-012  
IRB Registration Number with OHRP/NIH, USA: IRB00008644  
Approval Number Federal Wide Assurance NIH, USA: FWA00018774

December 20, 2015  
IRB Log Number: 15-453  
Department: **External: Flinders University**  
Category of Approval: **EXEMPT**

Dear Mr Bader Aboud Alqhtany,

I am pleased to inform you that your submission dated for the study titled '*Primary Health Care Centers in the Kingdom of Saudi Arabia: Challenges in Health System Reform*' was reviewed and was approved. Please note that this approval is from the research ethics perspective only. You will still need to get permission from the head of department or unit in KFMC or an external institution to commence data collection.

We wish you well as you proceed with the study and request you to keep the IRB informed of the progress on a regular basis, using the IRB log number shown above.

Please be advised that regulations require that you submit a progress report on your research every 6 months. You are also required to submit any manuscript resulting from this research for approval by IRB before submission to journals for publication.

If you have any further questions feel free to contact me.

Sincerely Yours,

  
Prof. Omar H. Kasule  
Chairman Institutional Review Board--IRB.  
King Fahad Medical City, Riyadh, KSA  
Tel: + 966 1 288 9999 Ext. 7540  
E-mail: okasule@kfmc.med.sa





المملكة العربية السعودية  
 وزارة الصحة  
 الإدارة العامة للبحوث والدراسات

الموضوع: بحث الطالب / بدر القحطاني.

## سعادة/ مدير عام الإدارة العامة لشؤون المراكز

المحترم

### والبرامج الصحية بوزارة الصحة

السلام عليكم ورحمة الله وبركاته ، ، ، ،

إشارة إلى موضوع الطالب / بدر عبود القحطاني، مبتعث من وزارة التعليم العالي لدراسة درجة الدكتوراه في تخصص "إدارة الرعاية الصحية" بكلية الطب جامعة فلندرز بأستراليا، رقم السجل المدني (١٠٥١٦٣٧٥٦٧) وعنوان الرسالة:  
 " التحديات التي تواجه إصلاح النظام الصحي بمراكز الرعاية الصحية الأولية بالمملكة العربية السعودية "

نحيطكم علماً بأن الطالب قد إستوفى كافة المستندات المطلوبة وتمت مراجعتها من قبل اللجان المعنية بالإدارة العامة للبحوث والدراسات ولجنة الأخلاقيات بمدينة الملك فهد الطبية بوزارة الصحة (مرفق صورة)، وتمت الموافقة على تسهيل مهمة إجراء هذا البحث، وحيث أن المذكور عاليه سيقوم بجمع جزء من بيانات دراسته في الإدارة العامة لشؤون المراكز والبرامج الصحية بوزارة الصحة. وعليه، نأمل من سعادتكم التفضل بالإطلاع والإيعاز لمن يلزم بتسهيل مهمته لجمع البيانات اللازمة بما يضمن أن لا يكون هناك أي تأثير على خدمة المراجعين خلال قيامه بمهام بحثه، مع العلم بأن وزارة الصحة تضمن حقوقها في نتائج هذا البحث من خلال إتفاقية المشاركة في البيانات والتي تم توقيعها بين الباحث والإدارة العامة للبحوث والدراسات.

وتفضلوا بقبول خالص تحياتي ، ، ، ،

مرفق صورة مستندات وملخص المقترح البحثي.....

مساعد مدير عام الإدارة العامة للبحوث والدراسات

[Redacted Signature]

ص. عذاري فيصل العتيبي

هاتف: ٠١١٤٧٣٥٠٣٨

فاكس: ٠١١٤٧٣٥٠٣٩

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الرقم: .....  
التاريخ:  
المشروعات



المملكة العربية السعودية  
وزارة الصحة  
الإدارة العامة للبحوث والدراسات

الموضوع: بحث الطالب/ بدر القحطاني.

## سعادة/ مدير عام الشؤون الصحية بمنطقة مكة المكرمة

المحترم  
السلام عليكم ورحمة الله وبركاته، ، ، ،  
إشارة إلى موضوع الطالب / بدر عبود القحطاني، مبتعث من وزارة التعليم العالي لدراسة  
درجة الدكتوراه في تخصص "إدارة الرعاية الصحية" بكلية الطب جامعة فلندرز بأستراليا،  
رقم السجل المدني (١٠٥١٦٣٧٥٦٧) وعنوان الرسالة:  
" التحديات التي تواجه إصلاح النظام الصحي بمراكز الرعاية الصحية الأولية بالمملكة  
المرية السعودية "

نحيطكم علماً بأن الطالب قد إستوفى كافة المستندات المطلوبة وتمت مراجعتها من  
قبل اللجان المعنية بالإدارة العامة للبحوث والدراسات ولجنة الأخلاقيات بمدينة الملك فهد  
الطبية بوزارة الصحة (مرفق صورة)، وتمت الموافقة على تسهيل مهمة إجراء هذا البحث،  
وحيث أن المذكور عاليه سيقوم بجمع جزء من بيانات دراسته في مراكز الرعاية الصحية  
الأولية بمنطقة مكة المكرمة.

وعليه، نأمل من سعادتكم التفضل بالإطلاع والإيعاز لمن يلزم بتسهيل مهمته لجمع البيانات  
اللازمة بما يضمن أن لا يكون هناك أي تأثير على خدمة المراجعين خلال قيامه بمهام بحثه،  
مع العلم بأن وزارة الصحة تضمن حقوقها في نتائج هذا البحث من خلال إتفاقية المشاركة في  
البيانات والتي تم توقيعها بين الباحث والإدارة العامة للبحوث والدراسات.

وتفضلوا بقبول خالص تحياتي ، ، ،

مرفق صورة مستندات وملخص المقترح البحثي، ، ، ،

مساعد مدير عام الإدارة العامة للبحوث والدراسات



ص. عداري فيصل العبيدي

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الإدارة العامة للبحوث والدراسات  
 القيد: 733240  
 الرقم: ..... التاريخ: 13-03-1437 هـ 24-12-2015  
 مرفقات: 17  
 التاريخ: المشفوعات



المملكة العربية السعودية  
 وزارة الصحة  
 الإدارة العامة للبحوث والدراسات

الموضوع: بحث الطالب/ بدر القحطاني.

## سعادة/ مدير عام الشؤون الصحية بمنطقة الرياض المحترم

السلام عليكم ورحمة الله وبركاته، ، ، ،

إشارة إلى موضوع الطالب / بدر عبود القحطاني، مبعث من وزارة التعليم العالي لدراسة درجة الدكتوراه في تخصص "إدارة الرعاية الصحية" بكلية الطب جامعة فلندرز بأستراليا، رقم السجل المدني (١٠٥١٦٣٧٥٦٧) وعنوان الرسالة:

" التحديات التي تواجه إصلاح النظام الصحي بمراكز الرعاية الصحية الأولية بالمملكة العربية السعودية "

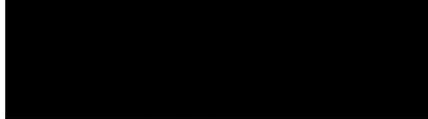
نحيطكم علماً بأن الطالب قد إستوفى كافة المستندات المطلوبة وتمت مراجعتها من قبل اللجان المعنية بالإدارة العامة للبحوث والدراسات ولجنة الأخلاقيات بمدينة الملك فهد الطبية بوزارة الصحة (مرفق صورة)، وتمت الموافقة على تسهيل مهمة إجراء هذا البحث، وحيث أن المذكور عاليه سيقوم بجمع جزء من بيانات دراسته في مراكز الرعاية الصحية الأولية بمنطقة الرياض.

وعليه، نأمل من سعادتكم التفضل بالإطلاع والإيعاز لمن يلزم بتسهيل مهمته لجمع البيانات اللازمة بما يضمن أن لا يكون هناك أي تأثير على خدمة المراجعين خلال قيامه بمهام بحثه، مع العلم بأن وزارة الصحة تضمن حقوقها في نتائج هذا البحث من خلال إتفاقية المشاركة في البيانات والتي تم توقيعها بين الباحث والإدارة العامة للبحوث والدراسات.

وتفضلوا بقبول خالص تحياتي ، ، ،

مرفق صورة مستندات وملخص المقترح البحثي، ، ، ،

مساعد مدير عام الإدارة العامة للبحوث والدراسات



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## REFERENCES

- Aantjes, C, Quinlan, T & Bunders, J 2014, 'Integration of community home based care programmes within national primary health care revitalisation strategies in Ethiopia, Malawi, South-Africa and Zambia: a comparative assessment', *Globalization and Health*, vol. 10, no. 1, pp. 2-15.
- Aboul-Enein, F 2002, 'Personal contemporary observations of nursing care in Saudi Arabia', *International Journal of Nursing Practice*, vol. 8, no. 4, pp. 228-230.
- Addington, D, Kyle, T, Desai, S & Wang, J 2010, 'Facilitators and barriers to implementing quality measurement in primary mental health care', *Canadian Family Physician*, vol. 56, no. 12, pp. 1322-1331.
- Ahmad, S & Maqbool, A 2013, *Use of TQM in primary health care*, viewed 6 February 2015, <<https://ssrn.com/abstract=2349077>>.
- AIHW 2014, *Preventing and treating ill health*, Australian Institute of Health and Welfare, viewed 17 March 2016, <<https://www.aihw.gov.au/reports/australias-health/australias-health-2014/contents/table-of-contents>>.
- Alosimy, MH 1994, 'Evaluation of primary health care in Riyadh, Saudi Arabia', *Journal of Family and Community Medicine*, vol. 1, no. 1, pp. 45-54.
- Al-Ahmadi, H 2010, 'Assessment of patient safety culture in Saudi Arabian hospitals', *Quality & Safety in Health Care*, vol. 19, no. e17, pp. 2-5.
- Al-Ahmadi, H & Roland, M 2005, 'Quality of primary health care in Saudi Arabia: a comprehensive review', *International Journal for Quality in Health Care*, vol. 17, no. 4, pp. 331-346.
- Al-Ahmadi, HA 2002, 'Job satisfaction of nurses in ministry of health hospitals in Riyadh, Saudi Arabia', *Saudi Medical Journal*, vol. 23, no. 6, pp. 645-650.
- Al-Ahmary, KA 2014, 'Quality of primary care from the patient perspective in Saudi Arabia: a multi-level study', PhD thesis, University of Louisville.
- Al-Eisa, IS, Al-Mutar, MS, Radwan, MM & Alterkit, AM 2005, 'Patients' satisfaction with primary health care services at capital health region, Kuwait', *Middle East Journal of Family Medicine*, vol. 3, no. 3, pp. 10-16.

Al-Falieh, F, Al-Freihi, H & Al-Rabeeah, O 2009, *Medical education in the Kingdom of Saudi Arabia: History, challenges and opportunities*, Globalization and Health, Al Zwayid Press Group, Saudi Arabia.

Al-Faris, EA, Khoja, TA, Falouda, M & Saeed, AA 1996, 'Patients' satisfaction with accessibility and services offered in Riyadh health centers', *Saudi Medical Journal*, vol. 17, no. 1, pp. 11-17.

