Measurement of Healthcare Quality: A Mixed-methods Comparative Study of Accredited and Non-Accredited Hospitals in Saudi Arabia

Abdallah Alasmari

A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy

University of Salford

School of Health & Society

September 2018

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List of Terminology and Abbreviations

MoH	Ministry of Health
QCI	Quality of Care Indicators
JCIA	Joint Commission International Accreditation
CBAHI	Central Board of Accreditation of Health Institution
HFA	Health for All
Accreditation	A self-assessment and external peer assessment process used by healthcare organisations to accurately assess their level of performance in relation to established standards and to implement ways to continuously improve.
Accredited Hospital	The hospital has passed the accreditation process and has been licensed for period of time.
Non-accredited Hospital	The hospital has not undergone the accreditation process.
TQM	Total Quality Management
QS	Quality Standard
IoM	Institute of Medicine
ANOVA	Analysis of Variance
SPSS	Statistical Package for the Social Sciences
(GDP)	Gross Domestic Product
(VAP)	Ventilator-associated Pneumonia
(MRSA)	Methicillin-resistant Staphylococcus Aureus

Acknowledgements

This doctorate has been a great part of my life for the past three years, so I would like to take this opportunity to thank those who have helped me throughout this journey.

I humbly thank Allah for lighting this path to knowledge and for sustaining me throughout my journey. To Him I owe everything I have learned and all that I have become.

I would like to express my sincere appreciation and special thanks to Dr. Karen Staniland for her valuable insight, guidance and support since starting this journey.

My thanks and gratitude to Prof. Nick, who has now left the university, for being very supportive for the first two years of my study. My thanks also to Dr. Mariyana who helped me continue into the third year with valuable support.

I would also like to express my limitless thanks to my parents, my brothers, my wife and my children for their lifetime love, continuous prayers, advice and support.

I am also eternally grateful to my soul brother, Awad, who was dreaming of attending my graduation but passed away in the middle of this journey. May Allah have mercy on him.

Abstract

Saudi Arabia was one of the first countries in the middle east to adopt an accreditation programme in its healthcare sector in forming the Central Board of Accreditation for Healthcare Institutions (CBAHI) in 2005. Even though accreditation has implied positive effects on quality of healthcare, as addressed in the literature, the literature search revealed a dearth of published studies concerned with the relationship between accreditation and improved quality of healthcare in Saudi Arabia.

The main aim of this research was to examine any potential differences in the quality of care provided by accredited and non-accredited Ministry of Health hospitals in Saudi Arabia.

A mixed-method approach was adopted with the intention of gathering both quantitative and qualitative data to answer the research objectives. Quantitative data was collected through extraction from the reports on quality of care indicators provided by the participating Ministry of Health hospitals. Qualitative data incorporated social and behavioural thinking regarding the quality of accredited and non-accredited hospitals. Qualitative data was collected through semi-structured interviews with senior hospital management of a selection of Ministry of Health hospitals.

A total of 88 MoH hospitals provided data, of which 46 were accredited and 42 were non-accredited. When quality of care indicators were compared between accredited and non-accredited hospitals, a significant difference was found in 12 separate quality of care indicators. The significant difference was that, the indicators in the accredited hospitals had a higher score, which showed that the quality of care in non-accredited hospitals was better.

Three themes emerged from the interview data: knowledge, practice, and attitude, with findings showing a similarity of perspective towards quality from both accredited and non-accredited hospital staff. Non-accredited hospital staff had a different attitude towards quality than accredited hospital staff.

Conclusion: This study clearly demonstrated the superiority of non-accredited hospitals in the overall results of the indicators under study. Moreover, the behaviour and attitude of the employee demonstrate that some of the hospitals members are not able to strike a balance between their basic duties as healthcare practitioners and their participation in quality initiatives.

Introduction

This thesis explores the differences in the quality of care between accredited and non-accredited Ministry of Health hospitals in Saudi Arabia (KSA). Improving the quality of care in many countries, including Saudi Arabia, has its challenges. The main purpose of the accreditation of hospitals is to ensure quality of care and patient safety (Devers, Pham & Liu 2004, Soepojo, Koentjoro & Utarini 2002).

Accreditation is defined by the WHO as a process that entails an assessment of healthcare organisations based on a set of standards (WHO, 2003). Although various definitions of quality exist, the definition that best agrees with the understanding of quality adopted in this thesis is that of the Institute of Medicine (IoM). This definition combines the quantitative and qualitative approach by gathering the level of outcome of service to a population and the knowledge of the delivering staff. The Institute of Medicine (2001 p: 13) describes quality in healthcare as:

> *'The extent to which health services for populations and individuals increase the probability of preferred health outcomes and the degree to which such services are consistent with present professional knowledge.'*

For this to be achieved, services need to be safe, based on scientific knowledge, and patient-focused.

Rationale for studying quality of care and accreditation

The motivation to research the above area of quality of care and accreditation comes from the personal and professional experiences of the researcher. I originate from the southern region of Saudi Arabia and have always had an interest in health service management as well as quality of health. This culminated in my completion of a Master's Degree in Health Services Management, and Health System and Quality Management, from Griffith University in Australia, and King Saud Bin Abdulaziz University in KSA, respectively. I have applied this knowledge working as a Quality Consultant to help prepare hospitals across SA to apply for accreditation. In addition, I also worked as a lecturer at the Public Health College at King Khaled University in SA.

This broad experience has given me a deep appraisal of context for the study and a large contact network that has facilitated successful quantitative data collection and interviews for this study. Furthermore, as a native of the area and an Arabic speaker, I could fully understand the participants' background and environment.

The quality programme has interested me since I started working at the Ministry of Health in SA in 2000. As a quality specialist in the southern region, I visited several hospitals to help them solve quality issues and to take part in training programmes to promote a quality culture in the health organisations across SA and to implement the accreditation programme. It is around this time that I began to question the relationship between quality of care and the

accreditation process. I felt that the best way to answer these questions was by conducting a research study.

According to Myers (2011), hospital accreditation is a self-assessment process carried out by healthcare bodies to determine the level of performance of the hospital in accordance with set standards. The process of hospital accreditation not only sets the standards of operation, but also provides support to stakeholders on how to improve performance. However, although the accreditation bodies set the standards of service, there is little evidence supporting the actual credibility and effectiveness of the certification of the accreditation programmes. Healthcare accreditation is important to the Kingdom of SA, as the country has approximately 27 million people and more than 415 hospitals (Central Department of Statistics, 2010).

Oil exploration has significantly fuelled the growth rate of the Kingdom, and consequently improved the welfare of its citizens (WHO, 2007). This high growth rate has necessitated improved healthcare. The government of KSA has therefore turned its attention to the development of healthcare facilities, as evidenced by the increased revenue allocation to the sector. According to the Ministry of Health (2008), in 2008, the government of KSA allocated £549 million to the health sector project to improve the health standards of the country's population.

The amount allocated to the health sector has gradually risen since 2008, with the total revenue allocation for health increasing to 3.3% of Gross Domestic Product (GDP) (Central Department of Statistics, 2010). The increased funding of the health sector has led to the modernisation of healthcare facilities in SA. A report published by the World Health Organisation on Health

System Achievement in 2000 ranked Saudi Arabia 26th out of 191 countries, higher than the USA, Canada and Australia. Despite this high ranking, the sector still faces significant challenges that thwart the government's efforts to improve it.

Aim of the study

The main aim of this research is to examine any potential differences in the quality of care provided by accredited and non-accredited Ministry of Health (MoH) hospitals in Saudi Arabia.

Research Questions

- Does the accreditation process in KSA create a measurable difference in the quality of care indicators in accredited and non-accredited hospitals?
- How does accreditation process influence the perceived quality of healthcare in MoH hospitals?
- What are the similarities and differences in perceived quality of healthcare in accredited and non-accredited MoH hospitals in KSA?

By collecting hospital indicators data reports from the accredited and non-accredited hospitals, and by undertaking semi-structured interviews with a purposive sample of staff regarding their perceptions of quality in order to incorporate social and behavioural thinking on the quality in accredited and non-accredited hospitals, I anticipated answering these research questions.

This introduction section highlights the significance of and the motivation for the study. The aim and research questions have been clarified. The following section will present the organisation of the thesis.

Organisation of the thesis

In order to manage the study work within the timeframe, the thesis was organised into five chapters, as displayed in Table 1.1.

Table 1-1 Thesis structure

Chapter Number	Chapter Title
One	Setting the Scene
Two	Literature Review
Three	Research Methodology
Four	Quantitative and Qualitative Results
Five	Discussion Conclusions and Recommendations

Chapter One provides the context for the study, explaining the concepts of quality and accreditation, as well as providing a background on KSA's demographic and socio-economic status. In addition, it describes the structure and services of the healthcare system in KSA and the accreditation system used in KSA, nationally and internationally. Lastly, the chapter introduces the significance of the study, its aim, and the research questions.

Chapter Two provides a comprehensive review of the literature about accreditation and its relation to healthcare quality. The review employs a systematic search of the relevant literature; it critically evaluates and explores the relationship between the accreditation process and the quality of care provided by hospitals. Finally, the literature summary identifies the research gap and provides a direction for this study.

Chapter Three describes the methodology of the study. It presents the justification and a description of the mixed-method approach. The methodology chapter describes in detail the design of the study, setting and recruitment, data collection and management and the analysis plan. This chapter also covers the ethical considerations and approval of the study.

Chapter Four presents the quantitative and qualitative findings from the data collection. The quantitative findings helped answer the first research question to identify whether there are any differences between the accredited and non-accredited hospital indicators. The findings revealed that there are significant differences between accredited and non-accredited hospitals in some of the indicators. The qualitative findings indicate that there exist differences in manager perceptions in regard to social and behavioural thinking and quality between accredited and non-accredited hospitals.

Chapter Five presents a discussion that interprets and compares the findings and determines their relevance to the literature review in order to answer the research questions. In addition, this chapter presents the study conclusion and future recommendations, as well as the major conclusions and recommendations of the current study drawn from the main findings of the quantitative and qualitative parts of this thesis. This chapter also considers the main limitations of the current study and their implications, and finally mentions how the study will be disseminated.

1 Chapter One: Setting the Scene

The previous section identified the rationale for this study, the aims and the research questions, and presented a brief overview of the thesis organisation. This chapter will provide information about the general background details of KSA and its health system. It will also describe the quality of healthcare programmes and the accreditation system as approved by the KSA MoH.

1.1 Demographic and socio-economic status

For the purpose of this thesis, it is useful to discuss the socio-economic status and demographics of the Kingdom of Saudi Arabia, as they are imperative to any researcher that seeks to investigate and understand KSA's healthcare facilities. The demographics provide a foundation for developing conclusions as to why the status of healthcare is in such a condition. In addition, the demographics and the socio-economic contexts help to explain the extent of the governments' efforts in improving the health sector. The socio-economic contexts can facilitate an understanding of the resources available to the authorities in meeting the citizens' healthcare expectations.

The Kingdom of Saudi Arabia is the second largest oil producer in the world, and occupies 830,000sq mi, approximately four-fifths of the Arabian Peninsula. The country shares borders with Iraq and Jordan to the north, Qatar and UAE to the east, and Yemen and Oman to the

south and southeast, respectively. Most of the country's land is arid and inhospitable due to the barren landscape.

Figure -1.1 Saudi Arabia Map

According to a census conducted in 2010, SA has a population growth rate of 3.2% and a fertility rate of 3.04. The majority of the SA residents are Saudis, who account for 68.9% of the population, while non-Saudis account for 31.1%. Males constitute 50.2% of the population, while females constitute 49.8% (Central Department of Statistics, 2010). The United Nations projects that KSA's population will reach 39.8 million by 2025. This increase is anticipated due to the country's high birth rate and increased life expectancy. These projections can also be attributed to reduced mortality rates, falling from 250 per 1000 births in 1960, to 20 per 1000 births in 2009. In addition, government policies such as a compulsory vaccination

programmes for children, rolled out in 1980, have significantly reduced mortality rates. This population growth increases economic opportunities as well as demand for quality healthcare.

SA has one of the fastest growing economies in the world, with oil exportation being the largest contributor to the country's revenue. The country has diversified its economy to avoid over-reliance on one product, as evidenced by the exportation of numerous industrial products. Consequently, this economic base has significantly increased the income of the country's citizens, raising the per capita income from £15323 in 2007, to £16519 in 2008. In addition, KSA ranks 55 out of 194 countries in the Human Development Index (Central Department of Statistics, 2010). Nevertheless, the country did experience economic challenges in the 1980s, due to a drop in world oil prices. Nevertheless, the country recovered in 1990s and has since been growing at a fast and steady rate. The economic crisis of the 1980s saw the Saudi government, through the Ministry of Economy and Planning, develop strategic plans for every five years hence, which outline the country's social and economic goals. Through these five-year strategic plans, the Kingdom has managed to encourage private economic activities that have increased the employment rate and consequently the per capita income. According to the World Bank (2008), Saudi Arabia ranks among the top 25 countries worldwide for ease of conducting business. In addition, the country is a member of the G-20; an international group comprised of developed and emerging economies.

1.2 Healthcare services in Saudi Arabia

The condition of Saudi healthcare facilities has significantly improved in recent years. According to Almasabi (2013), the country's first health department, built in Mecca in 1925, was by the order of King Abdulaziz. The mandate for the department was to monitor and sponsor free healthcare for the citizens and pilgrims by establishing dispensaries and hospitals. However, the government did not have sufficient funds to provide healthcare to the whole population and, therefore, many people still relied on traditional treatment methods which were unable to contain many epidemics. Several years later, the KSA recognised the need for a well-established system to effectively manage healthcare facilities. Consequently, in 1954, the Ministry of Health was established by order of the King.

The Ministry of Health supervises all the healthcare facilities in the private and public sectors. After the discovery of oil, the national income increased to a degree which enabled the government to develop five-year strategic plans to enhance development in several sectors, including the healthcare sector. The five-year development plans and an increase in revenue brought about several changes, as the government established the required infrastructure, research centres, and hospitals. As noted by Jannadi (2008), the Saudi government now provides scholarships to enable its citizens to study medical careers in order to reduce the reliance on foreign expatriates.

The Saudi government is obliged by the country's constitution (Article 31) to provide medical care to all its citizens without discrimination of any kind. Therefore, all Saudi citizens have the right to free medical care provided through a health policy committed to achieving Health for All (HFA) (Ministry of Health, 2008). Although both the public and private sectors provide medical care services in Saudi Arabia, many citizens prefer the private sector despite the public sector services being free of charge. This, perhaps, can be attributed to the better quality of services provided by the private sector. However, the private sector accounts for only 21.1% of total hospital beds in Saudi Arabia (Ministry of Health, 2008).

The Ministry of Health controls all the healthcare systems and is mandated to provide strategic plans, formulate health policies, supervise and monitor health services delivery, and control all healthcare related activities (Qureshi and Ullah, 2012). In other words, the Ministry of Health is the principal organ mandated to oversee the provision of healthcare services to Saudi citizens. According to Qureshi and Ullah (2012), the Ministry of Health provides its services through 2,037 health centres located in both the large cities and small towns. However, other government agencies also provide healthcare services. These agencies operate independently and have separate budget allocations and include the Ministry of Education, Ministry of Interior, Ministry of Defence and Aviation, and the Saudi National Guard. In addition, these organisations provide healthcare services through both primary and the secondary facilities for the welfare of their employees see (Figure 1.1).

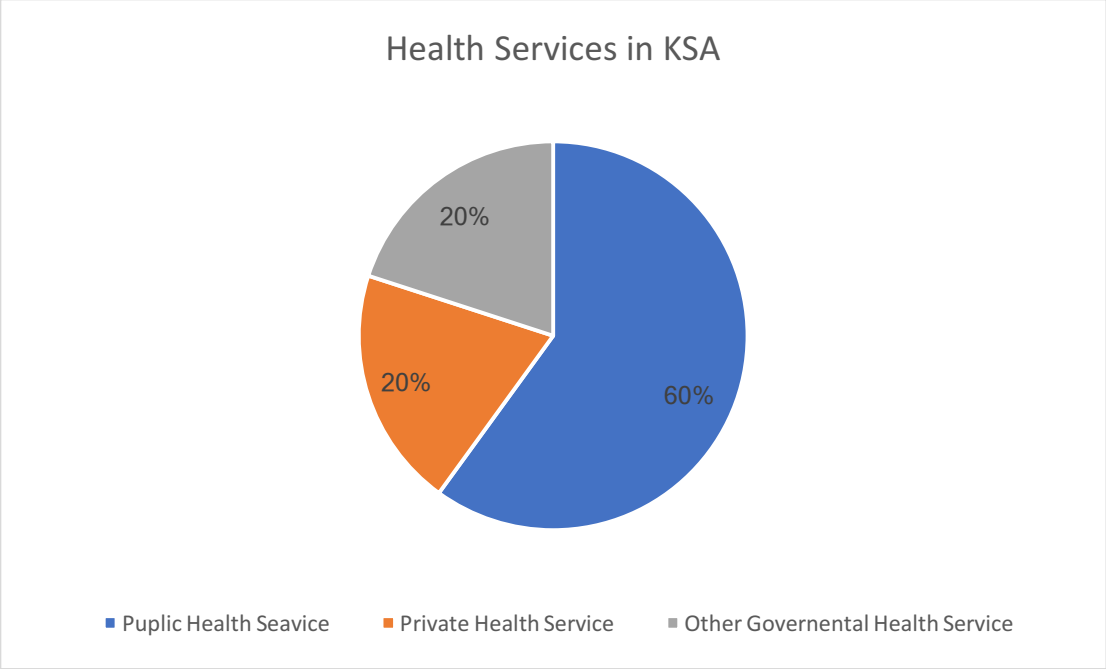

Figure -1.2 Coverage of health services in the KSA

Al-Yousuf et al. (2002) noted that independent healthcare sectors are primarily established to provide services to workers and their immediate families. However, these agencies also provide services to the public in extreme cases such as treatment of cancer.

1.3 Structure of the healthcare system in Saudi Arabia

The Ministry of Health is the primary health services provider, having more than 270 hospitals and 33,277 hospital beds. Other government institutions such as King Faisal Specialist Hospital and Research Centre, ARAMCO hospitals and Royal Commission for Jubail and Yanbu health

services also provide healthcare services to the public. The improvement in healthcare services, increased health awareness, and improved life conditions have significantly and positively contributed to health indicators. Despite the existence of numerous healthcare providers, there is a lack of coordination which has led to the duplication of services and a consequent waste of resources (Albejaidi, 2010). For instance, there are numerous opportunities to benefit from foreign personnel, equipment and training aids, but due to a lack of coordination, the country does not benefit from these opportunities. However, a Royal Decree was issued in 2002 to establish the Council of Health Services, led by the Ministry of Health, in an attempt to overcome the challenges faced by the health sector. The council includes the Minister of Health and representatives from both the government and the private sectors. However, the council has achieved little in terms of its primary objective of developing a plan for integration and coordination among healthcare providers.

1.4 Levels of healthcare in Saudi Arabia

According to Albejaidi (2010), there are three levels of healthcare services operating under the MoH (figure 1.3). The first level includes the primary health service that supervises the healthcare centres. The second level includes the general hospitals, and the third level includes the tertiary health centres. As noted by Al-Ahmadi and Roland (2005), primary healthcare was boosted after the implementation of the 1978 "Alma-Ata Declaration", which focused on grassroots' participation in the process of healthcare provision. The declaration led to opening

of numerous primary healthcare centres, amounting to 1,925 in 2006. In addition, the MoH vigorously promotes policies that ease access to healthcare facilities. The policy has recorded a success rate of between 65% to 95% in prenatal care, and 83% to 94% in vaccination programmes (Al-Ahmadi and Roland, 2005). Despite the breakthrough by primary healthcare facilities, there have been numerous cases of diabetes, heart disease, and obesity. However, these challenges have been attributed to changes in attitudes in the society. The majority of these cases are referred to secondary health facilities, and more complicated cases are further referred to tertiary facilities (MoH, 2008).

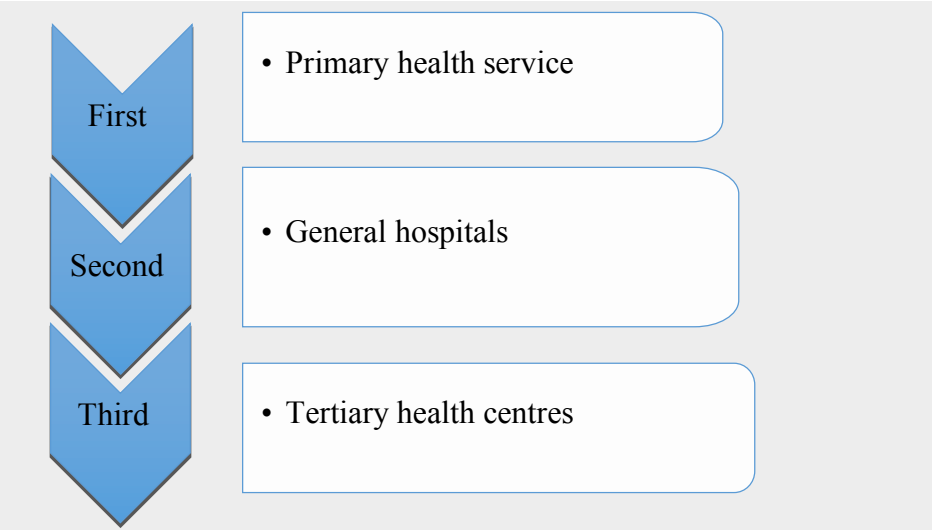

Figure -1.3 Levels of Healthcare in Saudi Arabia

1.5 Hospital accreditation in Saudi Arabia

According to Qureshi and Ullah (2012), hospital accreditation is a programme in which qualified expatriates evaluate the healthcare provider's compliance with the performance

standards set by an accreditation agency. In other words, it is a standard process of assessing, promoting and ensuring efficient health services and safety. Generally, hospital accreditation is regarded as an indicator of the quality of health services that reflects the standards of a healthcare provider. Hospital accreditation is a continuous process that demands commitment to learning and regular improvement. The process of hospital accreditation has recently attracted considerable interest as an integrated method of raising the quality of healthcare. However, the process is laborious and exhaustive. The accreditation process has gained interest in developing countries such as the KSA. In fact, Saudi Arabia was the first country to roll out health accreditation programmes in the Arab region.

The history of hospital accreditation in the KSA can be traced back to 1994, when the Saudi Medical Services Organisation (SAMSO) standards were established by the Saudi Aramco Company (AlKhenizan & Shaw 2010). The SAMSO standards were set to be achieved by public and private hospitals in order for them to be accepted as referral facilities for the employees of Saudi Aramco (AlKhenizan & Shaw 2010). Later, in 2003, following the institution of the Council for Development of Health Services in 2001, the Makkah Region Quality Programme (MRQP) was established. According to AlKhenizan and Shaw (2010), the MRQP included particular standards that were to be met by the public and private health institutions in the Makkah region.

To compete with international standards on healthcare quality, the MoH established the Central Board of Accreditation for Healthcare Institutions (CBAHI), mandated with the accreditation of health institutions in KSA. Some public and private hospitals have gone further to show stronger commitment to quality by seeking the accreditation of international accreditation bodies such as the Joint Commission International (JCIA) (AlKhenizan and Shaw, 2010).

The KSA government has implemented numerous programmes in order to raise standards within the health sector. Among the outstanding programmes is the implementation of Total Quality Management (TQM). As noted by Albejaidi (2010), the KSA government has been working on improving the quality of healthcare systems. As a result, the number of public and private hospitals has significantly increased, and, in turn, the governments' expenditure on the health sector has increased. There has been a greater implementation of quality assurance programs in SA than any other country in the Middle East (AlKhenizan and Shaw, 2010). In addition, a five-year strategic plan integrated strategies to raise the quality of primary health centres and the health sector at large. The MoH first integrated healthcare strategies in the five-year strategic plan in the year 1984. Three years later, a central committee was established to monitor the quality of healthcare programmes in the country. The primary purpose of the committee was to evaluate and give feedback on the quality programmes conducted in hospitals, including the quality of service given to the patients and how effectively resources were being utilised. At this time, the council supervised 14 hospitals throughout the country.

According to the WHO (2006), all the primary health centres and several medical programmes have been working relentlessly to improve their quality. These programmes have developed

strategies, set standards and have undertaken resource upgrades as part of this plan. In addition, the Ministry of Health established the National Committee for Quality Assurance (NCQA) in 1993 with the help of the World Health Organisation. The committee aimed at reinforcing the importance of achieving a high-quality healthcare system and particular levels of service quality. The committee did this by carrying out quality assurance programmes in the primary healthcare centres and providing advice to the centres on how to improve their services. Later, in 1995, the NCQA started a programme aimed at training managers for primary health centres in order to improve efficiency and assist in quality improvement endeavours.

In 1994, the Saudi Committee was established through cooperation between the USA and the SA to improve the quality of services provided by the MoH. In this programme, four hospitals were selected from all regions of the country. Later, a further four hospitals were selected from each region, bringing the number to eight hospitals from each region. The Saudi Committee carried out seminars, workshops and training programmes for employees of these hospitals to improve the quality of their services (Almasabi, 2013). Furthermore, a technical committee was established to develop a criterion to be used in measuring the performance of the trainees. In addition, the Saudi Committee developed ten standards that incorporated all the services related to the use of resources, such as infection control and the radiology department. The standards covered all the aspects of service delivery, which helped in improving the performance of the trainees.

According to Almasabi (2013), the nature of the work carried out in Saudi Arabia demands effective implementation of the Quality Assurance Programme. In addition, the standards should be set in such a way that they cover all aspects of healthcare. Further, the senior management who clearly understand the benefits of Quality Management (QM) should set the criteria for the implementation of programmes. However, the patients should be protected at every level by ensuring their demands are met (Almasabi, 2013).

According to Qureshi et al. (2010), accreditation programmes have attracted significant interest in developing countries, as evidenced by increased government support for such programmes. In reflection of this, The Makkah Regional Quality Programme (MQRP), under the supervision of the Prince of Makkah, was established in 2000 to enhance the quality of services offered to the residents of the city. In this programme, a thorough evaluation of the quality health programmes for MQRP was undertaken. In addition, quality standards for both private and public hospitals were established. The standards set in Makkah were borrowed from quality systems implemented in Canadian hospitals, as well as JCAHO. In 2003, the pioneer publication on health standards and accreditation was released and its recommendations implemented in all Makkah hospitals. Two years later (2005), the Central Board of Accreditation for Healthcare Institutions (CBAHI) was established under the recommendation and supervision of the Council of Health Services. The primary purpose of CBAHI was to recognise the provision of both the public and private health services. In addition, the success of MQRP in Makkah region motivated the formation of CBAHI. A team of experts from different sectors, such as the Ministry of Health, the Saudi ARAMCO, the armed forces

healthcare services, King Faisal Specialist Hospital and Research Centre, and the private sector, developed the CBAHI standards (Section 1.4). As noted by Almasabi (2013), the number of standards vary from region to region and are dependant on the programme. For instance, the Australian accreditation system has 43 chapters of standards, the CBAHI has 22 chapters of standards and the French system has 13. Although many of the accreditation systems are voluntary, a few, such as the French, CBAHI and Italian systems, are compulsory. Qureshi et al. (2010) noted that the Council of Health Services in the SA declared that all the healthcare providers must be accredited by CBAHI and adhere to its standards.

Alkhenizan and Shaw (2010) carried out an assessment of CBAHI standards and established that the active participation of the stakeholders - patients, community leaders, and consumers - is not included in the statute. Alkhenizan and Shaw (2010) established that there is a need for clearer standards that coordinate risk assessment and management activities. In addition, the two researchers highlighted that the development of the CBAHI standards is not well explained or organised. Furthermore, many standards lack clear indicators and are frequently repeated. Alkhenizan and Shaw (2010) also noted a lack of a clear path to obtaining feedback from stakeholders regarding the standards.

Despite the governments' order that all hospitals must obtain a certificate of accreditation for CBAHI, while many of them are in the process of accreditation, the majority are not yet accredited. However, international bodies, such as the JCIA, have accredited many hospitals.

Qureshi et al. (2010) established that many of the accredited hospitals are based in eastern, central, and western regions of the country. This can be attributed to the fact that these regions have a high number of qualified professionals and are more densely populated.

Despite the government's efforts to improve the quality of healthcare in SA, a significant number of challenges exist that hinder the successful implementation of the government programmes. Among these challenges is finance. The financing system in Saudi Arabia entails the public sector, of which the MoH is the leading institution. The MoH manages all funds issued by the Ministry of Finance by providing healthcare services where needed, yet it still faces significant challenges perhaps due to lack of knowledge on the benefits of implementation of quality programmes (Alkhenizan and Shaw, 2010).

Despite the governments' investment in the health sector, more needs to be undertaken to increase the number of qualified practitioners, who are a basic resource in the implementation of quality management programmes in the sector. Many of these challenges have been exposed by the fast growth in healthcare services experienced in the kingdom over the past few decades. In this regard, the government has invited foreign professionals to work in the country in an attempt to meet the high demand for qualified medical practitioners. A study carried out by Almasabi in 2013 showed that 78.3% of the medical personnel working in Saudi Arabia were foreigners. However, this plan of using foreigners to fill in the gaps in the health sector has not been successful, as evidenced by a 37% turnover in health practitioners in recent years

(Almasabi, 2013). In response to this challenge, the government established the Saudi Labour Force Council in 2003 to assist in the implementation of labour policies that could attract more medical practitioners within the country. Therefore, measures were rapidly implemented to encourage students to pursue medical courses as well as encourage the private sector to set up medical training schools. Furthermore, to reinforce the importance of these steps, they were incorporated into the national five-year strategic plan.

1.6 The Joint Commission International – (JCIA) American accreditation outside the US

1.6.1 History

The Joint Commission International was first established under the name, Joint Commission on Accreditation of Healthcare Organisations (JCAHO). Later in 1951, the Commission was renamed the Joint Commission on Accreditation of Hospitals (JCAH). However, the commission's work was not applied until 1965. The US government decided in 1965 that a hospital that met the JCAH's requirements automatically met the Medicare Conditions of Participation. The decision of the US government publicised and the commission, where many hospitals struggled to meet the JCAH's requirements.

According to the Joint Commission International (2014), JCAH was established in 1951 by integrating the Hospital Standardisation programme with similar programmes such as those run by the American Medical Association and the American College of Physicians. In 1987 the organisation was renamed the Joint Commission on Accreditation of Healthcare Organisations (JCAHO).

Several years later, in 1998, The Joint Commission International was founded. Through its activities - publications, consultations, education programmes, and international accreditation - the Commission extended its work outside the United States by helping countries raise the quality of healthcare. The Commission achieved its objectives by engaging the public health agencies and international healthcare organisations, among others, in evaluation, improvisation and demonstration of the quality of healthcare as well as enhancing patient safety in sixty countries.

The commission is a non-profit organisation mandated to evaluate and accredit hospitals in Asia, the Middle East, Europe and South America. According to the JCIA website, the commission had approved more than 375 hospitals by June 2012 throughout 47 countries worldwide. As expected, the standards of accreditation at the international level are not the same as those within the United States. According to an interview with the CEO of JCIA in 2007, the standards used in the United States are comparable but differ to the extent that they

are not applicable at the international level. Therefore, the Commission developed international standards that consider cultural sensitivity.

According to JCIA (2014), a standards advisory panel consisting of thirteen experts from various professions, such as physicians, administrators, nurses and public policy experts, revised the JCIA accreditation standards. This revision of the accreditation standards was based on the following: comments from experts in the medical field, a literature review of quality healthcare practices, an evaluation of international standards, and the use of focus groups and healthcare experts from 16 countries.

1.6.2 Operation

Healthcare organisations are subject to a JCIA standards accreditation process every three years, while laboratories are accredited every two years. The hospital findings established during the surveys are not made public. However, details such as the date of accreditation, the organisations' accreditation decision, and the sectors recommendation for improvement are publicised. Accreditation is only awarded to organisations if they are deemed to meet all or almost all of the commission's standards.

According to Croskerry (2009), the unannounced survey is a paramount aspect of the JCIA accreditation process. An unannounced survey is an impromptu visit made by the JCIA to a

healthcare provider. In other words, the health facility is not informed of the commission's intended visit to the premises. Unannounced surveys were first conducted on Jan 1st, 2006 (Croskerry, 2009).

However, the commission's methods of operation have attracted critics in both the United States and the global arena. For instance, although 99% of the organisations visited by the Commission are accredited, several problems have been reported (Washington Post, 2007). Similar criticisms were expressed by the Boston Globe, which argued that the fact that healthcare professionals dominate the Joint Commission raises questions about the validity of their evaluations. Unlike in the United States, where the commission carries out unannounced surveys, surveys conducted at the international level must be communicated prior to the visit and often after the organisations have adequately prepared.

As noted by Croskerry (2009), preparation for the Joint Commission Survey is a demanding process for any healthcare organisation. At the very least, the organisation must have a clear understanding of the current standards, investigate the current activities, align policies and procedures with JCIA's standards, and commence improvements in sectors that do not comply with standards. In addition, the organisation must have been complying with the standards for a minimum of four months prior to the first survey. Further, the organisation must also comply with the applicable standards throughout the accreditation process.

1.6.3 Surveyors

Concerning surveyors, the Commission recruits individuals with a strong background in healthcare services and those willing to work part-time with the accrediting body in addition to their original commitment. When conducting surveys, the surveyors travel to the healthcare premises to examine the facilities as well as the operational practices against the set standards and principles of performance. However, significant time and financial resources are spent by the healthcare providers in the purchase of equipment and training of staff in preparation for the JCIA survey.

Although the Commission advocates for "evidence-based medicine" as one of its accreditation requirements, there is an absence of proof showing any notable improvement in quality as a result of the commission's activities. In addition, literature showing no significant improvement or reduction in quality has been on the rise despite the demanding requirements of the Commission (Croskerry, 2009). In fact, an organisation seeking accreditation must pay the Commision a significant amount of money (£37,000), and only after receiving a "passing grade".

1.6.4 Mission

The mission of the JCIA is continuous improvement of the quality of healthcare, in partnership with the stakeholders, by assessing the healthcare centres and encouraging them to excel in provision of quality, safe and effective care. The commission regularly updates the accreditation standards and extends the patient safety objectives and posts them on their website annually so they are accessible to the public.

The National Patient Safety Goals (NPSGs) were established to achieve specific improvements in patient safety. The Goals outline the areas of challenge and provide solutions based on evidence. The National Patient Safety Goals are used by the JCIA to promote and emphasise changes in patient safety in the majority of healthcare organisations participating in the surveys. For instance, the target of the 2009 NPSGs was the reduction in the spread of infections caused by multidrug-resistant organisms, surgical site infections (SSI) and cather-related bloodstream infections (CRBSI). The CRBSI and SSI regulations apply to both ambulatory care surgery centres and hospitals.

1.7 National accreditation in the KSA - (CBAHI)

The Central Board of Accreditation of Healthcare Institutions -CBAHI is the recognised body in the KSA mandated to accredit both private and public healthcare organisations. The CBAHI is a non-profit organisation that emerged from the Health Services Council. The primary purpose of the institution is to evaluate healthcare organisations and actuate the organisation's compliance with the quality and patient safety standards developed by CBAHI for evaluation purposes. The CBAHI was established in 2001, although it officially started working in 2005 under the directive of the MoH (Ministry of Health, 2005).

CBAHI was established as a result of the success of the Makkah Region Quality Programme led by Prince Abdulmajeed Bin Abdul Aziz Al-Saud. Experts from various sectors in the KSA created the CBAHI standards: National Guard Health Services, MoH, Saudi ARAMCO and the private sector, among others. The standards were then approved by the Minister of Health in 2006. The Council of Health Services oversees the activities of CBAHI in an attempt to enforce the application of the quality standards in all healthcare organisations.

1.7.1 Mission

The organisation aims to raise the quality of healthcare in the KSA by providing support to healthcare organisations in implementing and certifying the healthcare standards, as well as patient safety. The Joint Commission for International Accreditation (JCIA) aims to be a

prestigious worldwide leader in medical care improvement. The JCIA strongly believes in teamwork and a holistic approach. Every member of the JCIAA is as relevant as any other member of the institution. Teamwork is highly encouraged. In addition, the institution is committed to excellence achieved through dedication to conceptualisation and the use of creativity. In addition, the institution develops strategies and policies favourable to employees in-order to attract highly qualified professionals. In the same way, CBAHI (2015) pointed out that integrity is a crucial aspect of the JCIA commission. All the activities conducted by the JCIA Commission are according to the stipulated laws and regulations. In other words, the JCIA Commission operates in a professional manner. The stakeholders are highly respected by ensuring confidentiality, validity and reliability of the survey findings.

1.7.2 Responsibilities

CBAHI is tasked with developing national standards to protect the quality of medical care services offered in the KSA in both private and public healthcare facilities. The institution is also mandated to present certificates of accreditation to medical care organisations that meet the criteria and comply with the standards of the commission, as determined by the surveyors during the assessment visits. Further, the institution provides professional counselling, training and education as well as publications in order to assist the healthcare organisations in the process of implementation of the quality standards. CBAHI (2015) noted that CBAHI collects and conducts an analysis of medical errors, as well as conditions of patient safety in the country. The findings and recommendations are then shared with the stakeholders.

According to CBAHI (2015), The Central Board of Accreditation of Healthcare Institutions works together with relevant organisations in developing patient safety designs for healthcare providers. The designs developed stipulate the medical equipment standards to be used in hospitals and also show the qualifications for facilities used in healthcare, criteria for waste disposal, hygiene, and general maintenance of medical facilities. CBAHI (2015) also noted that they present certificates of compliance to organisations that meet the standards.

Another crucial role of CBAHI is to develop the criteria for classification of hospitals in order to determine the range of pricing in private hospitals (CBAHI, 2015). In addition, CBAHI acts as the official representative of the country, in conjunction with other relevant local and international bodies, in all medical workshops, conferences, meetings, exhibitions and research related to the quality of medical care services, hospital accreditation and patient safety at the local and international level. Furthermore, the institution sponsors both theoretical and applied research studies, and publishes journals and books regarding patient safety and quality of healthcare.

The CBAHI also provides an objective evaluation mechanism for use by the public to compare medical care facilities, increase professional competition among healthcare providers and cooperate as well as integrate with relevant international and local institutions, associations or councils. Additionally, CBAHI has a significant responsibility to focus on the structure of

medical care reform, and outline improvements in service delivery and use of resources while building trust between stakeholders.