Al-Ghamdi, AS & Kabbash, IA 2011, 'Awareness of healthcare workers regarding preventive measures of communicable diseases among Hajj pilgrims at the entry point in Western Saudi Arabia', *Saudi Medical Journal*, vol. 32, no. 11, pp. 1161-1167.

Al-Hazimi, A, Al-Hyiani, A & Roff, S 2004, 'Perceptions of the educational environment of the medical school in King Abdul Aziz University, Saudi Arabia', *Medical Teacher*, vol. 26, no. 6, pp. 570-573.

Al-Jaber, A & Da'ar, OB 2016, 'Primary health care centers, extent of challenges and demand for oral health care in Riyadh, Saudi Arabia', *BMC Health Services Research*, vol. 16, no. 1, pp. 2-8.

Al-Khalidi, YM & Al-Sharif, AI 2002, 'Availability of resources of diabetic care in primary health care settings in Aseer region, Saudi Arabia', *Saudi Medical Journal*, vol. 23, no. 12, pp. 1509-1513.

Al-Khathami, AD, Sheikh, ARI, Mangoud, AM, Abumadini, MS & Main, MH 2003, 'Can a short-term training course improve the primary-care physicians' attitudes toward mental health problems?', *Journal of Family and Community Medicine*, vol. 10, no. 3, pp. 19-24.

Al-Kibsi, G, Woetzel, J, Isherwood, T, Khan, J, Mischke, J & Noura, H 2015, *Saudi Arabia beyond oil: The investment and productivity transformation*, McKinsey Global Institute, Saudi Arabia.

Al-Mazrou, Y 2002, 'Primary health care in Saudi Arabia: Its development and future perspectives', *Journal of Family and Community Medicine*, vol. 9, no. 2, pp. 15-16.

Al-Mazrou, Y, Al-Shehri, S & Rao, M 1990, 'Team approach in primary health care', in Y Al-Mazrou, S Al-Shehri & R MPS (eds), *Principles and practice of primary health care*, Al Hilal Press, Riyadh, pp. 49-53.

Al-Mosilhi, A & Kurashi, N 2006, 'Current situation of continuing medical education for primary health care physicians in Al-Madinah Al-Munawarah province, Saudi Arabia', *Journal of Family and Community Medicine*, vol. 13, no. 2, pp. 75-82.

Al-Omar, B & Bin Saeed, K 1998, 'Factors influencing patients' utilization of primary health care providers in Saudi Arabia', *Journal of Family and Community Medicine*, vol. 5, no. 2, pp. 23-30.

Al-Rabeeah, A 2003, 'The history of health care in the Kingdom of Saudi Arabia with emphasis on pediatric surgery', *Saudi Medical Journal*, vol. 24, no. 1, pp. 9-10.

Al-Sakkak, M, Al-Nowaiser, N, Al-Khashan, H, Al-Abdrabulnabi, A & Jaber, R 2008, 'Patient satisfaction with primary health care services in Riyadh', *Saudi Medical Journal*, vol. 29, no. 3, pp. 432-436.

Al-Yahya, K, Lubatkin, M & Vengroff, R 2009, 'The impact of culture on management and development: A comparative review', in A Farazmand (ed.), *Handbook of bureaucracy*, 4th edn, Marcel Dekker, New York.

Al-Yousuf, M, Akerele, T & Al-Mazrou, Y 2002, 'Organization of the Saudi health system', *Eastern Mediterranean Health Journal*, vol. 8, no. 4-5, pp. 645-653.

Alabbad, HM & Alhaidary, HM 2016, 'The perception of physical therapy leaders in Saudi Arabia regarding physical therapy scope of practice in primary health care', *The Journal of Physical Therapy Science*, vol. 28, no. 1, pp. 112-117.

Alabri, R & Albalushi, A 2014, 'Patient satisfaction survey as a tool towards quality improvement', *Oman Medical Journal*, vol. 29, no. 1, pp. 3-7.

Alalfi, MA, Alsaigul, AM, Abedelbast, AM, Sourour, AM & Ramzy, HA 2007, 'Quality of primary care referral letters and feedback reports in Buraidah, Qassim region, Saudi Arabia', *Journal of Family and Community Medicine*, vol. 14, no. 3, pp. 113-117.

Alanazi, F, Hussain, S, Mandil, A & Alamro, N 2015, 'Towards an electronic national injury surveillance system in Saudi Arabia', *Eastern Mediterranean Health Journal*, vol. 21, no. 2, pp. 140-146.

Alansary, LA & Khoja, TA 2002, 'The place of evidence-based medicine among primary health care physicians in Riyadh region, Saudi Arabia', *Family Practice*, vol. 19, no. 5, pp. 537-542.

Albalushi, RM, Sohrabi, M-R & Kolahi, A-A 2012, 'Clients' satisfaction with primary health care in Muscat', *International Journal of Preventive Medicine*, vol. 3, no. 10, pp. 713-717.

- Albejaidi, FM 2010, 'Healthcare system in Saudi Arabia: An analysis of structure, total quality management and future challenges', *Journal of Alternative Perspectives in the Social Sciences*, vol. 2, no. 2, pp. 794-818.
- Albougami, A 2015, 'Role of language and communication in providing quality healthcare by expatriate nurses in Saudi Arabia', *Journal of Health Specialties*, vol. 3, no. 3, pp. 166-171.
- Aldoghaither, AH, Mohamed, BA, Abdalla, AE, Magzoub, ME & Aldoghaither, MH 2001, 'Physician-Nurse communication. Perceptions of Physicians in Riyadh', *Saudi Medical Journal*, vol. 22, no. 4, pp. 315-319.
- Aldossary, A, While, A & Barriball, L 2008, 'Health care and nursing in Saudi Arabia', *International Nursing Review*, vol. 55, no. 1, pp. 125-128
- Alfaleh, HF, Alshamiri, MQ, Ullah, A, Alhabib, KF, Hersi, AS, Alsaif, S, Alnemer, K, Taraben, A, Malik, A & Abuosa, AM 2015, 'Disparities in health care delivery and hospital outcomes between non-Saudis and Saudi nationals presenting with acute coronary syndromes in Saudi Arabia', *PloS One*, vol. 10, no. 4, pp. 1-9.
- Alfaraj, AWA, Sebiany, AM & Alharbi, W 2015, 'Primary healthcare physicians' attitude and perceived barriers regarding minor surgeries', *Journal of Health Specialties*, vol. 3, no. 2, pp. 67-73.
- Alghamdi, AMS 2012, 'Challenges of continuing medical education in Saudi Arabia's hospitals', PhD thesis, Newcastle University.
- Alghanim, S 2011, 'Information needs and seeking behavior among primary care physicians in Saudi Arabia: Implications for policy and practice', *Scientific Research and Essays*, vol. 6, no. 8, pp. 1849-1855.
- Alghanim, S 2012, 'Assessing knowledge of the patient bill of rights in central Saudi Arabia: a survey of primary health care providers and recipients', *Annals of Saudi Medicine*, vol. 32, no. 2, pp. 151-155.
- Alghanim, SA & Alomar, BA 2015, 'Frequent use of emergency departments in Saudi public hospitals: implications for primary health care services', *Asia Pacific Journal of Public Health*, vol. 27, no. 2, pp. 2521-2530.
- Alhamdan, AA, Alshammari, SA, Alamoud, MM, Hameed, TA, Almuammar, MN, Bindawas, SM, Alorf, SM, Mohamed, AG, Alghamdi, EA & Calder, PC 2015, 'Evaluation of health care services provided for older adults in primary health care centers and its internal environment. A step towards age-friendly health centers', *Saudi Medical Journal*, vol. 36, no. 9, pp. 1091-1096.

Alharthi, F, Alenad, A, Baitalmal, H & Alkhurashi, A 1999, *Health over a century* Ministry of Health by ASBAR Centre for Studies Research & Communication Riyadh.

Aljumah, AA, Abaalkhail, F, Al-Ashgar, H, Assiri, A, Babatin, M, Al Faleh, F, Alghamdi, A, Al-Hakeem, R, Hashim, A & Alqutub, A 2016, 'Epidemiology, disease burden, and treatment strategies of chronic hepatitis C virus infections in Saudi Arabia in the new treatment paradigm shift', *Saudi journal of gastroenterology: official journal of the Saudi Gastroenterology Association*, vol. 22, no. 4, pp. 269-281.

Alkhamis, A, Hassan, A & Cosgrove, P 2014, 'Financing healthcare in Gulf Cooperation Council countries: a focus on Saudi Arabia', *The International Journal of Health Planning and Management*, vol. 29, no. 1, pp. e64-e82.

Alma-Ata 1978, *Primary Health Care* World Health Organization, Geneva.

Almaiman, A, Bahkali, S, Alfrih, S, Househ, M & El Metwally, A 2014, 'The use of health information technology in Saudi primary healthcare centers', *Studies in Health Technology and Informatics*, vol. 202, pp. 209-212.

Almalki, M, FitzGerald, G & Clark, M 2011, 'Health care system in Saudi Arabia: an overview', *Eastern Mediterranean Health Journal*, vol. 17, no. 10, pp. 784-793.

Almasabi, MH 2013, 'Factors influence and impact of the implementation of quality of care in Saudi Arabia', *Journal of Medicine and Medical Sciences*, vol. 4, no. 3, pp. 92-95.

Almazrou, Y & Salem, A 2004, *Primary health care guide*, Globalization and Health, Ministry of Health, Riyadh, Saudi Arabia.

Almutairi, KM & Moussa, M 2014, 'Systematic review of quality of care in Saudi Arabia. A forecast of a high quality health care', *Saudi Medical Journal*, vol. 35, no. 8, pp. 802-809.

Aloufi, MA & Bakarman, MA 2016, 'Barriers facing primary health care physicians when dealing with emergency cases in Jeddah, Saudi Arabia', *Global Journal of Health Science*, vol. 8, no. 8, pp. 192-199.

Alrabiyah, O & Alfaleh, F 2010, *The Saudi health system reform: Initiation, development and the challenges facing it*, 1st edn, Science Press and Publishing, Riyadh, Kingdom of Saudi Arabia.