The KSA CBAHI assists healthcare providers in offering quality and secure medical care services by collaborating with the Health Services Council during the design of the accreditation standards. Despite the demanding and exhaustive process of developing accreditation standards, CBAHI does not guarantee that the standards eliminate medical errors, nor does it guarantee that all patients will receive their right to good quality care without complication. However, the institution acknowledges the fact that hospitals within the KSA cannot be compared to world-class hospitals with immediate effect, but, with time, the hospitals will compete with the best global healthcare providers. As noted by the General Director of the CBAHI, the Commission hopes that the integration of the CBAHI standards together with a spirited commitment to adherence to the standards will result in a safer environment for the patients, visitors and healthcare professionals.

1.8 Quality in healthcare

Section 1.6 explained the accreditation process as a tool for improving the quality of healthcare in KSA. This section focuses on three main approaches to quality in healthcare. Regulation of healthcare quality is a significant challenge for many governments, particularly due to the complexities involved in defining and assessing quality. Nevertheless, with developments in

the health sector and increasing attention on care outcomes, there was an early acknowledgement of the need to consider quality of care as a component of these reforms (Shaw, 2003). The definition and understanding of quality in healthcare varies from country to country (Colquhoun & Owen, 2012). This variation is a reflection of a shift in healthcare policy (such as from hospitals to primary care and networks) and in the understanding of what comprises quality in healthcare (Colquhoun & Owen, 2012). The particular tools applied in quality improvement depend considerably on national and local priorities, as Thornlow & Merwin (2009) indicate, some concepts can be applied generally. For example, quality improvement can target systems (such as clinical indicators), processes (such as infection control), and strategies (such as health reforms). It is important to note that these concepts (strategies, systems and processes) are not in themselves tools for creating, evaluating or improving standards. Rather, they offer general frameworks upon which quality improvement can be achieved.

The three main domains of quality in healthcare include quality assurance, quality improvement, and total quality management, all depending on the involvement of all members of the healthcare organisation.

1.8.1 Quality assurance

Quality assurance is primarily concerned with meeting specified standards (Braithwaite et al. 2010). In addition, quality assurance emphasises the definition of minimum standards of provision of healthcare services and the evaluation of the degree to which such standards are met. In situations where the defined standards have been met, no additional action is necessary (Baskind, Kordowicz & Chaplin, 2010). An example of a programme that applies the quality assurance approach is licensing.

1.8.2 Quality improvement

Quality improvement involves raising standards of care. It is a continuous process of performance evaluation, identification of strategies for improving performance, implementation of these strategies, and evaluation of the outcomes (Devkaran & O'Farrell 2014). Such a process must be integrated into the organisational culture of the healthcare institution.

1.8.3 Total quality management

The third domain that is prevalent in the literature on healthcare quality is total quality management. Total quality management is an approach to healthcare quality based on the

involvement of all members of the healthcare organisation (Colquhoun & Owen 2012). As indicated by Colquhoun and Owen (2012), the principal aim of total quality management is customer satisfaction. Total quality management denotes a comprehensive approach that connects all departments and processes at all levels of the organisation. As such, the elements of total quality management include routine management, standardisation, quality design, continued quality improvement, and quality assurance. Despite various studies lauding the importance of total quality management, Devkaran and O'Farrell (2014) found that the approach is difficult to sustain, especially in organisation-wide programmes.

1.9 Quality of care measures

The effectiveness of any hospital accreditation programme depends considerably on the measures used to assess care quality. Several scholars indicate that quality can be evaluated using the Donabedian model (Figure 1.4), which classifies quality measures according to three fundamental dimensions of structure, outcomes and process (Newhouse 2006; El-Jardali et al., 2013; Flodgren et al., 2011). Quality measures are essentially tools that enable the evaluation of healthcare outcomes, processes, patient perceptions, systems, and organisational structures (Flodgren et al., 2011). These measures are important not only for accreditation, but also for quality improvement programmes. In healthcare, quality measurement involves the application of data to assess the performance of healthcare strategies and healthcare providers against established quality standards. The measures used in evaluating quality can take various forms.

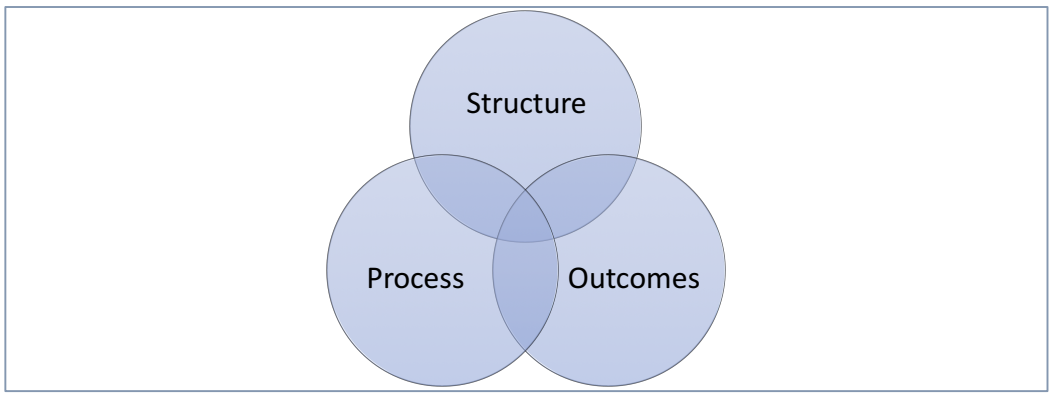

Figure -1.4 Donabedian Model

1.9.1 Structural quality measures

Structural measures assess the infrastructure of healthcare settings, including doctor offices and hospitals, evaluating whether such care settings have the capability of delivering care (Kim, 2011). Structural measures of quality include staff capabilities and facilities, policy environment for the delivery of care, and the existence of resources within the care institution. The main understanding in evaluating care through structural measures is that a good environment of care is important for care delivery and quality, and that providing the appropriate systems, good care is likely to follow. Structure is increasingly portrayed in the literature not only as the way hospitals and clinics are operated and organised, but also in the policies they develop and implement which influence the quality of care (Greenfield, Pawsey & Braithwaite, 2008). For instance, processes of promoting and monitoring quality and incentives for quality care can have direct implications for the nature of the care delivered.

While structural measures may measure competence in one area of care, they do not conclusively measure the delivery of such care. For instance, in a study examining the measures of quality of care, Newhouse (2006) established that structural measures are mostly applied by insurance firms and care quality regulators to evaluate whether a facility possesses the necessary capacity to offer high quality care. Such structures can include systems for electronically placing orders for prescription drugs. Given the importance of structural measures on quality of care, such measures are often instrumental in the accreditation and certification of hospitals (Fonseca & Pomey, 2013). Nevertheless, despite the importance attached to structure as a source of information on hospital capacity, understanding the limitations associated to structural measures is crucial. For instance, Fonseca and Pomey (2013) established that if a facility has the capacity to perform certain functions, this is not a representative of whether these functions actually occur. It can therefore be argued that structure offers just one aspect of the quality of healthcare.

Moreover, structural measures do not indicate whether functions improve patient health. In other words, the fact that a hospital meets the required structural standards does not necessarily imply that the provider delivers care that improves patient health. For instance, some forms of accreditation require that the provider use electronic health records (Greenfield, Pawsey & Braithwaite, 2008). In such situations, the provider can procure the electronic health record, but continue using paper records. While such a provider may qualify for accreditation on the basis of meeting structural requirements, there is no improvement in quality of care. It is, therefore, important to consider process measures in evaluating quality.

With quality improvement focusing mainly on systems and how they function, there is a tendency to ignore individual hospital employees and their competence. Nevertheless, it is important to remember that while blaming individuals when things go wrong should be discouraged, employees still need to be carefully selected and developed. In highlighting the importance of focusing on staff competence, Greenfield and Braithwaite (2009) argue that even with the appropriate structures, competent staff are still needed for quality care. In addition, interpersonal skills have been highlighted as important to therapeutic relationships and can increase patient satisfaction and compliance. However, procedures for licensing health professionals are already outlined, by law, in many countries, and healthcare organisations should assume the responsibility of continued training and development of their staff. Strategies for assessing clinical competence of healthcare staff include application and selection procedures (including the validation of current registration status, past history, and references), performance appraisal of individual employees, systematised periodic assessment of clinical appointment, and supervision of assistants and trainees (Newhouse, 2006). In Saudi Arabia, for instance, a Programme of Supportive Supervision comprises supervisory field visits to employees offering primary care, aimed at assessing performance, offering feedback, strengthening links, and promoting quality improvement.

1.9.2 Process measures

Process measures attempt to assess whether a patient has received the appropriate care. As indicated by Newhouse (2006), such measures are characteristically created based on the

known connection between processes and outcomes. For instance, in the event where the quality of care received by a diabetic patient is being assessed, one can evaluate whether the patient has gone through an annual funduscopic examination by a qualified ophthalmologist, or whether professional examination of the patient's feet has been conducted annually (Montagu, 2003). The use of process measures is backed by studies (Flodgren et al., 2011; Greenfield & Braithwaite, 2009), demonstrating a connection between such processes and fundamental outcomes. By comparing what was done to what should have been done, assessment can be made regarding the proportion of time the set criteria were observed.

Fundamentally, process measures are useful in determining the degree to which care providers consistently offered particular services to patients in line with established standards of care. As established by Kim (2011), these measures are often connected to treatments or procedures that are understood to improve health. Several scholars argue in favour of process measures (Flodgren et al., 2011; Greenfield & Braithwaite, 2009), with the chief premise being that care providers can access clear and functional feedback with clear recommendations on improving the quality of care. Nevertheless, there is a need for caution due to problems associated with overreliance on process measures to track care performance and manage provider incentives. For instance, process measures do not cover important areas of care such as the appropriateness of care provided or whether the care provider coordinated treatment for patients with mental and physical illness (Baskind, Kordowicz & Chaplin, 2010).

In addition, existing process measures often focus on preventive care and the management of chronic illnesses, which can remove attention from other quality components that are more difficult to measure. Components of quality that are difficult to measure include organisational culture and teamwork (Paccioni, Sicotte & Champagne, 2007). Thornlow and Merwin (2009) indicate that process measures may not capture the actual quality of the care offered. For instance, a measure that examines what percentage of patients that smoke have acquired smoking cessation advice is likely to yield the same outcome irrespective of the nature of the advice (whether the advice was a brief admonition to quit or a detailed conversation on how to overcome smoking and the available support).

1.9.3 Outcome measures

Unlike process and structure measures, outcome measures assess the health of the patient as a consequence of the care they obtained. Outcome measures particularly examine the effects (unintended and intended) that care has had on the health of the patient, as well as on the patients' functionality (Montagu, 2003). Outcome measures also examine whether or not the objectives of care have been achieved. Instead of relying on the processes and structures of care, outcome measures actually examine the results, often assessing mortality, morbidity or incidence of disease and quality of life issues connected to health.

However, it is important to note that outcome measures also have their limitations. For instance, Salmon et al. (2003) note that while outcome measures usually include patient-reported information regarding their level of satisfaction with the care obtained, these measures fail to evaluate the full degree of the patients' experience. In addition, developing outcome measures can be difficult. Gathering sufficient data to obtain useful information can be challenging (Salmon et al., 2003). For example, there are social determinants of health that impact health outcomes which are beyond the control of hospitals, such as economic opportunity, social support, and access to safe housing.

A health outcome that has received considerable attention in the recent past is preventable adverse events. According to the Institute of Medicine (2001), approximately 98,000 people worldwide die each year due to medical errors in health facilities. Such disturbing figures highlight the importance of patient safety measures in quality improvement. Identification and reduction of adverse patient events can be conducted as a component of continued quality improvement and in compliance with accreditation requirements. Studies of adverse events in healthcare institutions (including those that lead to patient injury and delay discharge), indicate that hospitals in developed countries give more attention to risk management (Barker et al., 2002). Thus, incident reports can offer hospitals an opportunity to improve and make necessary changes.

1.10 Importance of healthcare accreditation

According to the JCIA (2014), hospital accreditation increases market competitiveness. The JCIA awards accreditation certificates to healthcare organisations that comply with set standards. The certificate awarded is made public for the stakeholders to see, which facilitates the building of trust between patients and the healthcare provider. However, unaccredited organisations do not get this certificate of compliance, and often lose customers to the accredited institutions. In MoH hospitals in KSA, the situation may vary because the service is provided free for all citizens. Moreover, the trial and error strategy make the accreditation one of the tools that the MoH is trying to use to improve the quality of healthcare in KSA. As noted by Qureshi et al. (2010), the certificate of compliance is a key indicator of the quality of services offered as well as the level of safety of the patients. Therefore, many patients prefer accredited organisations, a situation which motivates the unaccredited organisations to improve the quality of their services in order to compete favourably in the market. However, this only applies to the private sector, as public healthcare organisations are financed by the government.

Healthcare accreditation enhances risk management as well as risk reduction (Carroll, 2009). As noted by the JCIA (2013), The Joint Commission standards advocate for quality improvement strategies that assist the healthcare providers in continuously improving patient safety and quality of services. Improved quality and patient safety ensures reduced risk to

harmful objects within the health organisation's environment. In addition, compliance with the CBAHI standards may significantly reduce medical error (AlKhenizan and Shaw, 2010).

Healthcare accreditation reduces liability and insurance costs. According to Dickson and Nicklin (2009), an unsafe patient-environment presents a high risk of accident. Although insurance covers much of the damage caused during accidents, it does not pay for damages caused by non-compliance with the law, therefore in such cases the organisation may suffer enormous losses. However, JCIA and the CBAHI standards ensure that the hospital working environment is safe for both practitioners and patients, thus reducing the likelihood of accident.

Although JCIA is a non-profit organisation, the Commission provides continuous support to the accredited organisations in terms of staff education, professional advice and counselling. In addition, the JCIA's surveyors are well-trained and experienced healthcare professionals with an extensive knowledge of health-related issues. Therefore, the surveyors provide professional advice and quality services during site surveys. Although the surveyors have different healthcare backgrounds, they are only assigned to accreditation programmes that match their skills. This further ensures that the services offered by the hospitals are reliable and valid.

It is stated that healthcare accreditation improves an organisation's ability to attract qualified and talented employees, who prefer to work in an accredited institution (JCIA, 2013). Further,

accredited organisations present opportunities to employees to improve their knowledge and skills. In addition, healthcare accreditation is increasingly becoming a requirement for many insurance companies. Therefore, obtaining a certificate of accreditation ensures that an organisation is eligible for insurance reimbursement and, in some cases, the awarding of a contract or tender bid.

Healthcare accreditation reinforces the confidence of the community in the quality of healthcare services and the safety of the patients. As noted by Almasabi (2013), accreditation sends a strong message to the stakeholders regarding the organisation's commitment to providing quality and safe services. In addition, hospital accreditation provides a structure for organisational management. The process of accreditation not only entails preparation for the survey visit, it also maintains a high level of compliance with the current standards. However, the JCIA provides guidance and support to an organisation in improving the quality of healthcare services.

Health accreditation prevents unnecessary use of resources by ensuring full compliance with laws and regulations. The JCIA and CBAHI standards are designed in such a way that they ensure maximum patient safety and stipulate the path toward achieving quality healthcare. Therefore, compliance with these standards ensures compliance with the majority of other standards.

Further, hospital accreditation provides concrete resources to strengthen and maintain performance excellence. The Leading Practice Library provides a wide range of good practices submitted by the accredited hospitals. In addition, The Targeted Solutions Tool, an interactive online tool provided by the Joint Commission Centre for Transforming Healthcare (JCIA, 2014), enables the certified institutions to measure their performance and develop customised solutions to healthcare challenges.

The active participation of an organisation in the accreditation process sends out a strong message to crucial decision-makers and the public, bearing in mind the dynamic nature of today's healthcare environment. Accreditation institutions are positioned in a unique manner, so as to provide a detailed analysis of the challenges and successes encountered by healthcare providers. Furthermore, accreditation institutions identify common subjects during the provision and delivery of the medical care services. In addition, the findings made during the accreditation process can be used as leverage for the government, policy makers and healthcare providers, thus contributing to improved decision-making and continuous quality improvement processes.

According to Almasabi (2013), the KSA is endowed with one of the best healthcare services in the Middle East region, and was one of the first countries to adopt a healthcare sector accreditation programme in forming the Central Board of Accreditation for Healthcare Institutions (CBAHI) in 2005 (Al-Qahtani et al., 2012). As part of the accreditation process, the hospital data is collected using indicators.

Hospital indicators are part of a Clinical Auditing Programme implemented in 2009 in order to measure the performance of MoH Hospitals and primary healthcare facilities in Saudi Arabia. The aim of the programme was to increase healthcare quality to a level on par with the best in the world. A highly qualified auditing team was chosen to implement this programme through an objective method of collecting, validating and analysing periodic data.

This programme measures 49 indicators in accredited and non-accredited hospitals, covering all hospital aspects. Out of the total number (270) of Ministry of Health (MoH) hospitals in the KSA, to date, 52 hospitals have been accredited by the national accreditation body, the Central Board for Accreditation of Health Institutions (CBAHI), and 23 have been accredited by the international accreditation body, the Joint Commission International (JCIA)(MoH, 2013) (Figure 1-5).

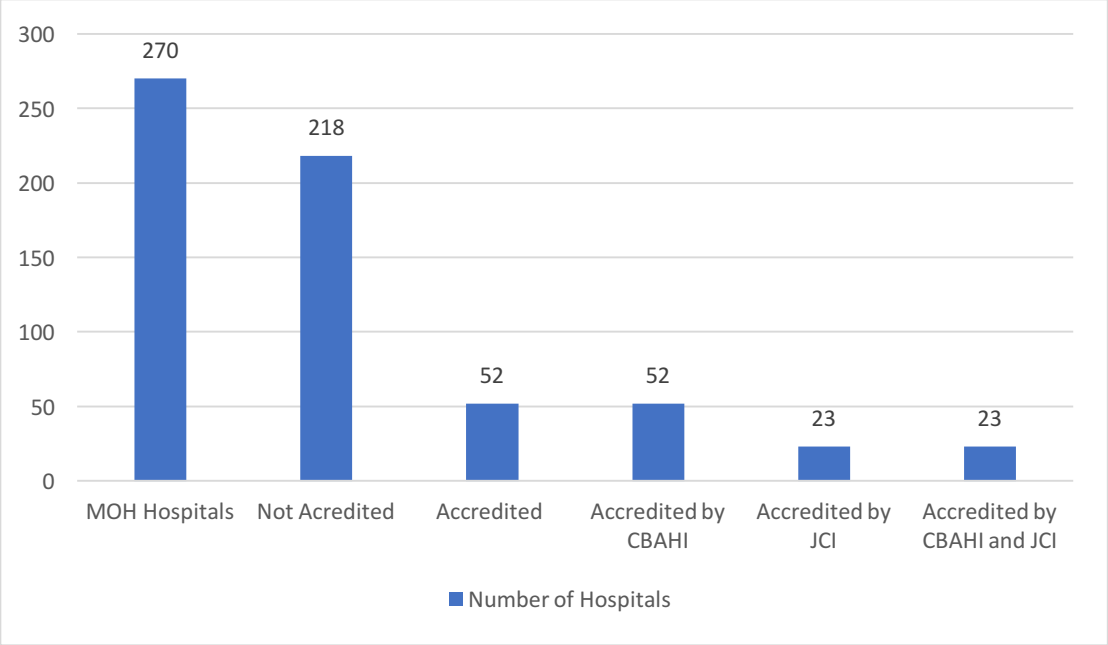

Figure -1.5 Number of MoH hospitals and their accreditation

However, despite efforts to streamline the operation of the Saudi Arabian healthcare sector and improve the delivery of healthcare, little is known about the actual impact of these accreditation programmes in accredited KSA hospitals. Furthermore, the differences between accredited and non-accredited hospitals have yet to be evaluated, even though accreditation has implied positive effects on quality of healthcare, as addressed in the global literature (Alkhenizan & Shaw, 2011).

An initial literature search revealed a dearth of published studies about the relationship between accreditation and the quality of healthcare in Saudi Arabia. However, an extensive literature search indicated that there were no published articles that combine qualitative and quantitative

data to determine whether there is a relationship between the accreditation system and the improvement of healthcare in Saudi Arabia. Moreover, there was no evidence of any comparative study undertaken between accredited and non-accredited hospitals. It is evident that this area remains under-researched in Saudi Arabia and needs to be investigated further. Therefore, the purpose of this research is to address a gap in the literature, as this will be the first study in the KSA to explore and understand the potential differences between accredited and non-accredited hospitals and determine the key areas of influence on the overall quality of care indicators.

1.11 Conclusion

This chapter has set the context of the study by identifying the background and intended research topic. The researcher's profile and interest in this area of research has also been covered. The demographic and socio-economic status of Saudi Arabia, the structure of healthcare system, the standard of healthcare in Saudi Arabia, hospital accreditation in Saudi Arabia, The Joint Commission International, National Accreditation in KSA, quality in healthcare and quality of care measures have all been discussed in detail in this section.

Finally, the chapter deliberates the quality of healthcare programmes in Saudi Arabia and the accreditation system, as approved in the Ministry of Health in Saudi Arabia. The following chapter presents findings from a literature review which has addressed literature concerning the study topic.

2 Chapter Two: LITERATURE REVIEW

2.1 Introduction

The previous chapter introduced the background and set the scene relating to how critical the role of quality in healthcare is to the KSA. It also discussed the demographic and socio-economic status of the KSA and the structure of the healthcare system, as well as the need for a measurable system for accrediting healthcare. In addition, the previous chapter discussed the influence of internationally acclaimed accreditation systems in the KSA. The chapter also outlined the aim of this research, and noted the evidence gap and the need to examine the quality differences in healthcare between accredited and non-accredited healthcare providers in the KSA.

The focus of this chapter is to critically review the currently available literature that has explored the impact of accreditation systems on the quality of healthcare. The major purpose of this review is three-fold:

To identify, review and critique the methodology of relevant studies that have explored the differences between accredited and non-accredited hospitals.

Describe and synthesise the findings from previous studies on the effectiveness of accreditation in improving quality of healthcare.

Identify further gaps in the literature relating to the impact of accreditation in improving healthcare.

This chapter is structured so as to cover three main areas of the study. Firstly, it describes the methodology of the review, including searches. It then discusses and synthesises the findings. Lastly, it discusses and identifies the gaps in the literature and the limitations of this review. The review process followed a protocol developed by the Centre for Reviews and Dissemination of the University of York (2008). The review question which guided this review was: Does hospital accreditation have impact on health care outcomes?

2.2 Search strategy

2.2.1 Initial search

The search strategy adopted in retrieving available evidence is a key component of the literature review process. In order to ensure that all the relevant literature is retrieved and to minimise bias in the review process, a systematic approach was adopted in searching the various sources (Briggs, 2008; CRD, 2008). three search techniques were used in identifying studies which explored the impact of accreditation systems on the quality of healthcare worldwide. The first step involved a comprehensive search of the relevant databases. The search terms were combined and searched in the various databases using the boolean operators "OR" and "AND" and the use of the wildcards and truncations to broaden the search, increase the precision of the search, and retrieve all available studies on the topic (Brettle, 2008; Brettle and Grant, 2003; Hart, 2001), as shown in Appendix 1. The combined search of the various databases yielded an initial search result of 255 hits that included abstracts, conference proceedings, reviews and full texts of journal articles. A further refinement of the search using specific search terms, limiting the search to full texts, those in the English language only, and articles published

between 2002 and 2015, resulted in a reduction of the result to 65 (see Appendix 1) articles which were further scanned to ensure they met the inclusion criteria, as stated below. This yielded 22 articles that met the pre-set inclusion criteria for the review.

2.2.2 Updated search

A new search was conducted in June 2018. This updated search was undertaken in order to retrieve any new studies published between 2015 and 2018 or any study that could possibly have been missed during the initial search. This search yielded a further 12 studies in addition to the initial 22. Thus, 34 studies in total were included in the systemised review.

2.2.3 Inclusion criteria

The criteria for inclusion included:

- Studies published between 2002 and 2018. This was necessary to ensure that only current studies were included in the review.
- Studies exploring the impact of accreditation on the quality of healthcare.
- Studies published in the English language only. This was necessary to avoid mistakes in the interpretation of the study reports.

2.2.4 Search terms

The following broad terms were used for the search were: accreditation, certification, licensing, quality improvement, quality of healthcare, patient outcomes, and hospitals. Relevant specific terms used were as follows: hospital accreditation, non-accreditation of hospitals, quality of healthcare, quality of patient care, patient healthcare outcomes (see Table 2-1 for details).

Table 2-1 Search terms

SEARCH KEY WORD	CONCEPT AND	CONCEPT AND	CONCEPT AND	CONCEPT AND
Subject Term	Accreditation OR	Healthcare OR	Quality improvement OR	Measurement OR
Subject Term	Certification OR	Hospital care OR	Total quality OR	Indicator OR
Subject Term	Licenses	Patient care	Quality assurance	Clinical Audit

2.2.5 Sources

The databases searched included:

- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- MEDLINE (EBSCO)
- Cochrane Library
- PubMed Central
- Psych Info
- Searches also included the websites of various national and international accreditation/ certification agencies, including the MoH.

2.2.6 Hand searching

It was not practically feasible to carry out a hand search of the journals due to the diversity of location of the studies published on the topic of research. However, a hand search of the references of books and journal articles was conducted in order to retrieve further relevant published studies.

2.2.7 Grey Literature

The term 'grey literature' describes studies that at present remain unpublished. Although it is very difficult to identify unpublished research, it clearly remains an important aspect of a literature review. A search of thesis databases to identify other authors working in the same area was also conducted. The grey literature retrieved via the websites is listed in Table 2-2 below.

Table 2-2 Grey Literature

Name of Host	**Link**
Grey literature in Europe	http://www.opengrey.eu/
Zetoc Informing research	http://zetoc.jisc.ac.uk/
E- theses online service	http://ethos.bl.uk/Home.do
Saudi Central Board for Accreditation	http://www.cbahi.gov.sa/
Joint commission international	http://www.jointcommissioninternational.org/

2.3 Results of the Search

2.3.1 Overview

Thirty-four primary studies published between 2002 and 2018 which met the inclusion criteria were identified. Five of the studies were carried out in the KSA; four were carried out in the United States; two in each of the United Kingdom, Denmark, Canada, Australia, Lebanon, and Brazil; and one in each in the following countries: Egypt, Philippines, Japan, Singapore, Turkey, United Arab Emirates, Iran, South Africa, Netherlands; Germany, Palestine, and Jordan. One study was undertaken within health institutions in the following seven European countries: Czech Republic, France, Germany, Poland, Portugal, Spain, and Turkey (Shaw et al., 2014). A full description of the 34 studies is shown in Table 2-3.

2.3.2 Study aims

The studies combined various aims to investigate a particular research question. The aims overlapped across the 34 studies, but their focus was uniquely on accreditation of healthcare facilities and the impact on various clinical measures. There was a clear aim to assess or evaluate the impact of accreditation on different aspects of quality of care.

2.3.3 Sample and sampling method

Most of the studies covered in this review included human subjects as patients, nurses and physicians, focusing on reviews of hospital records and particularly data on patient outcomes. A majority of the studies did not report on the sampling approach utilised in the recruitment of the study participants, and only five of the studies provided clear information on the sampling techniques used (Salmon et al., 2003; Al Qahtani et al., 2012; Saut et al., 2017; Barghouthi and Imam, 2018; Hijazi et al., 2018). The sampling techniques used in these studies included consecutive sampling (Al Qahtani et al., 2012), convenience sampling (Saut et al., 2017; Barghouthi and Imam, 2018), and stratified sampling (Hijazi et al., 2018).

2.3.4 Data extraction

Data extraction in a systematic review is the process by which researchers obtain relevant information on the characteristics and findings of each of the studies included in the review. According to the CRD (2008), data extraction requirements vary from review to review, however, the data extraction forms should be tailored to reflect the review question. A data extraction sheet helps researchers to identify what type of data to extract from the studies, which helps to minimise bias (CRD, 2008). A data extraction sheet was generated for the studies included in this review to present all the necessary information considered in the review, as shown in Table 2-3.

Table 2-3 Summary of the studies.

PROMOTION OF QUALITY OF PATIENT CARE STUDIES			
Author and Country	Aim of study	Study design and sample	Results
Juul et al. (2005) Denmark	To examine the availability and quality of clinical guidelines on perioperative diabetes care in hospital units before and after a randomised clinical trial (RCT) and international accreditation.	Case study. 51 units (38 surgical and 13 anaesthetic) in nine hospitals participating in a RCT in the greater Copenhagen area.	The proportion of units with guidelines increased from 24/51 (47 percent) units before the trial to 38/51 (75 percent) units after the trial. Among the 27 units without guidelines before the trial, significantly more accredited units compared to non-accredited units had a guideline after the trial (9/10 (90 percent) compared to 5/17 (29 percent)). The quality of the systematic development scale and the clinical scales improved significantly after the trial in both accredited units (both p, 0:001) and non-accredited units (both p, 0:02). Improvement of the systematic development scale was significantly higher in accredited units compared to non-accredited (p, 0:01).

Peabody et al. (2008) Philippines	To examine the effectiveness of accreditation in ensuring or promoting the quality of inpatient, paediatric care	Case scenario. Three physicians selected from each of 30 paediatric hospitals.	The authors reported that national level accreditation by a national insurance program influences quality of care. Similarly, they reported that their data show that insurance payments have a similar, strong impact on quality of care. However, these results suggest that accreditation alone may not be sufficient to promote high quality of care. Further improvements may be achieved with properly monitored and well-designed payment or incentive schemes.
Tan et al. (2004) Singapore	To identify changes in the quality indices of our cervico-vaginal cytology service preceding and following laboratory accreditation by the College of American Pathologists in 2000.	Comparison between cervico-vaginal cytology data from 1997 before accreditation and data from 2001 after accreditation.	An increased awareness of quality-related issues and participation in intra-departmental consultation/diagnostic seminars, all part of the accreditation process, have very likely contributed to the modest improvements identified in the cytology service.

Miller et al. (2005) USA	To critically examine the association between JCAHO accreditation scores and the evidence-based AHRQ IQIs and PSIs.	Hospital accreditation and performance data for the years 1997 to 1999 which were obtained from the JCAHO.	Most institutions scored high on JCAHO measures despite IQI/PSI performance variation with no significant relationship between them. Principal component analysis found one factor each of the IQIs/PSIs that explained the majority of variance on the IQIs/PSIs. Worse performance on the PSI factor was associated with worse performance on JCAHO scores (P = .02). No significant relationships existed between JCAHO categorical accreditation decisions and IQI/PSI performance.
Kwon et al. (2013) USA	To examine how much of the impact of the Centres for Medicare and Medicaid Services' national coverage decision (NCD) on bariatric surgery was driven by the restriction of reimbursements	Retrospective cohort study design. Sample involved 84620 patients who underwent bariatric surgery.	The total number of bariatric procedures, laparoscopic Roux-en-Y gastric bypass and laparoscopic adjustable band procedures increased from 42.9% and 3.1% pre-NCD, to 64.5% and 19.7% post-NCD, respectively. In the COEs, there were reductions in inpatient mortality (.3% to .1%; P ¼ .02), 90-day re-operations (.8% to.5%; P ¼ .006), complications (36.4% to 27.6%; P o .001), and re-admissions (10.8%to8.8%; P o .001), while payments remained similar ($24,543 _ $40,145 to$24,510 _

	to Centres of Excellence. (COE).		$37,769; P ¼ .9). After distinguishing temporal trend sand differences occurring at non-COEs, 90-day re-operation (0.8%; P ¼ .02) and complication rates (2.7%; P ¼ .01) were lower at the COEs after the NCD.
Almasabi and Thomas (2016) Kingdom of Saudi Arabia	To develop an understanding of the impact of CBAHI on the quality of care in Saudi Arabia.	Mixed-method study design involving surveys, documentary analysis and semi-structured interviews.	Although some improvements in procedure were recognised, CBAHI does not monitor the continuity of healthcare delivery and had no effect on quality outcomes in our analysis.
Pomey et al. (2010) Canada	To evaluate how the accreditation process helps introduce organisational changes that enhance the quality and safety of care.	Retrospective case study design. Five Healthcare organisations with different accreditation statuses.	Although accreditation itself was not necessarily the element that initiated change, the accreditation process was a highly effective tool for (i) accelerating integration and stimulating a spirit of cooperation in newly merged HCOs; (ii) helping to introduce continuous quality improvement programs to newly accredited or not-yet-accredited organisations; (iii) creating new leadership for quality improvement initiatives;

			(iv) increasing social capital by giving staff the opportunity to develop relationships; and (v) fostering links between HCOs and other stakeholders.
Devkaran and O`Farrell (2015) United Arab Emirates	To examine the impact of healthcare accreditation on hospital quality measures.	Interrupted time series analysis - a type of quasi-experimental research design.	The study findings showed that preparation for the accreditation survey results in significant improvement, as 74% of the measures had a significant positive pre-accreditation slope. Accreditation resulted in a larger significant negative effect (48% of measures) than positive effect (4%) on the post accreditation slope of performance. Similarly, accreditation had a larger significant negative change in level (26%) than positive (7%) after the accreditation survey. Moreover, accreditation had no significant impact on 11 of the 27 measures. However, there is residual benefit from accreditation three years later, with performance maintained at approximately 90%, which is 20 percentage points higher than the baseline level in 2009.

Al Awa et al. (2011) Kingdom of Saudi Arabia	To determine if the accreditation process has a positive impact on patient safety and quality of care.	Retrospective and prospective study design. A total of 119 performance indicators were collected through various processes.	Accreditation had a positive impact on patient safety and quality of care indicators.
Braithwaite et al. (2010) Australia	To determine whether accreditation performance is associated with self-reported clinical performance and independent ratings of four aspects of organisational performance.	Independent blinded assessment. 19 health service organisations employing 16448 staff treating 321289 inpatients and 1971087 non-inpatient services annually, representing approximately 5% of the	Accreditation performance was significantly positively correlated with organisational culture (rho¼0.618, p¼0.005) and leadership (rho¼0.616, p¼0.005). There was a trend between accreditation and clinical performance (rho¼0.450, p¼0.080). Accreditation was unrelated to organisational climate (rho¼0.378, p¼0.110) and consumer involvement (rho¼0.215, p¼0.377).

		Australian acute healthcare system.	
Murphy et al. (2013) UK	To track electroconvulsive therapy (ECT) clinics' compliance with standards for the administration of ECT before and after the introduction of the Electroconvulsive Therapy Accreditation Service (ECTAS) in 2003.	Retrospective audit data analysis of 10 ECT audit standards.	The authors reported that there were continuous improvements since the introduction of the accreditation service in compliance with all 10 ECT audit standards, whether measured annually or by accreditation cycle. However, the authors noted that these improvements have not been linked to changes in clinical outcomes.
Baskind et al. (2010) UK	To explore the effects of a standards-based, peer review, accreditation model on standards of care in acute	Study design was not clearly stated. However, data were collected via semi-structured telephone interviews	16 wards enrolled: four achieved immediate accreditation, and 11 subsequent accreditation. The most common reasons for initial failure of accreditation were lack of psychological therapies or 1:1 time for patients, and presence of ligature points. Ward staff perceived the accreditation process to improve

	inpatient wards and explore how staff achieved change.	(completed 8 times). Staff from the 11 wards receiving subsequent accreditation were interviewed to determine what processes had enabled accreditation.	communication, give power to negotiate for resources, clear guidance on how to practice, rewarded good practice, and led to additional unrelated improvements in care.
Chen et al. (2003) USA	To examine the association between JCAHO accreditation of hospitals, the quality of care provided by these hospitals, and survival rates among Medicare patients hospitalised for acute myocardial infarction.	No clearly stated study design. However, a hospital seeking to obtain JCAHO accreditation is visited every three years by a survey team that observes hospital operations, conducts interviews, and reviews	Hospitals not surveyed by JCAHO had, on average, lower quality (less likely to use aspirin, beta-blockers, and reperfusion therapy) and higher 30-day mortality rates than the surveyed hospitals. However, there was considerable variation within accreditation categories in quality of care and mortality among surveyed hospitals, which indicates that JCAHO accreditation levels have limited usefulness in distinguishing individual

		medical documentation for compliance with a set of standards in 45 performance areas.	performance among accredited hospitals. These findings support current efforts to incorporate quality of care in accreditation decisions.
Salmon et al. (2003) South Africa	To examine the impact of an accreditation program on: (a) the standards identified for measurement and improvement by the accrediting organisation (in this case, COHSASA), and (b) quality indicators developed by an independent research team.	The study design was a prospective, randomised control trial with hospitals as the units of analysis. The study used survey data from the COHSASA accreditation program and quality indicator data collected by an independent research team from 53 public sector hospitals.	The authors reported that two years after accreditation began, the study found that intervention hospitals significantly improved their average compliance with COHSASA accreditation standards from 38 percent to 76 percent, while no appreciable increase was observed in the control hospitals (from 37 percent to 38 percent). This improvement of the intervention hospitals relative to the controls was statistically significant and seems likely to have been due to the accreditation program. However, with the exception of nurse perceptions of clinical quality, the independent research team observed little or no effect of the intervention on the eight quality indicators.