- Alsalloum, N, Cooper, M & Glew, S 2014, 'The development of primary care in Saudi Arabia', *Education and Inspiration for General Practice*, vol. 8, no. 5, pp. 316-318.
- Alshamary, H 2012, *90% of Saudi hospital managers are without qualification in health management*, Sabaq Newspaper, viewed 24 September 2014, <<http://sabq.org/ciofde>>.
- Alshammari, F 2014, 'Patient satisfaction in primary health care centers in Hail City, Saudi Arabia', *American Journal of Applied Sciences*, vol. 11, no. 8, pp. 1234-1240.
- Alshammary, SA, Ratnapalan, S & Akturk, Z 2013, 'Continuing medical education as a national strategy to improve access to primary care in Saudi Arabia', *Journal of Educational Evaluation for Health Professions*, vol. 10, no. 7, pp. 1-10.
- Alsubaie, AM, Almohaimede, KA, Aljadoa, AF, Jarallah, OJ, Althnayan, YI & Alturki, YA 2016, 'Socioeconomic factors affecting patients' utilization of primary care services at a Tertiary Teaching Hospital in Riyadh, Saudi Arabia', *Journal of Family and Community Medicine*, vol. 23, no. 1, pp. 6-11.
- Altuwaijri, MM 2008, 'Electronic-health in Saudi Arabia. Just around the corner?', *Saudi Medical Journal*, vol. 29, no. 2, pp. 171-178.
- Alyemini, M 2010, *Five year program to transform healthcare delivery in Saudi Arabia*, Ministry of Health, Saudi Arabia
- Alzaied, T & Alshammari, A 2016, 'An Evaluation of Primary Healthcare Centers (PHC) Services: The Views of Users', *Health Science Journal*, vol. 10, no. 2, pp. 1-8.
- Alzolibani, AA 2011, 'Patient satisfaction and expectations of the quality of service of University affiliated dermatology clinics', *Journal of Public Health and Epidemiology*, vol. 3, no. 2, pp. 61-67.
- Anikeeva, O & Bywood, P 2011, *eHealth technologies in primary health care: current strengths and limitations*, Primary Health Care Research & Information Service, viewed 11 December 2015, <<http://www.phcris.org.au/publications/researchroundup/issues/21.php>>.
- Ansari, S, Akhdar, F, Mandoorah, M & Moutaery, K 2000, 'Causes and effects of road traffic accidents in Saudi Arabia', *Public Health*, vol. 114, no. 1, pp. 37-39.
- Arabnews 2014, *20 Franch companies take part in Saudi health show*, Arab News, viewed 14 October 2014, <<http://www.arabnews.com/news/573406>>.

Artino Jr, AR, La Rochelle, JS, Dezee, KJ & Gehlbach, H 2014, 'Developing questionnaires for educational research: AMEE Guide No. 87', *Medical Teacher*, vol. 36, no. 6, pp. 463-474.

Aschengrau, A & Seage III, G 2003, *Essentials of epidemiology in public health*, Jones and Bartlett Publishers, Sudbury.

Atun, R, De Andrade, LOM, Almeida, G, Cotlear, D, Dmytraczenko, T, Frenz, P, Garcia, P, Gómez-Dantés, O, Knaul, FM & Muntaner, C 2015, 'Health-system reform and universal health coverage in Latin America', *The Lancet*, vol. 385, no. 9974, pp. 1230-1247.

Atun, RA, Menabde, N, Saluvere, K, Jesse, M & Habicht, J 2006, 'Introducing a complex health innovation—Primary health care reforms in Estonia (multimethods evaluation)', *Health Policy*, vol. 79, no. 1, pp. 79-91.

Azétsop, J & Ochieng, M 2015, 'The right to health, health systems development and public health policy challenges in Chad', *Philosophy, Ethics, and Humanities in Medicine*, vol. 10, no. 1, pp. 2-14.

Azorín, JM & Cameron, R 2010, 'The application of mixed methods in organisational research: A literature review', *Electronic Journal of Business Research Methods*, vol. 8, no. 2, pp. 95-105.

Babbie, ER 1990, *Survey research methods*, Wadsworth Publishing Company, Belmont, CA.

—— 2013, *The practice of social research*, 13th edn, Cengage Learning, Belmont, CA.

Badrinath, P, Al-Shboul, Q, Zoubeidi, T, Gargoum, A, Ghubas, R & El-Rufaie, O 2002, *Measuring the health of the nation: United Arab Emirates health and life style survey 2000*, Faculty of Medicine and Health Sciences, UAE University.

Bahurmoz, AM 1998, 'Measuring efficiency in primary health care centres in Saudi Arabia', *Economics and Administration*, vol. 12, no. 2, pp. 3-18.

Baig, M, Panda, B, Das, JK & Chauhan, AS 2014, 'Is public private partnership an effective alternative to government in the provision of primary health care? A case study in Odisha', *Journal of Health Management*, vol. 16, no. 1, pp. 41-52.

Bajammal, S, Zaini, R, Abuznadah, W, Al-Rukban, M, Aly, SM, Boker, A, Al-Zalabani, A, Al-Omran, M, Al-Habib, A & Al-Sheikh, M 2008, 'The need for national medical licensing examination in Saudi Arabia', *BMC Medical Education*, vol. 8, no. 1, pp. 1-15.

Barbour, RS 1999, 'The case for combining qualitative and quantitative approaches in health services research', *Journal of Health Services Research and Policy*, vol. 4, no. 1, pp. 39-43.

Barry, S, Somanje, H, Kirigia, J, Nyoni, J, Bessaoud, K, Trapsida, J, Ndiokubwayo, J, Soumbey-Alley, E, Nyamwaya, D & Tumusiime, P 2010, *The Ouagadougou declaration on primary health care and health systems in Africa: Achieving better health for Africa in the new millennium*, World Health Organization, Regional Office for Africa.

Baruch, Y & Holtom, BC 2008, 'Survey response rate levels and trends in organizational research', *Human Relations*, vol. 61, no. 8, pp. 1139-1160.

Baskerville, N, Hogg, W & Lemelin, J 2001, 'Process evaluation of a tailored multifaceted approach to changing family physician practice patterns improving preventive care', *The Journal of family practice*, vol. 50, no. 3, pp. W242-249.

Bazeley, P 2012, 'Integrative analysis strategies for mixed data sources', *American Behavioral Scientist*, vol. 56, no. 6, pp. 814-828.

Beaglehole, R, Epping-Jordan, J, Patel, V, Chopra, M, Ebrahim, S, Kidd, M & Haines, A 2008, 'Improving the prevention and management of chronic disease in low-income and middle-income countries: a priority for primary health care', *The Lancet*, vol. 372, no. 9642, pp. 940-949.

Bener, A, Abdullah, S & Murdoch, J 1993, 'Primary health care in the United Arab Emirates', *Family Practice*, vol. 10, no. 4, pp. 444-448.

Bhatia, M & Rifkin, SB 2013, 'Primary health care, now and forever? A case study of a paradigm change', *International Journal of Health Services*, vol. 43, no. 3, pp. 459-471.

Bhutta, ZA, Lassi, ZS, Pariyo, G & Huicho, L 2010, *Global experience of community health workers for delivery of health related millennium development goals: a systematic review, country case studies, and recommendations for integration into national health systems*, Global Health Workforce Alliance.

Bindawas, SM 2013, 'Evidence-based health care continuing education seminars improve academic staff knowledge and attitudes in Saudi Arabia', *Pakistan Journal of Medical Sciences*, vol. 29, no. 3, pp. 703-709.

Birken, SA, Lee, S-YD, Weiner, BJ, Chin, MH & Schaefer, CT 2013, 'Improving the effectiveness of health care innovation implementation: middle managers as change agents', *Medical Care Research and Review*, vol. 70, no. 1, pp. 29-45.

Blanchet, K, Gordon, I, Gilbert, CE, Wormald, R & Awan, H 2012, 'How to achieve universal coverage of cataract surgical services in developing countries: lessons from systematic reviews of other services', *Ophthalmic Epidemiology*, vol. 19, no. 6, pp. 329-339.

Blanchet, K & Lindfield, R 2010, 'Health Systems and eye care: A way forward', *International Agency for the Prevention of Blindness*.

Blanchet, K & Patel, D 2012, 'Applying principles of health system strengthening to eye care', *Indian Journal of Ophthalmology*, vol. 60, no. 5, pp. 470-474.

Bodenheimer, T, Wagner, EH & Grumbach, K 2002, 'Improving primary care for patients with chronic illness', *Journal of the American Medical Association*, vol. 288, no. 15, pp. 1909-1914.

Boffa, J 2002, 'Is there a doctor in the house?', *Australian and New Zealand Journal of Public Health*, vol. 26, no. 4, pp. 301-304.

Bowen, GA 2008a, 'Naturalistic inquiry and the saturation concept: a research note', *Qualitative Research*, vol. 8, no. 1, pp. 137-152.

Bowen, W 2008b, *The History of Saudi Arabia*, Greenwood Press, Connecticut, USA.

Boynton, PM & Greenhalgh, T 2004, 'Hands-on guide to questionnaire research: Selecting, designing, and developing your questionnaire', *British Medical Journal*, vol. 328, no. 7451, pp. 1312-1315.

Braun, V & Clarke, V 2006, 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, vol. 3, no. 2, pp. 77-101.

Braveman, P & Gruskin, S 2003, 'Defining equity in health', *Journal of Epidemiology and Community Health*, vol. 57, no. 4, pp. 254-258.

Bryman, A 2007, 'Barriers to integrating quantitative and qualitative research', *Journal of Mixed Methods Research*, vol. 1, no. 1, pp. 8-22.

Canadian Diabetes Association 2013, 'Canadian Diabetes Association 2013 clinical practice guidelines for the prevention and management of diabetes in Canada. Introduction', *Canadian Journal of Diabetes*, vol. 37, pp. S1-216.

Carrin, G, Buse, K, Heggenhougen, K & Quah, SR 2009, *Health systems policy, finance, and organization*, Academic Press, UK.

Caruth, GD 2013, 'Demystifying mixed methods research design: A review of the literature', *Mevlana International Journal of Education*, vol. 3, no. 2, pp. 112-122.

CCHI 2012, *Council of Cooperative Health Insurance Saudi Arabia-4th Annual report*, viewed 22 January 2014, <<http://www.cchi.gov.sa/en/Studies/AnnualReport/Pages/default.aspx>>.

CDSI 2012, *Population statistics database*, Central Department of Statistics & Information, viewed 28 January 2014, <<https://www.stats.gov.sa/en>>.

Cha, ES, Kim, KH & Erlen, JA 2007, 'Translation of scales in cross-cultural research: issues and techniques', *Journal of Advanced Nursing*, vol. 58, no. 4, pp. 386-395.

Charmaz, K 2006, *Constructing grounded theory: A practical guide through qualitative analysis* Globalization and Health, Sage Thousand Oaks, CA.

Creswell, J 2003, *Research Design: Qualitative, Quantitative, and mixed methods approaches*, Sage Publications, Thousand Oaks, CA.

—— 2008, *Educational research: Planning, conducting, and evaluating quantitative and qualitative research*, 3rd edn, Pearson/Merrill Prentice Hall, NJ.

—— 2009, *Research design: Qualitative, quantitative, and mixed methods approaches*, 2nd edn, Sage Publications, Thousand Oaks, CA.

—— 2013, *Qualitative inquiry and research design: Choosing among five approaches*, 3rd edn, Sage Publications, Thousand Oaks, CA.

—— 2015, *A concise introduction to mixed methods research*, Sage Publications, Thousand Oaks, CA.

Creswell, J, Fetters, MD & Ivankova, NV 2004, 'Designing a mixed methods study in primary care', *The Annals of Family Medicine*, vol. 2, no. 1, pp. 7-12.

Creswell, J & Plano Clark, V 2007, *Designing and conducting mixed methods research*, Sage Publications, Thousand Oaks, CA.

Creswell, J & Plano Clark, V 2011, *Designing and conducting mixed methods research* Sage Publications, Thousand Oaks, CA.

Creswell, J & Tashakkori, A 2007, *Differing perspectives on mixed methods research*, Sage Publications, Thousand Oaks, CA.