Yildiz and Kaya (2014) Turkey	To evaluate the perceptions of nurses about the impact of accreditation on quality of care and to analyse the impact of the accreditation on quality results.	A cross-sectional, questionnaire-based survey on 258 nurses that started working in the hospital before it was accredited, who continued to work during and after accreditation and therefore experienced both the hospital's pre-accreditation and post-accreditation periods.	It was found that nurses had generally high scores for the items concerning the benefits of accreditation. There was a statistically significant positive correlation between the dependent variable (quality results) and the independent variables (benefits of accreditation and participation of employees). Regression analysis indicated that R 2 ¼ 0.461 and the extent to which the independent variables explained the dependent variable was 46.1 percent, which is a high rate. Patient satisfaction scores increased after accreditation.
Bogh et al. (2016) Denmark	To evaluate the changes over time in quality of hospital care in relation to the first	A multi-level longitudinal stepped-wedge survey design.	The quality of care in the hospital improved over time throughout the period of the study (OR = 1.002 per week; 95% confidence interval [CI]: 0.997– 1.006). In comparing the post-

	accreditation cycle in Denmark.	Data were gathered from 25 public hospitals in Denmark.	accreditation period to the accreditation period, the authors found a significantly reduced trend (OR=0.994 per week; 95% CI: 0.988-0.999). This therefore indicates that the quality of care continued to improve but at a lower rate than during the accreditation period.
Shaw et al. (2014) Seven European countries: Czech Republic, France, Germany, Poland, Portugal, Spain, and Turkey.	To explore the impact of certification and/or accreditation on quality management activities in four clinical service levels across seven European countries.	A cross-sectional, mixed-method and multi-level study design was used in the in the study. 73 acute care hospitals located in the seven participating countries were involved in the study.	Both accreditation and certification were found to be positively associated with the clinical leadership systems for patient safety, but not with clinical practice. Both systems promote structures and processes, which support patient safety and clinical organisation but have limited effect on the delivery of evidence-based patient care.

van Doorn-Klomberg et al. (2014) Netherlands	To examine the impact of accreditation on the quality of care in diabetes, COPD and cardiovascular disease patients.	A comparative observational study that involved 138 Dutch family practices was used.	The authors found improvements in the quality of primary care given to the patients. However, few of the indicators could be attributed to the accreditation programme.
(26) Saut et al. (2017) Brazil	To assess the impact of accreditation programs on Brazilian healthcare organisations.	No clear research designs. However, convenience sampling was used in recruiting quality managers in 141 Brazilian healthcare organisations.	A significant and moderate correlation was found between the status of accreditation and patient safety activities, policies and strategies, quality management activities and the involvement of professionals in the quality management programmes.
Hogden et al. (2017) Australia	To explore the views of experienced residential aged care staff on factors influencing quality of	No clear research designs. However, a focused group approach was used involving 66	The accreditation programme was perceived to maintain the minimum standards of quality throughout regulatory and social change. However, participants reported that accreditation lacks

	residential aged care, and the roles and influence of an aged care accreditation programme.	care staff from 11 care facilities.	the capacity to explicitly promote or enhance the quality of life of the residents.
El-Jardali et al. (2008) Lebanon	To assess the perceived impact of accreditation on the quality of care from nurses` perspectives.	A cross-sectional survey design was used. A total of 1048 registered nurses from 59 hospitals were involved in the study. Data were elicited using questionnaires.	The nurses perceived improvement in quality of care as a result of accreditation.
Algahtani et al. (2017) Kingdom of Saudi Arabia	To explore the perceptions of health professionals on the impact of JCIA accreditation and implementation of	A cross-sectional survey design was used for the study. The study sample comprised of 901 healthcare professionals.	From the perceptions of the health professionals, accreditation had a positive impact on the process and implementation of change in the hospital, which resulted in improvement to the delivery of patient care and other health services.

	change towards the delivery of quality patient care.		
Hijazi et al. (2018) Jordan	To examine the impact of applying quality management practices on patient centeredness within the context of healthcare accreditation, and to explore the differences in the views of various healthcare workers regarding the attributes affecting patient-centred care.	A cross-sectional survey design was used for the study. A total of 829 clinical/non-clinical hospital staff members were included in the study.	Perceiving the importance of the hospital's engagement in the accreditation process was shown to be relevant to the administrators (gamma = 0.96), nurses (gamma = 0.80), as well as to doctors and other health professionals (gamma = 0.71). However, the administrator staff (gamma = 0.31) were less likely to perceive the influence of measuring the quality improvement outcomes on the delivery of patient-centred care than nurses (gamma = 0.59), doctors and other healthcare providers (gamma = 0.55).

INFECTION CONTROL STUDIES			
Author and Country	Aim of study	Study design and sample	Results
Al Tehewy et al. (2009) Egypt	To determine the effect of accreditation of NGO health units on patient satisfaction and provider satisfaction, and to determine the output of accreditation of NGO health units on compliance to certain accreditation standards.	Quasi-experimental cluster study. 30 units already submitted for accreditation and 30 pair-matched units not programmed for accreditation.	The patients in the accredited health units expressed significantly higher satisfaction scores compared with the control group regarding cleanliness, waiting area, waiting time and unit staff, as well as regarding overall satisfaction after adjusting the effects of age, gender and education. Intervention, mean (SE) = 90.4 (1.07)

			and Control, mean (SE) =79.5 (2.7) P value < 0.001.
Sekimoto et al. (2008) Japan	To assess the impact of accreditation and other factors on infection control performance.	Questionnaire surveys sent to hospital directors of all 638 teaching hospitals in Japan.	Hospital accreditation had a significant impact on the infection control performance and infrastructure of the hospitals.

PATIENT SAFETY STUDIES			
Author and Country	Aim of study	Study design and sample	Results
Miller et al. (2005) USA	To critically examine the association between JCAHO accreditation scores and the evidence-based AHRQ IQIs and PSIs.	Hospital accreditation and performance data for the years 1997 to 1999 obtained from the JCAHO.	Most institutions scored high on JCAHO measures with no significant relationship between them, despite IQI/PSI performance variation. Principal component analysis found one factor each of the IQIs/PSIs that explained the majority of variance on the IQIs/PSIs. Worse performance on the PSI factor was associated with worse performance on JCAHO scores (P =

			.02). No significant relationship existed between JCAHO categorical accreditation decisions and IQI/PSI performance.
Kwon et al. (2013) USA	To examine how much of the impact of the Centres for Medicare and Medicaid Services' national coverage decision (NCD) on bariatric surgery was driven by the restriction of reimbursements to Centres of Excellence (COE).	Retrospective cohort study design. Sample involved 84620 patients who underwent bariatric surgery.	The total number of bariatric procedures, laparoscopic Roux-en-Y gastric bypass and laparoscopic adjustable band procedures increased from 42.9% and 3.1% pre-NCD, to 64.5% and 19.7% post-NCD, respectively. In the COEs there were reductions in inpatient mortality (.3% to .1%; P ¼ .02), 90-day re-operations (.8% to.5%; P ¼ .006), complications (36.4% to 27.6%; P o .001), and re-admissions (10.8% to 8.8%; P o .001), while payments remained similar ($24,543 _ $40,145 to$24,510 _ $37,769; P ¼ .9). After distinguishing from temporal trends and differences occurring at non-COEs, 90-day re-operation (0.8%; P ¼ .02) and complication rates (2.7%; P ¼ .01) were lower at the COEs after the NCD.
Devkaran and O`Farrell (2015) United Arab Emirate	To examine the impact of healthcare accreditation on hospital quality measures.	Interrupted time series analysis - a type of quasi-experimental research design.	The study findings showed that preparation for the accreditation survey results in significant improvement, as 74% of the measures had a significant positive pre-accreditation slope. Accreditation resulted in a larger significant negative effect (48% of measures) than positive (4%) on the post accreditation slope of performance. Similarly, accreditation had a larger significant negative change in level (26%) than a positive (7%)

			after the accreditation survey. Moreover, accreditation had no significant impact on 11 of the 27 measures. However, there is residual benefit from accreditation three years later with performance maintained at approximately 90%, which is 20 percentage points higher than the baseline level in 2009.
Al Awa et al. (2011) Kingdom of Saudi Arabia	To determine if the accreditation process has a positive impact on patient safety and quality of care.	Retrospective and prospective study design. A total of 119 performance indicators were collected through various processes.	Accreditation had a positive impact on patient safety and quality of care indicators.
Al Shammari et al. (2015) Kingdom of Saudi Arabia	To investigate the nurses' perception of the impact of hospital accreditation on patient safety in relation to nursing documentation, patient medication information, and healthcare associated infection.	A cross-sectional descriptive research design was used. 200 hospital nursing staff were chosen for the study via a simple random sampling method. Data were collected through self-administered questionnaires.	The respondents reported a high positive impact of hospital accreditation on patient safety, with an overall score of 4.17 out of 5 points on the rating scale and most answers being between agree to strong agree.

MORTALITY RATE STUDIES			
Author and country	Aim of study	Study design and sample	Results
Simons et al. (2002) Canada	To measure outcomes within a single regional trauma system after designation of trauma centres and to compare outcomes in the one accredited centre with the non-accredited centres.	Cross sectional survey. All trauma patients entered into the BC Trauma Registry from three designated trauma centres from 1992 to 1999 inclusive.	Two centres (hospitals A and C) had a high trauma caseload; one (Hospital B) had a small and diminishing caseload. Only one centre (Hospital A) developed a trauma program consistent with Canadian accreditation criteria; z scores for Centre A were consistently better than at Hospital B or C and survival odds ratios were significant.
Chen et al. (2003) USA	To examine the association between JCAHO accreditation of hospitals, these hospitals' quality of care, and survival among Medicare patients	No clearly stated study design. However, a hospital seeking to obtain JCAHO accreditation is visited every three years by a survey team that observes hospital operations, conducts interviews, and reviews	Hospitals not surveyed by JCAHO had, on average, lower quality (less likely to use aspirin, beta-blockers, and reperfusion therapy) and higher 30-day mortality rates than surveyed hospitals. However, there was considerable variation within accreditation

	hospitalised for acute myocardial infarction	medical documentation for compliance with a set of standards in 45 performance areas.	categories in quality of care and mortality among surveyed hospitals, which indicates that JCAHO accreditation levels have limited usefulness in distinguishing individual performance among accredited hospitals. These findings support current efforts to incorporate quality of care in accreditation decisions.
Nguyen et al. (2012) USA	To analyse and compare the peri-operative outcomes in bariatric surgeries conducted in accredited and non-accredited surgery centres.	No clear study designs. However, perioperative outcomes were collected from 71 accredited and 43 non-accredited surgery centres.	The rate of in-hospital mortality was significantly lower in accredited hospitals than in non-accredited hospitals (0.06% vs 0.21%). In comparison with the non-accredited hospitals, bariatric surgeries conducted in the accredited centres were also associated with shorter hospital stays (mean difference: 0.3 days; 95% CI 0.16 to 0.44). Therefore, accreditation was associated with lower rate of in-hospital mortality.

PATIENT SATISFACTION STUDIES			
Author and country	Aim of study	Study design and sample	Results
Al Tehewy et al. (2009) Egypt	To determine the effect of accreditation of NGO health units on patient satisfaction and provider satisfaction, and to determine the output of accreditation of NGO health units on compliance to certain accreditation standards.	Quasi-experimental cluster study. 30 units already submitted for accreditation and 30 pair-matched units not programmed for accreditation.	The patients in the accredited health units expressed significantly higher satisfaction scores compared with the control group regarding cleanliness, waiting area, waiting time and unit staff, as well as regarding overall satisfaction after adjusting the effects of age, gender and education. Intervention, mean (SE) = 90.4 (1.07) and Control, mean (SE) =79.5 (2.7) P value < 0.001.
Al-Qahtani et al. (2012) Kingdom of Saudi Arabia	To evaluate whether accredited hospitals maintain quality and patient safety standards over the accreditation cycle by testing a life cycle explanation of	Cross-sectional study design. As the total sample required was 420 subjects, 210 subjects from each study site participated. For both accredited and non-accredited hospitals, a total of 210 patient questionnaires out of 230 and 250 were	The results showed statistically significant differences in patients' satisfaction between the accredited and non-accredited hospitals in Clinical Care Facilities, Professionalism in Clinical Ultrasound, Professionalism in the Laboratory, and Overall Satisfaction. Patients in the accredited hospital were more

	accreditation on quality measures.	completed, yielding response rates of 91. A total of 420 patients were surveyed.	satisfied with all above-mentioned subscales, except the laboratory subscale, which scored higher at the non-accredited hospital. Patients at the accredited hospital were more content with the quality of healthcare provided for them at Clinical Care Facilities, Professionalism in Clinical Ultrasound, and indicated higher overall satisfaction than those at the non-accredited hospital.
Haj-Ali et al. (2014) Lebanon	To explore the impact of the national accreditation system in Lebanon on patient satisfaction.	An explanatory cross-sectional study was used for the study. Six hospitals which were grouped into two were studied. The first group of hospitals were highly classified hospitals which were more compliant with the accreditation standards and poorly-classified hospitals which were less compliant of the standards. The SERVQUAL or RATER was used in in the survey of 276 patients from across all the hospitals.	There was no statistically significant association between hospital accreditation classification and patient satisfaction. However, the structural aspects of the hospitals such as the physical facilities and equipment were found to be associated with patient satisfaction.

Sack et al. (2011) Germany	To assess the relationship between patient satisfaction and accreditation status.	No clear design. 44418 patients discharged from 73 different hospitals were involved in the study.	66.3% of all patients in the study recommended their hospital to others. However, the recommendation was not related to the accreditation status in the univariate analyses (odds ratio (OR) for accreditation ('yes') and recommendation ('yes') 0.99, 95% confidence interval (CI) 0.85–1.16, P ¼ 0.92).
Barghouthi and Imam (2018) Palestine	To assess the level of patient satisfaction in accredited and non-accredited hospitals in Palestine.	Quantitative descriptive cross-sectional design used to compare patient satisfaction in two Palestinian hospitals. The sample size was 332 inpatients, who were recruited by the researcher through a convenience sampling method.	The patients have a high level of satisfaction with a total mean of (4.34) out of (5) and a (0.70) standard deviation. The results indicated that there are statistically significant differences at the level ($P \leq 0.05$) between the means of patient satisfaction relating to patient demographic characteristics (with the exception of

			gender), and also indicated that there are no statistically significant differences related to hospital characteristics.
Mohebbifar et al. (2017) Iran	To assess the association between hospital accreditation and patient satisfaction.	A cross-sectional study of seven hospitals. Sample was 90 patients in a hospital.	The result of the study shows a strong relation between satisfaction scores and length of stay, hospital type, human resources condition, information, communication and education, medical equipment and physical structure, accessibility to clinical services, emotional support, management and coordination of care.

2.4 Evaluating the quality of the studies

Evidenced-based practice is based focussed on high-quality research evidence and is the cornerstone of best clinical practice (Facchiano and Snyder, 2012). Conducting a critical appraisal of research evidence reports helps to expose the strengths and weaknesses of such studies and provides an indication of whether the study had been unduly influenced by either the research design or its conduct (Centre for Reviews and Dissemination [CRD], 2008). Ultimately, the assessment of the quality of research papers included in a review helps to answer the question of whether the studies are sufficiently robust to guide treatment, policy decisions, diagnostic or prevention (CRD, 2008).

There is no singular approach to the assessment of methodological quality in systematic reviews (Parahoo, 2014). However, the best approach employed in a systematic review will depend on contextual, methodological and pragmatic considerations (CRD, 2008). Several instruments are available for the evaluation of the quality of research studies (Hawker, Payne, Kerr, Hardey and Powell, 2002; Higgins and Green, 2008; Brink and Louw, 2012; Creswell, 2013; Parahoo, 2014). Of the many instruments, Hawker et al.'s (2002) Assessment Tool (HAT) was used in the critical appraisal of the studies included in the review. The HAT was chosen for the appraisal because unlike other appraisal tools such as the Critical Appraisal Skills Programme (CASP), which has different formats for each research design (CASP, 2013), the HAT has only one format for all study designs. This therefore allows for consistency and ensuring rigour in the entire appraisal process. The HAT consists of the assessment of nine categories (Appendix 2): abstract and title, introduction and aims, methods and data, sampling,

data analysis, ethics and bias, findings, transferability, implications and usefulness (Hawker et al., 2002).

The assessment is based on a point system for each category, which ranges from one to four; with one indicating a very poor score, and four indicating a good score for the category. This therefore allows for a maximum score of 36 points for a study. Each of the studies included in this systematic review was awarded a total score which falls into one of the following categories: very poor quality (0-10 points), poor quality (11-20 points), fair quality (21-30 points), and good quality (31-36 points) Table 4.2.

2.5 Results of the review

Twenty-seven of the studies were identified as good, whilst seven were found to be of fair quality. All 34 studies were therefore included in the systematic review. Table 2.4 summarises the quality of the studies included in this review based on Hawker et al.'s (2002) Assessment Tool. The findings of the studies with similar themes were further grouped together and discussed in the next section.

Table 2-4 Quality of the study

S/NO	Study	Quality score /36
1	Al Tehewy et al. (2009)	32 (Good)
2	Juul et al. (2005)	28 (Fair)
3	Peabody et al. (2008)	32 (Good)
4	Nguyen et al. (2012)	34 (Good)
5	Simons et al. (2002)	30 (Fair)
6	Tan et al. (2004)	30 (Fair)
7	Miller et al. (2005)	31 (Good)
8	Kwon et al. (2013)	34 (Good)
9	Almasabi and Thomas (2016)	32 (Good)
10	Pomey et al. (2010)	33 (Good)
11	Al Awa et al. (2011)	30 (Fair)
12	Devkaran and O`Farrell (2015)	36 (Good)
13	Al-Qahtani et al. (2012)	34 (Good)
14	Murphy et al. (2013)	32 (Good)
15	Baskind et al. (2010)	29 (Fair)
16	Chen et al. (2003)	27 (Fair)
17	Salmon et al. (2003)	32 (Good)
18	Yildiz and Kaya (2014)	32 (Good)
19	Sekimoto et al. (2008)	34 (Good)
20	Haj-Ali et al. (2014)	32 (Good)
21	Al Shammari et al. (2015)	35 (Good)
22	Bogh et al. (2016)	32 (Good)

23	Shaw et al. (2014)	32 (Good)
24	Van Doorn-Klomberg et al. (2014)	30 (Fair)
25	Saut et al. (2017)	33 (Good)
26	Hogden et al. (2017)	34 (Good)
27	El-Jardali et al. (2008)	34 (Good)
28	Gabriel et al. (2018)	35 (Good)
29	Algahtani et al. (2017)	34 (Good)
30	Hijazi et al. (2018)	35 (Good)
31	Sack et al. (2011)	33 (Good)
32	Barghouthi and Imam (2018)	36 (Good)
33	Mohebbifar et al.(2017)	33 (Good)
34	Braithwaite et al. (2010)	32 (Good)

Those findings/themes from the 34 studies included in this systematic review have been combined and discussed under the following headings:

- Promotion of quality of patient care
- Patient safety
- Patient satisfaction
- Infection control
- Accreditation and mortality rate

2.6 Promotion of quality of patient care

Out of the 34 studies included in this review, 23 reported on the impact of accreditation or certification on the quality of patient care (Chen et al., 2003; Salmon et al., 2003; Tan et al., 2004; Juul et al., 2005; Miller et al., 2005; El-Jardali et al., 2008; Peabody et al., 2008; Baskind et al., 2010; Braithwaite et al., 2010; Pomey et al., 2010; Al Awa et al., 2011; Kwon et al., 2013; Murphy et al., 2013; Shaw et al., 2014; van Doorn-Klomberg et al., 2014; Yildiz and Kaya, 2014; Devkaran and O`Farrell, 2015; Almasabi and Thomas, 2016; Bogh et al., 2016; Algahtani et al., 2017; Hogden et al., 2017; Saut et al., 2017; Hijazi et al., 2018). Sixteen of these studies were found to be of good quality, as shown in Table 2.3. The remaining seven studies were found to be of fair quality. However, it is interesting to see that the impact of accreditation of healthcare facilities on the promotion of quality patient care, as reported in the various literature, is inconsistent or inconclusive.

While the five studies which involved the collection of data on quality indicators found accreditation to impact positively on the quality of patient care, this association was reported to be generally weak (Peabody et al., 2008; Braithwaite et al., 2010; Al Awa et al., 2011; Shaw et al., 2014; Devkaran and O`Farrell, 2015). For instance, Peabody et al. (2008) examined the impact of physician accreditation and health insurance payments on the quality of care. The authors found that accreditation alone may not be sufficient to improve the quality of patient care and attributed the improvement in quality patient care to the insurance payments. Similarly, Devakaran and O`Farrell (2015) found that although accreditation improved compliance with the required clinical practice standards, improvements to clinical processes were found only within the period of accreditation. Although this study is limited by the fact

that it is a single centre study, the recruitment of a large sample size, the use of primary data, and the use of a large number of quality measures add to the strength of the study. All the studies which found positive association between accreditation and quality of patient care were of good quality, except two which were of fair quality (Al Awa et al., 2011; Devkaran and O`Farrell, 2015).

Six out of the 23 studies examined the impact of accreditation on quality of patient care from the perspectives of the healthcare practitioners (El-Jardali et al., 2008; Bakind et al., 2010; Yildiz and Kaya, 2014; Algahtani et al., 2017; Hogden et al., 2017; Hijazi et al., 2018). While four of these studies gathered their data using quantitative approaches through self-administered questionnaires (El-Jardali et al., 2008; Yildiz and Kaya, 2014; Algahtani et al., 2017; Hijazi et al., 2018), two were conducted using qualitative approaches with data gathered through semi-structured interviews (Baskind et al., 2010) and focus group interviews (Hogden et al., 2017). All these studies, which explored the impact of accreditation on quality of patient care from the perspectives of healthcare practitioners, found accreditation to impact positively on the quality of patient care. For instance, El-Jardali et al. (2008) identified that nurses perceived improvement in the quality of the care rendered to patients to be a direct result of accreditation.

However, significant differences existed in perceived improvement in the quality of care in relation to hospital size. In small and the medium-sized hospitals, better results were reported for the various scales and subscales except in the subscale of leadership, commitment and support. The findings of this study are of particular importance, since evidence shows that larger organisations are more disposed to benefit from accreditation and thus add more value

to their output, while smaller organisations are more likely to be overwhelmed by the cost of compliance and surveys considering their overall budgets (Montagu, 2003). In addition, El-Jardali (2003) has shown that smaller organisations usually have a similar culture and staff that have shared values, while large-sized hospitals tend to be more organised in hierarchy and bureaucracy, which could pose a challenge to the implementation of quality programmes.

While this study involved a good sample size, it is argued that the views or opinions of individuals on an idea or issue cannot be judged using a questionnaire interview, but instead must be acquired through a qualitative approach using a face-to-face interview (Parahoo, 2014). In addition, the findings represent the views of nurses and do not include other healthcare professionals who are part of the healthcare system. This is similar to the findings of Yildiz and Kaya's (2014) study that investigated the perception of 258 nurses in Turkey on the impact of accreditation on the quality of patient care through the use of a questionnaire-based survey. Most of the surveyed nurses reported that accreditation was beneficial in the promotion of quality patient care. However, again, this finding does not include other healthcare professionals. Although these studies found accreditation to impact on the quality of patient care, the lack of data representing indicators of quality improvement in care and patient outcomes weakens their constructs, and therefore findings from healthcare practitioners` views cannot be judged to represent clinical outcomes.

Three out of the 23 studies (Salmon et al. 2003; Juul et al., 2005; Braithwaite et al., 2010) evaluated the impact of accreditation on quality of patient care by comparing accredited and non-accredited healthcare institutions. The impacts of accreditation on the quality of patient care, as found in the three studies, were inconsistent. While Juul et al. (2005) found accreditation led to significant improvement in the quality of clinical guidelines used in

perioperative diabetic care, Salmon et al. (2003) found no improvement in the quality indicators after accreditation of the healthcare facilities.

As acknowledged by the authors, the lack of any observed impact of accreditation on the quality indicators could be either as a result of the research design used in the study or the characteristics of the accreditation programme itself. This is because the time allowed for the measurement of the outcomes following the introduction of the accreditation programme was relatively short. Therefore, allowing more time before the measurement of the quality indicator outcomes could have yielded different results. Braithwaite et al. (2010) found a positive correlation between accreditation and clinical performance. However, the authors also noted that this relationship is weak and should be taken with caution. The findings of the study cannot be generalised as it is weakened by its small sample size, as indicated by Polit and Beck (2004), and Parahoo (2014).

Four out of the 23 studies (Tan et al., 2004; Kwon et al., 2013; Murphy et al., 2013; Bogh et al., 2016) evaluated changes in the quality of care before and after the introduction of accreditation programmes. Tan et al. (2004) evaluated changes in the quality indices of a cervicovaginal cytology service in Singapore, before and after the laboratory accreditation by the relevant accreditation agency. The authors found an improvement in all aspects of the cytology services following the accreditation exercises. Similarly, Kwon et al. (2013) found that accreditation helps in the reduction of length of hospital stay and operative complications following bariatric surgeries. Murphy et al. (2013) evaluated compliance with the standards of the introduction of electroconvulsive therapy (ECT) before and after an accreditation programme. The authors found that there were continuous improvements in compliance with all ten ECT audit standards since the introduction of the accreditation programme.

However, this improvement in compliance did not result in changes in clinical outcomes. It can be argued that this improvement in compliance with standards could be a mere coincidence, or possibly be due to factors other than the accreditation programme itself. Bogh et al. (2016) carried out a multi-level, longitudinal study of process performance measures to assess the impact of the accreditation programme in all Danish public hospitals. The quality of hospital care was identified by the authors to improve over time throughout the period of the study. However, the trend of the improvement declined significantly post-accreditation, in comparison to the accreditation period. The use of a longitudinal design in the conduct of this study adds to its strength, as it offered the opportunity to monitor the impact of the accreditation programme on the quality of care.

Although most of the 23 studies reported inconsistent findings on the impact of accreditation on quality of care, five of the studies (Chen et al., 2003; Miller et al., 2005; Pomey et al., 2010; van Doorn-Klomberg et al., 2014; Almasabi and Thomas, 2016) explicitly reported no clear association between accreditation and quality of care.

2.7 Patient safety

Five out of the 34 studies included in this review evaluated the impact of accreditation programmes on patient safety (Miller et al., 2005; Al Awa et al., 2011; Kwon et al., 2013; Al Shammari1 et al., 2015; Devkaran and O`Farrell, 2015). Two of these studies (Miller et al.,

2005; Kwon et al., 2013) were of good quality, while two (Al Awa et al., 2011; Devkaran and O`Farrell, 2015) were of fair quality, as can be seen from Table 2-3.

Miller et al. (2005) examined the relationship between the Joint Commission on Accreditation of Healthcare Organisations' (JCAHO) scores and the evidence-based patient safety indicators (PSIs). The authors found no significant relationship between accreditation and patient safety indicator performance. In contrast, Kwon et al. (2013) studied the impact of accreditation of hospitals on the cost as well as safety of bariatric surgical procedures. The authors found improvement in the patient safety measures after accreditation. Al Awa et al. (2011) conducted a 4-year retrospective and prospective study to examine the impact of accreditation on patient safety. The authors found that accreditation had a positive impact on patient safety indicators.

Similarly, Al Shammari et al. (2015) explored the impact of accreditation on patient safety from nurses' perspective in relation to nursing documentation, patient medication information and healthcare associated infection. The authors found that accreditation had a high positive impact on the three aspects of patient safety examined, with an overall score of 4.17 out of the 5 points in the rating scale. While the study findings demonstrate a positive correlation between accreditation and patient safety, its generalisation is limited by the fact that it did not include other members of the healthcare teams as it was restricted to nurses` views only. In addition, the findings are weakened because human perspectives, opinions or views do not represent an objective picture of the clinical outcomes. It is therefore inconclusive whether accreditation promotes patient safety.

2.8 Patient satisfaction

Six out of the 34 studies included in the review examined the impact of accreditation on patient satisfaction (Al Tehewy et al., 2009; Sack et al., 2011; Al Qahtani et al., 2012; Haj-Ali et al., 2014; Mohebbifar et al., 2017; Barghouthi and Imam, 2018). Five of these studies were of good quality (Sack et al., 2011; Al Qahtani et al., 2012; Haj-Ali et al., 2014; Mohebbifar et al., 2017; Barghouthi and Imam, 2018), and one was of fair quality (Al Tehewy et al., 2009). Two of the six studies found positive correlation between accreditation and patient satisfaction (Al Tehewy et al., 2009; Sack et al., 2011; Al Qahtani et al., 2012; Barghouthi and Imam, 2018). Al Tehewy et al. (2009) evaluated the impact of accreditation on patient satisfaction by comparing 30 accredited non-governmental healthcare units and 30 non-accredited non-governmental healthcare units in Egypt. The patient satisfaction questionnaires were used to elicit the satisfaction scores of the patients in healthcare units. The authors found that the accreditation of the healthcare units had a positive effect on patient satisfaction. However, this finding must be taken with caution as the authors did not report pre-accreditation measures. This therefore makes it difficult to assess the true change in the patient satisfaction scores after the accreditation programme. Similarly, Al Qahtani et al. (2012) conducted a cross-sectional study that evaluated the impact of hospital accreditation on patient satisfaction with obstetrics and gynaecology services in Saudi Arabia. The study involved two accredited and two non-accredited hospitals with a view to comparing and contrasting the possible impact of accreditation on patient satisfaction. A total of 420 patients were surveyed using a 5-point Likert patient satisfaction scale. The authors found statistically significant differences in patient satisfaction between the accredited and the non-accredited hospitals in the aspects of professionalism in clinical ultrasound, clinical care facilities, and professionalism in the laboratory. The patients in the accredited hospitals showed greater satisfaction in all the

subscales mentioned above except the laboratory subscale, which, surprisingly, scored higher in the non-accredited hospital. Although the findings of this study support the need for accreditation of healthcare facilities, I believe they cannot be generalised due to the small sample size employed (Parahoo, 2014).

Four of the six studies found no statistically significant difference between accredited and non-accredited hospitals (Sack et al., 2011; Haj-Ali et al., 2014; Mohebbifar et al., 2017; Barghouthi and Imam, 2018). Sack et al. (2011) surveyed 78 hospitals to assess the impact of accreditation on patient satisfaction using a validated questionnaire. Although 66.3 percent of the participants recommended the hospitals to others, this recommendation was not related to the accreditation status of the hospitals. The three other studies (Haj-Ali et al., 2014; Mohebbifar et al., 2017; Barghouthi and Imam, 2018) did not find a statistically significant association between accreditation and total patient satisfaction; they did, however, report improvements in some domains of satisfaction. For instance, Haj-Ali et al. (2014) explored the impact of hospital accreditation on patient satisfaction across six hospitals in Lebanon using the Service Quality (SERVQUAL) tool, which assesses five dimensions of quality (assurance, reliability, empathy, tangibility and responsiveness).

The study showed that the majority of patients (76.34%) surveyed were dissatisfied with the quality of services rendered in all six hospitals. Although no statistically significant association was found between hospital accreditation and patient satisfaction, the tangibility dimension, which represents the hospitals` structural aspects such as equipment and physical facilities, was found to be associated with patient satisfaction. This finding therefore suggests that accreditation is not the only driver of patient satisfaction and that there is a need for hospitals

to adopt complementary strategies to promote patient satisfaction in healthcare services. Similarly, while Mohebbifar et al. (2017) found a significant negative association between accreditation of hospitals and overall patient satisfaction, an association between accreditation and the domain of emotional support in the patients was identified. In addition, Barghouthi and Imam (2018) compared patient satisfaction in two Palestinian hospitals to assess the impact of accreditation using the SERVQUAL tool. The results showed statistically significant differences at the level ($P \leq 0.05$) between the means of patient satisfaction that were related to patient demographic characteristics (except in gender). For all the dimensions of satisfaction, the patients expressed greater satisfaction with non-accredited hospitals than accredited.

Four of the six studies which evaluated the impact of accreditation on patient satisfaction did not find a positive association overall, which suggests that accreditation does not influence patient satisfaction in healthcare services.

2.9 Infection control

Only two of the studies examined the impact of accreditation status of healthcare services on infection control (Sekimoto et al., 2008; Al Tehewy et al., 2009). These two studies were of good quality, as shown in Table 2.4. Sekimoto et al. (2008) conducted a survey of all 638 teaching hospitals in Japan to ascertain the impact of hospital accreditation on infection control performance. The authors gathered the data for the study through self-administered questionnaires which were sent out to hospital directors. The self-administered questionnaires were developed based on the accreditation standards of the relevant agency. The study showed greater improvement in the infection control infrastructure and performance of accredited hospitals compared to non-accredited. Although this study demonstrated that the accreditation

of health facilities provides an opportunity to improve infection control measures, this finding is not generalisable because the hospitals in this study are teaching hospitals, which clearly would have relatively better financial and human resources than general hospitals. It therefore does not represent smaller hospitals with fewer resources to ensure better infection control measures. In addition, the method of data collection employed in the study is open to bias since the questionnaires were based on self-assessment. It therefore does not represent an objective measure of the infection control performance of the hospitals.

Similarly, Al Tehewy et al. (2009) explored the impact of accreditation on infection control by comparing 30 accredited and 30 non-accredited hospitals in Egypt. The authors gathered the data through self-administered questionnaires. The study showed a positive association between hospital accreditation and infection control due to compliance with the accreditation standards by the hospitals. However, the study was found to be limited by the small sample size, which therefore makes it difficult to generalise the findings.

2.10 Accreditation and mortality rate

Three studies reported on the impact of accreditation on hospital mortality rates (Simons et al., 2002; Chen et al., 2003; Nguyen et al., 2012). One of the three studies (Nguyen et al., 2012) was of good quality, while the other two (Simons et al., 2002; Chen et al., 2003) were of fair quality. However, all three studies found positive association between hospital accreditation and reduction of hospital mortality rates.

Simons et al. (2002) examined the impact of accreditation on health outcomes in three designated trauma centres in Canada to compare the outcomes with standard benchmarks and to evaluate possible institutional differences. The study found that only the hospital which

developed a trauma programme that was consistent with the Canadian accreditation criteria had a better survival rate (reduced mortality rate), reduced length of hospital stay, cost, and better than in those that were not accredited. Chen et al. (2003) examined the association between accreditation of hospitals, quality of care and survival among Medicare patients who were hospitalised for acute myocardial infarction. The study showed that the hospitals that were not surveyed by the relevant accreditation agency had lower quality of care and higher mortality rates than those that were surveyed by the agency.

Nguyen et al. (2012) analysed the perioperative outcomes in accredited and non-accredited bariatric surgery centres to ascertain the possible impact of accreditation on outcomes. 89.2 percent of the cases were performed at 71 accredited centres, while 10.8 percent of the cases were performed in 43 non-accredited centres. The study found significantly lower rates of in-hospital mortality in the accredited centres (0.06% vs 0.21%). In addition, when compared with the non-accredited centres, the bariatric surgery performed at the accredited centres was associated with shorter hospital stays (mean difference 0.3 days; 95% CI 0.16 to 0.44) and lower cost (mean difference, $3,758; 95% CI, $2,965 to $3,952). This finding, however, must be reviewed with caution because the authors reported the unavailability of patient-level data to enable them to carry out comparative analyses of the length of hospital stay and the cost of treatment. Therefore, the non-involvement of covariate adjustments in the analysis could mean that the in-hospital mortality reported could have been due to other confounding factors.

2.11 Strengths and limitations of the review

This review excluded studies published in languages other than English. The omission of the studies published in Arabic for instance was deliberate to avoid incorrect interpretations and meanings in the research report during translation. It is however noted however, that this omission of such studies could have limited the findings of the literature review.

2.12 Conclusions

It is important that twenty-three studies reported inconsistent findings on the impact of accreditation on quality of care. Sixteen of the studies were found to be of good quality while 7 were of fair quality. Overall, while five studies found positive association between hospital accreditation and quality of patient care, this association was reported as generally weak. Also, only three studies compared accredited and non-accredited hospitals and they reported inconsistent evidence on the impact of accreditation on quality of care.

Five out of the 34 studies included in the review evaluated the impact of accreditation programmes on patient safety. Only two of the sties found a positive association between accreditation and patient safety. It is therefore important to note that the findings were inconclusive as to whether accreditation actually promotes patient safety.

Six out of the 34 studies included in the review examined the impact of accreditation on patient satisfaction. Two of the six studies found positive correlation between accreditation and patient satisfaction while four studies found no statistically significant difference between accredited and non-accredited hospitals with respect to patient satisfaction.

Only two of the studies examined the impact of accreditation status of healthcare services on infection control. No strong evidence of association between accreditation and infection control was found in the two studies.

Three studies reported on the impact of accreditation on hospital mortality rates. One of the three studies was of good quality, while the other two were of fair quality. All the three studies found positive association between hospital accreditation and reduction of hospital mortality rates. However, the evidence was felt too weak to make a conclusion on the impact of accreditation on mortality rates.

In conclusion, no study has found a positive impact of hospital accreditation on healthcare outcomes. Only five out of the thirty-four studies were conducted in the Kingdom of Saudi Arabia and all these studies collected data on few health care outcomes which were not comprehensive enough. Also, none of the studies from KSA examined the differences in the quality of care between accredited and non-accredited hospitals. This gap in the literature of any studies evaluating the impact of accreditation on healthcare outcomes in the Kingdom of Saudi Arabia provides a very strong rationale and makes it pertinent to carry out the current study to examine if there are any differences between accredited and non-accredited MoH hospitals in KSA and make future recommendations for stakeholders.

3 Chapter Three: Methodology

3.1 Introduction

The previous chapters discussed the issues with measuring healthcare quality in the KSA, firstly in the context of the KSA and its healthcare system, and then by reviewing up to date literature regarding the differences between accredited and non-accredited hospitals.

This chapter outlines the methodology and the processes used to conduct the study and achieve the study aims and to answer the research questions. The chapter is therefore looking at the philosophy and paradigm used in this study, the research design and rationale, and the overall design of the study. The chapter will also discuss the sampling methods used, the data collection and management, the ethical considerations associated with this research, and the consideration of data analysis procedures. The methodology was designed in-order to answer the overall research question: are there are any potential differences in the quality of care provided by accredited and non-accredited hospitals MoH hospitals in the KSA? Including the following specific questions:

- Does the accreditation process in KSA create a measurable difference in the quality of care indicators in accredited and non-accredited hospitals?
- How does the accreditation process influence the perceived quality of healthcare in MoH hospitals?
- What are the similarities and differences in perceived quality of healthcare in accredited and non-accredited MoH hospitals in KSA?

The quantitative research hypothesises is that the accreditation programme, when implemented, leads to significant quality clinical indicators, and thus a measurable positive difference may exist between accredited and non-accredited hospitals.

3.2 Philosophy of the study

According to Durrant-Law (2005), research needs to be tested in terms of how it adds to knowledge by stating how it can demonstrate ontological, epistemological, and methodology viewpoints (Durrant-Law, 2016). This section therefore explores the three different philosophies of knowledge, namely: ontology, epistemology, and methodology (Creswell, 2007; Saunders et al., 2016), with regards to how they can help in the process of addressing the overall research aim and answering the research questions.

According to Bryman (2012), ontology is centred on the existence of knowledge, and how that existence can be understood. It is a social philosophy that relates to "being"; what knowledge is out there and how that knowledge exists not only in terms of repositories, but also the interaction between areas where knowledge exists (Crotty, 1998; Durrant-Law, 2016). It implies that my understanding of the encapsulation of knowledge creates an ontological philosophical standpoint that I can use to generate the reality of the existence of knowledge (Durrant-Law, 2016). Therefore, ontology forms a nature of reality in such a way that the belief about being could be reflected in my actions as a researcher as stated by Saunders et al., (2016). Ontology is critical to this study because from the onset I have observed that healthcare quality can be measured using either qualitative or quantitative methods; which is an acceptable standpoint (Saunders et al, 2016).