Cronholm, S & Hjalmarsson, A 2011, 'Experiences from sequential use of mixed methods', *The Electronic Journal of Business Research Methods*, vol. 9, no. 2, pp. 87-95.

Cueto, M 2004, 'The origins of primary health care and selective primary health care', *American Journal of Public Health*, vol. 94, no. 11, pp. 1864-1874.

Curry, LA, Nembhard, IM & Bradley, EH 2009, 'Qualitative and mixed methods provide unique contributions to outcomes research', *Qualitative and Mixed Methods Research*, vol. 119, no. 10, pp. 1442-1452.

Da'ar, OB & Al-Shehri, AM 2015, 'Towards integration of health economics into medical education and clinical practice in Saudi Arabia', *Medical Teacher*, vol. 37, no. sup1, pp. S56-S60.

Darwish, MA, Al-Saif, G, Albahrani, S & Sabra, AA 2014, 'Lifestyle and dietary behaviors among Saudi preschool children attending primary health care centers, Eastern Saudi Arabia', *International Journal of Family Medicine*, vol. 2014, pp. 1-9.

Davis, N, Davis, D & Bloch, R 2008, 'Continuing medical education: AMEE education guide no 35', *Medical Teacher*, vol. 30, no. 7, pp. 652-666.

De Maeseneer, J, Moosa, S, Pongsupap, Y & Kaufman, A 2008, 'Primary health care in a changing world', *British Journal of General Practice*, vol. 58, no. 556, pp. 806-809.

Deghaither, A 2006, *Should hospitals be run by Doctors?*, viewed 18 February 2015, <<http://www.alriyadh.com/2006/09/12/article185873.html>>.

Dhafar, KO, Gazzaz, ZJ & Shahbaz, J 2004, 'Hajj caravan 1423', *Saudi Medical Journal*, vol. 25, no. 10, pp. 1529-1530.

Dommeyer, CJ, Baum, P & Hanna, RW 2002, 'College students' attitudes toward methods of collecting teaching evaluations: In-class versus on-line', *Journal of Education for Business*, vol. 78, no. 1, pp. 11-15.

Dommeyer, CJ, Baum, P, Hanna, RW & Chapman, KS 2004, 'Gathering faculty teaching evaluations by in-class and online surveys: their effects on response rates and evaluations', *Assessment & Evaluation in Higher Education*, vol. 29, no. 5, pp. 611-623.

Du Toit, R, Faal, HB, Etya'ale, D, Wiafe, B, Mason, I, Graham, R, Bush, S, Mathenge, W & Courtright, P 2013, 'Evidence for integrating eye health into primary health care in Africa: a health systems strengthening approach', *BMC Health Services Research*, vol. 13, no. 102, pp. 1-15.

Dudley, L & Garner, P 2011, 'Strategies for integrating primary health services in low-and middle-income countries at the point of delivery', *Cochrane Database of Systematic Reviews*, no. 7.

Economist 2012, *Saudi Arabia healthcare: Government presses ahead with hospital building* Economist Intelligence Unit, viewed 13 January 2013  
<<http://www.eiu.com/industry/healthcare/middle-east-and-africa/saudi-arabia/articlelist>>.

— 2014, *Healthcare in Saudi Arabia: Increasing capacity, increasing quality?*, Economist Intelligence Unit, viewed 28 May 2014,  
<<http://www.economistinsights.com/healthcare/analysis/healthcare-saudi-arabia>>.

El-Bcheraoui, C, Tuffaha, M, Daoud, F, Kravitz, H, Al-Mazroa, MA, Al-Saeedi, M, Memish, ZA, Basulaiman, M, Al-Rabeeah, AA & Mokdad, AH 2015, 'Access and barriers to healthcare in the Kingdom of Saudi Arabia, 2013: findings from a national multistage survey', *BMJ Open*, vol. 5, no. 6, pp. 1-7.

El-Gilany, A & Al-Wehady, A 2001, 'Job satisfaction of female Saudi nurses', *Eastern Mediterranean Health Journal*, vol. 7, no. 1/2, pp. 31-37.

Elkum, N, Fahim, M, Shoukri, M & Al-Madouj, A 2009, 'Which patients wait longer to be seen and when? A waiting time study in the emergency department', *Eastern Mediterranean Health Journal*, vol. 15, no. 2, pp. 416-424.

Estacio, EV, Oliver, M, Downing, B, Kurth, J & Protheroe, J 2017, 'Effective partnership in community-based health promotion: Lessons from the health literacy partnership', *International Journal of Environmental Research and Public Health*, vol. 14, no. 12, p. 1550.

- Evans, BC, Coon, DW & Ume, E 2011, 'Use of theoretical frameworks as a pragmatic guide for mixed methods studies: A methodological necessity?', *Journal of Mixed Methods Research*, vol. 5, no. 4, pp. 276-292.
- Farzadfar, F, Murray, CJ, Gakidou, E, Bossert, T, Namdaritabar, H, Alikhani, S, Moradi, G, Delavari, A, Jamshidi, H & Ezzati, M 2012, 'Effectiveness of diabetes and hypertension management by rural primary health-care workers (Behvarz workers) in Iran: a nationally representative observational study', *The Lancet*, vol. 379, no. 9810, pp. 47-54.
- Feilzer, M 2010, 'Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm', *Journal of Mixed Methods Research*, vol. 4, no. 1, pp. 6-16.
- Fetters, MD, Curry, LA & Creswell, JW 2013, 'Achieving integration in mixed methods designs—principles and practices', *Health Services Research*, vol. 48, no. 6, pp. 2134-2156.
- Fincham, JE 2008, 'Response rates and responsiveness for surveys, standards, and the Journal', *American Journal of Pharmaceutical Education*, vol. 72, no. 2, pp. 1-3.
- Fowler, F 1998, 'Design and evaluation of survey questions', in L Bickman & D Rog (eds), *Handbook of Applied Social Research Methods*, Sage Publications, Thousand Oaks, CA.
- Gehlbach, H & Brinkworth, ME 2011, 'Measure twice, cut down error: A process for enhancing the validity of survey scales', *Review of General Psychology*, vol. 15, no. 4, pp. 380-387.
- General Authority for Statistics 2016, *Central department of statistics & information*, Kingdom of Saudi Arabia, viewed 16 January 2017, <<https://www.stats.gov.sa/en>>.
- Ghazwani, EY & Al Jaber, OA 2014, 'Study of satisfaction of diabetic patients attending the diabetic clinic at primary health centers in Abha city, Saudi Arabia', *International Journal of Medical Science and Public Health*, vol. 3, no. 4, pp. 436-443.
- Gibson, O, Lisy, K, Davy, C, Aromataris, E, Kite, E, Lockwood, C, Riitano, D, McBride, K & Brown, A 2015, 'Enablers and barriers to the implementation of primary health care interventions for Indigenous people with chronic diseases: a systematic review', *Implementation Science*, vol. 10, no. 71, pp. 2-11.
- Gilson, L & Daire, J 2011, 'Leadership and governance within the South African health system', *South African Health Review*, vol. 2011, no. 1, pp. 69-80.

Gilson, L, Doherty, J, Loewenson, R & Francis, V 2007, *Challenging inequity through health systems: Final report of the Knowledge Network on Health Systems*, WHO Commission on the Social Departments of Health, UK.

Gish, O 1982, 'Selective primary health care: old wine in new bottles', *Social Science and Medicine*, vol. 16, no. 10, pp. 1049-1054.

Glaser, B & Strauss, A 1967, *The discovery of grounded theory: Strategies for qualitative research* Aldine publishing company, New York.

Green, J & Thorogood, N 2009, *Qualitative methods for health research*, 2nd edn, Sage Publications, Thousand Oaks, CA.

Greene, J & Hall, N 2010, 'Dialectics and pragmatism: being of consequence', in A Tashakkori & C Teddlie (eds), *Sage Handbook of Mixed Methods in Social & Behavioral Research*, 2nd edn, Sage Publications, Thousand Oaks, CA, pp. 119-143.

Groves, RM 2006, 'Nonresponse rates and nonresponse bias in household surveys', *Public Opinion Quarterly*, vol. 70, no. 5, pp. 646-675.

Guetterman, TC 2015, 'Descriptions of sampling practices within five approaches to qualitative research in education and the health sciences', in *Forum Qualitative Sozialforschung*, vol. 16.

Guetterman, TC, Fetters, MD & Creswell, JW 2015, 'Integrating quantitative and qualitative results in health science mixed methods research through joint displays', *The Annals of Family Medicine*, vol. 13, no. 6, pp. 554-561.

Guillemin, F, Bombardier, C & Beaton, D 1993, 'Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines', *Journal of Clinical Epidemiology*, vol. 46, no. 12, pp. 1417-1432.

Gulati, P 2009, *Research Management: Fundamental & Applied Research*, Global India Publications, New Delhi, India.

Haggerty, JL 2011, 'Measurement of primary healthcare attributes from the patient perspective', *Healthcare Policy*, vol. 7, no. Special Issue, pp. 13-20.

Hair, JF, Anderson, RE, Babin, BJ & Black, WC 2010, *Multivariate data analysis: A global perspective*, 7th edn, Pearson Education, London.

Hair, JF, Ringle, CM & Sarstedt, M 2011, 'PLS-SEM: Indeed a silver bullet', *Journal of Marketing Theory and Practice*, vol. 19, no. 2, pp. 139-151.

Haj-Ali, W & Hutchison, B 2017, 'Establishing a primary care performance measurement framework for Ontario', *Healthcare Policy*, vol. 12, no. 3, pp. 66-79.

Hall, JJ & Taylor, R 2003, 'Health for all beyond 2000: the demise of the Alma-Ata Declaration and primary health care in developing countries', *Medical Journal of Australia*, vol. 178, no. 1, pp. 17-20.

Ham, A, Shams, MB & Madden, A 2004, *Saudi Arabia*, Lonely Planet Publications.

Hanson, B 2008, 'Wither qualitative/quantitative?: Grounds for methodological convergence', *Quality & Quantity*, vol. 42, no. 1, pp. 97-111.

Harris, LR & Brown, GT 2010, 'Mixing interview and questionnaire methods: Practical problems in aligning data', *Practical Assessment, Research & Evaluation*, vol. 15, no. 1, pp. 1-19.

Harris, M 2008, 'The role of primary health care in preventing the onset of chronic disease, with a particular focus on the lifestyle risk factors of obesity, tobacco and alcohol', *Canberra: National Preventative Health Taskforce*, pp. 1-21.

Hawe, P, Degeling, D & Hall, J 1990, *Evaluating Health Promotion-A Health Worker's Guide: A health worker's Guide*, MacLennan & Petty, Sydney.

Heath, I, Rubinstein, A, Stange, KC & Van Driel, ML 2009, 'Quality in primary health care: a multidimensional approach to complexity', *British Medical Journal*, vol. 338, pp. 1-3.

Henn, M, Weinstein, M & Foard, N 2006, *A critical introduction to social research*, 2nd edn, Sage Publications, London.

Higgins, TC, Crosson, J, Peikes, D, McNellis, R, Genevro, J & Meyers, D 2015, *Using health information technology to support quality improvement in primary care*, Agency for Healthcare Research and Quality, Rockville, MD.