According to Landauer and Rowlands (2001), the philosophical knowledge of epistemology states that 'how people gather information and gain knowledge is critical to the process of research in terms of how reliable, valid and valuable it can be'. Epistemology does not only seek to establish how knowledge is acquired, but also explores methods of constructing knowledge, the attributes of logical reasoning that lead to the creation of concepts, ideas and conclusions on subject matters that have been researched (Landauer and Rowlands, 2001).

Saunders et al. (2009) were in support of the view that epistemology refers to how researchers and the public can gather information and be able to present an outcome that leads to the generalisation of knowledge. The key issue with epistemology as a philosophy is "how" the process of gathering information is conducted. The implication of epistemology to a research project such as a comparison of the accredited and non-accredited hospitals in the KSA is that it enables the research to be conducted using internationally accepted protocol; else, the outcome of the research could be invalid. This means that how the research is structured would be influenced by the philosophy of epistemology (Durrant-Law, 2005; 2016), otherwise, the knowledge that exists about the healthcare quality in the KSA could be doubted and become worthless.

Both ontology and epistemology had a large influence on the methodological considerations for this study. Firstly, I realised that ontology is critical because it has an influence on how "being" cascades to the process of selecting the ideal approach to the research process. Healy and Perry (2000) argued that ontology allows a researcher to be selective of the sources of knowledge as well as be able to justify the most ideal methodological approach to the research in order to maximise the validity and reliability of the outcome. For this study I have applied ontology from a literature search to the collection of primary data through the methodology that I have adopted.

Secondly, I observed that the philosophy of epistemology had a critical role in the methodology as well as the research process, because the establishment of how to conduct the research impacts the true means of questioning the outcome of the research (Saunders et al., 2009). Meaning that procedure of the research is critical to validate the outcome, and the knowledge created carries an audit trail of the steps that were taken by the researchers (Cruise 1997).

Saunders et al. (2009) argue that depending on the research philosophy that one adopts, the outcome would be clearer if there is a clear linkage to epistemology. For the research on the measurement of healthcare quality in the KSA, the philosophy of epistemology is critical to the creation of a reliable and valid protocol that can stand international scrutiny.

Thus, I adopted a pragmatist approach, which, according to Creswell (2009), allows a researcher to gain knowledge from the reality as well as allow for plausible resolutions from the same reality. Using the aim and the research questions, I designed the research and its paradigm starting with the measuring of healthcare quality indicators in the work place. I then anchored the research process using ontology and epistemology as the main guide to the methodological approach of this study.

3.3 Research paradigm

Section 3.2discussed that the individual's beliefs about the existence of knowledge (ontology) need to be matched with the perception of the validity of how knowledge is gathered (epistemology). This section continues further by exploring the research paradigms necessary to undertake the research study. Two main research paradigms were identified: the positivist paradigm, and the phenomenological (interpretive) paradigm (Creswell, 2009).

Bryman and Bell (2015, p.28) have further defined positivism as: "An epistemological position that advocates the application of the methods of the natural sciences to the study of social reality." My philosophical perspective will determine the logical strategy for the study. The quantitative part of this study (Part 1) will use a positivist paradigm in a process that adopts a deductive approach, beginning with theories and concepts on accreditation which, when

implemented, translate to significant positive outcomes, improvement in quality of healthcare, and reduction in harm. It is predicted that positive differences between accredited and non-accredited hospitals will be evident. Collected data may be able to prove or disprove the hypothesis (Bryman, 2015).

An interpretive approach was selected for the qualitative (Part 2) of this study. Interpretive phenomenology attempts to expose the meaning that is hidden behind phenomena through the process of listening to the participants' experience and interpreting their story (Sorrel & Remond, 1995). Therefore, I have provided an adequate exploration of the various participant perspectives from accredited and non-accredited hospitals through an interpretive approach, as addressed by the research question in the qualitative part of the study. This data has been gathered using an inductive approach, whereby perceptions on quality of care were collected by interviewing hospital staff in higher and middle authority positions. The inductive research approach is defined in Mosby's (2013, p.919) dictionary of medicine, as: "…the analysis of data and examination of practice problems within their own context rather than from a predetermined theoretical basis. The approach moves from the specific to the general.''

Collecting and analysing the qualitative and the quantitative research data concurrently and merging the findings/results for discussion as was done in this study is known as a convergent parallel research design, which is in line with positivist and interpretive paradigms (Creswell and Plano Clark, 2001). Creswell & Plano Clark (2011, p.78) redress this philosophy as: "Instead of trying to "mix" different paradigms, we recommend that researchers who use this design work from a paradigm such as pragmatism to provide an "umbrella" paradigm to the research study". Creswell & Plano Clark (2011) suggest that pragmatism is well matched to a

design that merges the two research methods in-order to achieve a greater understanding of the issue being investigated.

3.4 Research design: rationale

This study used a mixed-method approach. According to Creswell and Plano Clark (2007); Jonson et al. (2007), the mixed-method approach was first used by Campbell and Fiske (1959) when they employed a number of 'quantitative' measures in one single study. From the result of that study, Webb et al. (1966) explicated that combining two or more methods can help to overcome bias and improve the generalisability of a study. This process of combining methods is known as 'triangulation'. In addition, some researchers tend to use a multi-method approach without limiting themselves to any type of methodology design to benefit from the triangulation (Tashakkori & Teddlie, 2003).

The use of the mixed-method approach has instigated debate among scholars. While quantitative scholars state: "measurement enables us to transcend our subjectivity" (Bradley and Schaefer 1998:108), qualitative researchers retort: "qualitative methods are more faithful to the social world than quantitative ones" (Gergen and Gergen, 2000:1027). The debate between the scientists started during the 1970s to 1980s between quantitative and qualitative in epistemological differences make them inconsistent. Therefore, the triangulation floats on the surface and becomes visible to justify the use of multi-method approach. At this point the methodologists realised that they can reimburse the weaknesses of each paradigm and exploit their strengths. Some have gone on to use the mixed-method approach as declaration of the end

of incompatibility between the two paradigms, resulting in the acceptance of mixed-methods as third approach in addition to quantitative and qualitative, under the name of "the third methodological movement" (Tashakkori and Teddlie, 2003).

Although more research on mixed approaches is being conducted in the social sciences, the inclusion of both qualitative and quantitative data collection in a single study is nothing new. What is new is the means of presenting a reliable research design model from both data types (Creswell & Plano Clark, 2007; Tashakkori & Teddlie, 2003).

Creswell & Plano (2011) argue that the purpose of collecting both quantitative and qualitative data is to combine and triangulate the results yielded by the two forms of data. This is to achieve greater insight than would be obtained by either type of data alone. In this thesis, the use of the mixed-method definition comes from Creswell's philosophy which gives a high value to the method and consolidates the pragmatism in the mixed-method as methodology. The triangulation of the results from the comparison of the quality of care indicators reports (quantitative) and the semi-structured interviews with staff (qualitative) should give more comprehensive answers to the research questions and will to enhance the reliability of the research process (Saunders et al., 2011). The importance of the mixed-method derives from the concept that people prefer to solve problems using both numbers and words (Kelemen and Rumens 2008). The pragmatic approach is used to answer the research question of this study.

According to Creswell & Plano Clark, (2011) there are six major mixed-method study designs:

(1) Convergent parallel design. This consists of collecting and analysing either quantitative or qualitative data independently; thereby looking for convergence, divergence, or relationships after reuniting (triangulating) the results of these single phases.

(2) Explanatory design, which collects and analyses the quantitative data in the first phase. In the second phase, the quantitative results are used to conduct the qualitative design to help explain the quantitative results. This design could not be used because the qualitative data when collected will be concentrating on the result of the indicator and ignoring other important quality elements.

(3) Exploratory design, which has two phases: in the first phase, the researcher collects and analyses the qualitative data; in the second phase, the researcher builds quantitative data in-order to test or generalise the initial qualitative findings. This method was not suitable for this study, as the quality indicator results are independent variables which cannot explain the qualitative data if used as first phase (Creswell & Plano Clark, 2011).

(4) Embedded design, whereby the researcher selects at least one design method to collect and analyse primary data; after which, analysis of secondary data that is embedded within the primary data takes place in order to enhance the conduct or understand the larger design. The rationale behind not using this type of design is that the data are not linked to each other before the discussion step, after full analysis of both quantitative and qualitative data.

(5) Transformative design, in which the researcher collects and analyses quantitative and qualitative data to help address the change in the situation of the group. This approach can be performed singularly, sequentially, or both.

(6) Multiphase design, that can be employed over a period of time in a large programme, through multiple projects, or by combining both sequential and simultaneous data strands. The

data collected will be analysed at the end of each stage of the programme, while the incorporation of the results gained from the analysis will take place at the end of the programme. The aim of the study discussed in this thesis is not compatible with the multiphase design.

A convergent parallel design was deemed the most appropriate design for this study as it is the most suitable method of obtaining answers to the overall research question.

According to Saunders & Tosey (2012), the researcher can prioritise importance based on whichever research paradigm has more weighting, qualitative or quantitative. However, Creswell & Plano (2011) also argue that one method can be prioritised, or both can be given equal importance or relevance. When examining the differences in the quality of care between accredited and non-accredited MoH hospitals in the KSA, a mixed-method Convergent Parallel design was deemed most suitable. This is because the findings from the quantitative component (comparison of quality indicators reports) can be complemented with the qualitative component of the in-depth understanding of staff perceptions about the quality of care programme. Therefore, the quantitative and qualitative methods have equal priority.

Finally, it is worth noting that there are differences in the name of this design used. As noted by Creswell and Plano Clark (2011, P.77): ‘‘A convergent parallel design has had many names since 1970, including simulation triangulation’’. Morse (1991) also identifies this design as a “parallel study”. Furthermore, the literature suggests that the description of this design may vary. For example, Tashakkori & Teddlie (1998) describe the model as a ‘convergence model’, and Creswell, (1999) as a ‘‘concurrent triangulation’’ (Creswell, & Plano Clark, et al., 2003). Nonetheless, in the last edition, Creswell and Plano Clark (2011, P.77) say, “Regardless of the name, the convergent design occurs when the researcher collects and analyses both quantitative

and qualitative data during the same phase of the research process and then merges the two sets of results into an overall interpretation."

3.5 Design of the study

This study aimed to examine any potential differences in the quality of care provided by accredited and non-accredited Ministry of Health (MoH) hospitals in Saudi Arabia. A convergent parallel design was utilised to answer this research question. All data (quantitative and qualitative) was continuously collected from all eligible MoH hospitals after ethical approval was granted. Quantitative data was collected from hospital as reports of QCI, these indicators are available in the clinical auditing directorate of the MoH. Depending on the time taken to gain approval to access these reports for each of the MoH, data collection, it take up to three months. Staff from the eligible MoH hospitals were interviewed and qualitative data was collected during the same time period. After quantitative and qualitative data had been analysed separately, the findings were triangulated/combined and interpreted.

The quantitative data was collected from 88 hospitals from their existing retrospective indicator reports (Figure 3.1). Details of these 49 indicators are presented in list form in Appendix 3. Qualitative data was collected from four hospitals through the use of semi-structured interviews exploring the perceptions of staff regarding the quality of care in their hospital. The details of the 13 questions used in the semi-structured interviews are presented in Appendix 4.

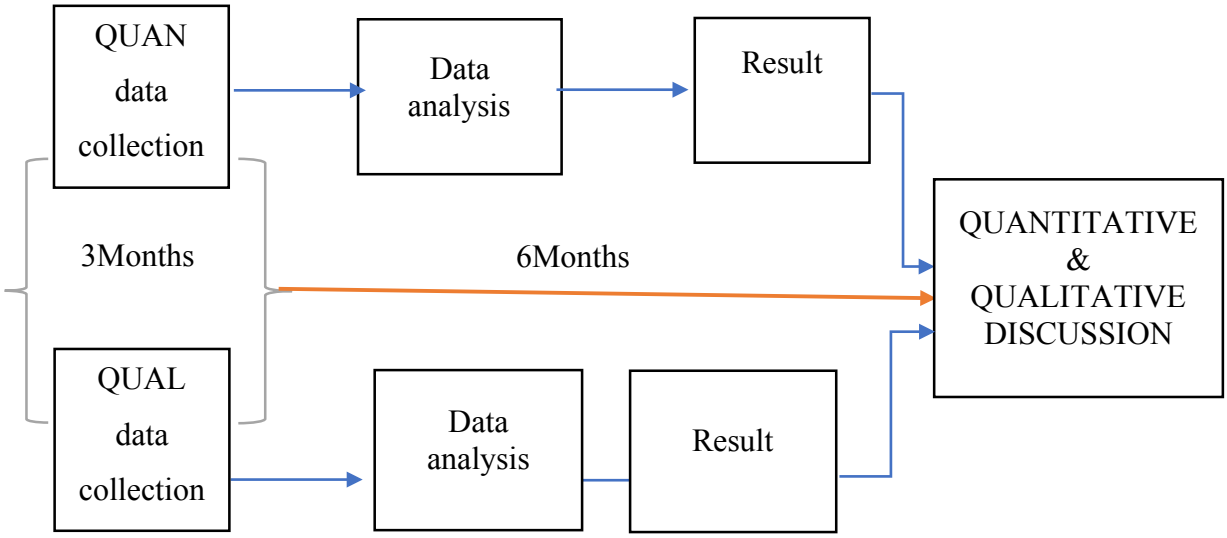

Figure 3.1Convergent Parallel Concurrent Timing Design

3.5.1 Inclusion/exclusion criteria

The target population for Part 2 of the study (interviews) were eight senior managers working in the top management positions of four hospitals. There were no limitations regarding the demographic factors of managers, e.g. gender, religion, age, or degree certificates. The major condition for participating in the study was that the managers from accredited hospitals should be available at the time of the accreditation survey, qualified, and working in a top management position at a MoH hospital. The top management staff were chosen for the qualitative part of the study because as members of the management team they are responsible and accountable for the implementation of the quality programme in the hospitals.

3.5.1.1 Inclusion criteria for qualitative data

- Hospital director
- Assistant of hospital director
- Head of department
- Working and were available during the hospital accreditation survey in top management
- Position of accredited hospital
- Working in a top management position of a non-accredited hospital
- Available during the time of interview

3.5.1.2 Inclusion criteria for quantitative data

- All quality indicator reports for clinical auditing programme were required

3.5.1.3 Exclusion criteria for quantitative data

- Any missing data for indicator reports

3.5.1.4 Exclusion criteria for qualitative data

- Previous participation in accreditation if from a non-accredited hospital

3.6 Setting and recruitment

There are 270 hospitals under the MoH in the KSA, however. data was only available for 94 of these. Of these 94, six were excluded due to missing data, therefore the study involved 88

MoH hospitals in SA, comprising 46 accredited and 42 non-accredited hospitals. Ethical approval was granted on 5th February 2016, and participant recruitment started on 21st July 2016 and concluded in October 2016. I used an open invitation to all 270 MoH hospitals within the KSA, where I explained the aims and objectives of the research to potential research participants. This was carried out to ensure that all hospitals had an opportunity to participate.

However, due to time and resource constraints, only the hospitals that responded within the three month recruitment window were considered and included in the study. It is important to mention that data collection started simultaneously with the recruitment process. More detail about this is presented in the data collection section below.

3.7 Bias

Bias can occur at any stage of planning, data collection, analysis or publication (J. Pannucci & G.Wilkins, 2011). Bias is defined as *"the difference between a population mean of the measurements or test results and an accepted reference or true value"* (Bainbridge, 1985). Therefore, bias will give unrealistic results that are either higher or lower than normal. This bias may be due to incorrect measurement tools or process error. Thus, describing all the steps that were put in to place to minimise systematic errors or bias and improve rigour is crucial. I checked the data carefully for missing entries or mistakes and ensured the data were sorted correctly. The indicators were explored using mean, median, maximum, minimum and standard deviation (SD).

3.8 Quality of Care Indicators (QCI)

The National Health Performance Committee in Australia (NHPC,2001) defined the Quality of Care Indicators (QCI) as 'a statistical reflection of the extent to which the outcome of the expectations of the quality of care level are achieved directly or indirectly'. Shaw (2003) provided a more comprehensive definition of QCI, referring to them as 'tools for assessing hospital performance either internally or externally'. Hospital QCI are part of a clinical auditing programme that was implemented in 2009 to measure the performance of MoH Hospitals (Appendix 3). The aim of the programme is to improve the quality of healthcare in the KSA and bring it to par with world level service through the 49 indicators mentioned in detail in Section 3.8.1.

3.9 Part one (quantitative component)

3.9.1 Quantitative data collection

Each hospital reports on 49 QCIs which are divided into the following three dimensions (see Appendix 3):

- Professional Performance Indicators of a Healthcare Organisation
- Health Organisation KPIs
- Health Organisation Productivity Indicators

These QCIs should be reported every month. A hospital's clinical audit department is responsible for collecting the results for these indicators and sending them to the clinical audit department of the regional directorate. As mentioned previously, there are 20 regional

directorates that receive these QCI results and forward them to the clinical audit directorate in the MoH. Part of the data collection plan was to collect the data from the clinical audit directorate in the MoH in the capital and not the individual regions, as initially intended.

3.10 Data management, processing and analysis

Due to the large amount of data collected in the quantitative component of the study, all the data was immediately entered into a computer software to aid data management. The collected QCI reports were tabulated and entered into IBM SPPS 24.

3.10.1 Coding and entering data

Once data was entered into the SPSS 24 software, a code which contained a letter and number was allocated for each QCI, as follows:

- Professional Performance Indicators of Healthcare Organisation, X1 –X26
- Health Organisation KPIs, Y27-Y41
- Health Organisation Productivity Indicators. Z42-Z49
- R is used for excluded indicators.

The collected data were coded to ensure suitability for computer analysis (Pallant, 2011). Table 3.2 below shows the code given to each of the QCIs.

Table 3-1 Indicator rational and code

Dimension	Indicator	Code	Indicator rational
Professional Performance Indicators of Healthcare Organisation	Rate of patients who spent 24 hrs or more in the ER/month	X1	To evaluate the ER performance and the admission process
	Average patient waiting time in the ER from registration to ICU admission/month	X2	To evaluate the efficiency of patient care and the proper ER coordination
	Average patient waiting time in the ER from registration to ward admission (except to ICU)/month	X3	To evaluate the efficiency of patient care and the proper ER coordination. To evaluate the readiness of the wards to receive patients
	Average patient waiting time in ER from registration to transfer to another hospital/ month	X4	To evaluate the efficiency of the referral system and the proper ER coordination
	Percentage of cases admitted for 30 days or more in hospital wards/month	X5	To evaluate the efficiency of hospital bed turnover
	Average patient waiting time for scheduling routine surgical operations/month	X6	To evaluate the efficiency of the operating rooms
	Average patient waiting time for scheduling routine endoscopies/month	R1	To evaluate the efficiency of the endoscopy unit

	Operation cancellation rate (routine operations)/month.	X8	To evaluate the efficiency of the operating rooms
	Endoscopy cancellation rate (routine endoscopies)/month	R2	To evaluate the efficiency of the endoscopy unit
	Adult ICU occupancy rate/month	X10	To evaluate the efficiency of the adult ICU
	Average length of stay in the adult ICU/month	X11	To evaluate the efficiency of the adult ICU. To evaluate the efficiency of adult ICU bed turnover
	Percentage of cases admitted for 30 days or more in adult ICU/month.	X12	To evaluate the efficiency of adult ICU bed turnover
	NICU occupancy rate/month	R3	To evaluate the efficiency of the NICU
	Average length of stay in the NICU/month	R4	To evaluate the efficiency of the NICU. To evaluate the efficiency of the NICU bed turnover
	Percentage of cases admitted for 30 days or more in NICU/ month.	R5	To evaluate the efficiency of NICU bed turnover
	Percentage of specialties that booking urgent appointment takes more than 2 weeks for new cases/month.	X16	To evaluate the efficiency of patient care in the OPD

	Percentage of specialties that booking routine appointment takes more than 4 weeks for new cases/month.	X17	To evaluate the efficiency of patient care in the OPD
	Percentage of specialties that booking admission for routine surgical procedures takes more than 4 weeks for new .cases/month	X18	To evaluate the efficiency of patient care in the inpatient
	Percentage of patients not attending OPD specialty/ month.	X19	To evaluate the efficiency of patient care in the OPD
	Average turnaround time for CBC from time received to time delivered in the lab for inpatient	X20	To evaluate the efficiency of patient care in the laboratory
	Average turnaround time for chemistry from time received to time delivered in the lab for inpatient	X21	To evaluate the efficiency of patient care in the laboratory
	Average turnaround time for blood culture from time received to time delivered from the lab for inpatient /month.	X22	To evaluate the efficiency of patient care in the laboratory
	Average turnaround time for histopathology from time received to time delivered from the lab/month.	R6	To evaluate the efficiency of patient care in the laboratory
	Average U/S booking time for OPD patients/month	X24	To evaluate the efficiency of patient care

			in the radiology department
	Average CT scan booking time for OPD patients/month.	X25	To evaluate the efficiency of patient care in the radiology department
	Average MRI booking time for OPD patients/month	R7	To evaluate the efficiency of patient care in the radiology department
Health Organisation KPIs	Hospital mortality rate (inpatient)/mon	Y27	To evaluate atient safety in the hospital
	Operative Mortality Rate /month.	Y28	To evaluate patient safety in the OR.
	Unscheduled return to O.R within 48hrs/month.	Y29	To evaluate the efficiency of patient care in OR.
	Number of patient falls/month.	Y30	To evaluate the efficiency of patient safety in the inpatient.
	Number of medication errors/month	Y31	To evaluate the efficiency of patient safety in the hospital
	Ventilator Acquired Pneumonia (VAP) rate/month	Y32	To evaluate patient safety in the ICU
	Surgical Site Infection (SSI) rate/month	Y33	To evaluate patient safety in the hospital
	Number of patients that developed bed sores during hospitalisation including ICU (new cases)/month	Y34	To evaluate the efficiency of inpatient care in the hospital

	Number of code blue/month.	Y35	To evaluate the efficiency of patient care in the hospital
	Caesarean section rate /month.	R8	To evaluate the efficiency of patient care in the hospital
	Central line infection rate CR-BSI)/month.	Y37	To evaluate patient safety in ICU
	Number of needle stick injuries/month	Y38	To evaluate staff safety in the hospital
	C.P.R failure rate/month.	Y39	To evaluate the efficiency of patient care in the hospital
	Number of intra-operative cardiac arrests/month	Y40	To evaluate the efficiency of patient care in the OR
	Number of post-operative cardiac arrests within 48hrs /month.	Y41	To evaluate the efficiency of patient care in the surgical wards & ICU
Health Organisation Productivity Indicators	Average Length of Stay (ALOS) in the hospital /month	Z42	To evaluate hospital productivity & the efficiency of patient care
	Number of admissions/month	Z43	To evaluate hospital productivi
	Number of discharges/month	Z44	To evaluate hospital productivity
	Number of ER visits/month	Z45	To evaluate hospital productivity
	Number of surgeries/month.	Z46	To evaluate hospital productivity

	Number of endoscopies/month	R9	To evaluate hospital productivity
	Occupancy rate/month	Z48	To evaluate hospital efficiency & productivity
	Number of outpatient visits/month	Z49	To evaluate hospital productivity

3.11 Data analysis plan

According to De Vaus (2013), the complexity of the research question plays a major role in determining the analysis method used in the study. The chosen method depends on the number of variables involved in the research question: one variable, two variables, or multiple variables. This study uses two variables: accredited, and non-accredited, which is known as a bivariate analysis method. De Vaus (2013) argued that statistics are a tool in the hand of any researcher, who can choose the most appropriate method to analyse the data collected. Thus, the plan for analysis for this quantitative component was to use both descriptive and inferential statistics.

Descriptive analysis summarises the shape of data using three formats: tabular, graphical, and statistical. This descriptive statistics describe the basic features of the data as well as providing simple summaries about the sample and the measures. This part is important as it enables the researcher to present the data in a more meaningful way, which then allows for simpler interpretation of the data.

The second type of analysis used was inferential statistics. This goes further to test whether the results can be generalised to a broader population, depending on the statistical test for the research purposes. Inferential statistics have two main types: interval estimates, and statistical significance (De Vaus, 2013). Inferential statistics were used in this study to determine the significance of the difference between the QCIs of the accredited and non-accredited hospitals. Further analysis was carried out to determine whether differences between the QCIs of accredited and non-accredited hospitals are due to hospital size. A chi-square test for independence was performed to find whether there is a significant relationship between hospital accreditation and size.

3.12 Part two (qualitative component)

3.12.1 Qualitative data collection

The qualitative part of the research employed the interview method to collect data. The aim of the interviews was to record the beliefs, feelings, knowledge and thoughts of the participants (Fetterman, 2009). Also, in the interviews, the researcher has an opportunity to clarify any unclear points (Polit & Hungler, 1995). In this study, the aim of the interviews was to investigate the participants' perception of the quality of care provided in their area with a view to developing a deeper understanding of this issue.

According to Creswell and Plano Clark (2011), the researcher may face several challenges when using a mixed-method approach. These challenges include a limited time available to collect both types of data due to data being collected simultaneously. However, Creswell and Plano (2011) add that the equality of quantitative and qualitative data can lead to concerns about its value in gaining an understanding of the research problem. Moreover, the researcher must be adequately skilled in both quantitative and qualitative methods and well-organised to efficiently manage the data collected.

Considering the above, as well as considering the overall research question, both the quantitative and qualitative data had equal value for this study. The skills needed for devising the data collection plan as well as its rationale were developed via attending methodology module seminars and workshops. Thus, the data collection plan for the qualitative part is outlined as follows:

3.12.2 Inclusion/exclusion criteria

The target population for the interviews were the eight senior managers working in the top management positions of four hospitals. There were no limitations regarding the demographic factors of managers, e.g. gender, religion, age, or the degree certificates. The major condition for participating in the study was that the managers from accredited hospitals should be available at the time of accreditation survey, qualified, and working in a top management position at any MoH hospital.

3.12.2.1 Inclusion criteria

As maintained in section 3.5.1.

3.12.3 Exclusion criteria

- Not in a top management position
- Previous participation in accreditation if from a non-accredited hospital
- Unavailable at the time of the study

3.13 Qualitative interview participant recruitment

The qualitative data was collected over a three-month period (from July 2016 to the end of Oct 2016). During this three-month period, eight managers of four hospitals were approached.

There is no agreement among researchers as to the ideal number of participants for qualitative research to wholly explore a topic (Sandelowski, 1995). In general, the researcher should set

the participant number according to the bases of reaching informational redundancy or theoretical saturation against the quantity of information and the analytic task it poses. In a study in which in-depth semi-structured interviews are used to examine experiences and perspectives within a defined group, a sample of 6-10 could be adequate (Bourgeault, Dingwall & de Vries, 2010). Considering the above as well as the reality of collecting quantitative data simultaneously, a total recruitment figure of eight managers across the four hospitals was considered appropriate for the qualitative part of this study. The participants were approached by sending email to all MoH hospitals. The first four accredited hospitals to respond took part of the interview. The first four non-accredited hospital were taken as well to be involved in the interview. Finally, the total of the first eight responses from both groups were contacted to confirm the day and place of the interview. The other hospitals that responded were sent an email to thank them for their response and to advise that they may be contacted for any future study.

3.14 Semi-structured interviews

According to Bryman (2004), the qualitative method depends mostly on the interview tool. The semi-structured interviews used in this research explore the hospital manager's understanding of quality of care in their hospital. Through the interviews, the participants were given an opportunity to share their knowledge, opinions and feelings, as recommended by Creswell & Plano Clark (2011).

According to Polit (2010), one to two hours is a reasonable duration of time for the interviewer to understand the participant's point of view. The participants who agreed to be interviewed and registered their contact details were contacted individually by telephone to set the time and place for the interview. The aim was firstly explained to the participants in the invitation letter they received (Appendix 5). The participant's right to not participate or to withdraw at any time was hereby clarified, and the interviewee's participation was entirely voluntary, as declared in the consent form (Appendix 6), and confirmed by their agreement to record the interview. At the end of the initial telephone conversation with the participant, the time and place of interview was arranged and followed up with a confirmation email.

In preparation for the interviews, a reminder of the location and the time of the interview was sent to each participant a day before it was set to take place. If required by participants, an interview transcript was sent to them via email so that any necessary amendments and modifications could be made, in-order to recognise the credibility and verify the trustworthiness of this study (Creswell, 2009). In addition, although following an interview guide, the interviews were designed with flexibility in mind, as suggested by Bryman (2004), allowing the participants to feel free to answer the questions in a manner that is unrestricted.

As suggested by El-Jardali et al. (2008), as to the type of questions used in the interviews, I decided to use a combination of six types of question as guidelines (Appendix 4). This allowed the focus for the participants to be on the important research questions (Polit and Beck, 2013). The questions started with general topics and then became more specific to the literature research. Notes were taken during the interviews in order to help me to concentrate on the participants' responses, and to develop further questions until there was no more useful

information to be gained from the interview (Merriam, 2009). According to Hanson (2008), permission to use a voice recorder must be obtained from each participant. Therefore, this permission was included in the consent form (Appendix 6).

Bryman (2004) suggests that it is essential to record the conversations and interviews in-order to follow-up and confirm the information acquired through the interviewees and to carefully consider the language used. He further suggests some of the advantages of the use of an electronic voice recorder in the interviews, due to the following:

Human memory has natural limitations and, using this technique, any memory related errors will be corrected. It provides the opportunity to further examine what people say, as the answers from the interviewees can be repeated. In addition, the data can be made available for public inspection by other researchers who can evaluate the procedure of analysis carried out by the original researcher.

It provides evidence that can be used to reject any accusation that the analysis is affected or biased by the researcher's own opinions. Finally, it is useful for retrieving data at any time, and to use that data for other theoretical ideas (Bryman, 2004).

Bryman (2004) recommended that researchers use a high-quality voice recorder and microphone. He added that a transcription machine is helpful to obtain quick results, and preferable to a time-consuming manual transcription process. He also emphasised the need to ensure that the recording machine is visible to the interviewees. Onwuegbuzie & Combs (2011) recommended that the researcher be flexible in the semi-structured interviews, as employed in qualitative research. This flexibility allows the researcher to not only react to what the interviewees say, but also to follow-up on any interesting points made in their responses.

As a result of this flexibility, he recommends that the researcher should, at all costs, avoid conducting a structured interview, and instead should use open-ended questions.

Moreover, changing the order of the questions is considered flexible, but the change should be made clear during the transcription (Bryman, 2004). Flexibility can be of value when facing a problem such as audio-recording device failure, or the interviewee declining to record the interview.

According to the literature, use of language plays a major role in conversation; in the way a question is asked and how the participant answers, tone and nuance are critical (Onwuegbuzie & Combs, 2011; Padgett, 2012; Teddlie & Tashakkori, 2009). Although English is the main language of the MoH organisations in the KSA, and all staff are obliged to document anything related to the patient using English, some medical reports are written in Arabic when needed, for example in a law court, school, or as evidence for other purposes. I used the Arabic language in the interviews to give the participants the opportunity to explain their feelings freely and honestly, without language barriers. Understanding the participants' words, often including slang, is an important component of knowing the actual meaning in the local language (Bryman, 2002). Moreover, I translated the transcript to English to ensure there are no discrepancies in the terminology used. This translation was then verified for authenticity by a translation agency (Appendix 7).

3.15 Data analysis

According to (Burnard, Gill, Stewart, Treasure & Chadwick, 2008), deductive and inductive paradigms are the main approaches to analysing qualitative data. An inductive approach was used for this study to search, in depth, for any potential differences in the quality of care between accredited and none accredited hospitals, for which the MoH's hospitals in the KSA have not yet been evaluated. Burnard et al. (2008) agreed that an inductive model is a broad approach that is useful if the phenomenon of the study is not known or there is insufficient information about it. In addition, the inductive analysis is commonly used to analyse qualitative data. In qualitative research, data analysis continues and is amended during the study "in light of emerging findings", although the analysis begins immediately after data collection (Burnard, Gill, Stewart, Treasure & Chadwick, 2008). The descriptive analysis was obtained by transcribing the conducted interviews, but the real explanation of the transcript was not yet visible. The focus of interpretation of the data was on the identification of themes, the exploration of hidden ideas, and making sense of the data that had been collected and transcribed (Burnard, Gill, Stewart, Treasure & Chadwick, 2008).

To deliver a rich, comprehensive account of the participant's perceptions and knowledge, thematic analysis was employed (Bernard, 2006). In qualitative analysis, the researcher plays a crucial position in combining and interpreting the data. This is because the researcher's subjectivity affects the interpretation of the data (Braun & Clarke 2013). It has been debated that only researchers who come from the realms of life of their subjects can interpret these data adequately (Bernard, 2006). In support of this, and as seen from the introduction section, the previous experience of the researcher is from the area of quality of care and preparing hospitals for accreditation, which is a useful tool for analysing the qualitative data.

3.16 Analysis steps

According to Braun & Clarke (2006), there are six major steps necessary for one to undertake a robust qualitative data analysis (see Figure 3.2):

Step 1: The first step requires that the researcher familiarise themselves with the data by way of taking notes from the primary data and attempting to link it to the literature in order to identify any patterns. I believe that this step is critical in many ways; firstly, it allows for a personal reflection of the research design, and secondly, it allows one to review the suitability of analysis techniques used.

Step 2: A familiarisation with the data, according to Braun & Clarke (2006), second step involves the researcher coding the data. I believe that the process of coding creates an opportunity to ease navigation through the raw data and create a high level of consistency. According to Miles, Huberman & Saldaña, (2013, p.72): "Some researcher methodologists believe that coding is merely technical, preparatory work for higher level thinking about the study. But we believe that coding is deep reflection about and, thus, deep analyses and interpretation of, the data meanings".

Step 3: The third step strives to 'tally up' the codes with the themes, hence ensuring that there are patterns in the codes and making it possible to see how themes cascade the list of questions.

Step 4: At Step Four it is possible for the analysis to establish clear thematic maps that are essential for detailed analysis (Braun & Clarke, 2006).

Step 5: Upon arriving at convincing themes, the researcher conducts and writes an analysis of each topic; the researcher presents the story behind each topic and how the topic fits into the general story of the data, while distinguishing the 'essence' of each topic and developing a solid and instructive name for each topic.

Step 6: The final step where the researcher can select representative data, and extract and relate analysis back to the research question and to relevant literature to be used in the discussion.

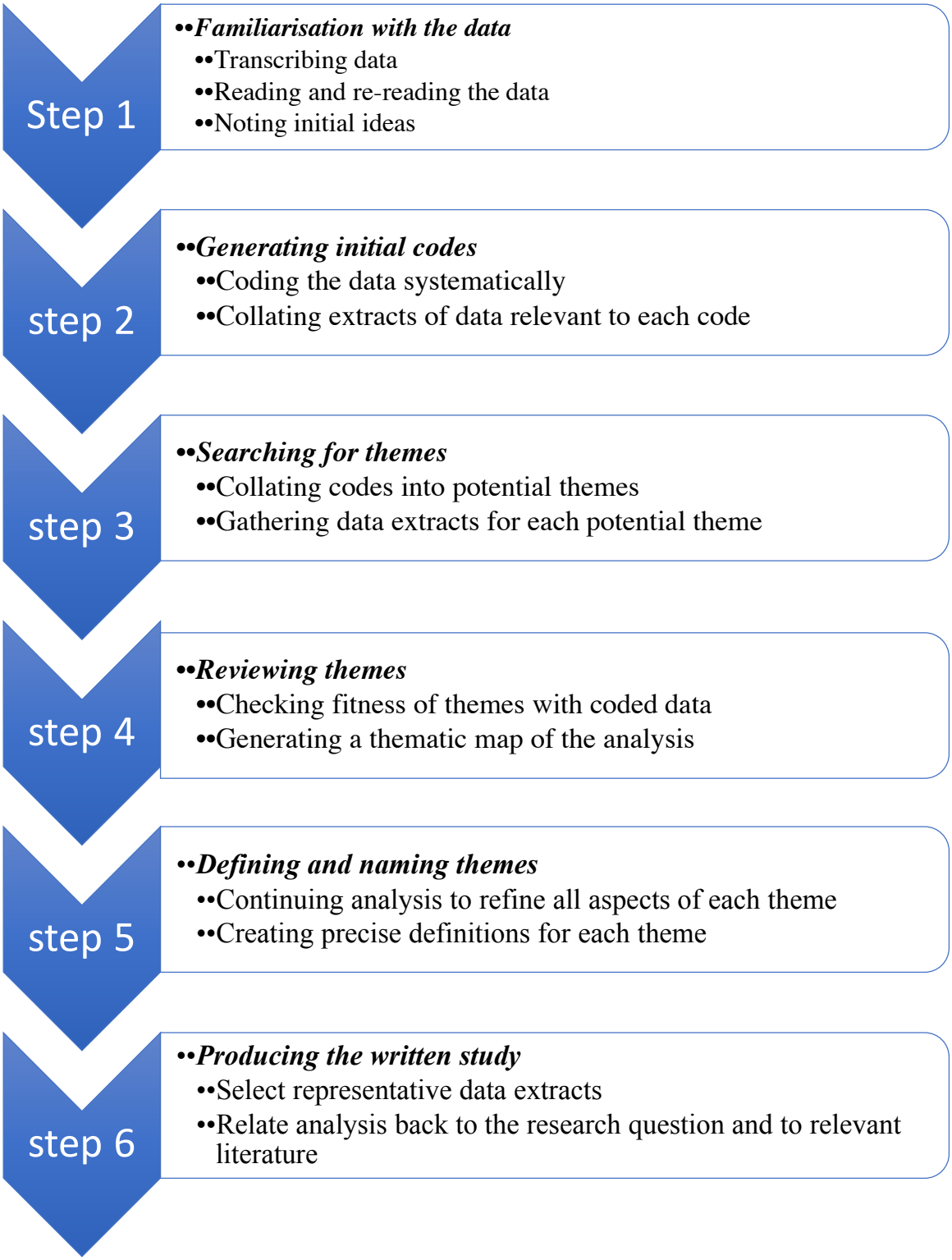

Figure 3.2 Thematic analysis (Braun & Clarke, 2006).

3.17 Qualitative pilot study

A pilot study was conducted in two hospitals; one accredited, and one non-accredited. The hospitals were selected from a list of eligible participants to allow the researcher to practice gathering the required data and to become familiar with the difficulties associated with the interview process. If there are any changes necessary as a result of the pilot study, these will be considered. The pilot study participants were excluded from the qualitative interviews and data gathered.

3.18 Validity and reliability

Data analysis can be validated in two ways. Participants can validate the analysis themselves when the researcher returns the analysis and asks for a validation 'member check', or the qualitative researcher can analyse the data independently; this process is known as a "peer review" (Burnard, Gill, Stewart, Treasure, & Chadwick, 2008). This is, however, time consuming. Burnard et al. (2008) argue that if the data were not analysed immediately after collection and then sent back to the participants, they may change their perceptions and opinions, according to the situation. Alternatively, the peer review may be carried out independently through an expert qualitative researcher. This process helps to prevent any influence of the main researcher's bias and to develop new themes, or theories, if applicable. The potential contradiction between researcher views is the main issue of using this approach

(Burnard et al., 2008). Therefore I sent the fully transcribed data to two of the participants, who replied that they were happy and they did not provide any comments.

3.19 Ethical considerations

This study was approved by the Research Ethical Panel at University of Salford on 5 February 2016 (HSCR 15-159) (Appendix 8). This committee is concerned with the standards of preserving the ethics of the study research and facilitating the work of researchers to preserve the rights of participants in the research process. The study was also approved by the General Directorate of Study and Research in MoH in Saudi Arabia on 21 July 2016 (Appendix 9). In addition, the MoH requested that all researchers take an online exam from the National Institute of Health (NIH) Office of Extramural Research by completing the NIH Web-based training course "Protecting Human Research Participants". The certificate for this was completed on 13 April 2016. See certificate no 2054748 (Appendix 10).

As per Patton (2002), the use of human participants in any research study entails a discussion of the ethical considerations of how, what, and why the study was, or is to be, conducted. Moreover, the primary ethical concern is to ensure the confidentiality of the participants and to protect their welfare (Patten, 2002). The first ethical issue that may face a social researcher, as clarified by Bryman (2002, p.479), is harm to the research participants. This is divided into four categories: “physical harm, harm to participant development, loss of self-esteem, and stress”.

Bryman adds that the other ethical issues involve lack of informed consent, invasion of privacy and, lastly, the use of deception (Bryman, 2002). However, informed consent was attached to the application sent to the MoH ethics committee and when sent to the research ethics panel to fulfil the requirements of Academic Ethics Policy, and this was considered to be suitable to obtain the information required. In this policy, it has been highlighted that participation is entirely voluntary (Academic Ethics Policy, 2017).

Once the researcher explained the aims and objectives of the study, the participants were given an opportunity to sign the informed consent forms, as per the academic ethics policy.

In qualitative research, commonly, the participants are selected intentionally because they are known to possess valuable information about the phenomenon under study (Patton, 2002; Reed, Procter, & Murray, 1996). Furthermore, to protect the identity of the participants, no personally identifying information was requested from the participants and all the data was anonymised through a coding process. Nonetheless, part of the ethical process was the obligation to remind the interviewees of their right to not participate, as well as to emphasise that confidentiality will be maintained before, during, and after the interview.

Farther more to protect the identity of the participants, no personally identifying information was requested from them and codes were allocated. However, I was ethically obliged to remind the interviewees of their right to not participate; as well as to emphasise that confidentiality will be maintained before, during, and after the interview. After this process (Figure 3.2), I had handled the approval later to each place before the data collection process commences.

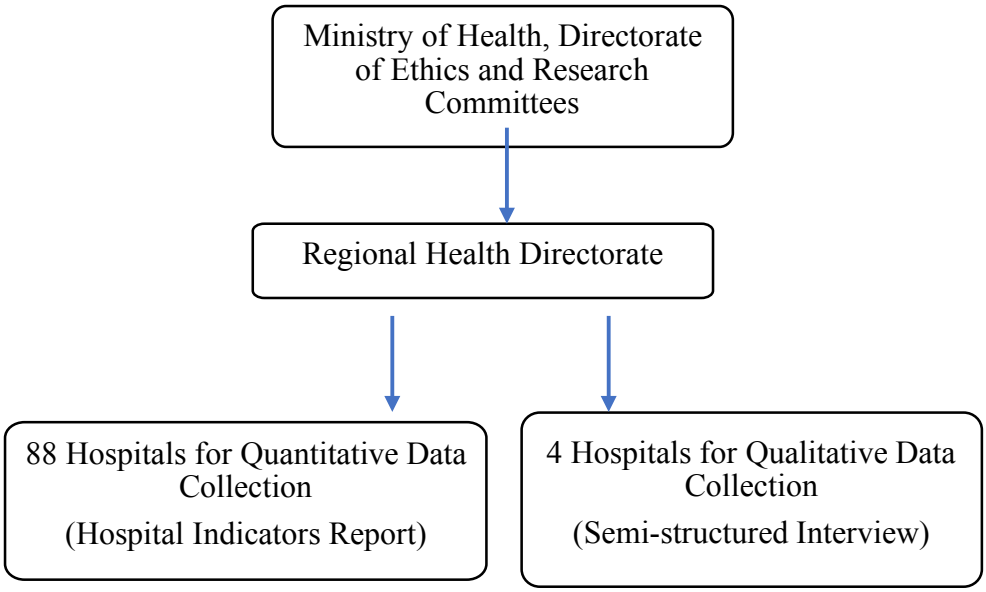

Figure 3.3 MoH Approval Process

3.20 Conclusion

This chapter has outlined the study design and approach to determining any potential differences in the quality of care provided by accredited and non-accredited MoH hospitals in the KSA. A convergent parallel design was identified as an appropriate method for data collection and understanding and answering the research questions. In keeping with this method, boundaries were set with data being collected from clinical auditing directorates and by interviewing professional staff. The following chapter will provide results and interpretations of the quantitative and qualitative data in preparation to present it in future work in the discussion chapter.

4 Chapter Four: Results

Introduction

The previous chapter discussed the overall methodology and gave an account of how the data analysis would be addressed. Since the study used both quantitative and qualitative data, the first part of Chapter Four will discuss the results from the quantitative, and the second part of the chapter will discuss the qualitative data results, before moving on to the discussion in the following chapter. The first section of the results chapter presents quantitative data including descriptive statistics for the QCI's, for demographics including: hospital profiles, hospital by accreditation, hospital by size, and the process of data entry and cleaning. It will then conclude with a section presenting the inferential analysis and the findings from the tested hypotheses.

The second part of the results chapter presents the qualitative results of the thematic analysis of the transcripts based on the semi-structured interviews. The findings were structured under categories and sub-categories of themes that developed from the interviews.

4.1 Part 1: Quantitative results

As highlighted in Figure 4-1 below, the quantitative results are presented in two sections: descriptive analysis, and inferential analysis. The descriptive analysis part is divided into three sub-sections presenting all the hospital profiles, hospital profiles by accreditation, and hospital profiles by size.

The all hospital profiles give the total number of MoH hospitals and how many of these hospitals have been involved in the study. The second sub-section describes the hospital profiles by accreditation, clarifying how many hospitals are accredited and how many are not. The third sub-section presents the hospital profile by size. Finally, the second section is concerned with the inferential analysis conducted for this study.

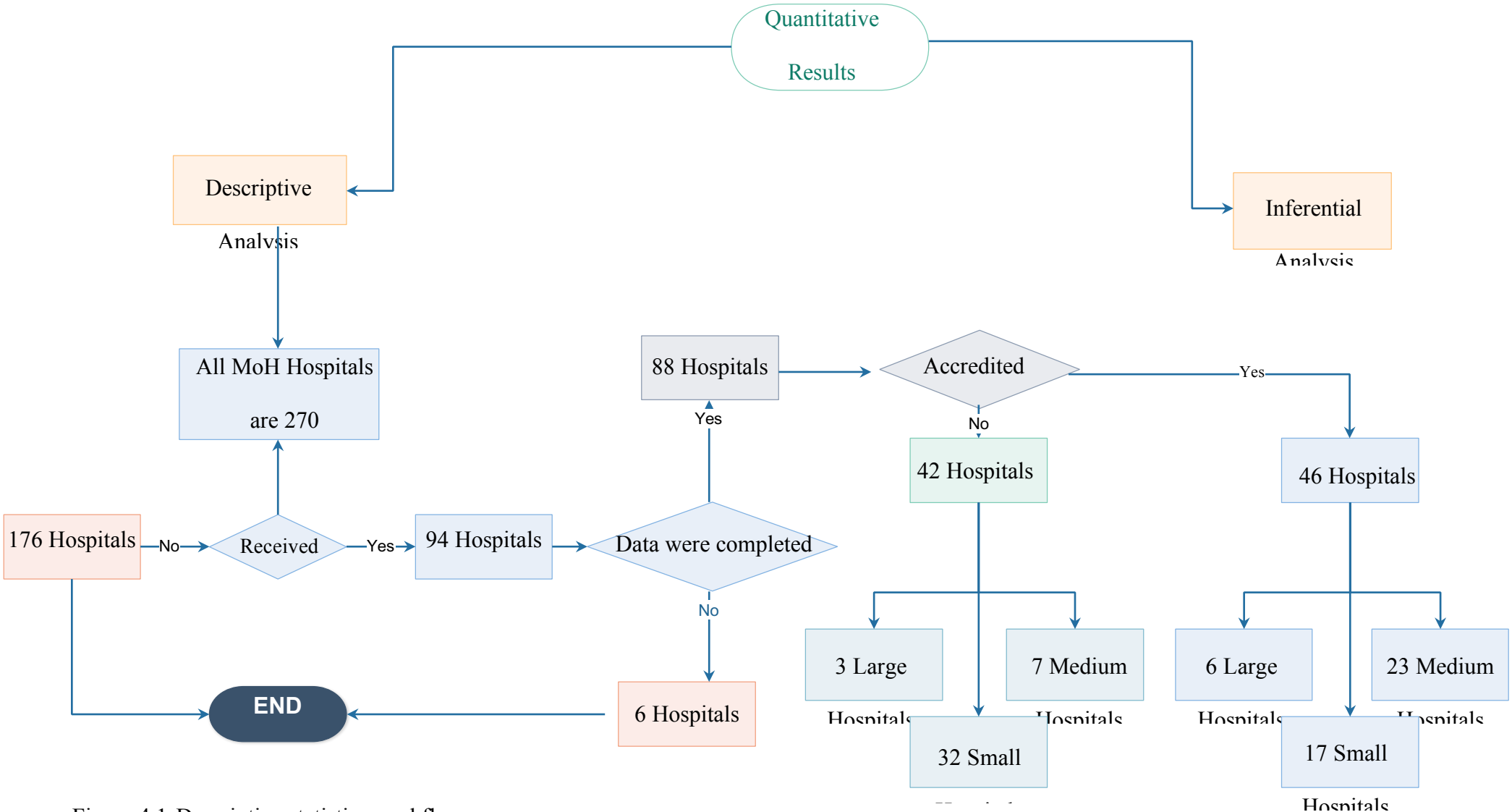

Figure 4.1 Descriptive statistics workflow

4.1.1 Data processing

For this study, the 49 QCIs (Appendix 3) were entered in to SPSS 24 software and were explored to achieve the research goals. The data were screened for missing values and errors. According to Rahm & Do (2000), data cleaning or "data scrubbing" is a process that deals with any errors contained in the data. This step is important, as it prepares the data for testing without errors. This process found that more than 20% of the overall expected data from the six hospitals was missing. This would have given a skewed and unrealistic picture of the hospitals and the overall analysis. Therefore, these hospitals were excluded. Thus, only data from the 88 hospitals that had a complete dataset was analysed. From the 49 QCIs, nine were found to have missing observations from most of the hospitals. This accounted for the missing data ranging from 19% to 29%, and, consequently, they were removed from the analysis. All excluded QCIs were given the code (R), as illustrated in Table 4.1. Data for the endoscopy unit, neonatal intensive care unit, histopathology service and MRI indicators was absent, because these services are not available in most of the hospitals. Moreover, the majority of the hospitals did not have maternity services.

Table 4-1 Indicators data excluded

Table A: Missing values summary						
		N	Mean	Std. Deviation	Missing	
	Code				Count	Percent
Average patient waiting time for scheduling routine endoscopies/month	R1	62	8.9443825	17.6885062	26	29.5
Endoscopy cancellation rate (routine endoscopies)/month	R2	63	9.29454	11.4398730	25	28.4
NICU occupancy rate/month	R3	67	75.8470421	67.3431139	21	23.9
Average length of stay in the NICU/month	R4	68	8.08692110	5.46562178	20	22.7
Percentage of admitted cases /for 30 days or more in NICU/ month.	R5	67	15.8829840	22.5565106	21	23.9
Average turnaround time for histopathology from time received to time delivered from the lab/month.	R6	68	7.89773025	7.24747056	20	22.7
Average MRI booking time for OPD patients/month.	R7	64	17.1102676	20.9671471	24	27.3
Caesarean section rate /month.	R8	71	27.1566671	14.49784353	17	19.3
Number of endoscopies /month.	R9	70	42.9248881	72.7837464	18	20.5

4.1.2 All hospital profiles

This sub-section contains demographic data about all the included hospitals (accredited and non-accredited). As demonstrated in Figure 4-1 above, a total of 270 hospitals were invited to share their QCI reports. Only 94 of the MoH hospitals responded, accounting for 35% of the total number of MoH hospitals. A further six hospitals were excluded due to lack of data. Thus, a total of 88 hospitals were included in this study.

4.1.2.1 Hospital accreditation

As shown in Table 4.2, 48% of the hospitals were not accredited, and 52% were accredited. This finding was unexpected because most of the total number of MoH hospitals (n=270) are not accredited.

Table 4-2 Hospital classification by accreditation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non-accredited	42	47.7	47.7	47.7
	Accredited	46	52.3	52.3	100.0
	Total	88	100.0	100.0	

4.1.2.2 Hospital sizes

As demonstrated in Table 4.2, from the total of 88 hospitals included in this study, 49 were characterised as small, representing 56% of the sample. Medium sized hospitals accounted for 34%, and large hospitals formed only 10% of the sample. Hospitals were divided into these three categories by considering hospitals of 100 to 200 bed capacity as small, 201 to 400 as medium, and above 400 bed capacity as large.

Table 4-3 Hospital classification by size

	Frequency	Percent
Hospital Size		
Small	49	55.68%
Medium	30	34.09%
Large	9	10.23%

4.1.3 Preliminary descriptive data

As previously described in methodology section 3.10.1, the 49 QCIs were classified into three groups by the auditing programme policy:

The first group deals with the **Professional Performance Indicators of Healthcare Organisation**. This group consists of 26 QCIs. The second group consists of 15 QCIs and deals with **health organisation KPIs**. The third group consists of eight QCIs and looks at the **health organisation productivity indicators**. A table containing a full breakdown of means and standard deviations for each of the QCIs for all three groups is given in Appendix 11, 21 and 13, respectively.

Before conducting analysis using descriptive statistics and statistical tests, it is crucial to examine the symmetry and kurtosis of data distribution. Values for asymmetry (skewness) and kurtosis between -2 and +2 are considered acceptable in order to prove normal univariate distribution (George & Mallery, 2010). Since symmetry is not an indication of normality, the K-M and Shapiro-Wilk test are used to test whether data is normally distributed or not. For the underlying data, Table 4.4 showed that the indicators had high kurtosis with the presence of skewness for both accredited and non-accredited hospitals. Also, the Shapiro-Wilk tests given in Table 4.4 was found to be significant for both accredited and non-accredited hospitals, which showed that the indicators were not normally distributed.

Table 4-4 Data distribution using skewness and kurtosis

Data distribution using skewness and kurtosis						
	Accredited=Y/ Non-accredited=N					
	N		Y		Total	
	Kurtosis	Skewness	Kurtosis	Skewness	Kurtosis	Skewness
Rate of patients who spent 24 hrs or more in the ER\Monthly	39.001	6.176	28.434	5.118	41.576	6.091
Average patient waiting time in the ER from registration to ICU admission\Monthly	26.887	4.885	10.277	3.214	18.823	4.192
Average patient waiting time in the ER from registration to ward admission (except to ICU)\Monthly	8.702	2.735	9.051	2.939	14.204	3.498
Average patient waiting time in the ER from registration to transfer to another hospital\Monthly	24.567	4.508	6.233	2.498	12.555	3.385
Percentage of admitted cases for 30 days or more in hospital wards\Month.	5.055	2.305	3.941	1.486	6.310	2.299
Average patient waiting time for scheduling routine surgical operations\Month.	5.292	2.339	5.222	2.277	7.399	2.581
Operation cancellation rate (routine operations)\Monthly	2.189	1.587	3.575	1.884	3.301	1.773
Adult ICU occupancy rate\Monthly	-.124-	-.427-	-.878-	-.567-	-.435-	-.509-
Average length of stay in the adult ICU\Monthly	2.963	1.538	20.179	3.868	25.663	4.088
Percentage of admitted cases for 30 days or more in adult ICU\Monthly	1.929	1.380	3.929	1.632	3.197	1.539
Percentage of specialties for which booking urgent appointment takes more than 2 weeks for new cases\Monthly	6.067	2.529	3.164	2.035	6.146	2.540
Percentage of specialties for which booking routine appointment takes more than 4 weeks for new cases\Monthly	1.286	1.333	1.704	1.470	3.014	1.704
Percentage of specialties for which booking admission for routine surgical procedures takes more than 4 weeks for new cases\Monthly	1.270	1.453	5.831	2.104	3.656	1.790
Percentage of patients not attending OPD (specialty)\Monthly	-.065-	.054	.184	.463	.238	.329
Average turnaround time for CBC from time received to time delivered in the lab for inpatient\Monthly	1.626	1.535	1.674	1.512	1.485	1.493
Average turnaround time for chemistry from time received to time delivered in the lab for inpatient\Monthly	-.364-	.655	.409	.789	-.055-	.696
Average turnaround time for blood culture from time received to time delivered in the lab for inpatients\Monthly	1.121	.925	.922	.077	2.460	.968
Average U/S booking time for OPD patients\Monthly	4.258	2.095	.463	1.116	2.760	1.683
Average CT scan booking time for OPD patients\Monthly	6.097	2.426	5.064	2.079	5.719	2.228
Hospital Mortality Rate (Inpatient)\Monthly	4.175	1.924	1.326	1.143	1.976	1.406

Operative Mortality Rate\Monthly	8.348	2.796	10.361	2.803	9.391	2.781
Unscheduled return to OR within 48 Hrs \Monthly	12.770	3.477	36.510	5.795	42.205	5.929
Number of patient falls in a year	2.713	1.638	3.486	2.047	6.482	2.468
Number of medication errors\Monthly	5.595	2.550	33.908	5.638	60.434	7.393
Ventilator Acquired Pneumonia rate (VAP) \Monthly	38.557	6.099	.916	1.268	77.503	8.560
Surgical Site Infection (SSI) rate\Monthly	9.250	2.724	2.814	1.406	5.118	1.949
Number of patients that developed bed sores during hospitalisation including ICU (new cases)\Monthly	10.202	3.114	10.173	2.924	10.200	2.993
Number of code blue\Monthly	.720	1.222	18.189	3.699	28.522	4.456
Caesarean Section rate\Monthly	9.233	2.595	4.024	1.785	5.493	2.071
Central Line Infection rate (CR-BSI)\Monthly	2.609	1.813	17.456	4.018	16.048	3.599
Number of needle stick injuries\Monthly	9.846	2.934	3.339	1.589	5.868	2.191
C.P.R failure rate\Monthly	3.878	-1.604-	-.411-	-.280-	2.875	-1.155-
Number of intra-operative cardiac arrests\Monthly	19.599	4.083	10.242	2.737	12.337	3.156
Number of post-operative cardiac arrests within 48hrs\Monthly	17.086	3.844	12.242	3.338	22.219	4.365
Average Length Of Stay (ALOS) in the hospital\Monthly	20.886	4.119	2.300	1.452	27.487	4.354
Number of admissions\Monthly	3.148	1.753	5.249	1.940	3.922	1.817
Number of discharges\Monthly	4.477	1.948	5.429	1.962	4.760	1.930
Number of ER visits\Monthly	.047	.379	1.936	1.057	1.488	.838
Number of surgeries\Monthly	7.971	2.629	-.410-	.689	3.266	1.633
Occupancy rate\Monthly	39.991	6.251	32.840	5.309	57.553	7.246
Total outpatient visits\Monthly	3.453	1.812	2.073	1.631	3.394	1.864

4.1.4 Inferential analysis: hypotheses testing

4.1.4.1 Significant main effect of hospital accreditation: Mann-Whitney tests

Since normality assumption for the data set (i.e., when the distributions are skewed or have high variance) is violated, non-parametric approaches used to test the dataset. The Mann-Whitney U is sensitive to changes in the median, and not to changes in the shape. I computed a test statistic of Mann-Whitney and a corresponding p-value, which give a sense for how likely the data are under the null hypothesis.

However, the Mann-Whitney test is used to compare differences between two independent groups when the dependent variable is either ordinal or continuous, but not normally distributed. In this case, the two independent groups are accredited hospitals, and non-accredited hospitals. Our dependent variables are the indicators. Mann-Whitney tests indicated statistically significant differences between accredited and non-accredited hospitals for some indicators, at a significance level of $\alpha = 0.05$. Indicators with significant differences are highlighted in Table 7, along with mean ranks. Hospitals with higher mean rank have higher indicators.

Based on the results reported in Appendix 14, only statistically significant results are displayed as (highlighted) in the table and the significant tests can be summarised graphically as follows.

4.1.4.1.1 Professional performance indicators of a healthcare organisation

Five OCIs found a significant difference between accredited and non-accredited hospitals when each QCI in the accredited hospitals was compared to each QCI in the non-accredited hospitals. These results are shown below in Figure 4-2.

The first indicator **(X8),** for the non-accredited hospital, was observed to have mean=8.07 and median=4.335. For the accredited hospital, the mean=11.79 and median=8.16. The significant difference of the indicator, operation cancellation rate (routine operations)\Monthly is (p-value=.009). the second indicator **(X11)** which was about average length of stay in the adult ICU, p-value = 0.009. The accredited hospital mean = 8.77, and median=7.25. The non-accredited hospitals mean = 5.77, and median=4.45. Thirdly, **(X16)** the percentage of specialties for which booking an urgent appointment takes more than two weeks for new cases, the p-value = 0.017. In the non-accredited hospital, the mean=4.01 and median=.000. For the accredited hospital, the mean=10.06 and median=1.532. Indicator number four **(X17),** for the non-accredited hospital, showed mean=11.48 and median=6.86, for the accredited hospital, the mean=20.814 and median=13.30. There was a significant difference in percentage of specialties for which booking a routine appointment takes more than four weeks for new cases\Monthly" (p-value=.020). The fifth indicator **(X25),** for the non-accredited hospital, the mean=5.62 and median=2.491. For the accredited hospital, the mean =8.83 and median=.492. There was a highly significant difference in the average CT scan booking time for OPD patients\Monthly (p-value=0.022).

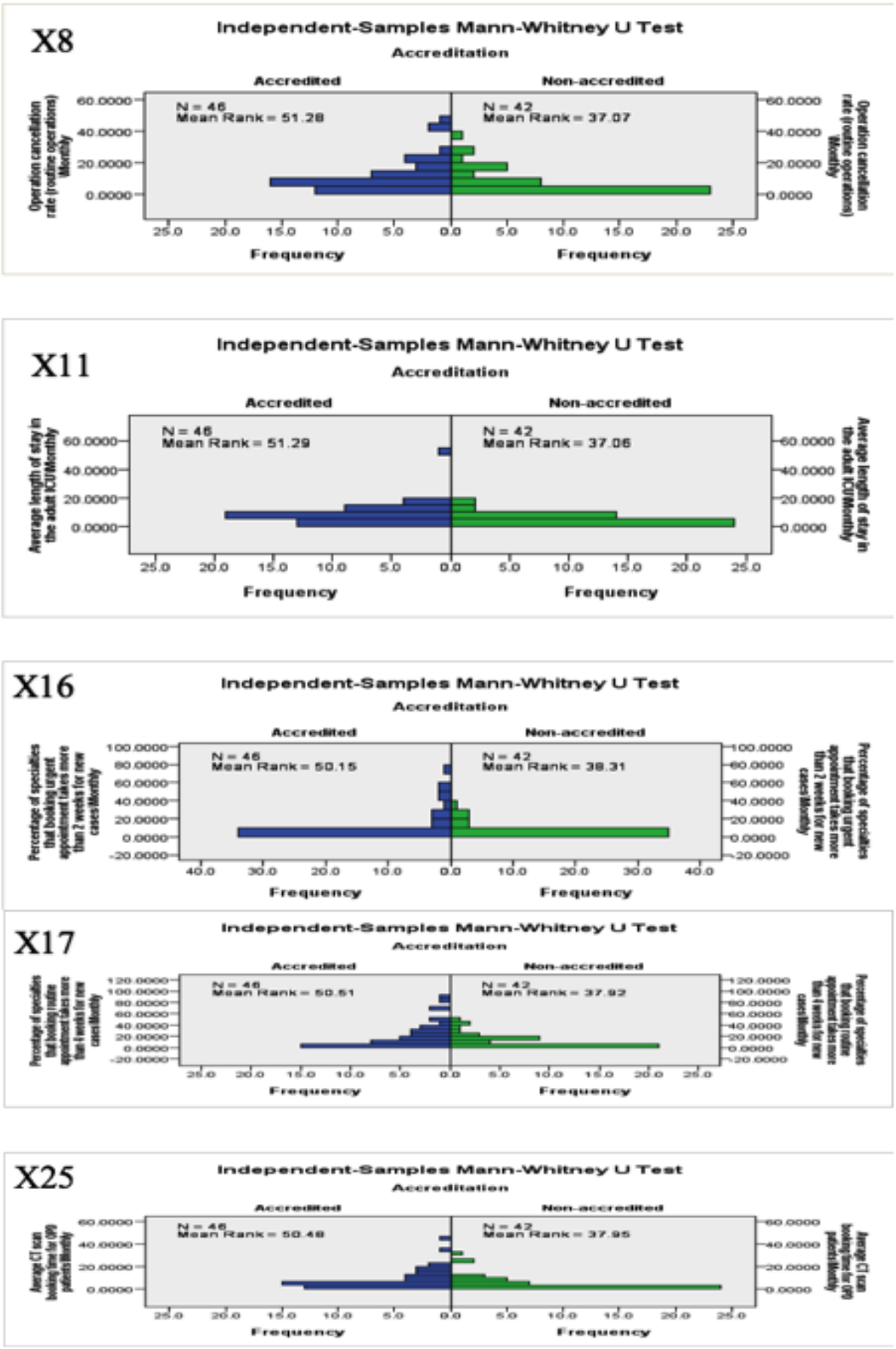

Figure 4.2 Professional performance indicators of a healthcare organisation

4.1.4.1.2 Health organisation KPIs

Of the 14 Health organisation KPIs, five were affected by the accreditation factor; i.e. there was a significant difference between accredited and non-accredited hospitals in five of the QCIs. This is presented in Figure 4.3. The first indicator **(Y27),** for non-accredited hospitals, was found to have mean=1.866 and median=1.48. For accredited hospitals, the mean=2.48 and median=2.04. The significant deference of Hospital Mortality Rate (Inpatient)\Monthly (p-value=0.024). The second indicator of this group **(Y29)** showed the non-accredited hospitals mean=0.238 and median=0.083. For accredited hospitals, it was noted that mean=0.39 and median=0.167. This difference in an unscheduled return to OR within 48 Hrs\Monthly indicator was significant (p-value=.013. The third indicator **(Y30),** for non-accredited hospitals showed mean=5.73 and median=2.50. For accredited hospitals the mean=11.804 and median=7.00. There was statistically different in Number of patient falls in year (p-value=.008). The fourth indicator **(Y33),** in the non-accredited hospitals was found to have mean=0.413 and median=.237. For accredited hospitals, the mean=0.612 and median=0.425. This difference was statistically significant of the Surgical Site Infection (SSI) Rate\Monthly (p-value=.006). Lastly, indicator **(Y40),** for the non-accredited hospitals showed mean=.058 and median=.000. For accredited hospitals, it was noted that mean=.240 and median=.042. This difference in the number of post-operative cardiac arrests within 48hrs\Monthly was highly significant (p-value=.009).

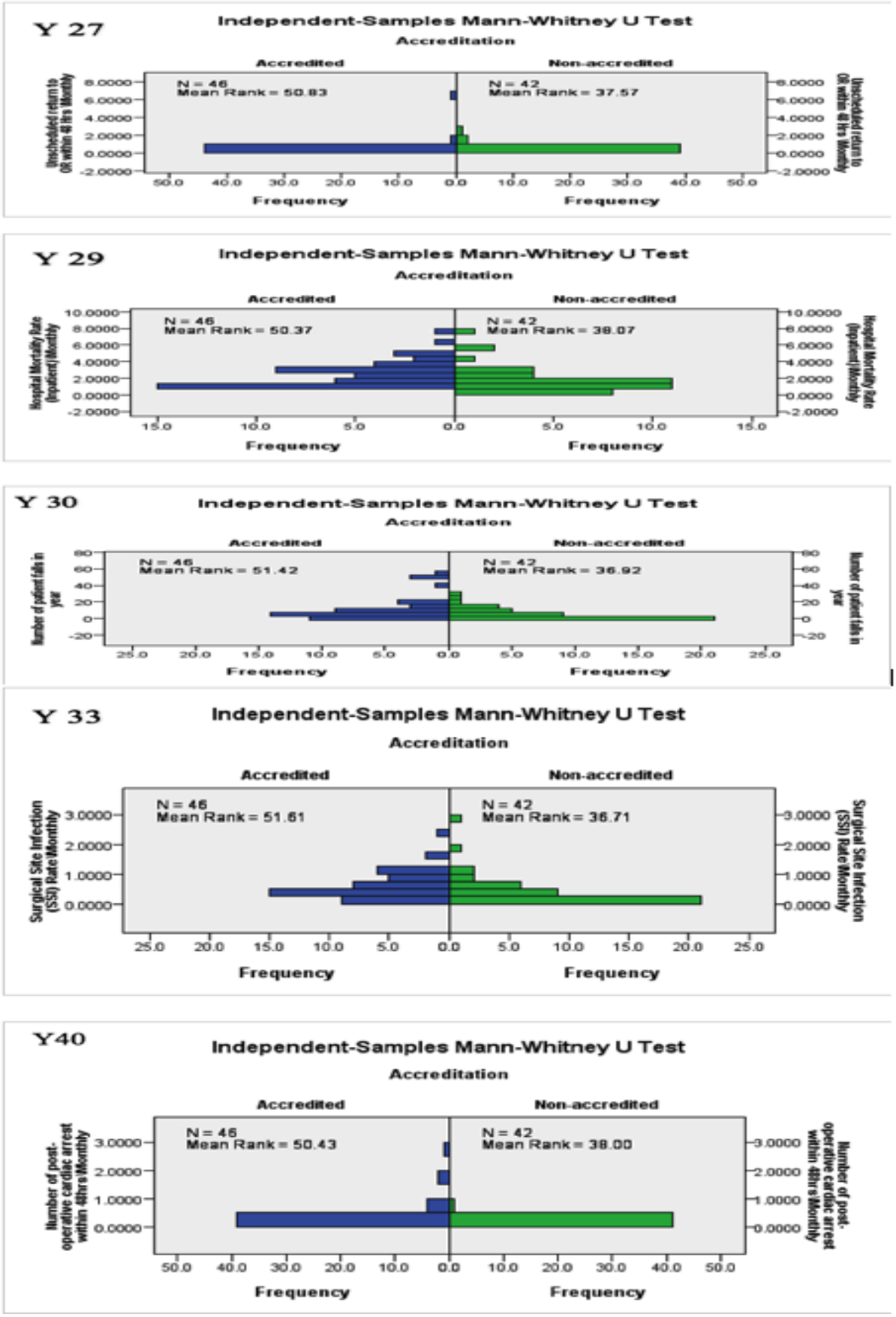

Figure 4.3Health organisation KPIs

4.1.4.1.3 Organisation productivity indicators

Of the seven health productivity indicators, only two were found to be significantly affected by hospital accreditation, as illustrated below in Figure 4.14.

For indicator **(Z46),** the non-accredited hospitals mean=202.81 and median=122.64. In accredited hospitals, the mean=267.3 and median=219.2. The significant difference of number of surgeries\Monthly p-value = 0.042. Finally, the indicator **(Z49)** shows the non-accredited hospital mean=5206.60 and median=4094.89. For accredited hospitals, the mean=7499.89 and median=5732.7. There was a significant difference in total outpatient visits\Monthly (p-value=.015).

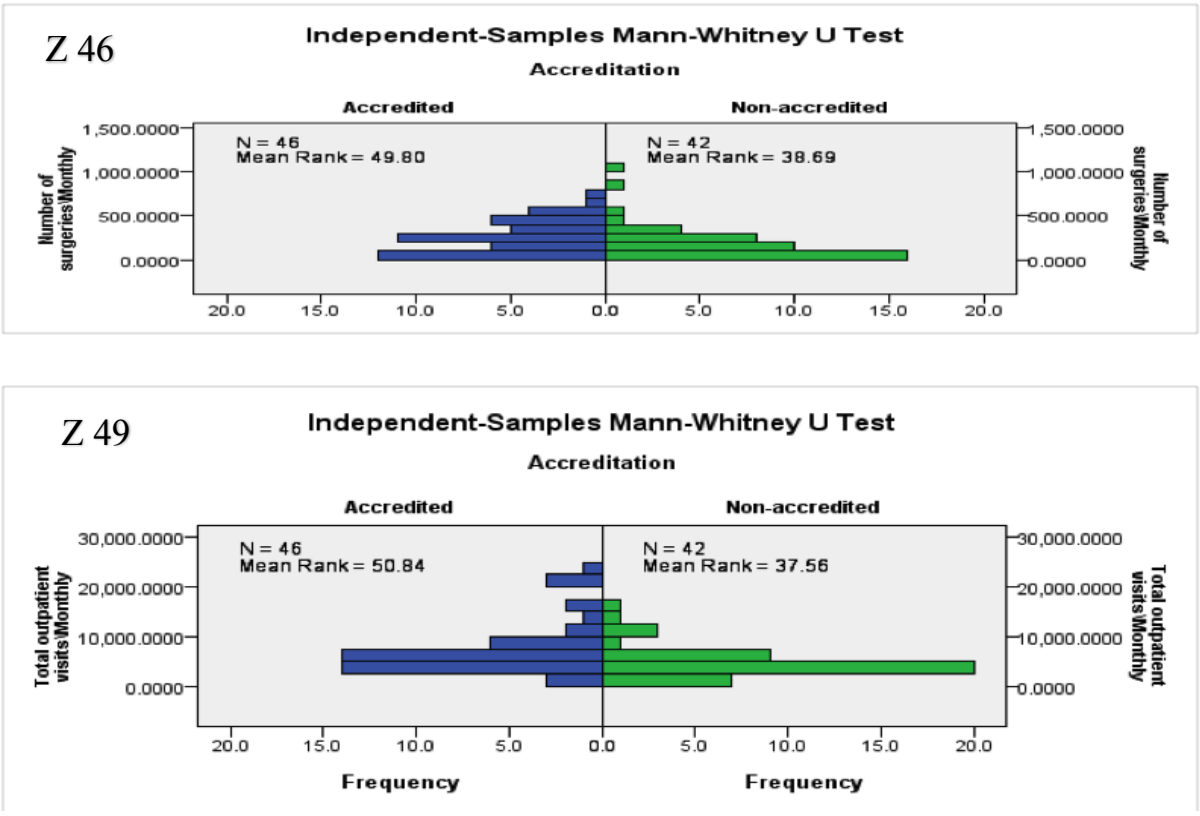

Figure 4.4Organisation productivity significant indicators

4.1.4.2 Hospital accreditation vs. hospital size

As mentioned in the methods section, the main research question asks whether there is a difference in the quality of care provided by accredited and non-accredited hospitals. As the hospitals could be classified into three sizes (small, medium and large), I hypothesised that hospital size may play a role when identifying the differences in quality of care indicators for accredited and non-accredited hospitals. A chi-square test for independence was performed to determine whether there was a significant relationship between hospital accreditation and size. The test revealed a statistically significant relationship between hospital accreditation and size, Pearson chi-square = 13.972 with p-value = 0.001, which is below the significance level of $\alpha = 0.05$. Table 4.5 presents the chi-square results from a 2x3 contingency table.

Table 4-5 Chi-square tests

Chi-Square Tests

. .	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.972[a]	2	.001
Likelihood Ratio	14.496	2	.001
N of Valid Cases	88		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 4.30.

. Figure 4.5 below illustrates the shape of the sample according to size and accreditation. The figure shows that the largest sample comes from small, non-accredited hospitals, and that most of the accredited hospitals are medium to large.

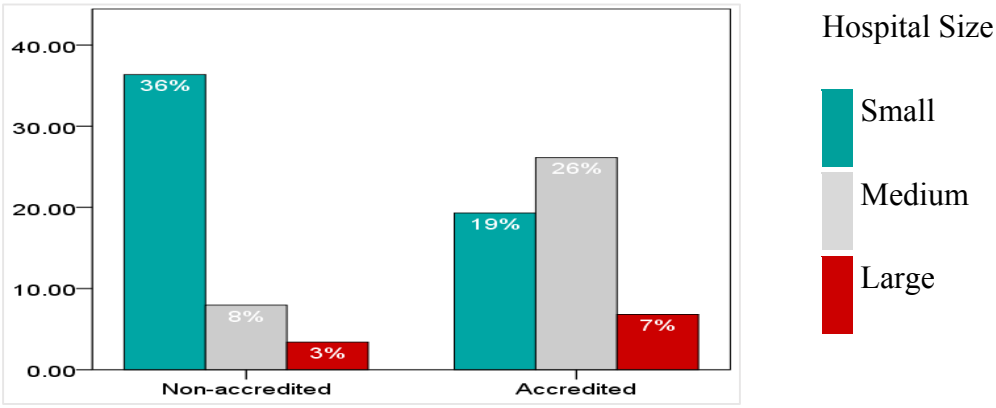

Figure 4.5. Bar chart of accreditation Vs hospital size

For symmetric measures, the Cramer's V test was used as a means of calculating correlation in tables which have more than 2x2 rows and columns, and used as a post-test to determine strengths of the association after chi-square has determined significance. However, Cramer's V (Table 4.6) was calculated as a measure of association between hospital accreditation and size, and reported Cramer's V = 0.398 with a p-value = 0.001, which is below the significance level of $\alpha = 0.05$. The value of the Cramer's V measure of association indicates a positive moderate relationship between hospital accreditation and size.