Hogg, W, Rowan, M, Russell, G, Geneau, R & Muldoon, L 2008, 'Framework for primary care organizations: the importance of a structural domain', *International Journal for Quality in Health Care*, vol. 20, no. 5, pp. 308-313.

Hokkam, E, Gonna, A, Zakaria, O & El-Shemally, A 2015, 'Trauma patterns in patients attending the emergency department of Jazan General Hospital, Saudi Arabia', *World journal of emergency medicine*, vol. 6, no. 1, p. 48.

International Diabetes Federation 2013, *IDF diabetes atlas*, International Diabetes Federation.

Jabbour, S, Giacaman, R, Khawaja, M & Nuwayhid, I 2012, *Public health in the Arab World*, Cambridge University Press, UK.

Jahan, S, Al-Saigul, A & Suliman, A 2016, 'Attitudes to statistics in primary health care physicians, Qassim province', *Primary Health Care Research & Development*, vol. 17, no. 04, pp. 405-414.

Jahan, S, Al-Saigul, AM, Nimir, SE & Mustafa, AS 2014, 'Priorities for primary health care research in Qassim, central Saudi Arabia', *Saudi Medical Journal*, vol. 35, no. 3, pp. 298-303.

Jannadi, B, Alshammari, H, Khan, A & Hussain, R 2008, 'Current structure and future challenges for the healthcare system in Saudi Arabia', *Asia Pacific Journal of Health Management*, vol. 3, no. 1, pp. 43-50.

Jarallah, JS 1998, 'Referral from primary care to hospitals in Saudi Arabia: quality of referral letters and feedback reports', *Journal of Family and Community Medicine*, vol. 5, no. 2, pp. 15-22.

Jeddah Economic Gateway 2014, *National economy under the ninth economic plan*, Jeddah Economic Gateway, viewed 16 January 2014, <<http://landensefeesten.webtopus.net/index.php?q=economicarticles>>.

Jette, DU, Grover, L & Keck, CP 2003, 'A qualitative study of clinical decision making in recommending discharge placement from the acute care setting', *Physical Therapy*, vol. 83, no. 3, pp. 224-236.

Johnson, RB, Onwuegbuzie, AJ & Turner, LA 2007, 'Toward a definition of mixed methods research', *Journal of Mixed Methods Research*, vol. 1, no. 2, pp. 112-133.

Joyal, A 2014, *The role of leadership, management and governance in building health systems in fragile states*, USAID, viewed 26 October 2016, <<http://www.imgforhealth.org/content/role-leadership-management-and-governance-building-health-systems-fragile-states>>.

- Kalantan, KA, Al-Taweel, AA & Abdul, GH 1998, 'Factors influencing job satisfaction among primary health care (PHC) physicians in Riyadh, Saudi Arabia', *Annals of Saudi Medicine*, vol. 19, no. 5, pp. 424-426.
- Kaplowitz, MD, Hadlock, TD & Levine, R 2004, 'A comparison of web and mail survey response rates', *Public Opinion Quarterly*, vol. 68, no. 1, pp. 94-101.
- Kathleen, D, Laetitia, K & Trinette, S 1999, *Aspect of primary health care: Community health care in Southern Africa*, 2nd edn, Oxford University Press, Cape Town, South Africa.
- Kayed, RN & Kabir Hassan, M 2011, 'Saudi Arabia's economic development: entrepreneurship as a strategy', *International Journal of Islamic and Middle Eastern Finance and Management*, vol. 4, no. 1, pp. 52-73.
- Keck, CW & Reed, GA 2012, 'The curious case of Cuba', *American Journal of Public Health*, vol. 102, no. 8, pp. e13-e22.
- Kelle, U 2005, 'Sociological explanations between micro and macro and the integration of qualitative and quantitative methods', *Historical Social Research/Historische Sozialforschung*, vol. 30, no. 1, pp. 95-117.
- Kerr, S 2016, *Riyadh plans radical surgery to rejuvenate Saudi health sector*, , viewed 3 February 2016, <<https://www.ft.com/content/935c80f6-a5b6-11e5-97e1-a754d5d9538c>>.
- Khaliq, A 2012, 'The Saudi health care system: a view from the minaret', *World Health & Population*, vol. 13, no. 3, pp. 52-64.
- Khan, F 2014, '70% of Saudis are obese', *Arab News*, no. 20 April 2014.
- Khoja, TA & Al-Ansary, LA 1998, 'Asthma in Saudi Arabia: Is the System Appropriate for Optimal Primary Care?', *Journal of Public Health Management and Practice*, vol. 4, no. 3, pp. 64-72.
- Khursani, SA, Buzuhair, O & Khan, MR 2011, *Strategy for rapid transformation of Saudi Arabia by leveraging intellectual capital and knowledge management*, viewed 20 February 2015, <[http://www.rushkhan.org/uploads/3/2/4/5/3245782/sa\\_intellectual\\_capital.pdf](http://www.rushkhan.org/uploads/3/2/4/5/3245782/sa_intellectual_capital.pdf)>.
- Kirigia, J & Barry, S 2008, 'Health challenges in Africa and the way forward', *International Archives of Medicine*, vol. 1, no. 27, pp. 1-3.

- Knupfer, NN & McLellan, H 1996, 'Descriptive research methodologies', in D Jonassen (ed.), *Handbook of Research for Educational Communication and Technology*, Simon and Schuster, NY, pp. 1196- 1212.
- Kruk, ME, Porignon, D, Rockers, PC & Van Lerberghe, W 2010, 'The contribution of primary care to health and health systems in low-and middle-income countries: a critical review of major primary care initiatives', *Social Science and Medicine*, vol. 70, no. 6, pp. 904-911.
- Leedy, P & Ormrod, J 2001, *Practical research: Planning and research*, 7th edn, Upper Saddle, NJ.
- Légaré, F, O'Connor, AM, Graham, ID, Wells, GA & Tremblay, S 2006, 'Impact of the Ottawa decision support framework on the agreement and the difference between patients' and physicians' decisional conflict', *Medical Decision Making*, vol. 26, no. 4, pp. 373-390.
- Leon, AC, Davis, LL & Kraemer, HC 2011, 'The role and interpretation of pilot studies in clinical research', *Journal of Psychiatric Research*, vol. 45, no. 5, pp. 626-629.
- Levesque, J, Sarah, D, Nicolas, D & Mike, B 2014, *Measuring organizational attributes of primary healthcare: A scanning study of measurement items used in international questionnaires*, Institut National De Santé Publique, viewed 4 July 2016, <[https://www.inspq.gc.ca/pdf/publications/1857\\_Measuring\\_Organizational\\_Primary\\_HealthCare.pdf](https://www.inspq.gc.ca/pdf/publications/1857_Measuring_Organizational_Primary_HealthCare.pdf)>.
- Lewin, S, Lavis, JN, Oxman, AD, Bastías, G, Chopra, M, Ciapponi, A, Flottorp, S, Martí, SG, Pantoja, T & Rada, G 2008, 'Supporting the delivery of cost-effective interventions in primary health-care systems in low-income and middle-income countries: an overview of systematic reviews', *The Lancet*, vol. 372, no. 9642, pp. 928-939.
- Lincoln, Y & Guba, E 1985, *Naturalistic inquiry*, Sage Publications, Thousand Oaks, CA.
- Little, RJ 1988, 'A test of missing completely at random for multivariate data with missing values', *Journal of the American Statistical Association*, vol. 83, no. 404, pp. 1198-1202.
- Littlewood, J & Yousuf, S 2000, 'Primary health care in Saudi Arabia: applying global aspects of health for all, locally', *Journal of Advanced Nursing*, vol. 32, no. 3, pp. 675-681.
- Lok, P & Crawford, J 2004, 'The effect of organisational culture and leadership style on job satisfaction and organisational commitment: A cross-national comparison', *Journal of Management Development*, vol. 23, no. 4, pp. 321-338.

Lu, H, While, AE & Barriball, KL 2007, 'Job satisfaction and its related factors: A questionnaire survey of hospital nurses in Mainland China', *International Journal of Nursing Studies*, vol. 44, no. 4, pp. 574-588.

Lukewich, J, Corbin, R, VanDenKerkhof, EG, Edge, DS, Williamson, T & Tranmer, JE 2014, 'Identification, summary and comparison of tools used to measure organizational attributes associated with chronic disease management within primary care settings', *Journal of Evaluation in Clinical Practice*, vol. 20, no. 6, pp. 1072-1085.

Lynn, MR 1986, 'Determination and quantification of content validity', *Nursing Research*, vol. 35, no. 6, pp. 382-386.

Magawa, R 2012, *Primary health care implementation: A brief review*, viewed 24 April 2015, <[http://www.consultancyafrica.com/index.php?option=com\\_content&view=article&id=1096:primary-health-care-implementation-a-brief-review-&catid=61:hiv-aids-discussion-papers&Itemid=268](http://www.consultancyafrica.com/index.php?option=com_content&view=article&id=1096:primary-health-care-implementation-a-brief-review-&catid=61:hiv-aids-discussion-papers&Itemid=268)>.

Magnussen, L, Ehiri, J & Jolly, P 2004, 'Comprehensive versus selective primary health care: lessons for global health policy', *Health Affairs*, vol. 23, no. 3, pp. 167-176.

Mahfouz, A, Abdel Moneim, I, Khan, M, Daffalla, A, Diab, M, El-Gamal, M & Al-Sharif, A 2007, 'Primary health care emergency services in Abha district of southwestern Saudi Arabia', *Eastern Mediterranean Health Journal*, vol. 13, no. 1, pp. 103-112.

Mandil, AM, Alhayyan, RM, Alshalawi, AA, Alemran, AS & Alayed, MM 2015, 'Preference of physicians' gender among male and female primary health care clinic attendees in a university hospital in Saudi Arabia', *Saudi Medical Journal*, vol. 36, no. 8, p. 1011.

Mansour, AA & Muneera, A-O 1996, 'A study of health centers in Saudi Arabia', *International Journal of Nursing Studies*, vol. 33, no. 3, pp. 309-315.

Margolis, SA, Al-Marzouqi, S, Revel, T & Reed, RL 2003, 'Patient satisfaction with primary health care services in the United Arab Emirates', *International Journal for Quality in Health Care*, vol. 15, no. 3, pp. 241-249.

Mathers, N, Fox, N & Hunn, A 2009, *Surveys and Questionnaires*, NIHR, viewed 11 April 2016, <[https://www.rds-yh.nihr.ac.uk/wp-content/uploads2013/05/12\\_Surveys\\_and\\_Questionnaires\\_Revision\\_2009.pdf](https://www.rds-yh.nihr.ac.uk/wp-content/uploads2013/05/12_Surveys_and_Questionnaires_Revision_2009.pdf)>.

Maudsley, G 2011, 'Mixing it but not mixed-up: mixed methods research in medical education (a critical narrative review)', *Medical Teacher*, vol. 33, no. 2, pp. e92-e104.

- Maxwell, JA 1997, 'Designing a qualitative study', in L Bickman & D Rog (eds), *Handbook of applied social research methods*, Sage Publications, Thousand Oaks, CA, pp. 69-100.
- 2013, *Qualitative research design: An interactive approach*, vol. 41, Sage Publications, Thousand Oaks, CA.
- McGuire, A 1987, 'The measurement of hospital efficiency', *Social Science and Medicine*, vol. 24, no. 9, pp. 719-724.
- Meessen, B & Malanda, B 2014, 'No universal health coverage without strong local health systems', *Bulletin of the World Health Organization*, vol. 92, no. 2, pp. 78-78A.
- Mehryar, A 2004, *Primary health care and the rural poor in the Islamic Republic of Iran*, Asia and Pacific Population Studies Centre, Ministry of Science and Technology, Tehran.
- Memish, ZA, Saeedi, MY, Al-Madani, AJ, Junod, B, Jamo, A, Abid, O, Alanazi, FM, Alrewally, FG & Mandil, AM 2015, 'Factors associated with public awareness of the Crown Health Program in the Al-Jouf Region', *Journal of Family and Community Medicine*, vol. 22, no. 1, pp. 31-38.
- Mensah, YM & Li, S-H 1993, 'Measuring production efficiency in a not-for-profit setting: An extension', *Accounting Review*, vol. 68, no. 1, pp. 66-88.
- Merghalani, M 2005, 'Central Medical Library in Saudi Arabia: establishment and prospective development', *Cybrarians Journal*, vol. 4, pp. 17-57.
- Meterko, M, Restuccia, JD, Stolzmann, K, Mohr, D, Brennan, C, Glasgow, J & Kaboli, P 2015, 'Response Rates, Nonresponse Bias, and Data Quality Results from a National Survey of Senior Healthcare Leaders', *Public Opinion Quarterly*, vol. 79, no. 1, pp. 130-144.
- Meurer, WJ, Lewis, RJ, Tagle, D, Feters, MD, Legocki, L, Berry, S, Connor, J, Durkalski, V, Elm, J & Zhao, W 2012, 'An overview of the adaptive designs accelerating promising trials into treatments (ADAPT-IT) project', *Annals of Emergency Medicine*, vol. 60, no. 4, pp. 451-457.
- Midhet, FM, Al-Mohaimed, AA & Sharaf, FK 2010, 'Lifestyle related risk factors of type 2 diabetes mellitus in Saudi Arabia', *Saudi Medical Journal*, vol. 31, no. 7, pp. 768-774.
- Miles, MB & Huberman, AM 1994, *Qualitative data analysis: An expanded sourcebook*, 2nd edn, Sage Publications, Thousand Oaks, CA.

Mills, A & Drummond, M 1987, 'Value for money in the health sector: the contribution of primary health care', *Health Policy and Planning*, vol. 2, no. 2, pp. 107-128.

Ministry of Economy and Planning 2010, *Ninth development plan*, viewed 22 April 2015 <[https://www.mep.gov.sa/index\\_en.html](https://www.mep.gov.sa/index_en.html)>.

Ministry of Finance 2018, *Statement of budget 2018*, viewed 25 December 2018, <<https://www.mof.gov.sa/en/financialreport/budget2018/Pages/default.aspx>>.

Ministry of Hajj and Umra 2011, *Ministry of Hajj and Umra Magazine*, Ministry of Haj and Umra, viewed 14 November 2013, <<http://www.haj.gov.sa/English/eservices/haj/pages/externalpilgrims.aspx>>.

Ministry of Health 1995, *Saudi Arabian Annual Health Report*, Kingdom of Saudi Arabia.

— 2006, *Health Statistical Yearbook*, Riyadh, Kingdom of Saudi Arabia.

— 2007, *Health Indicators*, Ministry of Health, Riyadh, Kingdom of Saudi Arabia.

— 2009, *Health Statistical Yearbook*, Riyadh, Kingdom of Saudi Arabia.

— 2010, *Health Statistical Yearbook*, Riyadh, Kingdom of Saudi Arabia.

— 2011, *Health Statistical Yearbook*, Riyadh, Kingdom of Saudi Arabia.

— 2012, *Health Statistical Yearbook*, Riyadh, Kingdom of Saudi Arabia

— 2013a, *Health Statistical Yearbook*, Riyadh, Kingdom of Saudi Arabia.

— 2013b, *Fact and Achievements Book*, Riyadh, Kingdom of Saudi Arabia.

— 2014, *Health Statistical Yearbook*, Riyadh, Kingdom of Saudi Arabia.

— 2015, *Health Statistical Yearbook*, Riyadh, Kingdom of Saudi Arabia.

— 2016, *Health Statistical Yearbook*, Riyadh, Kingdom of Saudi Arabia.

- Mobaraki, A & Söderfeldt, B 2010, 'Gender inequity in Saudi Arabia and its role in public health/L'inégalité entre hommes et femmes en Arabie saoudite et ses conséquences sur la santé publique', *Eastern Mediterranean Health Journal*, vol. 16, no. 1, pp. 113-118.
- Mohamed, EY, Sami, W, Alotaibi, A, Alfarag, A, Almutairi, A & Alanzi, F 2015, 'Patients' Satisfaction with Primary Health Care Centers' Services, Majmaah, Kingdom of Saudi Arabia', *International Journal of Health Sciences*, vol. 9, no. 2, pp. 163-170.
- Moosa, S, Downing, R, Essuman, A, Pentz, S, Reid, S & Mash, R 2014, 'African leaders' views on critical human resource issues for the implementation of family medicine in Africa', *Human Resources for Health*, vol. 12, no. 2, pp. 1-9.
- Moran-Ellis, J, Alexander, VD, Cronin, A, Dickinson, M, Fielding, J, Sleney, J & Thomas, H 2006, 'Triangulation and integration: processes, claims and implications', *Qualitative Research*, vol. 6, no. 1, pp. 45-59.
- Morgan, D 2006, 'Connected contributions as a motivation for combining qualitative and quantitative methods', in L Curry, R Shield & T Wetle (eds), *Improving Aging and Public Health Research: Qualitative and Mixed Methods*, American Public Health Association and Gerontological Society of America, Washington, DC, pp. 53-63.
- Morgan, DL 2007, 'Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods', *Journal of Mixed Methods Research*, vol. 1, no. 1, pp. 48-76.
- Morris, M, Wada, Y, Vega, G, Eckstein, A, Hawkins, J, de Vettori, E, Adao, V, Purdy, L, Yap, J, Wu, Y, Hammett, S, Scott, G & Dhawan, A 2015, *Global health care outlook: Common goals, competing priorities*, Deloitte, UK.
- Morse, J, Wolfe, R & Niehaus, L 2006, 'Principles and procedures of maintaining validity for mixed-method design', in L Curry, R Shield & T Wetle (eds), *Improving Aging and Public Health Research: Qualitative and Mixed Methods* American Public Health Association and Gerontological Society of America, Washington, DC, pp. 65-78.
- Morse, JM 1991, 'Approaches to qualitative-quantitative methodological triangulation', *Nursing Research*, vol. 40, no. 2, pp. 120-123.
- 1994, 'Designing funded qualitative research', in N Denzin & Y Lincoln (eds), *Handbook of qualitative research*, 2nd edn, Sage, Thousand Oaks, CA, pp. 220-235.
- 1995, 'The significance of saturation', *Qualitative Health Research*, vol. 5, no. 2, pp. 147-149.

Mourshed, M, Hediger, V & Lambert, T 2006, *Gulf cooperation council health care: challenges and opportunities*, Global competitiveness reports.

Mufti, MH 2002, *Healthcare development strategies in the Kingdom of Saudi Arabia*, Kluwer Academic, New York.

Mumenah, SH & Al-Raddadi, RM 2015, 'Difficulties faced by family physicians in primary health care centers in Jeddah, Saudi Arabia', *Journal of Family and Community Medicine*, vol. 22, no. 3, pp. 145-151.

Mutale, W, Chintu, N, Amoroso, C, Awoonor-Williams, K, Phillips, J, Baynes, C, Michel, C, Taylor, A & Sherr, K 2013, 'Improving health information systems for decision making across five sub-Saharan African countries: implementation strategies from the African Health Initiative', *BMC Health Services Research*, vol. 13, no. 2, pp. 2-12.

Naira, CS, Wayland, C & Soediroc, S 2005, 'Evaluating the student experience: a leap into the future', in *2005 Australasian Evaluations Forum: University Learning and Teaching: Evaluating and Enhancing the Experience*, Sydney, 28–29 November, pp. 25-32.

Neuman, W 2011, *Social research methods: Qualitative and quantitative approaches*, Allyn & Bacon, Boston, MA.

Newell, KW 1975, 'Health care development as an agent of change', in J Perich (ed.), *Health in Community Development*, National Academy of Sciences, Washington, DC, p. 5.

Neyaz, Y, Khoja, T, Qureshi, N, Magzoub, M, Haycox, A & Walley, T 2011, 'Medication prescribing pattern in primary care in Riyadh city, Saudi Arabia', *Eastern Mediterranean Health Journal*, vol. 17, no. 2, pp. 149-155.

Nida, E & Taber, C 1969, *The theory and practice of translation*, Brill, Leiden, Boston.

Norman, G 2010, 'Likert scales, levels of measurement and the "laws" of statistics', *Advances in Health Sciences Education*, vol. 15, no. 5, pp. 625-632.

Nulty, DD 2008, 'The adequacy of response rates to online and paper surveys: what can be done?', *Assessment & Evaluation in Higher Education*, vol. 33, no. 3, pp. 301-314.

Nutley, T & Reynolds, H 2013, 'Improving the use of health data for health system strengthening', *Global Health Action*, vol. 6, no. 1, pp. 1-10.

O'Cathain, A, Murphy, E & Nicholl, J 2007, 'Why, and how, mixed methods research is undertaken in health services research in England: a mixed methods study', *BMC Health Services Research*, vol. 7, no. 1, p. 85.

—— 2008, 'The quality of mixed methods studies in health services research', *Journal of Health Services Research and Policy*, vol. 13, no. 2, pp. 92-98.

Obeidat, B, Shannak, R, Masa'deh, R & Al-Jarrah, I 2012, 'Toward better understanding for Arabian culture: Implications based on Hofstede's cultural model', *European Journal of Social Sciences*, vol. 28, no. 4, pp. 512-522.

OECD 2015, *Health at a Glance 2015: OECD Indicators*, OECD Publishing, Paris.

Oliveira-Cruz, V, Kurowski, C & Mills, A 2003, 'Delivery of priority health services: searching for synergies within the vertical versus horizontal debate', *Journal of International Development*, vol. 15, no. 1, pp. 67-86.

Onwuegbuzie, AJ 2000, 'Positivists, Post-Positivists, Post-Structuralists, and Post-Modernists: Why Can't We All Get Along? Towards a Framework for Unifying Research Paradigms'.

Onwuegbuzie, AJ & Combs, JP 2011, 'Data analysis in mixed research: A primer', *International Journal of Education*, vol. 3, no. 1, pp. 1-25.

Othman, N, Vitry, AI, Roughead, EE, Ismail, SB & Omar, K 2015, 'Doctors' views on the quality of claims provided by pharmaceutical representatives: A comparative study in Malaysia and Australia', *Journal of Taibah University Medical Sciences*, vol. 10, no. 4, pp. 471-480.

Padgett, DK 2012, *Qualitative and mixed methods in public health*, Sage Publications, Thousand Oaks, CA.