Table 4-6 Cramer's V test for association between hospital accreditation and size

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.398	.001
	Cramer's V	.398	.001
N of Valid Cases		88	

4.1.5 Multivariate Analysis of Variance (MANOVA)

Initially, a two-way multivariate analysis of variance (MANOVA) was selected to determine the difference between accredited and non-accredited hospitals while accounting for hospital size. MANOVA analysis is a multivariate statistical model that facilitates the study of interrelationships among sets of multiple dependent variables and multiple independent variables (Hair et al., 2010). Multivariate analysis indicates the proportion of variance in outcome variables explained by significance of the effect of the hospital size when computed with the indicator results among hospital accreditation variables. However, as the data was scanned, MANOVA assumptions were checked and found to be violated. Indicators were either severely positively skewed, had multivariate outliers, or were not distributed normally Therefore, a MANOVA analysis was deemed to be unsuitable. Instead, a Kruskal-Wallis test was seen as an alternative non-parametric test that could help answer the question. This is considered alternative to one way ANOVA or in this case an alternative to MANOVA, and was chosen in order to address whether the relationship between hospital accreditation and size can affect the comparison of the QCIs between the accredited and non-accredited hospitals. Thus, it is vital to measure this interaction effect (Accreditation Vs Size) by using a newly produced variable as the categorical variable. The new variable "interaction term" is coded as: (1) for "Non-accredited small", (2) Non-accredited medium, (3) Non-accredited large, (4) Accredited small, (5) Accredited medium, and (6) Accredited large, as illustrated in Figure 4.6.

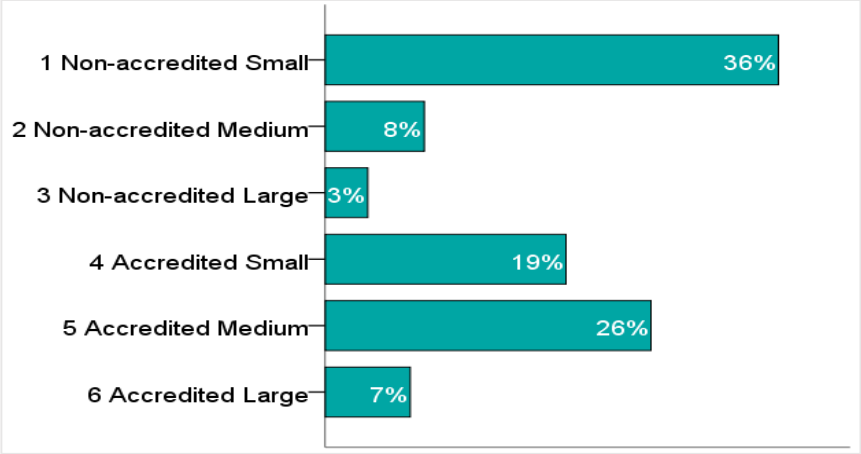

Figure 4.6. Interaction term – new categorical variable

4.1.6 Significant interaction effects (Kruskal-Wallis tests)

The Kruskal-Wallis tests indicated a significant interaction effect (p-values < 0.05) between hospital accreditation and size on some of the QCIs. The QCIs that were significantly affected by the accreditation X size interaction are illustrated below by clustered bar charts in figures 4-7, 4-8 and 4-9, respectively. As the Kruskal-Wallis test is a rank-based non-parametric test, ranks were used instead of raw data to show the significant interaction effects. Fractional ranks were calculated and used. Fractional rank of a variable is its rank divided by the sum of the weights of the non-missing cases, and ranges from 0 to 1(Appendix 15).

4.1.7 Professional performance indicators of a healthcare organisation QCIs

Of the 19 health organisations' professional performance indicators, 9 QCI were found to be significantly affected by the interaction between hospital accreditation and size, illustrated below in Figures below.

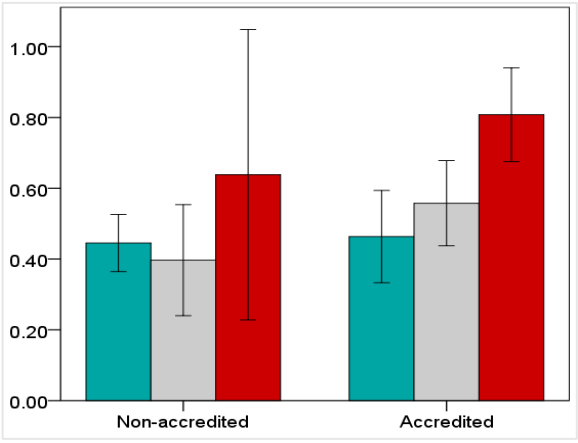

Figure 4.7 Rate Of Patients Who Spent 24 Hrs or More In The ER

X1-A significant difference in rate of patients who spent 24 hours or more in the ER between non-accredited small hospitals (MR = 17.23) and accredited large hospitals (MR = 31.58). Accredited large hospitals had significantly higher mean rank than non-accredited small hospitals, indicating that accredited large hospitals had significantly higher values of rate of patients who spent 24 hours or more in the ER than non-accredited small hospitals.

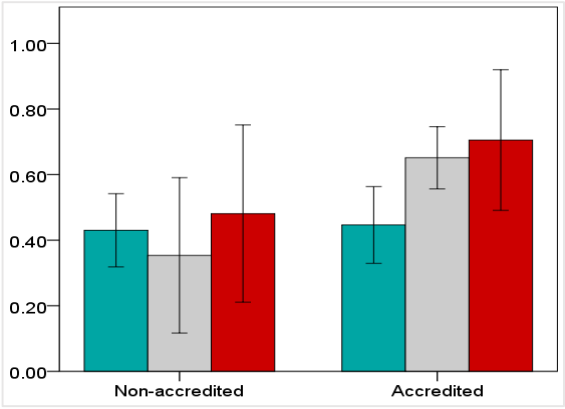

Figure 4.8 Operation Cancellation Rate (Routine Operations)

X8- Accredited medium and large hospitals seem to have larger operation rate than non-accredited medium and large hospitals.

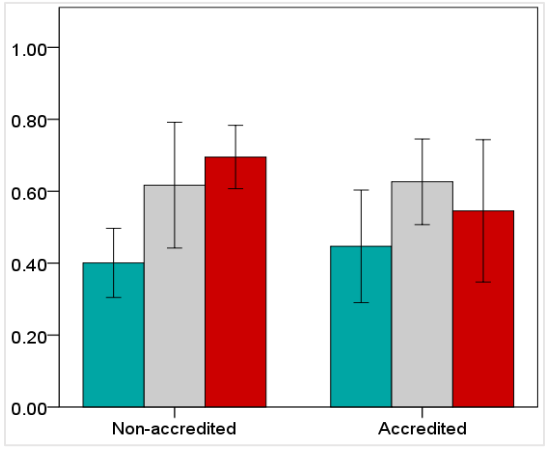

Figure 4.12 Average Patients Waiting Time for Scheduling Routine Surgical Operations

X6-The accredited large hospitals tend to have lower average patients waiting time for scheduling routine surgical operations. Although Kruskal-Wallis test revealed a significant interact effect of size and accreditation of hospitals, yet, the post hoc multiple comparisons Mann-Whitney tests did not determine the significant differences among the six types of hospitals.

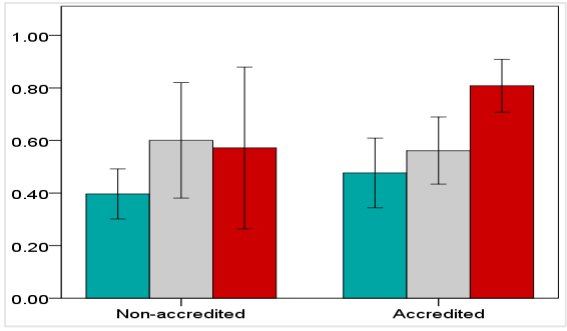

Figure 4.13 Adult ICU Occupancy Rate

X10-Accredited large hospitals had obviously higher adult ICU occupancy rate than non-accredited hospitals. Post hoc multiple comparisons tests revealed that

rank (MR = 32.67) than non-accredited small hospitals (MR = 17.03), indicating that accredited large hospitals had significantly higher values of adult ICU occupancy rate than non-accredited small hospitals. Other observed differences were not found to be significant and were only due to chance.

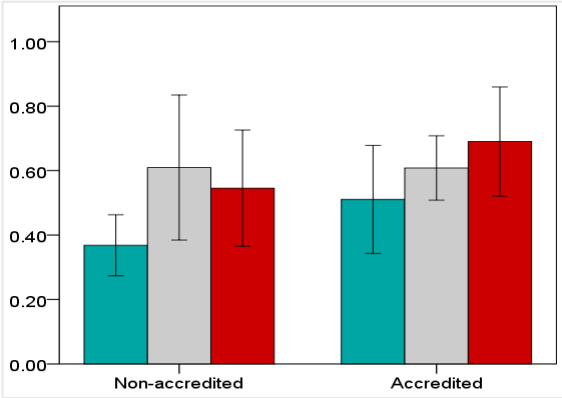

Figure 4.9 Average Length of Stay In The Adult ICU

X11- There seem to be no difference in average length of stay in the adult ICU between non-accredited and accredited hospitals for medium size. However, the chart shows that accredited hospitals tend to have higher average length of stay in the adult ICU than non-accredited hospitals of small and large size.Post hoc multiple comparisons Mann-Whitney tests revealed a significant difference between non-accredited small hospitals and accredited medium hospitals. Accredited medium hospitals had significantly higher mean rank (MR = 36.02) than non-accredited small hospitals (MR = 22.23).

accredited large hospitals had significantly higher mean

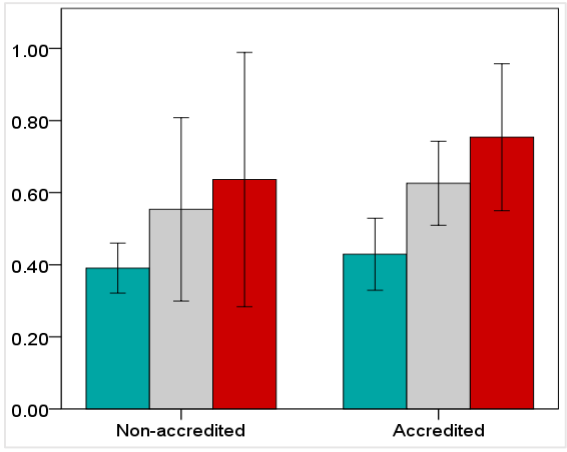

Figure 4.14 Percentage of Specialties That Booking Urgent Appointment Takes More Than 2 Weeks for New Cases

X16 - it can be noticed that accredited hospitals tend to have higher percentage of specialties that booking urgent appointment takes more than 2 weeks for new cases than non-accredited hospitals. However, post hoc multiple comparisons Mann-Whitney tests revealed that accredited medium hospitals had significantly higher mean rank (MR = 35.59) than non-accredited small hospitals (MR = 22.55), indicating that accredited medium hospitals had significantly higher percentages of specialties that booking urgent appointment takes more than 2 weeks for new cases than non-accredited small hospitals. The Mann-Whitney tests also revealed a significant difference between non-accredited small hospitals and accredited large hospitals, where accredited large hospitals had significantly higher mean

large hospitals had higher percentage of specialties that booking urgent appointment takes more than 2 weeks for new cases than non-accredited small hospitals.

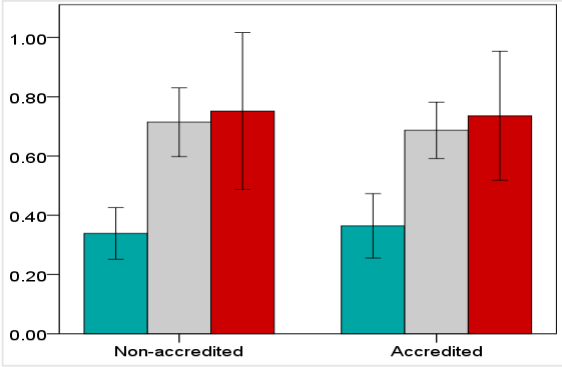

Figure 4.10 Percentage of Specialties That Booking Urgent Appointment Takes More Than 2 Weeks for New Cases

X17- It can be seen that medium and large hospitals had significantly higher percentage of specialties that booking routine appointment (takes more than 4 weeks for new cases) than small hospitals. Post hoc multiple comparisons Mann-Whitney tests revealed the following significant differences:

non-accredited medium hospitals had significantly higher mean rank (MR = 31.71) than non-accredited small hospitals (MR = 17.44).

accredited medium hospitals had significantly higher mean rank (MR = 38.87) than non-accredited small hospitals (MR = 20.19).

accredited large hospitals had significantly higher mean rank (MR = 31.50) than non-accredited small hospitals (MR = 17.25).

rank (MR = 30.67) than non-accredited small hospitals (MR = 17.41). That is, accredited non-accredited medium hospitals had significantly higher mean rank (MR = 19.57) than accredited small hospitals (MR = 9.59). accredited medium hospitals had significantly higher mean ran (MR = 26.26) than accredited small hospitals (MR = 12.71).

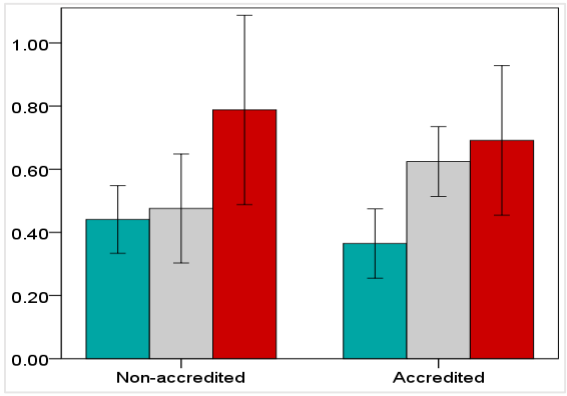

Figure 4.15 Average U/S Booking Time for OPD Patients

X24-It can be seen that non-accredited hospitals had higher average U/S booking time for OPD patients than accredited hospitals of small and large size, while the opposite is true for the medium sized hospitals. In the same time, it can be observed that for non-accredited hospitals, large hospitals had higher average U/S booking time for OPD patients than small and medium sized hospitals, while for accredited hospitals medium and large sized hospitals had higher average U/S booking time for OPD patients than small hospitals.

Mann-Whitney tests revealed that accredited medium hospitals had significantly higher mean rank (MR = 25.22) than accredited small hospitals (MR = 14.12).

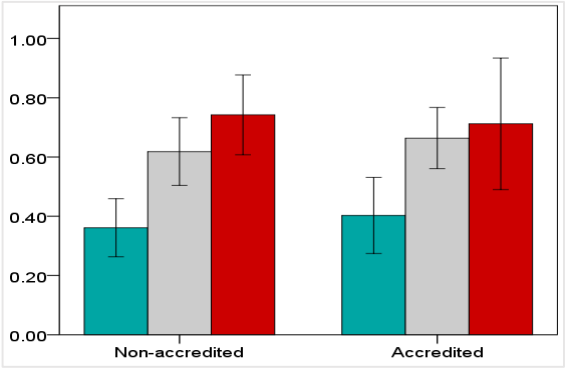

Figure 4.11 Average CT Scan Booking Time for OPD Patients

X25 - I can say that there is no significant difference between accredited and non-accredited hospitals in average CT scan booking time for OPD patients regardless of hospital size. However, for either accredited or non-accredited hospitals, medium and large hospitals tend to have higher average CT scan booking time for OPD patients. To specify statistically significant differences, post hoc multiple comparisons Mann-Whitney tests were checked.

Post hoc multiple comparisons Mann-Whitney tests revealed that accredited medium hospitals had significantly higher mean rank (MR = 36.91) than non-accredited small hospitals (MR = 21.59). And, accredited medium hospitals had significantly higher mean rank (MR = 25.20) than accredited small hospitals (MR = 14.15). Other observed differences were only random and due to chance.

Yet, these differences were not proved to be statistically significant. Post hoc multiple comparisons

4.1.7.1.1 -Health organisation KPIs

Of the 14 health organisation KPIs, nine were found to be significantly affected by the interaction between hospital accreditation and size (Appendix 15), as illustrated below.

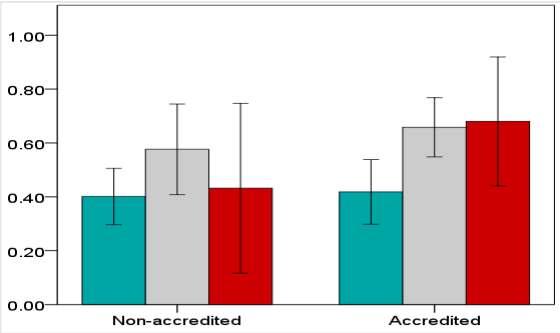

Figure 4.16 Hospital Mortality Rate (Inpatient)

Y27 -It can be seen that, for non-accredited hospitals, medium sized hospitals had higher mortality rate than small and large hospitals, while for accredited hospitals, medium and large hospitals had higher mortality rate than small hospitals. Moreover, it is obvious that medium accredited hospitals had higher mortality rate than medium non-accredited hospitals and the same for large hospitals. However, these differences were not proved to be statistically significant. Post hoc multiple comparisons Mann-Whitney tests revealed that accredited medium hospitals had significantly higher mean rank (MR = 35.91) than non-accredited small hospitals (MR = 22.31).

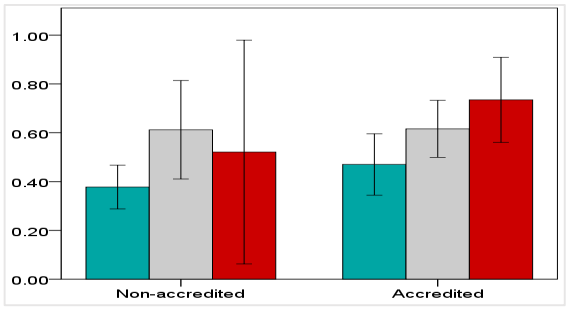

Figure 4.21 Unscheduled return to OR within 48 Hrs

Y29 - The distribution of "unscheduled return to OR within 48 hours" seems different for the three hospital sizes between both groups of hospitals, accredited and non-accredited. For non-accredited hospitals, medium and large hospitals had higher unscheduled return to OR within 48 hours than small sized hospitals, and medium hospitals had higher unscheduled return to OR within 48 hours than large hospitals. One more observation is that unscheduled return to OR within 48 hours is obviously higher in accredited large hospitals than in non-accredited large hospitals, and similarly for small sized hospitals. However, these differences might be random as they were not proved to be statistically significant. Post hoc multiple comparisons Mann-Whitney tests revealed that accredited medium hospitals had significantly higher mean rank (MR = 35.30) than non-accredited small hospitals (MR = 22.75).

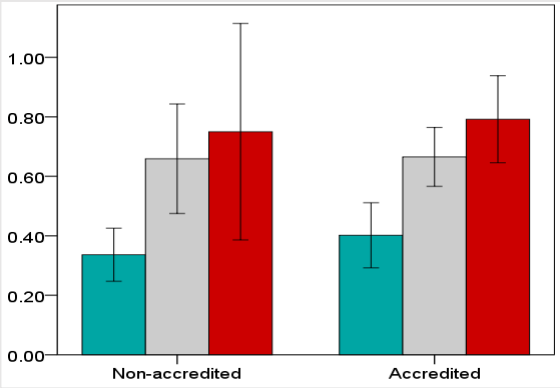

Figure 4.17 Number of patient falls in year

Y30 - Number of patient falls in year was higher in medium and large hospitals than in small hospitals regardless the hospital is accredited or not. No much difference between accredited and non-accredited hospitals was observed in number of patient falls in year for all hospital sizes. However, in terms of statistical significance, post hoc multiple comparisons Mann-Whitney tests revealed the following:

accredited medium hospitals had significantly higher mean rank (MR = 38.17) than non-accredited small hospitals (MR = 20.69).

accredited large hospitals had significantly higher mean rank (MR = 32.75) than non-accredited small hospitals (MR = 17.02).

accredited medium hospitals had significantly higher mean rank (MR = 25.50) than accredited small hospitals (MR = 13.74).

accredited large hospitals had significantly higher mean rank (MR = 19.00) than accredited small hospitals (MR = 9.53).

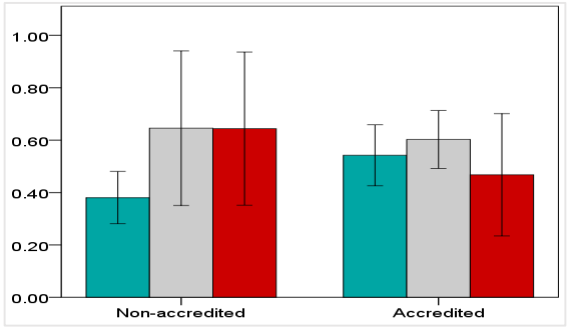

Figure 4.22 Number of medication errors

Y31- The number of medication errors is higher in medium and large hospitals than in small hospitals, which are non-accredited. However, for accredited hospitals, the number of medication errors is lower in large hospitals than in small and medium hospitals. Moreover, it can be observed that the number of medication errors is lower in large accredited hospitals than in large non-accredited hospitals. On the contrary, the number of medication errors is higher in small accredited hospitals than in small non-accredited hospitals.

Although the Kruskal-Wallis test showed that there was an interaction effect between size and accreditation of hospitals, no significant differences were found among the size groups of hospitals when

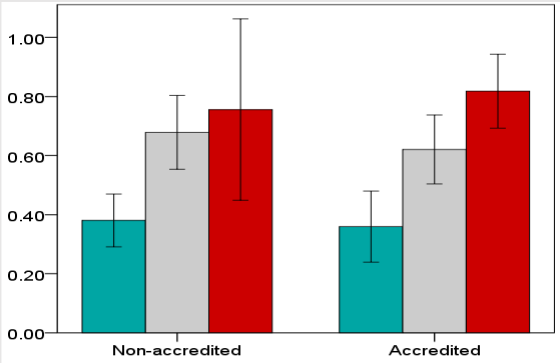

Figure 4.18 Number of patients developed bed sores during hospitalization including ICU (new cases)

Y34 - All hospitals, accredited and non-accredited, medium and large hospitals had higher number of patients developed bed sores during hospitalization including ICU (new cases) than small hospitals. Moreover, accredited large hospitals had higher number of patients developed bed sores during hospitalization including ICU (new cases) than non-accredited large hospitals. In terms of statistical significance, post hoc multiple comparisons Mann-Whitney tests revealed that:

accredited medium hospitals had significantly higher mean rank (MR = 35.43) than non-accredited small hospitals (MR = 22.66),

- accredited large hospitals had significantly higher mean rank (MR = 32.92) than non-accredited small hospitals (MR = 16.98), and
- accredited large hospitals had significantly higher mean rank (MR

examining post hoc multiple comparisons Mann-Whitney tests.

= 19.67) than accredited small hospitals (MR = 9.29).

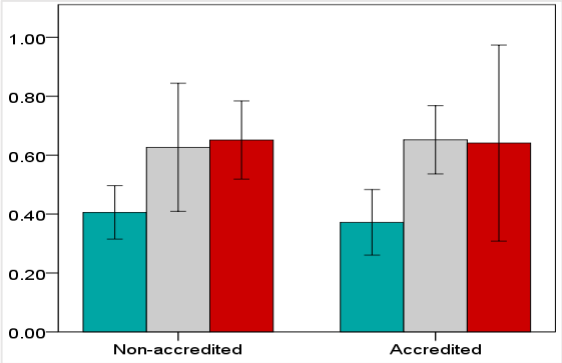

Figure 4.23 Number of code blue

Y35 - No difference in number of code blue between accredited and non-accredited hospitals for all hospital sizes. However, medium and large hospitals had larger number of code blue than small hospitals. In terms of statistical significance of the interaction effects, the post hoc multiple comparisons Mann-Whitney tests revealed that:

accredited medium hospitals had significantly higher mean rank (MR = 35.87) than non-accredited small hospitals (MR = 22.34).

accredited medium hospitals had significantly higher mean rank (MR = 25.37) than accredited small hospitals (MR = 13.91).

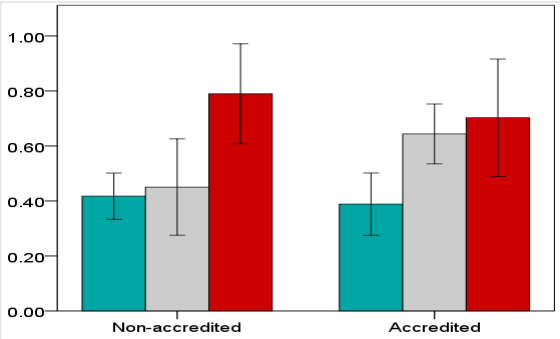

Figure 4.19 Number of intra-operative cardiac arrest

Y40 -large hospitals tend to have higher number of intra-operative cardiac arrest than medium and small hospitals that are non-accredited, while both large and medium hospitals had higher number of intra-operative cardiac arrest than small hospitals that are accredited. On the other hand, large accredited hospitals had lower number of intra-operative cardiac arrest than large non-accredited hospitals, while medium accredited hospitals had higher number of intra-operative cardiac arrest. Yet, these differences were not statistically significant. Post hoc multiple comparisons Mann-Whitney tests revealed that accredited medium hospitals had significantly higher mean rank (MR = 35.43) than non-accredited small hospitals (MR = 22.66).

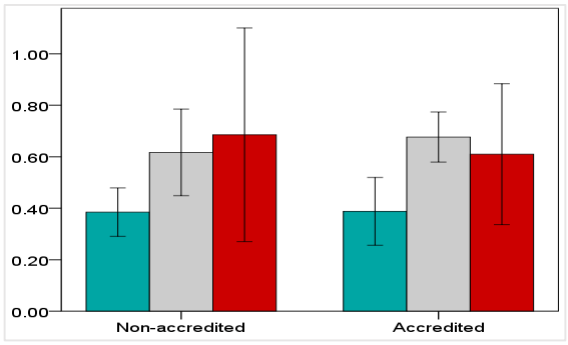

Figure 4.24 Number of needle stick injury

Y38- Medium and large hospitals had larger number of needle stick injury than small hospitals for both groups of hospitals; accredited and non-accredited. Moreover, medium accredited hospitals had larger number of needle stick injury than medium non-accredited hospitals, while large non-accredited hospitals had larger number of needle stick injury than large accredited hospitals. In terms of significance, post hoc multiple comparisons Mann-Whitney tests revealed that:

accredited medium hospitals had significantly higher mean rank (MR = 37.43) than non-accredited small hospitals (MR = 21.22), and

accredited medium hospitals had significantly higher mean rank (MR = 25.33) than accredited small hospitals (MR = 13.97).

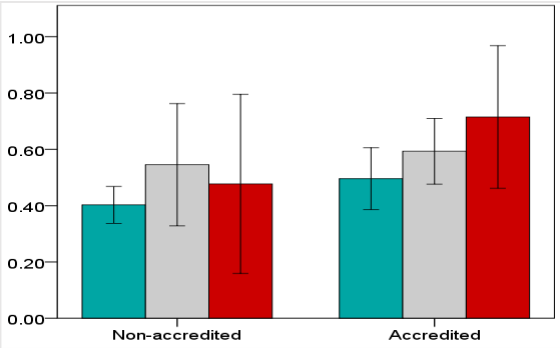

Figure 4.20 Number of post-operative cardiac arrest within 48 hrs.

Y41- that accredited hospitals had higher number of post-operative cardiac arrest within 48 hours than non-accredited hospitals, regardless of the size of the hospital. However, within each group of hospitals in terms of accreditation, there is an observable difference. For non-accredited hospitals, medium sized hospitals had higher number of post-operative cardiac arrest within 48 hours than large and small hospitals. For accredited hospitals, large hospitals had higher number of post-operative cardiac arrest within 48 hours than medium and small hospitals. Although the Kruskal-Wallis test showed a significant interaction effect between size and accreditation of hospitals, post hoc multiple comparisons

4.1.7.1.2 Organisation productivity indicators

Of the seven health productivity indicators, six were found to be significantly affected by the interaction between hospital accreditation and size (Appendix 15), as illustrated below.

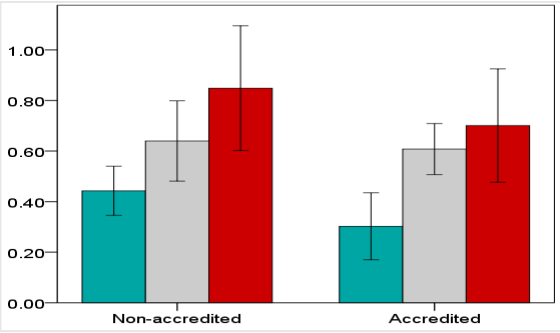

Figure 4.25 Number of admissions

Z43-It can be seen that non-accredited hospitals had higher number of admissions than accredited hospitals, for all hospital sizes. Moreover, both groups of hospitals, as hospital size increases the number of admissions increases, indicating a positive relationship. Post hoc multiple comparisons Mann-Whitney tests revealed that accredited medium hospitals had significantly higher mean rank (MR = 25.48) than accredited small hospitals (MR = 13.76).

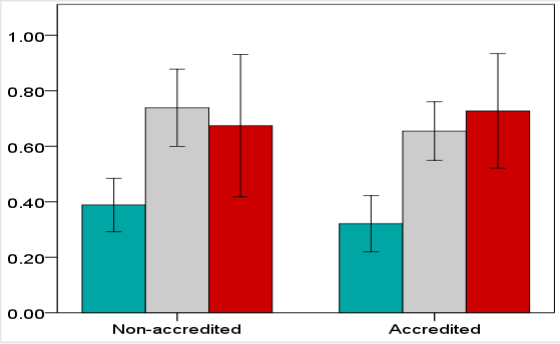

Figure 4.26 Number of ER visits

Z45 - Both types of hospitals; non-accredited and accredited have the same distribution of the number of ER visits for all sizes of hospitals. However, a tiny difference can be observed as, for non-accredited hospitals, large hospitals had the highest number of ER visits. Post hoc multiple comparisons Mann-Whitney tests revealed that:

accredited medium hospitals had significantly higher mean rank (MR = 36.43) than non-accredited small hospitals (MR = 21.94),

non-accredited medium hospitals had significantly higher mean rank (MR = 20.00) than accredited small hospitals (MR = 9.41), and

- accredited medium hospitals had significantly higher mean rank (MR = 26.35) than accredited small hospitals (MR = 12.59).

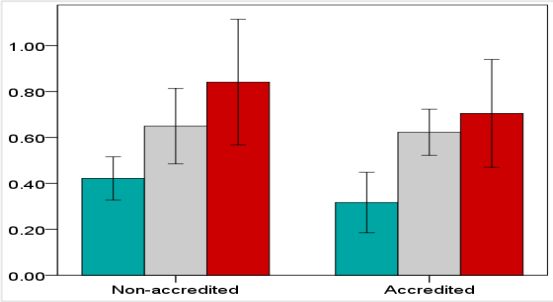

Figure 4.28 Number of admissions

Z43 - The results here are very similar to the previous one, with number of admissions. Non-accredited hospitals were found to have higher number of discharges than accredited hospitals, for all hospital sizes. And, in both groups of hospitals, as hospital size increases the number of discharges increases, indicating

accredited hospitals, medium sized hospitals had the highest

a positive relationship. Post hoc multiple comparisons Mann-Whitney tests revealed that accredited medium hospitals had significantly higher mean rank (MR = 25.52) than accredited small hospitals (MR = 13.71).

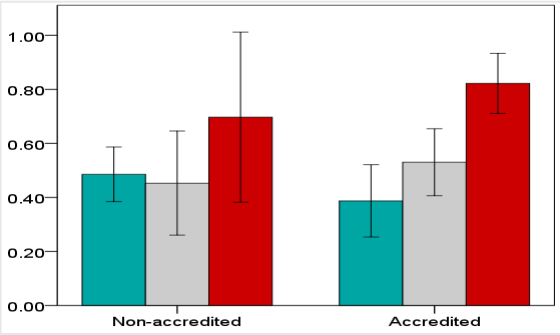

Figure 4.27 Occupancy rate

Z48 - A positive relationship between hospital size and occupancy rate in accredited hospitals because occupancy rate increases as hospital size increases. For non-accredited hospitals, large hospitals had significantly higher occupancy rate than small and medium hospitals. Moreover, large accredited hospitals had higher occupancy rate than large non-accredited hospitals. Although Kruskal-Wallis test showed a significant interaction effect between size and accreditation of hospitals, yet the Mann-Whitney multiple comparisons tests did not reveal specific differences among the six groups of hospitals.

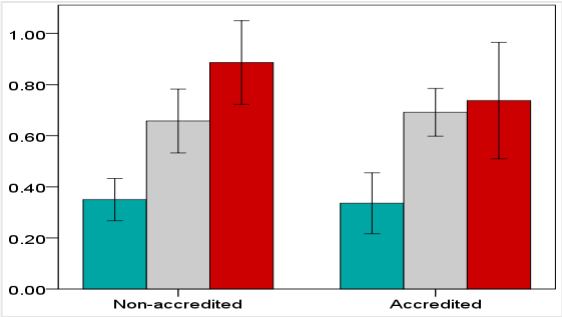

Figure 4.29 Number of surgeries

Z46 - There is a positive relationship between hospital size and number of surgeries, either for accredited or non-accredited hospitals. However, this relationship seems stronger for non-accredited hospitals as number of surgeries significantly increases as size of hospital increases. For accredited hospitals, the increase in number of surgeries from medium to large hospitals does not seem to be significant. One more observed difference is that large non-accredited hospitals had higher number of surgeries than large accredited hospitals. Post hoc multiple comparisons Mann-Whitney tests revealed that:

Accredited medium hospitals had significantly higher mean rank (MR = 39.30) than non-accredited small hospitals (MR = 19.88).

- Accredited medium hospitals had significantly higher mean rank (MR = 26.39) than accredited small hospitals (MR = 12.53).

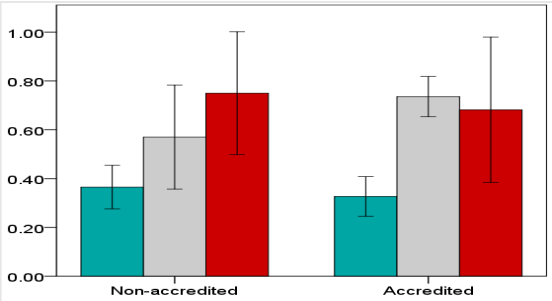

Figure 4.30 Number of outpatient visits

Z49 - A positive relationship between hospital size and total outpatient visits for non-accredited hospitals because as hospital size increases the total outpatient visits increases. However, for accredited hospitals, there is no observed relationship between hospital size and total outpatient visits. Yet, for accredited hospitals, medium and large hospitals had higher total outpatient visits than small hospitals. It is worthy to say that, for non-accredited hospitals, large hospitals had higher total outpatient visits than medium and small hospitals; but, for accredited hospitals, medium hospitals had the highest total outpatient visits. Mann-Whitney multiple comparisons tests revealed that:

Accredited medium hospitals had significantly higher mean rank (MR = 39.76) than non-accredited small hospitals (MR = 19.55).

Accredited medium hospitals had significantly higher mean rank (MR = 27.87) than accredited small hospitals (MR = 10.53).

4.1.8 Summary

The results from Mann-Whitney test when differences were compared between the QCI of the Accredited and Non-Accredited Hospitals identified significant differences across 12 QCI. From the 12 QCI, five were from Health Organisation KPIs; five from Professional Performance Indicators of Healthcare Organisation and two were from Organisation Productivity.

In addition, the results from Kruskal-Wallis test showed that 24 indicators of the 40 were affected by hospital size when comparing the differences in QCI between accredited and non-accredited hospitals. Moreover, when the value of association (Cramer's V) was measured, it showed a moderate positive relationship between hospital accreditation and size.

Overall, the five most important indicators were: Average length of stay in the adult ICU\Monthly; Surgical Site Infection (SSI) rate\Monthly; Average CT scan booking time for OPD patients\Monthly; Number of patient falls in a year; and Number of post-operative cardiac arrests within 48hrs\Monthly. For all important/unimportant indictors, the accredited hospitals showed higher averages than non-accredited hospitals.

4.2 Part 2: Qualitative results

4.2.1 Introduction

The previous section presented the results of the quantitative data and the differences between CQIs from accredited and non–accredited hospitals. This section, Part 2 of the results, describes the outcomes from the thematic analysis of the semi-structured interviews conducted with eight healthcare professionals.

As described in methods section 3.10, the semi-structured interviews were conducted with both managers involved in accreditation and others not involved in accreditation the process. The findings were structured under categories and sub-categories of themes developed from the interviews. The participants' verbatim quotations (in italics) are tabulated and included in the text where relevant, to provide evidence for the themes. The qualitative results in Part 2 of this chapter answer the second and third research questions:

- How does accreditation process influence the perceived quality of healthcare in MoH hospitals?
- What are the similarities and differences in perceived quality of healthcare in accredited and non-accredited MoH hospitals in KSA?

4.2.2 Setting the scene

According to Wilson (2014), even if the researcher has good knowledge of the topic, semi-structured interviews are based on the topics, issues, and different sources of data. However, the main goal of semi-structured interviews is to collect data about the main topic, considering

new themes or issues. I compiled semi-structured questions as a guideline for the interviews (Appendix 4). These questions cover the quality aspects that hospital staff must implement in the hospital to comply with the quality principles discussed earlier in the literature review. Creswell & Plano Clark (2011) emphasise the possible use of concurrent timing if both the quantitative and qualitative strands are to be performed simultaneously. Unfortunately, when I looked at data I received for the indicators, it was dated early 2015, however, I had asked for the latest data which is one year of up to date data collection (2016). An e-mail was sent to the director of the clinical audit department to clarify the matter and was contacted by telephone to avoid repeating the mistake. He understood the situation and asked me to return after two weeks. In the meantime, I was still interviewing the hospital directors for the second part of the study (qualitative). Two weeks later I phoned him to remind him of the appointment and he told me it could be sent by e-mail. Eventually he sent the data at the end of third week via e-mail. The interviews were still going on at that time but I checked the data sent immediately. After seeing the data, I found that it was from the year 2016, as required, but it represented only 94 hospitals. At this stage the data collection was collected from the quantitative and qualitative parts in the same period. The second stage was the analysis of the data obtained from the clinical audit directorate and from the semi-structured interviews. The analysis of these collected data took six months. It can be concluded that I had collected the indicators report while doing the interview alternately with the hospital managers. A description of the design of this study is summarised in Figure 1. Using this notational design, Figure 2 illustrates the application of this model to this study.

An open invitation for participation was used in order to ensure that all hospitals had an opportunity to participate (Section 3.6),on a first come first served basis. The sample involved

two participants from four hospitals who fulfilled the inclusion criteria (Section 3.9.2). The inclusion criteria stipulated: more than five years' experience in a top management position, participation in at least one accreditation journey for the accredited hospitals, and no previous participation in a non-accredited hospital. Those managers are accountable for the success or failure of accreditation. Hospital managers have participated in each step of the quality programme implemented by the MoH since it began in 2005.

An email providing information about the study was sent to the participants (Appendix 5). As identified in Table 4.6, two hospital directors (A1 and B3), one nursing director (A 2) and an administrative director (B 4) were chosen from accredited hospitals, and two hospital directors (C5 and D7), one medical director (D 8) and an administrative director (C 6) were selected as participants from non-accredited hospitals.

The hospital workforce in Saudi Arabia is diverse and multi-cultural with many non-Saudi workers, and the most common shared language is English, however, English was the second language for all participants. All participants and I chose a suitable location and time for the interviews to ensure availability and comfort. The participant's right to not participate or to withdraw at any time had been clarified, I stressed that the interviewee's participation is entirely voluntary, as declared in the consent form (Appendix 6), and confirmed by their agreement to record the interview. The participant had been informed verbally and in writing that their identity is hidden to ensure confidentiality. At the end of the initial telephone conversation with the participant, the time and place of interview was been arranged and followed up with a confirmation email.

At the arranged interview, I checked that the recorder was working properly before the interview in-order to avoid any loss of interview data. The interviews were conducted in Arabic and were translated, verified (Section 3.10) and transcribed verbatim (Appendix 16 and 17). As English was the second language of all the participants, and readers who are native English speakers will notice different word choices than perhaps are expected, where necessary, the meaning has been explained.

Table 4-7 Participant identification

Hospital type	Hospital code	Participant code	Participant position
Accredited	A	P 1	Hospital Director
		P 2	Nursing Director
	B	P 3	Hospital Director
		P 4	Administrative Director
Non-accredited	C	P 5	Hospital Director
		P 6	Administrative Director
	D	P 7	Hospital Director
		P 8	Medical Director

Various issues related to quality of healthcare including the accreditation process and its associated questions were discussed in the interviews. These questions are outlined in Appendix 4. As previously described in the methods section (3.11), thematic analysis was carried out via six steps, as follows:

4.2.3 Qualitative analysis process

The audio-recorded conversations from the eight face-to-face interviews were saved in the qualitative data analysis file as audio files under two names: Accredited, and Non-accredited.

All recorded conversations were transcribed by myself. The transcript was in Arabic, and the verbs used by the participant, even if they used some English abbreviations, were understandable from the context. Each transcript was prepared with added spaces to accept more information and notice during analysis and saved in the same location as the audio files.

I uploaded the data to my computer and listened to the recorded interviews to make sure that the recording was clear. I listened to the recordings once again in a quiet place to avoid interruption whilst reading my notes taken during the interview. This helped me gain familiarity with the content and recall the information.

I created new Word documents in electronic record interview files. The new documents contained a date, time and given code within a table that included questions, answers, and my comments (Appendix 18). This systematic work made me more organised and facilitated progress at this stage. I prepared an environment that allowed transcription to take place in a systematic way. Moreover, high-quality headphones were used to listen to the recorded interviews and capture the correct words using the forward and back controller to repeat the recorded conversation to aid in making notes, sometimes pausing the recording to add specific words after listening to full sentences. I used the codes mentioned in the previous section in place of the actual names of the participants.

The recorded data and transcript were reviewed in-order to check accuracy of the content. Each interview took approximately six hours to transcribe. I translated all of the Arabic text to English and a translation agency was employed to carry out validation of the interpretation of the transcript from Arabic to English (Appendix 19). I sent a copy of the transcription report in Arabic and English to two of the participants to validate the information given. They replied

and agreed that the transcript reflected what was said in the interview. I checked the data once again and I saved them in three places: my personal computer, the university F drive, and Dropbox, to avoid loss of information. The data was removed after analysis.

In line with the inductive model used in this study and mentioned in data analysis Section 3.10.1, I began to code (Appendix 20). I selected sentences and words that were then pasted under titles that specified the participant's views, or created a new title for quotes that did not fit or needed to be separated under a new theme. Moreover, the same quote could be related to more than one title according to the idea behind that option. This process was repeated to create more headings and categories (Appendix 20).

After finishing this coding process, I reviewed all quotes to ensure there were no repetitions. Then, I reviewed the heading titles and identified any likeness for further grouping or "clustering" together under one title. This organisation process was helpful in generating the "thematic categories" from different "themes" sorted in the writing process (see Appendix 21).

The themes were classified into categories in order to put them under headings. In writing up the section in the analysis report, all the comments made under the thematic category were reviewed along with the similarities or differences of mentions, how the category was formed and the logic responses related to this category. Finally, after all thematic categories had been described, they were analysed for the final main themes which considered the narratives and individual word-based descriptions of the participants. In addition, the participants' verbatim quotation (in italics) were tabulated and included in the text when relevant to provide the

necessary evidence for the themes (see Appendix 21). This allows the reader to have a clear image of the participant's understanding of quality regarding the research question.

4.2.4 Semi-structured interview findings

During the data analysis I lived with the experience of the managers and attempted to understand their world. Participants and I shared the sense of interpreted data. In addition, critical questions could be answered during the data analysis, such as 'what quality culture has been implemented in the MoH hospitals?', and 'what are the motivations for healthcare professionals to obey the implementation of quality programmes in MoH hospitals?
Interesting information was highlighted with notes in the right-hand margin as an initial interpretation transcript (Appendix 18).

The final analysis revealed the existence of three main themes: Knowledge, Practice, and Staff Attitude Figure 4.10. Moreover, six further themes were derived: 'Fundamental Concepts, Satisfaction, Reporting System, Safety, Precautions, and Teamwork', which will be discussed in detail in Section 4.4.1. A selection of quotes from the interviews will be used to further illustrate the findings and to allow the reader to understand the responses which formed the data.

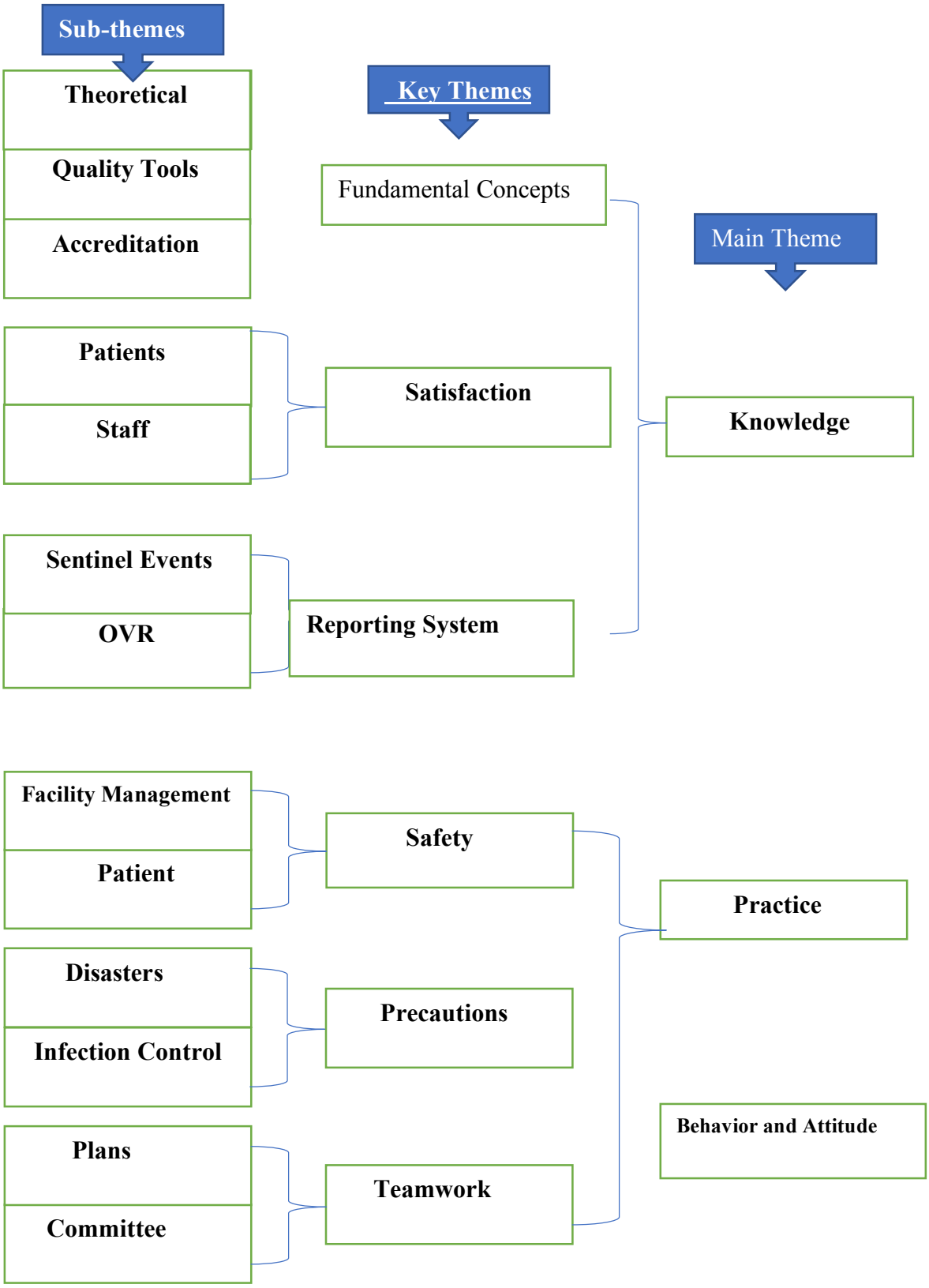

Figure 4.31 Semi-structured interviews extracted themes

All participants were asked for their perception of quality in various dimensions, regardless of whether the hospital was accredited or not. Key themes and sub-themes were categorised and coded (Figure 4.10), which developed the theoretical framework to deliver an understanding of the differences in the perceptions of quality provided by accredited and non-accredited MoH hospitals in Saudi Arabia.

4.2.5 Example of response from participants

To set the scene at each interview, the managers were asked a general question about what they knew about the quality programme in SA. This provided participant background knowledge of the quality programme and its implementation in MoH hospitals. The participants had a similar pattern of responses, except for one participant who mentioned the wrong year, stating 2006 instead of 2005. Although the participants were from various professional backgrounds (Section 4.3.2) and were working in top management in the hospitals, they gave detailed historical answers about the quality programme of the MoH. The following quotes from participants illustrate these answers:

> *"I have been working in the MoH since 2000, but I was thinking of working in another organisation, I mean in Aramco hospital or King Fisal hospital because, in my opinion, they are more advanced than MoH in providing good quality of care. But after 2005 I stopped thinking about this issue because the quality programme started" (PA-1).*

"In fact, the revolution of training and reconstructing the processes of care over 15 years has been amazing. I note something weird happened in 2006 when the hospital management asked me to be involved in a quality committee! At this exact point in time I realised that it was the sparking point of implementing quality in our hospital" (PB-2).

*"I was **upset** in 2005 when the MoH quality programme started because we were very busy with patient-side care and the hospital management asked us to attend lectures on how to conduct policy, and a lot of training was established. Once more, in 2009, they wanted us to provide data every month. In 2010 I became a director and I realised that I should not be upset." (Pc-4)*

"I believe quality is the key to good care, and in 2005 we found this key. The MoH implemented the quality programme at that time and I think it was good step towards improving the quality of care" (Pd- 3).

These statements indicate the participants' acknowledgement of the commencement of the MoH hospital quality programme. Even though some of them were not satisfied (Pc-4), they were still aware of when the quality programme had started. This indicates that the managers were certain about the activities at the beginning of quality programme implementation, which I consider a good starting point for the interview.

4.2.6 Main theme knowledge

This main theme has been classified from a set of key themes and is based mainly on the participants' knowledge of basic concepts of quality attained via their working experience gained and involvement in the QoC programme.

"We had learned a lot from quality, such as quality tools, meaning of vision and mission and building a strategic plan for our hospital" (PA1).

"The quality gives us an opportunity to understand the reasons behind terminology used, such as vision, mission and values, and why we were collecting some data about hospital indicators" (Pb2).

"I am sure that the quality has changed our understanding of things in the right way. We use to collect the indicators every month, but we do not know why! But now we know it is because doing so is improving the quality in our hospital" (Pc2).

The basic concepts of quality, starting with the definition of quality, knowledge of the importance of measuring the satisfaction of the internal and external customers, and their ability to explain the reporting system used in their hospital, were essential to uncovering the knowledge of the participants from both groups.

4.2.6.1 Key theme: fundamental concepts

The theme of fundamental concepts reflected the participants' differing opinions and views about quality in the context of understanding its main concept. The conceptual understanding

of the two types of hospitals that employed the participants also featured within these three sub-themes:

- **Sub-theme: Theoretical understanding**
- **Sub-theme: Quality tools**
- **Sub-theme: Accreditation**

- **Sub-theme: Theoretical understanding**

'Quality' was a new term for hospital staff in2005. There was no knowledge of quality before that time, but what is apparent after the 2005 revolution is that people started talking about the principles of quality and sometimes chose words that describe what they want to say very carefully. There were no departments designated to care about quality in any hospital, but these concepts arose with the quality to be used to improve healthcare services. The meaning of quality was a question asked to participants concerning their understanding of quality in their hospital.

The various responses included: continuous improvement, service free of errors, and a good health service. This is illustrated by the responses from those interviewed in the following interview extracts:

Question: In general, can you explain what you mean by quality in your hospital?

"Quality in our hospital means continuous improvement, meaning that any process in the hospital can be improved and we are working on doing so all the time." (PA1)

"The meaning of quality from our prospective is providing a healthcare service free of errors to all patients." (PA2)

Quality is continuous improvement." (PB3)

"Our quality means providing a good health service and constantly improving it." (PB4)

The participants from accredited and non-accredited hospitals shared a sense of quality from their point of view which means continuous improvement. But there were some views that see commitment to the implementation of laws and policies communicated to them by the MoH as the real meaning of quality, as identified in the following extracts:

"Work in accordance with laws and regulations is the real meaning of quality." (PD8)

From this statement, it is clear that the managers have a good knowledge of defining quality, even though it is related to a theoretical understanding, it gives a hint of understanding quality.

- **Sub-theme: quality tools**

With the engagement in understanding and applying quality in MoH hospitals, new criteria such as quality improvement tools had to be learnt. The quality tools are the actual theories and methods used to deal with the problems that need a solution. For example, "RCA" refers to the root cause analysis of the problem, meaning that this tool at any error in the hospital should be used. All participants in the interviews from accredited hospitals mentioned these tools in exact words, whereas one apologised for not knowing the names of the tools. PA2 from an accredited hospital commented:

Question: In your opinion, how did the quality programme help you deal with problems and improve quality of care in your hospital?

“In fact, we were unaware of some concepts before knowing of quality, but now we are talking in a different language. For example, we are doing improvement projects and using quality tools such as PDCA, RCA and others." (PA2)

"The quality team is doing improvement projects and uses special methods.”

(Researcher)... Like what?

“Sorry I can't remember these methods exactly."(PB3)

There was also a view from participants from non-accredited hospitals about the knowledge of these tools and their importance as part of what they learned from quality.

“Among the things that we got and benefited from is how to deal with problems, where the quality department analyses the problems and includes them within the improvement projects.”

Can you tell me about the analysis processes, if possible? (researcher)

“It is well known in the quality department, and I do not think others should know them since they belong to the quality department.”

(Researcher) How many employees do you have in the quality department?

“One staff member only, but each department has a coordinator."(PC1)

"Yes, and also quality has helped us find tools to deal with problems and improve our service, where improvement projects and good tools are used to analyse the problem and develop appropriate solutions, such as FOCUS, PDCA, bar charts and histograms." (PD3)

Most of the participants agreed that the quality programme had helped them to learn new skills such as the use of quality tools, but it seems that some still believed that these tools should only be used by quality department staff.

- **Sub-theme: accreditation**

In this sub-theme, the participants discussed many topics concerning accreditation processes, how they were preparing to be accredited, and accreditation's value in motivating the staff to work hard. Most respondents spoke of how quality education had helped them understand the accreditation standards. Some of the participants admitted that accreditation had helped them to focus, and some said it was like an open book exam, however, one participant admitted that the problems in the hospital are ongoing. The participants then discussed their experience of the readiness period before accredited.

Question: In your opinion, what did the accreditation mean and how does the application of the accreditation system effect quality of care in the hospital?

> *"Accreditation in my opinion means meeting the requirements of specific standards set by the certification agency. Accreditation has helped us to focus on many things of interest to the patient, such as reducing medical errors and reducing accidents such as falls and infection." (PA1)*

> *"... I see accreditation as an open book exam where we were provided with the standards and we are working on it. In fact, we worked hard to achieve the accreditation certificate and we were too tired, but after achieving the accreditation we celebrated and forget this tiredness. Of course, it has*

reflected on our service. We feel that from the praise of the level of service provided by the community after accreditation." (PB3)

In contrast, participants from non-accredited hospitals expressed different implications and matters relating to understanding accreditation and its effects on quality, as illustrated in the following comments:

"Accreditation is carried out by a governmental agency called (CBAHI) Saudi Central Board for Accreditation of Healthcare Institutes. They have a team that evaluate the hospital. It is early to be accredited but we are optimistic that we will pass the survey."(PC5)

"If you mean CBAHI, I heard that they are investigating each part of the hospital, and that's a good thing. I expect we'll be ready for them even if they unannounced."(PC6)

Although the managers from non-accredited hospitals were trying to say something about the accredited agency, they did not give what is the meaning of the accreditation as illustrated by accredited hospitals managers.

4.2.6.2 Key theme: satisfaction

Quality has introduced the concept of measuring customer satisfaction. 'Customers' here refers to patients and employees. Under this theme the participants were asked about the importance of measuring customer satisfaction. Participants divided this aspect into two parts:

- **Patient satisfaction**
- **Staff satisfaction.**

Sub-theme: patient satisfaction

Patient satisfaction is an important indicator of quality because it gives an impression of the suitability of the service provided. In addition, this indicator must be provided to the surveyors in evaluation of the hospitals in the accreditation process. In the interviews conducted, the participants expressed their opinion about patient satisfaction and agreed that it is necessary to take this into account. They added that this principle is new, as demonstrated by the following data:

Question: In your opinion, how does a quality programme affect patient satisfaction in your hospital?

"In fact, before the quality standards, there were no terms called satisfaction and, to be honest, the reality is nobody cared to know the impression of the patient and the service provided to them. The only thing that we were responding to was their complaints, and it was the only way to measure if the patients were satisfied or not." (PA1)

" One of the important parts of the requirements of the quality standards was the satisfaction of the patients and the work of continuous measurement so that it is presented as an indicator to the surveyors who came to evaluate the hospital. Of course, there was a significant improvement in the satisfaction of patients over time." (PB4)

Similarly, participants from the non-accredited hospital acknowledged the impact of quality on patient satisfaction. They explained how they were recognising this concept by listening to patient complaints and solving any issues that may cause patient dissatisfaction, as is clear from the following comments:

" Satisfaction is one of the quality requirements. We have a patient service department and they are responsible for analysing complaints and giving recommendations to improve our services." (PD3)

"In my opinion we learn a lot from quality, including the satisfaction of the patient. I do a daily tour of the patients where I consider their comments and complaints and resolve these observations." (PC2)

However, it might have a really nice doctor delivering bad care, which is esye to be discovered by other indicators such as infection rate or mortality rate. These answers reveal that quality gives a sense of importance to measuring patient satisfaction, a factor which was missing before quality programme implementation.

- **Sub-theme: staff satisfaction**

Although the employee is considered as the mainstay of any organisation, the participants stated that there had been no measurement of employee satisfaction in the past. Some participants pointed out that resistance to change had fallen after some staff received responses to their opinions from their managers. The participants from accredited hospitals gave a precise description of how staff satisfaction was measured and how attention was paid to the results of questionnaires being conducted. The following describe these cases:

Question: In your opinion, how does a quality programme affect staff satisfaction in your hospital?

"The fact that employee opinion was marginalised before quality, but after understanding the principles of quality, we become interested in staff satisfaction. We developed a questionnaire to be distributed every six months to understand the views of employees and measure their satisfaction with the work environment and work needs. This has had a positive impact on the performance of staff and even reduced their resistance to change due to quality applications. In addition to that, the employee was waiting for the time of the questionnaire to express their opinion."(PA2)

Participants from non-accredited hospitals appear to use staff complaints to determine whether they are satisfied or not. In the sense that if no one has complained, then the staff are satisfied.

"We observe that some of the staff are upset by the long stay of the patient. Therefore, we start to reduce the patient duration of stay. Actually, some patients did not need hospital medical care, and we are working on this issue. I think the staff will be satisfied if we solve this problem." (PC5)

"For staff satisfaction, there are indicators that tell us if the employee is satisfied or not. This can be by knowing the complaints of staff, either doctors or nurses. For example, if there is a complaint, it is considered and

handled. Although, there is pressure on them in terms of lack of doctors and nurses, but I think this is a global problem." (PC6)

It is obvious from the participants' answers that staff satisfaction was not important from the leadership point view before the involvement of quality. However, I observed that the non-accredited hospital managers were still using the traditional method of measuring staff satisfaction, whether there were any complaints, rather than through the new and more comprehensive means of establishing employee satisfaction offered by quality procedures.

4.2.6.3 Key theme: reporting systems

Each hospital should have reporting systems to identify recurring problems and errors. The participants in this interview mentioned three types of reporting system: sentinel events, occurrence variance reports, and clinical indicators.

- **Sub-theme: reporting of sentinel events**

A **Sentinel Event** is defined by The Joint Commission (JCIA) as any unanticipated **event** in a healthcare setting resulting in death or serious physical or psychological injury to a patient or patients, not related to the natural course of the patient's illness.

Some participants said that the Ministry of Health was emphasising the importance of reporting serious incidents and discussing them within the hospital. They added that there is a website for reporting incidents to MoH. They also mentioned that there is an on-call MoH employee to follow up on these reports. The following quotations illustrate this:

Question: What is the reporting system in your hospital and how has quality improved the use of this system?

"In my opinion, quality has paid great attention to medical errors, and the Ministry stressed on that. When the Sentinel Event happened, it was reported directly as a vital incident, not like ordinary incidents. Such events must be analysed immediately within 24 hours and also reported to the Ministry's website." (PB3)

"It is a Sentential Event, as named by quality, and it is a serious thing, the patient may die or lose organs, while it is not related to his disease. It is reported to the Ministry of Health and this event rarely happens." (PC5)

All participants from accredited and non-accredited hospitals reported similar responses regarding a **Sentinel Event** as a serious incident, with one exception (PC6), who did not mention the event. All participants who did mention it unanimously agreed that such an event is taken seriously.

- **Sub-theme: Occurrence Variance Report(OVR)**

OVR is an unusual event that adversely affects the health of a patient, visitor or employee and involves loss or damage to personal or hospital property. It is essential that following any occurrence variance, an OVR is completed and forwarded to Quality Department (QD). The report is checked for completeness, forwarded to the designated coordinator, and sent to the concerned department where appropriate action is taken relating to the event. Those interested in quality and performance development use these incidents to improve performance and

prevent their future occurrence. The participants shared their opinion on how to deal with incidental accidents and attributed their understanding to what they had learned from quality. However, did hospital directors agree with each other on a common concept, or is there jurisprudence for each team? This is elicited in the following excerpts:

Question: What is the reporting system in your hospital and how has quality improved the use of this system?

"Of course, the basic principle of reporting is improvement, not punishment. I remember only one or two cases maximum that have been investigated as normal investigation during the last six years, I mean, that needed to be investigated without going down the OVR pathway of analysis because it was touching on safety and there was obvious negligence. The OVR has a clear process, from the event occurrence to the end of the lesson learned, and we emphasise a blame free culture in our hospital. We benefited from this report to make it as a corrective point. Most of our improvement projects are as a result of the OVR. It has helped to improve healthcare without a doubt." (PA2)

"Certainly, quality has changed the perceptions of employees about how mistakes are handled. Everything should be reported using a special form to the hospital director, and the hospital director ***determines*** *if the report will be forwarded to the quality department or the investigation department."(PC6)*

"In my opinion, quality has made progress in reporting errors, but unfortunately, there are mistakes that are not reported, although we had clarified that the person will not be punished. But the fear of accountability may be the reason behind the lack of reporting events, as well as fear of problems among employees." (PD8)

The participants agreed that the reporting system (OVR) helped to improve quality. However, the OVR pathway appears similar in both hospital groups, except for one non-accredited hospital manager who make an interference of the hospital manger which will affect the path way of the report when initiated.

- **Sub-theme: reporting of clinical indicators.**

Although the indicators in the MoH follow a completely independent programme, I used these indicators in this study in order to make a comparison between hospitals based on the results of these indicators. In addition, these indicators should be presented to the surveyors during the accreditation process, as explained by the participants from the hospitals that underwent accreditation. The participants from non-accredited hospitals praised the principle of indicators but expressed resentment towards the way the process is handled by the Ministry. They added that it is only just data sent to the Ministry and they did not received a feedback. Participant comments explain this:

Question: What is the reporting system in your hospital and how/has? quality improved the use of this system?

"There was no interest in the indicators before the beginning of quality, just reports scattered here or there, but after quality we found a loop of indicators, I think 50 indicators?? Moreover, they established a department named the Department of Clinical Review that gives us a comprehensive view of our level of service. To be honest, I doubt it reflects reality."(PB3)

Alternatively, participants from non-accredited hospitals believed that collecting indicators was a burden and a waste of time.

"I believe that quality has strengthened the principle of productivity control, where performance indicators were developed for all hospital facilities and these indicators are sent to the Ministry. Then the Ministry could have an image about our performance, and we are always committed to report those indicators on time and receive responses to the results sent ." (PD7)

"As for the indicators, unfortunately I see it as a wasted effort."

(Researcher) How?

We collect about 50 indicators every month and send them to the Directorate, but we do not know what to do next. "(PD8)

Both groups from accredited and non-accredited hospitals were obligated to send the indicator results as part of their reporting system, and they shared the opinion of the uselessness of these reports.

4.2.7 Main theme: practice

Practice here is the second main theme, and refers to the application of what employees understand about quality. Here there may be good information but a lack of application. Safety, precaution and teamwork are the three sub-themes which were identified under practice.

4.2.7.1 Key theme: practice toward safety

It is estimated that one in ten patients in developed countries are injured while receiving hospital care. There is growing recognition that safety is a critical dimension in overall health coverage. This theme will cover safety and patient safety in hospital facilities.

- **Sub-theme: facility management & safety**

There are various risks to work safety, including fire, natural disasters, information theft and data hacking. The development of appropriate plans to deal with these risks reflects the actual interest in this area, as we see in the statements of the participants:

Question: From your experience, what is safety and how does the quality programme affect safety in your hospital?

"There is no negative argument to what quality has added to safety in general. For example, many walls have had holes punched in them to open an emergency exit in each department. We did a lot of training courses to avoid fire. We also made self-extinguishing points to control such events.

There were also fire sensors and control cameras for the entire building. Quality does care for everything."(PB3)

Participants from non-accredited hospitals agreed on the same terms for the safety of the facility. They confirmed the existence of a written system and policies, but stated there was no clear explanation of how they are to be applied.

"Of course, there is special attention for maintenance. The department of facility maintenance follow-up safety of the facility in terms of the regulations in place, such as electricity delivery to the hospital. Of course, this is for non-medical maintenance. I believe there are good safety policies in our hospital documents. If you wish to ask the quality department about this, I will be happy."(PC5)

The accredited hospitals who developed a quality programme appear to use the same concept, however the non-accredited hospitals appear uncertain on how to practice the policy.

- **Sub-theme: patient safety**

The patient is the cornerstone for health providers, and the patient should be cared for safely. It is not acceptable to discharge a patient suffering with other illnesses or because of errors during treatment. Quality considers the patient's safety from different angles. Several participants mentioned some of these aspects, and there seems to be a failure to mention the importance of patient safety goals, especially from non-accredited hospitals. We can see this in the words of the participants:

Question: From your experience, what is safety and how does the quality programme affect safety in your hospital?

"Among the examples of things improved by quality, we initially focused on patient safety goals. For example, when a patient is admitted to the hospital for a surgical operation , there are special procedures to be done. These procedures must be carried out before, throughout and after the operation. The first to fully identify the patient and the entire history of the disease and write the full history of the patient in his file in special forms before acting, there is a specific protocol to ensure the patient is given the right medication and so on."(PA1)

"Unfortunately, there is a defect in assuring the safety of patients. There is safety of patients in terms of preventing medical errors. Yes, there are fatal errors. There are errors are not fatal, but there are still errors until this moment happening". (PC5)

"We are trying to make our patients safe and our service free of errors, but I believe anyone work will have an error. The only one how did not have an error the one who did not work. (PC6)

Although patient safety is being addressed in the implementation of quality programmes in MoH hospitals, the accreditation standards appear to have a greater importance. The standards of the accreditation body now have a special chapter under the name of 'patient safety goals'. The accreditation bodies emphasise these goals, and that is why the accredited hospitals are more familiar with them. The non-accredited hospital managers tend to present patient safety as preventing errors only, overlooking other patient safety issues.

4.2.7.2 Theme: practice toward precautions

Taking precautions in hospitals is crucial to ensuring that the patients and workers are not harmed. Precautions include those against potential hazards from external factors such as earthquakes, building collapse and fire and internal factors, such as infection.

- **Infection control practice**

Hospital infections occur for multiple reasons. Among these reasons is the use of common tools among patients and a lack of hand washing when moving between patients. Workers are also exposed to infection due to their failure to protect themselves by wearing gloves and facemasks, especially when dealing with infectious disease cases. The study participants mentioned that quality has developed a method of dealing with this issue and has imposed precautions and monitors of the level of infection in hospitals.

Question: In your hospital, how can you prevent the spread of infection and promote the taking of precautions in general?

> *"Quality has also helped to prevent or reduce infections in our hospital. Infection caused by using the ventilator are measured to be preventable and controlled. Also, infections resulting from the use of medical catheters, whether urinary catheters or central catheters, and surgery site infection are measured too. This means that following up all infections acquired within the hospital resulting from the provision of the service is contributing to raising the sense of the workers in the avoidance of any*

cause or defect in the provision of service possible to cause harm to the patient." (PA1)

One participant reinforced this concept:

"I believe that the presence of indicators for the follow-up of the infection cases is evidence of the great benefit of quality to hospitals. We are monthly reporting on needle stick injuries, Ventilator-associated Pneumonia (VAP) and Methicillin-resistant Staphylococcus Aureus (MRSA).There is a policy for cases with suspected of infectious diseases. This should be identified and have a special pathway" (PB3).

One of the participants from the non-accredited hospitals praised the quality programme and highlighted how it has made a positive change for them in dealing with infectious disease, including the creation of isolation rooms and negative pressure rooms. However, it seems that they are using negative pressure rooms for normal cases, which is against the quality concept.

"I think quality helped organise the work of the infection control department a lot. The focus was on finding isolated rooms for suspicious cases, so we have worked to find isolation rooms for each department. Frankly, when there are no cases we use them as private rooms for a person who is very important or famous (VIP). In case a patient needs to be isolated while the isolation room are occupied, one of the normal rooms will be used until the VIP patient has been discharged. Then the infected case will be transferred to the isolation room." (PC6)

Therefore it can be seen that the participants from the non-accredited hospitals reveal a lack of correct practice regarding the use of isolation rooms.

4.2.7.3 Theme: teamwork

The team is behind the success or failure of any organisation, so it is not surprising that managers are looking for a way to make their teams work more effectively. The interviews show that the participants were grateful for quality in the formation of teams. This formation has been divided into two sub-themes: committees, and plans.

- **Sub-theme: committee formation**

The participants pointed to the importance of teamwork by referring to the replacement of self-statements with team statements. This became clearer when they spoke about the many committees that were formed based on quality requirements. In fact, there is no committee of one person.

Question: In your opinion, how does the quality programme affect teamwork between your hospital departments and staff?

"We in the hospital adopted a certain word, WE. And the word (I) has been removed from the hospital dictionary. I am settled, I have, I mean, I am this, I am this etc. do not exist. And at any discussion, we discuss where (I) do not exist. When we speak, we speak as a team, we will work or we have a project idea. In addition to the projects of improvement or procedures or settings and procedures or follow-up or all these works

through a team does not have a person itself. We would not accept any one of the staff jumping to do something individually, because this will disrupt the functions of other members of the hospital. No improvement project can be done without a team. Policies and procedures are made by a team. Any project or proposal is also studied by a working group." (PA1)

A participant from a non-accredited hospital had a similar opinion regarding the role of the committees and the strengthening of teamwork. However, there is a sense of resentment dur to the large number of these committees and the lack of staff, as highlighted in the following statement:

"Of course, quality introduced the concept of teamwork, but we suffer from the absence of some members because of their commitment to their original work, for example, when a doctor is a member of a committee and at the same time is called to an emergency, in this case the meeting is cancelled or held without the presence of this member" (PD8).

From what was learned from the participants' responses, most working teams are involved in the committee. The committees and other working groups have grown up with the application of quality and the staff are participating voluntarily. However, these committees are held despite an absence of some members who do not attend because of their commitment to their original work.

- **Sub-themes: plan preparation**

In addition to the importance of forming committees to promote the concept of teamwork, the participants also pointed to the preparation and implementation of plans. They shared an opinion that progression of teamwork through the concepts of quality can be achieved by making many plans, and that everyone is participating in this work, as shown in the following answers:

> *"Almost everything in the hospital goes according to the system and plans of work, either done internally or according to the system and policies of the Ministry of Health or even the requirements of civil defence, and no one can work alone, because there are overlapping tasks and some of them complement others."(PB3)*

Participants from non-accredited hospitals have a similar view on the concept of teamwork:

> *"Team spirit is required, and we are always watching for that in the implementation of plans and policies in the hospital. For example, the fire plan has a commander, other members and an operating room. There are also members to transport patients, all of which is coordinated in an evacuation plan."(PD8)*

In both groups, teamwork is considered an important issue, and is addressed by the staff through involvement in committees and plan formation and implementation.

Non-intentional findings:

4.2.8 Main theme: staff behaviour and attitude

During the interview the managers talked about staff attitude and how the staff act in-regards to quality. This is an interesting finding, although it was an unpredicted outcome at the time of the study design. Managers from both accredited and non-accredited hospitals explained the attitude of the staff in the form of elaborating or explaining the situation, such as not attending some committee meetings and/or not reporting incidents. There was no direct question to the participants about staff attitude, but relevant answers emerged through answers to other questions:

"Frankly, when there are no infection cases, we use the isolation rooms as private rooms for a person who is very important or famous (VIP)." (PC6)

"We observe that some of the staff are upset by long stay patients." (PC5).

"There are mistakes that are not reported, although we have clarified that the person will not be punished."(PD8)

"There was no interest in the indicators before the beginning of quality."(PB3)

"Yes, there are fatal errors There are also errors are not fatal, but there are still errors."(PC5)

"We are trying to make our patients safe and our service free of error." (PC6)

"We have adopted a certain word, WE." (PA1)

"We suffer from the absence of some members because of their commitment to their original work." (PD8)

As mentioned by the participants, some of the staff were behaving against the concept of quality. These behaviours and attitudes were shared by accredited and non-accredited managers. On the other hand, there was a positive attitude in line with the quality concept.

4.2.9 Conclusion

The previous analysis is a result of the semi-structured interviews conducted with senior managers from accredited and non-accredited MoH hospitals for the qualitative part of this study. Two dominant areas were found in the data analysis and a theme group was divided into these two main components. The responses of the participants in both groups differed between the extent of knowledge of the quality and the extent of the practice of the staff in these hospitals. Each topic has been linked to these titles in relation to quality.

The basic concepts of quality, satisfaction and reporting systems in hospitals were the themes discussed by the participants. Many of them showed a theoretical understanding of quality in addition to the quality tools used in the hospital and a knowledge of accreditation, which is one of the interests of this study. Regarding staff satisfaction and patient satisfaction, many participants mentioned the extent of their knowledge of the importance of measuring satisfaction in the development of hospital services. Finally, the hospital reporting system was broken down into sentinel events, occurrence variance reports, and the indicator reporting system.

Practice was the second main theme and looked at how the hospital employees practice according to what they have learned from quality. The safety of patient and facility management has been extensively discussed. The precautions were followed by a focus on how to reduce the spread of infection in the hospital. In addition, the participants discussed how to write and apply the hospital plans and how the committees were formed, as main source to understand the teamwork practice in the hospitals. Finally, unpredicted findings regarding staff behaviour and attitudes were elaborated on.

5 Chapter Five: Discussion

5.1 Introduction

The previous chapter detailed the results from the quantitative and qualitative data. Part One highlighted the differences in the 24 indicators affected by hospital size measured between accredited and non-accredited hospitals. In addition, results of the Mann-Whitney test were used to compare differences between the indicators of accredited and non-accredited hospitals. The test indicated that there were 12 indicators which were statistically significant between accredited and non-accredited hospitals. In keeping with the mixed-method approach, in Part Two, the qualitative data from the semi-structured interviews, conducted with eight senior managers from accredited and non-accredited MoH hospitals, were presented. The qualitative approach focused on exploring the perceptions of these managers on different aspects of quality.

This discussion chapter commences with an overview of the overall research questions and presents a summary of the methodological approach to the study, together with a summary of the main findings, and then continues with an overarching discussion in response to the research questions then observes the methodological considerations.

5.2 Overview

The main motivation of this thesis was to recognise that raising the quality of healthcare requires a detailed knowledge of the relevant assessment tools. Being that the main purpose for accreditation programmes is ensuring quality of care and patient safety, the relationship

between accreditation and quality is crucial. Various scholars agree that obtaining accreditation is important for both patients and hospitals (Devers, Pham & Liu 2004; Greenfield, Pawsey & Braithwaite, 2011), therefore, I chose accreditation as a lens through which to investigate healthcare quality in MoH hospitals in the KSA. The process of hospital accreditation not only sets the standards for operation, but also provides support to the stakeholders on how to improve performance. Although the accreditation bodies set the standards of service, there is little evidence supporting the credibility and effectiveness of the certification programmes (Myers, 2011). Whilst there are no 'magic wand' solutions to ensuring high quality in healthcare, many countries have shifted towards government-mandated accreditation (Quebec, 2011). In Canada, it is mandatory for every health organisation to be accredited. The Health Council of Canada recommends, in several reports, that certification should be mandatory in all the provinces (Health Council of Canada, 2008). Within the context of Saudi Arabia, healthcare accreditation becomes a mandatory programme for all healthcare organisations.