PAHO 2008, *Primary Health Care: The Best Cure for Failed Systems*, Pan American Health Organization, viewed 22 February 2015, <[http://www.paho.org/hq/index.php?option=com\\_content&view=article&id=571%3A2009-primary-health-care-best-cure-failed-systems&catid=821%3Apaho-today&Itemid=40623&lang=en](http://www.paho.org/hq/index.php?option=com_content&view=article&id=571%3A2009-primary-health-care-best-cure-failed-systems&catid=821%3Apaho-today&Itemid=40623&lang=en)>.

Palinkas, LA, Horwitz, SM, Green, CA, Wisdom, JP, Duan, N & Hoagwood, K 2015, 'Purposeful sampling for qualitative data collection and analysis in mixed method implementation research', *Administration and Policy in Mental Health and Mental Health Services Research*, vol. 42, no. 5, pp. 533-544.

Pather, S & Remenyi, D 2005, 'Some of the philosophical issues underpinning research in information systems from positivism to critical realism', *South African Computer Journal*, vol. 2005, no. 35, pp. 76-83.

Patton, M 2002, *Qualitative research & evaluation methods*, 3rd edn, Sage Publications, Thousand Oaks, CA.

—— 2008, *Utilization-focused evaluation*, 4th edn, Sage Publications, Thousand Oaks, CA.

Plastow, NA 2016, 'Mixing-up research methods: A recipe for success or disaster?', *South African Journal of Occupational Therapy*, vol. 46, no. 1, pp. 89-90.

Polit, DF & Beck, CT 2008, *Nursing research: Generating and assessing evidence for nursing practice*, 8th edn, Wolters Kluwer Health/ Lippincott Williams & Wilkins, Philadelphia, PA.

Polkinghorne, DE 2007, 'Validity issues in narrative research', *Qualitative Inquiry*, vol. 13, no. 4, pp. 471-486.

Pope, C & Mays, N 1995, 'Reaching the parts other methods cannot reach: an introduction to qualitative methods in health and health services research', *British Medical Journal*, vol. 311, pp. 42-45.

Prakash, B 2010, 'Patient satisfaction', *Journal of Cutaneous and Aesthetic Surgery*, vol. 3, no. 3, pp. 151-155.

Punch, K 2003, *Survey research: The basics*, Sage publications, London.

Qayed, M 1998, 'Epidemiology of road traffic accidents in Al-Ahssaa Governorate, Saudi Arabia', *Eastern Mediterranean Health Journal*, vol. 4, no. 3, pp. 513-519.

Qurban, M & Austria, R 2008, 'Public perception on e-health services: implications of preliminary findings of KFMMC for military hospitals in KSA', in *Proceedings of the European and Mediterranean Conference on Information Systems (EMCIS)*, Al Bustan Rotana Hotel, Dubai, pp. 25-26.

Ram, P 2014, 'Management of Healthcare in the Gulf Cooperation Council (GCC) countries with special reference to Saudi Arabia', *International Journal of Academic Research in Business and Social Sciences*, vol. 4, no. 12, pp. 24-41.

- Regmi, K, Naidoo, J & Pilkington, P 2010, 'Understanding the processes of translation and transliteration in qualitative research', *International Journal of Qualitative Methods*, vol. 9, no. 1, pp. 16-26.
- Renders, CM, Valk, GD, Griffin, SJ, Wagner, E, van Eijk, JT & Assendelft, WJ 2010, 'Interventions to improve the management of diabetes mellitus in primary care, outpatient and community settings', *Cochrane Database of Systematic Reviews*, vol. CD001481, no. 4, pp. 1-140.
- Ritchie, J, Lewis, J & Elam, G 2003, 'Designing and selecting samples', in Jane Ritchie & Jane Lewis (eds), *Qualitative research practice. A guide for social science students and researchers*, 2nd edn, Sage Thousand Oaks, CA pp. 77-108.
- Rogelberg, SG & Stanton, JM 2007, 'Introduction: Understanding and dealing with organizational survey nonresponse', *Organizational Research Methods*, vol. 10, no. 2, pp. 195-209.
- Rowe, AK 2009, 'Potential of integrated continuous surveys and quality management to support monitoring, evaluation, and the scale-up of health interventions in developing countries', *The American Journal of Tropical Medicine and Hygiene*, vol. 80, no. 6, pp. 971-979.
- Rubin, R, Rubin, A, Haridakis, P & Piele, L 2009, *Communication Research: Strategies and sources*, 7th edn, Cengage Learning, Boston, MA.
- Saeed, AA, Mohammed, BA, Magzoub, ME & Al-Doghaither, AH 2001, 'Satisfaction and correlates of patients' satisfaction with physicians' services in primary health care centers', *Saudi Medical Journal*, vol. 22, no. 3, pp. 262-267.
- SAGIA 2014, *Why Saudi Arabia*, Saudi Arabia General Investment Authority, viewed 18 April 2014, <<https://sagia.gov.sa/en/Pages/default.aspx>>.
- Sahoo, S 2016, *Saudi government healthcare projects hit by budget cuts*, The National, viewed 3 February 2016, <<https://www.thenational.ae/business/saudi-arabia-commits-to-spending-on-quality-education-1.224888>>.
- Saleh, S, Alameddine, M, Mourad, Y & Natafqi, N 2015, 'Quality of care in primary health care settings in the Eastern Mediterranean region: a systematic review of the literature', *International Journal for Quality in Health Care*, vol. 27, no. 2, pp. 79-88.
- Samb, B, Desai, N, Nishtar, S, Mendis, S, Bekedam, H, Wright, A, Hsu, J, Martiniuk, A, Celletti, F & Patel, K 2010, 'Prevention and management of chronic disease: a litmus test for health-

systems strengthening in low-income and middle-income countries', *The Lancet*, vol. 376, no. 9754, pp. 1785-1797.

Sambo, LG & Kirigia, JM 2014, 'Investing in health systems for universal health coverage in Africa', *BMC International Health and Human Rights*, vol. 14, no. 1, pp. 1-22.

Sandelowski, M 1986, 'The problem of rigor in qualitative research', *Advances in Nursing Science*, vol. 8, no. 3, pp. 27-37.

— 2000, 'Focus on research methods whatever happened to qualitative description?', *Research in Nursing and Health*, vol. 23, no. 4, pp. 334-340.

Sandelowski, M, Davis, DH & Harris, BG 1989, 'Artful design: Writing the proposal for research in the naturalist paradigm', *Research in Nursing and Health*, vol. 12, no. 2, pp. 77-84.

Sandelowski, M, Holditch-Davis, D & Harris, BG 1992, 'Using qualitative and quantitative methods: The transition to parenthood of infertile couples', in J Gilgun, K Daly & G Handel (eds), *Qualitative Methods in Family Research*, Sage Publications, Thousand Oaks, CA, pp. 301-322.

Saudi Embassy 2013, *Saudi Arabia: History of a Civilization*, viewed 14 April 2014, <<https://www.saudiembassy.net/about-saudi-arabia>>.

— 2017, *Saudi Arabia and Political, Economic & Social Development*, The Embassy of the Kingdom of Saudi Arabia, Washington, DC.

Schieber, G 2005, 'Health financing issues in the Kingdom of Saudi Arabia', paper presented to 1st International Conference in Health Economics & Endowment, Riyadh, King Faisal specialist hospital and research centre.

Sebai, Z 2011, *Dr. Al- Rabeeah cannot create miracles to change the Ministry of Health in overnight*, Saudi German Healthcare Newsletter, viewed 16 February 2015, <[http://saudiarabien.ahk.de/fileadmin/ahk\\_saudi\\_arabien/News\\_Letter/Newsletter\\_Healthcare\\_Mar2013.pdf](http://saudiarabien.ahk.de/fileadmin/ahk_saudi_arabien/News_Letter/Newsletter_Healthcare_Mar2013.pdf)>.

Sebai, ZA, Milaat, WA & Al-Zulaibani, AA 2001, 'Health care services in Saudi Arabia: Past, present and future', *Journal of Family and Community Medicine*, vol. 8, no. 3, pp. 19-23.

Seketeli, A, Adeoye, G, Eyamba, A, Nnoruka, E, Drameh, P, Amazigo, U, Noma, M, Agboton, F, Aholou, Y & Kale, O 2002, 'The achievements and challenges of the African Programme for

Onchocerciasis Control (APOC)', *Annals of Tropical Medicine and Parasitology*, vol. 96, no. 1, pp. S15-S28.

Setlhare, V 2014, 'Reflections on primary health care and family medicine in Botswana', *African Journal of Primary Health Care & Family Medicine*, vol. 6, no. 1, pp. 1-2.

Shabila, N, Al-Tawil, N, Al-Hadithi, T & Sondorp, E 2012, 'A Qualitative Assessment of the Iraqi Primary Health System', *World Health & Population*, vol. 13, no. 3, pp. 18-27.

Shafi, S, Booy, R, Haworth, E, Rashid, H & Memish, ZA 2008, 'Hajj: health lessons for mass gatherings', *Journal of Infection and Public Health*, vol. 1, no. 1, pp. 27-32.

Shafi, S, Dar, O, Khan, M, Khan, M, Azhar, EI, McCloskey, B, Zumla, A & Petersen, E 2016, 'The annual Hajj pilgrimage—minimizing the risk of ill health in pilgrims from Europe and opportunity for driving the best prevention and health promotion guidelines', *International Journal of Infectious Diseases*, vol. 47, pp. 79-82.

Shah, NM 2009, *The management of irregular migration and its consequence for development: Gulf Cooperation Council*, International Labour Organization, Geneva.

Shaw, JE, Sicree, RA & Zimmet, PZ 2010, 'Global estimates of the prevalence of diabetes for 2010 and 2030', *Diabetes Research and Clinical Practice*, vol. 87, no. 1, pp. 4-14.

Sheikh, M, Mahamoud, A & Househ, M 2015, *Transforming Public Health in Developing Nations*, Information Science Reference, USA.

Siddiqi, S, Masud, TI, Nishtar, S, Peters, DH, Sabri, B, Bile, KM & Jama, MA 2009, 'Framework for assessing governance of the health system in developing countries: gateway to good governance', *Health Policy*, vol. 90, no. 1, pp. 13-25.

Sieleunou, I, Turcotte-Tremblay, A-M, Fotso, J-CT, Tamga, DM, Yumo, HA, Kouokam, E & Ridde, V 2017, 'Setting performance-based financing in the health sector agenda: a case study in Cameroon', *Globalization and Health*, vol. 13, no. 1, pp. 2-15.

Sitzia, J & Wood, N 1998, 'Response rate in patient satisfaction research: an analysis of 210 published studies', *International Journal for Quality in Health Care*, vol. 10, no. 4, pp. 311-317.

Smith, J, Bekker, H & Cheater, F 2011, 'Theoretical versus pragmatic design in qualitative research', *Nurse Researcher*, vol. 18, no. 2, pp. 39-51.

Snieder, R & Larner, K 2009, *The art of being a scientist: A guide for graduate students and their mentors*, Cambridge University Press, UK.

Sobh, R & Perry, C 2006, 'Research design and data analysis in realism research', *European Journal of Marketing*, vol. 40, no. 11/12, pp. 1194-1209.

Spicer, N 2012, 'Combining qualitative and quantitative methods', in C Seale (ed.), *Researching society and culture*, Sage Publications London, pp. 479-493.

Standing, H & Chowdhury, AMR 2008, 'Producing effective knowledge agents in a pluralistic environment: what future for community health workers?', *Social Science and Medicine*, vol. 66, no. 10, pp. 2096-2107.

Stange, KC, Crabtree, BF & Miller, WL 2006, 'Publishing multimethod research', *The Annals of Family Medicine*, vol. 4, no. 4, pp. 292-294.

Starfield, B 2012, 'Primary care: an increasingly important contributor to effectiveness, equity, and efficiency of health services. SESPAS report 2012', *Gaceta Sanitaria*, vol. 26, pp. 20-26.

SUSRIS 2015, *Saudi Arabia's 2016 Fiscal Budget-Jadwa*, Jadwa, Saudi Arabia.

Swanson, R, Bongiovanni, A, Bradley, E, Murugan, V, Sundewall, J, Betigeri, A, Nyongator, F, Cattaneo, A, Harless, B & Ostrovsky, A 2010, 'Toward a consensus on guiding principles for health systems strengthening', *PLoS Medicine*, vol. 7, no. 12, pp. 1-6.

Swanson, R & Chermack, T 2013, *Theory building in applied disciplines*, Berrett-Koehler Publishers, Oakland, US.

Tait, AR 2004, 'Clinical governance in primary care: a literature review', *Journal of Clinical Nursing*, vol. 13, no. 6, pp. 723-730.

Tashakkori, A & Creswell, JW 2007, 'The new era of mixed methods', *Journal of Mixed Methods Research*, vol. 1, no. 1, pp. 3-7.

Tashakkori, A & Teddlie, C 1998, *Mixed methodology: Combining qualitative and quantitative approaches*, vol. 46, Sage Publications, Thousand Oaks, CA.

—— 2010, *Sage handbook of mixed methods in social & behavioral research*, 2nd edn, Sage Publications, Thousand Oaks, CA.

Tashkandy, MA, Gazzaz, ZJ, Farooq, MU & Dhafar, KO 2008, 'Reasons for delay in inpatient admission at an emergency department', *Journal of Ayub Medical College Abbottabad*, vol. 20, no. 1, pp. 38-42.

Taylor, FW 1911, *The principles of scientific management*, Globalization and Health, Norton, New York.

Teddlie, C & Yu, F 2007, 'Mixed methods sampling: A typology with examples', *Journal of Mixed Methods Research*, vol. 1, no. 1, pp. 77-100.

Telmesani, A, Zaini, R & Ghazi, H 2011, 'Medical education in Saudi Arabia: a review of recent developments and future challenges/Enseignement medical en Arabie saoudite: revue des recentes evolutions et des defis a venir', *Eastern Mediterranean Health Journal*, vol. 17, no. 8, pp. 703-707.

Thorne, S, Kirkham, SR & MacDonald-Emes, J 1997, 'Focus on qualitative methods. Interpretive description: a noncategorical qualitative alternative for developing nursing knowledge', *Research in Nursing and Health*, vol. 20, no. 2, pp. 169-177.

Thorne, SE 1991, 'Methodological orthodoxy in qualitative nursing research: Analysis of the issues', *Qualitative Health Research*, vol. 1, no. 2, pp. 178-199.

—— 1997, 'Phenomenological positivism and other problematic trends in health science research', *Qualitative Health Research*, vol. 7, no. 2, pp. 287-293.

Tumulty, G 2001, 'Professional development of nursing in Saudi Arabia', *Journal of Nursing Scholarship*, vol. 33, no. 3, pp. 285-290.

Twohig, PL & Putnam, W 2002, 'Group interviews in primary care research: advancing the state of the art or ritualized research?', *Family Practice*, vol. 19, no. 3, pp. 278-284.

U.N 2012, *World Population Prospects: The 2012 Revision Highlights and Advance Tables*, United Nations, New York.

UNDP 2014, *The Millennium Development Goals: Eight Goals for 2015*, United Nations, New York.

- Vaismoradi, M, Turunen, H & Bondas, T 2013, 'Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study', *Nursing and Health Sciences*, vol. 15, no. 3, pp. 398-405.
- Valaitis, R, McCarthy, J, Macdonald, M, Wong, S, Martin-Misener, R & Akhtar-Danesh, N 2012, *Strengthening Primary Health Care through Primary Care and Public Health Collaboration Final Report for CFHI*, Canadian Foundation for Healthcare Improvement (CFHI), Ottawa.
- Van Nes, F, Abma, T, Jonsson, H & Deeg, D 2010, 'Language differences in qualitative research: is meaning lost in translation?', *European Journal of Ageing*, vol. 7, no. 4, pp. 313-316.
- Van Teijlingen, E & Hundley, V 2002, 'The importance of pilot studies', *Nursing Standard*, vol. 16, no. 40, pp. 33-36.
- Vidyasagar, G & Rea, DM 2004, 'Saudi women doctors: gender and careers within Wahhabic Islam and a westernised work culture', in *Women's Studies International Forum*, vol. 27, pp. 261-280.
- Wagner, EH, Austin, BT & Von Korff, M 1996, 'Organizing care for patients with chronic illness', *The Milbank Quarterly*, vol. 74, no. 4, pp. 511-544.
- Walston, S, Al-Harbi, Y & Al-Omar, B 2008, 'The changing face of healthcare in Saudi Arabia', *Annals of Saudi Medicine*, vol. 28, no. 4, pp. 243-250.
- Wang, H, Switlick, K, Ortiz, C, Zurita, B & Connor, C 2010, *Health insurance handbook: how to make it work*, ABT Associates Inc, Bethesda, MD.
- Watson 2012, *Saudi Arabia and Kuwait improving healthcare*, viewed 13 September 2014, <<https://www.fgould.com/middle-east/articles/saudi-arabia-and-kuwait-improving-healthcare/>>.
- Whiteford, LM & Branch, LG 2007, *Primary health care in Cuba: the other revolution*, Rowman & Littlefield Publishers, USA.
- Whitehead, M 1992, 'The concepts and principles of equity and health', *Health Promotion International*, vol. 6, no. 3, pp. 217-228.
- WHO 1985, *Targets for health for all 2000*, WHO Regional Office for Europe, Copenhagen.
- 1998, *Primary health care*, World Health Organization, Geneva.

— 2006, *Health System Profile: Saudi Arabia*, Regional Health Systems Observatory, World Health Organization.

— 2007, *Everybody's business: Strengthening health systems to improve health outcomes: WHO's framework for action*, World Health Organization, Geneva.

— 2008a, *Primary health care: Now more than ever*, World Health Organization Geneva.

— 2008b, *Flawed but fair: Brazils health system reached out to the poor*, World Health Organization, viewed 28 April 2015, <<http://www.who.int/bulletin/volumes/86/4/08-030408/en/>>.

— 2009, *Closing the gap in a generation: Health equity through action on the social determinants of health*, World Health Organization, Geneva.

— 2010a, *Framework for the implementation of the Ouagadougou Declaration on primary health care and health systems in Africa*, World Health Organization, Brazzaville.

— 2010b, *Western Pacific Regional strategy for health systems based on the values of primary health care*, World Health Organization Geneva.

— 2010c, *Health Service Delivery*, World Health Organization, viewed 11 October 2017, <[http://www.who.int/healthinfo/systems/WHO\\_MBHSS\\_2010\\_section1\\_web.pdf](http://www.who.int/healthinfo/systems/WHO_MBHSS_2010_section1_web.pdf)>.

— 2012a, *Process of translation and adaptation of instruments* World Health Organization viewed 11 January 2016, <[http://www.who.int/substance\\_abuse/research\\_tools/translation/en/](http://www.who.int/substance_abuse/research_tools/translation/en/)>.

— 2012b, *The WHO strategy on research for health*, World Health Organization, Geneva.

— 2013, *Country Cooperation Strategy at a glance: Saudi Arabia*, World Health Organization, viewed 2 April 2014, <[http://apps.who.int/iris/bitstream/10665/113227/1/CCS\\_Saudia\\_2013\\_EN\\_14914.pdf](http://apps.who.int/iris/bitstream/10665/113227/1/CCS_Saudia_2013_EN_14914.pdf)>.

— 2013a, *World Health Statistics 2013*, World Health Organization, viewed 12 January 2014, <[http://www.who.int/gho/publications/world\\_health\\_statistics/2013/en/](http://www.who.int/gho/publications/world_health_statistics/2013/en/)>.

— 2014, *Global Health Observatory Data Repository*, World Health Organization 30 March 2014, <<http://www.who.int/gho/countries/en/>>.

— 2015, *National health policies, strategies and plans*, World Health Organization, viewed 11 November 2016, <[http://www.who.int/gho/publications/world\\_health\\_statistics/2013/en/](http://www.who.int/gho/publications/world_health_statistics/2013/en/)>.

Williams, C 2007, 'Research methods', *Journal of Business & Economics Research*, vol. 5, no. 3, pp. 65-72.

Wong, S & Chen, S 2014, *Singapore beats Hong Kong in health efficiency: Southeast Asia*, Bloomberg, viewed 22 May 2016, <<http://www.bloomberg.com/news/2014-09-18/singapore-beats-hong-kong-in-health-efficiency-southeast-asia.html>>.

Wren, DA, Bedeian, AG & Breeze, JD 2002, 'The foundations of Henri Fayol's administrative theory', *Management Decision*, vol. 40, no. 9, pp. 906-918.

Wright, K, Rowitz, L, Merkle, A, Reid, WM, Robinson, G, Herzog, B, Weber, D, Carmichael, D, Balderson, TR & Baker, E 2000, 'Competency development in public health leadership', *American Journal of Public Health*, vol. 90, no. 8, pp. 1202-1207.

Wyatt, JC 2000, 'When to use web-based surveys', *Journal of the American Medical Informatics Association*, vol. 7, no. 426-430.

Yousef, HA, Koura, M & Yousef, AA 2015, 'Knowledge about bronchial asthma management in primary health care physicians in Al-Khobar City, Saudi Arabia', *Journal of Family and Community Medicine*, vol. 22, no. 1, p. 1.

Zairi, M & Matthew, A 1995, 'An evaluation of TQM in primary care: in search of best practice', *International Journal of Health Care Quality Assurance*, vol. 8, no. 6, pp. 4-13.

Zedan, HS & Avery, AJ 2008, 'Prescribing safety in primary care: comparing the United Kingdom and Saudi Arabia', *Saudi Medical Journal*, vol. 29, no. 12, pp. 1703-1710.

Zere, E, Moeti, M, Kirigia, J, Mwase, T & Kataika, E 2007, 'Equity in health and healthcare in Malawi: analysis of trends', *BMC Public Health*, vol. 7, no. 1, p. 78.

Zere, E, Tumusiime, P, Walker, O, Kirigia, J, Mwikisa, C & Mbeeli, T 2010, 'Inequities in utilization of maternal health interventions in Namibia: implications for progress towards MDG 5 targets', *International Journal for Equity in Health*, vol. 9, no. 16, pp. 2-11.