A team representing various sectors of the Kingdom created the CBAHI standards. This team included experts from the National Guard Health Services, Ministry of Health, Saudi ARAMCO and the private sector. These standards have also been approved by the national health council. As noted by various researchers, such as Davis (2007), Rene (2006), Greenfield and Braithwaite (2008), and Alkhenizan (2011), the process of hospital accreditation in Saudi Arabia provides a framework that helps in the creation and implementation of processes and systems that enhance operational effectiveness and improve positive health outcomes.

As an important tool to achieve healthcare quality, it is necessary to recognise whether accreditation has made a difference or not. Therefore, this study adopted two different approaches to assess and explore the differences between accredited and non-accredited

hospitals. The empirical testing included the views of managers in addition to reviewing the clinical auditing data in these hospitals to determine whether accreditation can be used to improve the quality of healthcare.

A review of the literature in Chapter Two uncovered a gap in the knowledge on this subject, whereby little is understood about the differences between accredited and non-accredited hospitals. This topic has been under-represented in previous research, partly because of the dearth of published studies about the relationship between accreditation and improved quality of healthcare in Saudi Arabia. Therefore, much of what is used as the basis for planning future healthcare quality improvement in MoH hospitals is founded upon assumption rather than quality evidence.

This study was undertaken to respond to this need for better information by exploring the potential differences between accredited and non-accredited MoH hospitals. The central statement of the thesis is that the findings generated have validity, and add value and originality to what is already known. Taking this forward, research questions for exploration were identified as:

- Does the accreditation process in KSA create a measurable difference in the quality of care indicators in accredited and non-accredited hospitals?
- How does accreditation process influence the perceived quality of healthcare in MoH hospitals?
- What are the similarities and differences in perceived quality of healthcare in accredited and non-accredited MoH hospitals in KSA?

5.3 Summary of the methodological approach to the study

Of all the methodological approaches considered, a convergent parallel mixed-methods approach was deemed the most appropriate design for this study, as it is comprised of two strands of data collection from two theoretical paradigms: (1) quantitative, being that derived from QCI from accredited and non-accredited MoH hospitals; and (2) qualitative, being derived from in-depth semi-structured interviews with participants from accredited and non-accredited MoH hospitals. This approach was selected because the quantitative findings would be strengthened by the emerging themes in the qualitative data to provide a broader understanding of the subject (Greeff et al., 2014; Kolbe, Kugler, Schnepp, & Jaarsma, 2016).

5.4 Summary of the findings

The quantitative indicator results of the current study revealed that 9 indicators out of 49 have missing data. Therefore, these 9 indicators were excluded from the study. Of the remaining 40 indicators, 12 were found to have significant differences. These differences are not linked to hospital size. Although the hypotheses (Section 3.1) was rejected for those indicators, it has been noted that the major significant effect of accreditation on indicator outcome was that non-accredited hospitals have better-quality outcomes than accredited hospitals.

As these indicators were grouped as mentioned (Section 3.7), the first question will be discussed by dealing with the indicators as groups. Moreover, to accomplish the triangulation used for this mixed-methods study, any link between the findings from the qualitative interviews will also be addressed. To clarify the comparison process, the term “negative differences” will be used to represent where the comparison shows differences in favour of

non-accredited hospitals. Meanwhile, the term "positive differences" will be used to represent where the comparison shows differences in favour of accredited hospitals. Non-significant situations will not be presented.

The data findings from the qualitative results (Part Two) were categorised into main themes, key themes and sub-themes. The first main theme, **Knowledge,** included three sub-themes: **Fundamental Concepts**, **Satisfaction** and **Reporting System.** The second main theme, **Practice**, uncovered three sub-themes: **Safety**, **Precautions** and **Teamwork.** In addition, an unpredicted finding was reported under one theme, **Staff behaviour and attitude**. This theme was mentioned repeatedly by participants in the interviews, although there was no research intention to identify staff behaviour and attitude.

The discussion will now turn to a key finding from the quantitative aspect of the study, then discuss further significant indicators that were found from the results of quantitative data to answer to the first research question:

- Does the accreditation process in KSA create a measurable difference in the quality of care indicators in accredited and non-accredited hospitals?

Where appropriate, reference will be made to the literature for convergent and divergent views to make sense of the findings. Supportive data from qualitative findings will be utilised when needed.

5.5 Discussion of the overarching key finding

5.5.1 QIC missing data

It was previously noted that nine of 49 indicators were excluded from analysis because they were not completed in more than 20% of the total number of hospitals. As indicated in Section 3.8, the QIC were received from the Department of Clinical Auditing Programme at the Ministry of Health in Saudi Arabia. These indicators are collected from hospitals on a monthly basis and then sent to the regional directorates of health affairs, then forwarded to the MoH. Given that incomplete indicators in many hospitals may affect the process of statistical analysis and create a bias in the quantitative analysis, these indicators were excluded. Reasons for some hospitals not including indicators include the unavailability of services such as endoscopies, NICU and MRI, as these services exist only in large hospitals and are not always available in other hospitals. However, some hospitals do provide these services, but no data was shown in the indictors which needed further investigation and clarification.

One of the participants suggested that the missing indicators could be due to the lack of awareness in hospitals about the importance of such data, or a lack of awareness of the existence of certain indicators. Therefore, not all of the indicators are submitted to the concerned quality committees. He also added that there may be a lack of communication between the clinical auditing department in the hospital and other departments that are a key source of collected data. Additionally, he mentioned negligence from the employees collecting these data due to a lack of follow-up from the hospital top management. Thus, responsibility appears to be divided into three main categories:

First: Lack of employee awareness on the importance of indicators.

Second: Lack of communication between departments.

Third: Employee negligence when collecting data.

Fourth: Lack of follow up from the Ministry

Employee awareness is a fundamental aspect of handling such important data. The Ministry of Health is required to select competent clinical auditors and invest in training and education activities in this field. Moreover, staff should be offered specific technical courses on data collection and reporting to increase the effectiveness of the indicators. Awards and recognitions are another factor that encourage employees to improve their performance in collecting indicators.

Lack of communication between departments is another influencing factor that demands attention. Communication between hospital auditors and other relevant departments must be enhanced by increasing interdepartmental cooperation to insure effective data sharing. Technological infrastructure is essential in providing instant and effective interaction between all parties involved in the data collection process.

Employee negligence in collecting data is a critical indicator of the quality of QCI. This requires further exploration of the causes behind the sending of incomplete indicators. Some participants mentioned that most of the collected data about indicators are not translated into action plans to improve the work. They also feel that there is no feedback from top management regarding these indicators. This may lead to a vicious cycle of negligence caused by clinical auditors and top management.

Poor follow up from top managers on the work of clinical auditing departments in the MoH has led to a lack of commitment from auditors and thus affected the quality of indicators.

Therefore, a central electronic monitoring system (dashboard) for the collection process of indicators is required. This system could be operated under the supervision of the general administration of clinical auditing at the MoH in collaboration with the E-health administration.

Obviously, dealing with each of these challenges requires strategic attention from the decision makers at the Ministry of Health, as there appears to be no follow up with hospitals when data is missing. In fact, human resources and technological infrastructures are two key issues that may provide effective means to improving the collection of data, reporting processes, and quality of indicators. Specific indicators will now be discussed in more detail.

Research Question 1: Does the accreditation process in KSA create a measurable difference in the quality of care indicators in accredited and non-accredited hospitals?

5.5.2 Professional performance indicators of a healthcare organisation

The current study reveals that accredited hospitals failed to reduce operation cancellation rates (Section 4.1.4). This finding represents a negative difference in favour of non-accredited hospitals. The mean operation cancellation rate of accredited hospitals was higher than the mean operation cancellation rate of non-accredited hospitals. The reduced cancellation rates in the non-accredited hospitals indicate a positive impact of preparation for accreditation. The non-accredited hospitals are being prepared for the impending accreditation project as per the MoH plan (Section 5.1.1). Therefore, extensive pre-implantation efforts have been exerted in

these hospitals and this has impacted positively on their performance. They are highly motivated to be accredited, as mentioned by interviewee PC6.

On the other hand, the high rate of cancelled operations is unjustifiable for the accredited hospitals because they are supposed to be more capable of improving work processes. Interviewee PA1 from an accredited hospital admitted that they have learned how to make use of the indicators to continuously improve work processes. Kumar and Gandhi (2012) argue that most operation cancellations are preventable. Yu, Xie, Luo, & Gong (2017) suggested that operation cancellation is linked to other issues such as workup-related causes, coordination causes, patient related causes, support system issues, and doctor related causes. Therefore, the operation cancellation rate should be monitored to avoid creation of further problems such as increase in length of stay.

Another finding of the current study is that the accredited hospitals saw a higher average length of stay in the adult ICU. Interestingly, the distribution of this average length of stay had an extreme outlier that represents an abnormal value exceeding 50 days, while the majority of observations ranged between 1 and 19 days. Given the interdependent relationship between operations and length of stay, this finding may be linked to the previous finding of increased operation cancellations. As another potential cause for this finding, Almasabi & Thomas (2016) stated that complicated procedures in the accredited hospitals may lead to delays in processes and therefore make the indicator results higher than the non-accredited hospitals. However, this justification contradicts Simon et al. (2002); Kown et al. (2013), who stated that the accreditation criteria had reduced length of hospital stay compared to non-accredited hospitals. Considering the effect of operation cancellations and complicated procedures in the accredited hospitals, this finding questions the extent to which accreditation can improve the clinical work process.

The findings revealed that there is a long waiting time for services in accredited hospitals. The indicators representing waiting time include the percentage of specialties for which booking an urgent appointment takes more than two weeks for new cases and the percentage of specialties for which booking a routine appointment takes more than four weeks for new cases. These indicators aim to evaluate the efficiency of patient care in the outpatient department.

The data also showed that neither booking an urgent appointment nor booking a routine appointment showed positive differences between accredited and non-accredited hospitals. With there being a longer time to get an urgent appointment, the system is less efficient and therefore has an impact on the indicator results. The accredited hospitals had a higher mean percentage of specialties, where booking an urgent appointment took more than two weeks for new cases, in comparison to non-accredited hospitals. It is clear that there is a negative difference, because the non-accredited hospitals are likely to book urgent and routine appointments earlier than non-accredited hospitals.

Long delays in making an appointment reveal a system problem that should be fixed. This delay on having appointment may affects other factors or indicators, such as satisfaction. This is supported by the study of Tehewy et al. (2009) who concluded that patients in the accredited health units expressed significantly higher satisfaction scores compared with the control group regarding cleanliness, waiting time and unit staff, as well as overall satisfaction. The long waiting time to see a doctor is a bad sign of quality of care in the accredited hospitals, as findings of the current study. I was surprised when the non-accredited hospital participant (PC6) explained patient satisfaction was measured by visiting inpatients only and asking them about their health and if they are facing any problems. In fact, the waiting times for accredited hospitals are still worse than non-accredited hospital, not only for booking appointments with doctors, but also other services such as radiology department visits (CT). The CT service is one of the advanced radiology services in the hospitals because it supports other services to

facilitate diagnostic processes and aids early diagnosis. The result of the current study revealed a significant effect of accreditation on the indicators, and identified that the accredited hospitals had a higher average CT scan booking time for OPD patients than non-accredited hospitals. This finding raises a question on the side effect may happened due to the to book an appointment to do the CT scan. The late diagnosis of disease may lead to complications in terms of necessitating further processes (early detection early intervention), a more advanced level of treatment and higher costs. Additionally, the long waiting time for CT services may contribute to low patient satisfaction. These consequences indicate that accreditation has complicated the appointment process. Therefore, accreditation is working in the opposite direction of its intended purpose and against the expectations of this study.

5.5.3 Health organisation KPIs

Accreditation was observed to have a significant effect on the (inpatient) indicator 'hospital mortality rate', indicating that accredited hospitals tend to have higher mortality rates than non-accredited hospitals. This result revealed negative differences between accredited and non-accredited MoH hospitals. These findings are in contrast with those of other studies (Simons et al.(2002); Chen et al. (2003); and Nguyen et al. (2012)) that found that the non-accredited hospitals had lower quality of care and higher mortality rates than accredited ones. However, using this critical indicator to determine the quality of the delivered services may require in depth understanding of the chronological progress of this indicator. A longitudinal study could be the best option to observe the changes in this factor by comparing the mortality rates over a certain period of time (pre and post accreditation phases).

From a different perspective, failure to control some indicators may affect other processes and lead to an increase in mortality rates. The current study found a significant effect of accreditation on the indicator "unscheduled return to OR within 48 hours". The accredited hospitals had a significantly higher mean than non-accredited hospitals, indicating that accredited hospitals tend to have higher values of unscheduled return to OR within 48 hours than non-accredited hospitals.

The link between the increase in mortality rate and unscheduled return to OR was supported by a study conducted at Hitchcock Medical Centre in Lebanon. This study found that the mortality rate of patients who had an unplanned return to OR was significantly higher than the patients who did not return to OR (Birkmeyer et al., 2001). This is a very worrying result, as the unscheduled return of patients to the operating room after routine or emergency surgical intervention has implications concerning the quality of surgery. Therefore, judging from the results of the current study, accreditation has failed to improve the efficiency of patient care in the OR, while non-accredited hospitals are showing lower values.

On another aspect, the risk of falls is related to many factors and circumstances in respect of the patient or environment. According to the JCIA manual (JCIA, 2014), risks associated with patients include patient history of falls, medication use, walking or balance disorders, visual impairment, and mental status. Therefore, patient assessment is a helpful tool in preventing falls. Not all patients require reassessment during their hospitalisation, yet the assessment criteria should still be in place. Therefore, accredited hospitals must be strict on following this instruction from the accredited bodies. However, the results of the current study indicate that accredited hospitals tend to have a higher number of patient falls per year than non-accredited hospitals. The manual of CBAHI standards (2016), Medication Management (MM), makes the following statement:

"MM.39.2 There is an annually updated list of all formulary medications that cause changes in the patient's equilibrium and may raise the risk of falls".

Moreover, the Quality Management and Patient Safety (QM) states:

"QM.23.3 The hospital implements evidence-based interventions for fall reduction according to the risks identified".

(CBAHI, 2016 p:210) While this study covers all accredited hospitals of the MoH, the international accreditation body (JCIA) given more importance for patient fall and had put this issue under the name of international patient safety goals) and not just standard. Goal number 6 (IPSG) is concerned with reducing the risk of patient harm resulting from falls:

"IPSG.6: The hospital develops and implements a process to reduce the risk of patient harm resulting from falls."

(JCI, 2014 p:22). Due to the encouragement, education and effort that has been done to accredited hospitals during the accreditation time, the accredited hospital must have low number of patients falls. On the other hand, the quality culture may not yet be mature enough to report every case. Thus, under reporting may take place in non-accredited hospitals, as admitted by one of the participants (PD8) who elaborated that the fear of accountability is the reason behind the lack of reporting. What surprised me was that all the other participants were emphasising that there was no under reporting in their hospital.

In addition to preventing patient falls, the JCI has included standards to prevent the spread of infection. Under the Prevention and Control of Infections (PCI) chapter in the JCIA (2014) manual, Standard PCI.5.1 states that:

"*All patient, staff, and visitor areas of the hospital are included in the infection prevention and control programme."*

(JCI, 2014 p:153) The qualitative interviews revealed that the participants in this study backed infection control prevention in their hospitals. They were happy to build new isolation rooms to accomplish the quality standards and to protect the patients and staff. It was clear that there was a lack of consistent practise in using the isolation room, but I consider that to be an issue of management rather than understanding of quality. The results of the quantitative data show a significant effect of accreditation on the indicator "Surgical Site Infection (SSI) rate". The accredited hospitals had higher rates than non-accredited hospitals. The rationale of this indicator was uncovered by the clinical audit programme to evaluate patient safety in the hospital. But the JCIA considered it as important as well and called it Goal Number 5: to reduce the risk of healthcare-associated infections. This indicator was set by the clinical audit programme to evaluate patient safety. So, both accredited and non-accredited hospitals were obligated to report this indicator and to benefit from its result to reduce the infection rate. The accredited hospital had an advantage in reducing SSI or other types of infection through their experience of accreditation, but it was clear that the accredited hospitals had failed to reduce the infection rate.

The last indicator evaluating the efficiency of patient care in the OR measured the number of post-operative cardiac arrests within 48 hours. Accredited hospitals had significantly higher means in the number of post-operative cardiac arrest cases within 48 hours in comparison to non-accredited hospitals. Although cardiac arrests may happen anywhere, post-operative cases are more risky. This risk is related to the patient history and many medical factors. Therefore, I believe this indicator does not reflect the efficiency of OR care, as mentioned in the intention of the audit programme handbook. Cardiac arrest responsibility is shared between the hospital environment, patient medical history and the surgeon and other staff. The accredited body

emphasise dealing with cardiac arrest in a professional way, as mentioned in the JCIA manual chapter, *Care of Patients* (COP). Standard number 3.2 states that advanced life support must be implemented in under 5 minutes (JCIA, 2014). Moreover, the (CBAHI) standard stated to evaluate the hospital medical staff on an ongoing basis as noted in *Medical Staff standards* (MS) (CBAHI, 2015). Results of the current study indicate that accredited hospitals tend to have a higher number of postoperative cardiac arrests within 48 hours than non-accredited hospitals. This means that either the accredited hospitals did not benefit from the accreditation process or there is under-reporting in non-accredited hospitals. The under-reporting theory is more suitable for such cases because fear of punishment takes place, as indicated earlier.

5.5.4 Organisation productivity indicators

Of the seven health productivity indicators, two were found to be significantly affected by hospital accreditation and show a difference between accredited and non-accredited hospitals. The rationale of this indicator group is to evaluate hospital productivity and the efficiency of patient care as stated in the clinical audit program manual. It was unclear to me how the responsible person in a clinical auditing department in MoH would deal with the indicators. However, several organisational productivity indicators such as number of admissions, number of surgeries, and outpatient visits look more like a characteristic of a hospital than the output and quality measurement. Moreover, the two indicators: "number of surgeries", and "total outbound visits" were showing a significance when compared, without effected of hospital size. So, hospital size may affect this finding. To conclude, this type of indicator is not applicable for comparison between accredited and non-accredited hospitals, yet it was one of the indicator packages of clinical audit complete data for this study.

5.5.5 Discussion of indicator results affected by hospital size

Section 4.1.2 described the hospitals involved in this study. To avoid any kind of bias the interaction of hospital size has been examined. Initially, a two way MANOVA was utilised to determine the strength of the overall relationships between accreditation and hospital size. MANOVA analysis is a multivariate statistical model that facilitates the study of interrelationships among sets of multiple dependent variables and multiple independent variables (Hair et al., 2010). 24 indicators showed significant differences when tested under the effect of hospital size. 12 of the 40 indicators show significance when tested against accredited and non-accredited only.

In the rate of patients who spent 24 hrs or more in the ER**.** When comparing the size of hospital as large to large or medium to medium it shows no differences. But the large accredited hospitals fail to be in a normal rate in contrast with small non-accredited hospitals are in better performance. Therefore, the way of dealing with ER patient in the accredited large hospitals indicating that accredited large hospitals had higher values of rate of patients who spent 24 hours or more in the ER than non-accredited small hospitals. So, the way of comparing different size is meaningless while I believed that the waiting time in ER should be the same wither the hospital have same size or not or at least there are significant differences in favour of accredited or non-accredited. For non-emergency cases, the finding from another indicator in line of waiting time but this indicator is measuring the average patients waiting time for scheduling routine surgical operations. Large accredited hospitals tended to have lower average waiting times for scheduling routine surgical operations. I believe that in this indicator the accreditation

has good impact by standardization of appointment arrangements for all patients in accredited hospitals, so the existing differences are in favour of accredited hospitals, which is positive. Waiting time is an important concern in patient satisfaction. Hospital leaders select a set of process indicators based on the mission and scope of services (CBAHI, 2014).

The results of this current study are supported by a study conducted in Egypt. Al Tehewy et al. (2009) evaluated the impact of accreditation on patient satisfaction by comparing 30 accredited non-governmental healthcare units and 30 non-accredited non-governmental healthcare units in Egypt. The study concluded that accredited non-governmental hospitals had higher patient satisfaction compared to non-accredited hospitals (Al Tehewy et al., 2009). Furthermore, the waiting time of diagnostic services such as ultrasound (U/S) in radiology showed that the non-accredited small and large hospitals had a higher average U/S booking time for OPD patients than accredited hospitals of small and large sizes. This indicator shows that hospital size can be seen to have an impact on the side of accredited hospitals. However, many factors may play a role in the diverging result. Source of data, the pressure to use the service and staff professionalism are expected to give priority to accredited hospitals.

In studying the ICU occupancy rate, Iapichino et al. (2004) stated that a higher ICU occupancy rates lead to higher mortality (Iapichino et al., 2004). Iapichino et al. examined the relationship between the volume of activity in intensive care units (ICUs) and mortality and conclude with that statement. The current study found that the large accredited hospitals had higher adult ICU occupancy rates than non-accredited hospitals. Hint, the large accredited hospitals involved in this study are triple of the large non-accredited hospitals (Section 4.1). Moreover, the small and medium hospitals transferring the sicker patient for advanced treatment to large hospitals. Therefore, the large hospital is the last destination of the sicker patients. The current result

differs from what has been concluded by Iapichino et al. (2004), who stated that quality of care is better in non-accredited hospitals. In addition to the fact that accredited hospitals have higher occupancy rates, medium and large hospitals have a higher number of hospitalised patients including ICU cases that develop bed sores than small hospitals.

Bed sores mostly occur in long term cases. Therefore, the lesson to be learned from quality should be to maintain a high level of patient care to avoid the development of bed sores. In the qualitative interviews in the current study, all the participants expressed their gratitude to quality for what it has taught them. This gratitude is not reflected by the indicator findings, and shows a contradiction with the qualitative findings. The large and medium hospitals tend to have sufficient bed capacity for long term cases, while the small hospitals transfer cases to large hospitals for medical treatment. Although, accreditation has been involved in some hospitals and was assumed to have good impact on quality of care, the larger accredited hospitals had a higher number of patients who developed bed sores during hospitalisation including ICU than non-accredited large hospitals. So, the larger accredited hospitals leaders must take action to reduce the number of bed sores in response to the indicator results.

The (JCIA) has identified medication errors as one of the most frequent sentinel events (Barker, Flynn, Pepper, Bates, & Mikeal, 2002). The number of medication errors is higher in medium and large hospitals than in small hospitals which are non-accredited. From this increase in number it is obvious that hospital size is affecting the result. However, for accredited hospitals, the number of medication errors is lower in large hospitals than in small and medium hospitals. This means that accredited hospitals are in the opposite position to non-accredited hospitals. Moreover, the result shows that the number of medication errors is lower in large accredited hospitals than in large non-accredited hospitals. The current study is contradictory to a

prospective cohort study of medication error conducted in 36 hospitals in Georgia and Colorado in 2002, which denied any statistical relation between medication error and accreditation (Barker, Flynn, Pepper, Bates, & Mikeal, 2002). Participants on the qualitative side of the current study, from both groups of hospitals, indicated that the quality programme had helped to reduce the number of errors (Section 4.2.6.1). This indicator shows the positive difference between accredited and non-accredited hospitals in reflection of hospital size alone.

Finally, there was no difference in the number of code blue (cardiac arrests) in accredited and non-accredited hospitals in general, with exception of accredited medium hospitals, which had significantly higher incidences than accredited small hospitals. The type of indicator does not reflect the importance of measuring such indicators. It is not obvious what the indication of collecting the data is and what is the concluded purpose was. In the same pattern, the indicator for number of needle stick injuries was collected like others but it is still a number. In addition to the number of intra-operative cardiac arrests**,** number of admissions, number of discharges and number of ER visits has the same situation. Therefore, if the hospital size factor is removed, these indicators would not show any significance in reflecting the differences between accredited and non-accredited hospitals.

To sum up, the answer to the research question, *does the accreditation process create a measurable difference in healthcare quality indicators between accredited and non-accredited hospitals,* is yes, there is a difference in favour of non-accredited hospitals.

Based on the assumption that the collected quantitative data can be used to support or not support the hypothesis (Bryman, 2015), a statistical analysis of quantitative data has been used to test the research hypothesis (Section 3.1) which states that the accreditation programme,

when implemented, leads to significant quality clinical indicators and thus a measurable positive difference may exist between accredited and non-accredited hospitals. The results revealed the QCI of the non-accredited hospitals to be better than that of the accredited hospitals, which suggests the existence of a negative difference. Accordingly, the hypothesis was rejected.

To summarise this section, the findings concluded so far indicate that the quality of healthcare services in MoH hospitals is compromised despite ongoing efforts through accreditation projects. However, it is essential to explore the perceptions towards the quality programme within these hospitals. Therefore, the following section will answer the second and third question of this study by offering further discussion regarding the perceptions of hospital managers on the current situation of healthcare quality.

- **Question 2:** How does accreditation process influence the perceived quality of healthcare in MoH hospitals?
- **Question 3:** What are the similarities and differences in perceived quality of healthcare in accredited and non-accredited MoH hospitals in KSA?

To answer these two questions from a qualitative perspective, two dimensions should be considered: the influence of accreditation on perceived quality, and the similarities and differences of these perceptions in both accredited and non-accredited hospitals. The collected qualitative data incorporates social and behavioural thinking on quality within accredited and non-accredited hospitals.

5.5.6 Fundamental concepts

Participants from both groups were fully aware of the start date (2005) when the quality programme was first introduced in the Ministry of Health hospitals. The increased awareness towards quality projects has changed the perceptions of hospital directors towards the potential outcomes of quality. This has been implied by one of the hospital directors (PA-1, Section 4.2.5).

By introducing these programmes, the healthcare practitioners gained knowledge about quality application as they were practically involved in various quality initiatives. The current study interpreted the participants' knowledge on quality into the perceived term "*continuous improvement*". Despite their differing definitions of quality, all participants emphasised the importance of continuous improvement as a key descriptor of quality. In addition to this view, it has been noticed that the managers in accredited hospitals link quality to the prevention of error. This view has led me to assume that such a linkage is based on the emphasis of accreditation agencies on the prevention of errors. The is clearly mentioned in several agency standards handbooks, i.e. JCIA Chapter Seven, and CBAHI Chapter Ten.

In the same vein, the accreditation standard manuals of both JCI and CBAHI focus on patient safety standards as a tool for the reduction of error. However, patient safety standards are given more attention in JCI and are described as *"international patient safety goals"* rather than just standards (JCI, 2014 p:22) The continuous emphasis on implementing these goals to reduce medical error explains why hospital managers perceive quality as a way of preventing error. Therefore, perceiving quality as a way of reducing error represents the main difference between

the accredited and non-accredited hospitals in the understanding of quality. The hospital managers in the accredited hospitals perceive the practical side of quality, i.e. error reduction, unlike their peers in the non-accredited hospitals (Section 4.2.7.1). Moreover, quality tools including but not limited to (PDCA) Plan-Do-communicate and Act, Pareto chart, and flow chart, were recognised by all participants from both accredited and non-accredited hospitals. This indicates that the accreditation programmes do not necessarily impact knowledge about quality tools.

The current study revealed a contradiction between perceived and actual effectiveness of the accreditation programmes. Participants from accredited hospitals remain convinced that medical services have improved due to implementing the accreditation programme. In addition, those managers mentioned that they can notes a positive impression toward the quality of healthcare from the patients who visit the hospital frequently. However, these perceptions are contrary to what was concluded from the quantitative part of this study, i.e. the document review of QCI. Meanwhile the participants from non-accredited hospitals failed to express their perceptions on the potential benefits of accreditation, since they have not been involved in these activities.

5.5.7 Patient and staff satisfaction

As a lens for viewing healthcare quality, accreditation programmes have emphasised the need to measure the satisfaction of both patients and employees (JCI and CBAH). The findings of this study show that hospital managers in both accredited and non-accredited hospitals agree that quality has changed their perceptions about the satisfaction of employees and patients, as well as the way that it should be measured. This is compatible with the results of other local

and international studies. The study of Al-Qahtani et al. (2012) revealed statistically significant differences in the level of patient satisfaction, where patients in the accredited hospital showed a higher level of satisfaction compared to those of the non-accredited hospital. Gabriel et al. (2018) stated that nurses perceived improvements as an outcome of the accreditation process in terms of strategic quality planning, quality management, patient satisfaction and staff involvement. On the other hand, participants from non-accredited hospitals were less accurate in describing the correct ways of measuring the satisfaction of internal customers (staff) and external customers (patients). A director of a non-accredited hospital explained that he visits patients continuously to determine their level of satisfaction, and he suggests that employee satisfaction can be inferred by the number of complaints raised by the employees (PC2) (Section 4.2.6.2).

This reflects a traditional approach to handling information related to patient and employee satisfaction. The leadership chapter of the JCI standards manual (LD.12.1) stresses the need to employ a scientific approach in dealing with these important aspects that includes taking feedback from patients and workers and conducting regular field surveys. This is a clear conflict between scientific behaviour and human behaviour, which is a social aspect.

However, other studies have concluded that there is no significant relationship between accreditation and the level of patient satisfaction. Haj-Ali et al. (2014) explored the impact of hospital accreditation on patient satisfaction across six hospitals in Lebanon and noted that there was no statistically significant association between hospital accreditation classification and patient satisfaction. In the same vein, Barghouthi and Imam (2018), who assessed the level of patient satisfaction in accredited and non-accredited hospitals in Palestine, concluded that there are no statistically significant differences related to hospital accreditation. This leads to the conclusion that satisfaction is a subjective issue that is difficult to measure quantitatively, because quality is a social construct. The variation of findings between these studies should be

considered by the accreditation agencies when determining the level of patient and employee satisfaction in hospitals. Satisfaction is measured objectively and may give a different result if measured in a different way. People vary in presenting their satisfaction level, so, patient and staff satisfaction can be measured objectively beside the current way of measure.

5.5.8 Patient safety

The participants from both accredited and non-accredited hospitals agreed that quality had an important role in improving patient safety. Reporting systems such as occurrence variance report (OVR) and sentinel event reports, indicator reports, and facility management safety reports are being implemented in all hospitals in the study. However, unlike managers in the accredited hospitals, the participants from the non-accredited hospitals seem to lack a scientific interpretation of quality and patient safety. They rely on personal effort to adapt the quality principles in their hospitals as an alternative means of achieving accreditation. Therefore, accreditation may offer a more systematic understanding and structural implementation of quality and patient safety principles. This is supported by other researchers who state that those institutions that invest in accreditation surveys reap the most benefit from accreditation.

Al Awa et al. (2011) concluded that the accreditation programme that was carried out at King Abdulaziz University Hospital in KSA has positively impacted patient safety and quality of healthcare indicators, including adverse events, healthcare associated infections, mortality rate, and surgical procedures (Al Awa et al., 2011). Another study conducted in KSA shed light on the positive impact of accreditation on patient safety from the nurse perspective (Al Shamari et al., 2015). As noted by Qureshi et al. (2010), the certificate of quality compliance is a key indicator of healthcare quality and patient safety. They argued that patients prefer accredited healthcare organisations, thus unaccredited organisations need accreditation to achieve the

competitive advantage. Accreditation sends a strong message to the stakeholders regarding the organisation's commitment to providing quality and safe services (Almasabi, 2013). These observations reveal the mediating role of the accreditation programme in improving the level of quality and patient safety in hospitals.

5.5.9 Infection control

Quality programmes reflect on all hospital services, including infection control. All participants stated that the enforcement of infection control measures has been made a priority by hospital management. They mentioned that the MoH recently started to build isolation rooms and negative pressure rooms in all hospitals to fulfil the quality requirements. In general, the participants in this study from both accredited and non-accredited hospitals have demonstrated a good knowledge of infection prevention. Having said that, there remains a question regarding how infection control is being practiced in non-accredited hospitals (PC6) (Section 4.2.7.2).

It is obvious that the knowledge of the participants from both accredited and non-accredited hospitals is equal, but practice seems to be breached in the non-accredited hospitals. This could be attributed to the absence of inspection tools such as accreditation (Section 4.2.7.2).

Moreover, participants emphasised the influence of the quality programme in changing the infrastructure of their hospitals. They mentioned that the quality requirements forced the MoH to apply the infection control conditions to hospital infrastructure *(PC6)*. However, accreditation may provide added value to the accredited hospitals given that it emphasises the application of infection control in a more structured way. Sekimoto et al. (2008) identified the impact of hospital accreditation in determining the infection control infrastructure as well as healthcare outcomes. Similarly, the study of Al Tehewy et al. (2009), showed a positive

association between hospital accreditation and infection control due to hospital's compliance with the accreditation standards. Therefore, it is worth considering the combination of knowledge and practice. These aspects can be consolidated by introducing the accreditation to ensure hospitals adhere to infection control requirements.

5.5.10 Teamwork

Different teamworking aspects of quality were discussed with participants (Section 4.2.7.3). All managers from both accredited and non-accredited hospitals expressed their understanding of teamwork activities by mentioning that they are involved in different meetings such as decision-making, planning and setting work policies. Following these meetings, there are other teamwork activities and coordinated efforts to implement the planned activities. A fire prevention plan is an example that reflects the mechanism of teamwork activities. A positive teamwork morale exists in both accredited and non-accredited hospitals, which means that accreditation has no significant effect in this context *(PA1)* and *(PD7)* (Section 4.2.7.3). The reviewed literature does not provide evidence on the influence of accreditation on teamwork.

5.6 Conclusion

This Chapter has outlined the significant indicators in the quantitative part and the main themes that have been developed as a result of the qualitative part. These themes represent the perceived understanding of quality using semi-structured interviews with a group of hospital directors from accredited and non-accredited MoH hospitals. The participants identified important perceptions regarding the mediating role of accreditation in achieving the required level of quality. These perceptions have been analysed and discussed considering the potential variation between quality practices in accredited and non-accredited hospitals. The identified

themes include fundamental concepts, satisfaction, reporting systems, precautions, and teamwork. Additionally, some reverse expectations have been identified and discussed. The discussion highlighted similar perceptions on the knowledge of quality in both accredited and non-accredited hospitals. However, there are slight differences between these hospitals in terms of the practice of quality.

6 Chapter Six Conclusion and Recommendations

The previous chapter presented a discussion of the results of the data collected and analysed from indicator results and participants working at top management levels of MoH hospitals. The chapter included an integrated critique across a two-part analysis which was followed by a discussion based on the key findings of this study and those of the studies critiqued within Chapter Three, the literature review.

The following chapter will present the major research conclusions and recommendations drawn from the main findings of the two integrated results of this thesis.

This part will also consider the contributions and main limitations of the current study and their implications as well as provide a number of recommendations that may have implications for future development of accreditation programmes. Moreover, suggestions are made for certain aspects of healthcare quality in the KSA that need to be considered for future research.

6.1.1 Staff behaviour and attitude

The qualitative part of this study aims at achieving an in-depth understanding of the perceived reality of quality programmes. These perceptions are subjective in nature and thus exposed to various social and behavioural influences. Therefore, some interesting findings about staff behaviour and attitude have been identified. One participant (PC5) stated that some hospital staff are dissatisfied because of the length of stay of some patients (Section 4.2.6.2). This resentment might be extended to a negative attitude towards patients. Additionally, another participant (PD8) identified that some employees do not report all errors that occur in the hospital (Section 4.2.6.3). This dangerous behaviour is also a critical issue for quality since the quality culture encourages self-reporting of errors and ensures anonymity of informants. As stated by Khon et al. (2000), this could reflect negative perspectives on the organisational and

quality culture of hospitals where errors are viewed as personal failure rather than a fault of the system (Khon et al., 2000). As a potential explanation for the lack of error reporting, a study by Rages (2014) concluded that healthcare workers are frustrated by the limited feedback and poor response from hospital top management to their requirements and reports.

Another issue raised by some managers in both accredited and non-accredited hospitals is that they are dissatisfied with absence of some committee members who do not attend their scheduled meetings PD8 (Section 4.2.7.3). The participants stated that this absence is basically attributed to the commitment of those members to their original work. They mentioned that this problem causes disruption to quality efforts and wastes hospital resources. This observation may represent a system-related factor that influences staff behaviour and attitude. It is obvious that those members are not able to strike a balance between their basic duties as healthcare practitioners and their participation in quality initiatives.

6.1.2 Reverse expectations

This study clearly demonstrated the superiority of non-accredited hospitals in the overall results of the indicators under study. The results were not expected to negatively influence the indicators of accredited hospitals to this extent. However, I believe that the adverse results of indicators should not be fully attributed to the failure of accreditation projects. They might be caused by an excessive adherence to standards that has created new rigid policies that have affected the overall performance of the accredited hospitals, or an inability of the Ministry of Health to monitor requirements. For example, the apparent delay in the patient waiting times in accredited hospitals for appointments for outpatients or radiology departments is due to the requirements of the accreditation standards to achieve the quality required when performing the service. On the other hand, the non-accredited hospitals have shorter waiting times. This

supports the assumption that the accreditation standards contribute to more complicated work processes. At the same time, these standards provide more objective compliance and exclude personal judgements in delivering healthcare services.

Generally, the QCIs represent a comparison tool by which the current clinical performance of the accredited hospitals was measured and then compared with the performance of the non-accredited hospitals. The results of quantitative analysis revealed that non-accredited hospitals perform better than accredited hospitals. Moreover, the explored perceptions are deemed similar in both accredited and non-accredited hospitals. This similarity is viewed as another point in favour of non-accredited hospitals. I believe that the good performance of the non-accredited hospitals may reflect the intensive preparatory efforts that are being undertaken by the Ministry of Health to accredit all hospitals as a first step towards transformation and privatisation projects. These efforts focus on encouraging hospitals to improve their clinical and non-clinical processes to achieve a certain level of quality that enables them to be accredited. However, a key finding from this study indicates the indifference of knowledge between perceptions in the accredited and non-accredited hospitals, and the drop in QCIs in the accredited hospitals represents the sustainability dilemma concerning quality projects. The accreditation momentum and commitment to quality starts to decline soon after hospitals become certificated, and this leads to a drop-in performance. The results drawn in this study provide a general perception regarding the need to review the accreditation standards and tailor them according to the requirements of individual MoH hospitals (Section 1.4). This also requires a combined effort from the Ministry of Health and the accreditation agencies to ensure the sustainability of the accreditation projects.

6.1.3 The study contribution

The impact of the current MoH strategy on the healthcare system has been significant. However, as identified in the literature review conclusion there are no Saudi specific studies which identify the differences in quality of care provided by accredited and non-accredited hospitals. At an international level, it is rare that research examines these differences, therefore this study fills the gap in the international literature, and more specifically, in the Saudi context.

In light of this, the findings presented in this thesis provide a unique original contribution by providing valuable evidence regarding the differences between MoH accredited and non-accredited hospitals in KSA, as a baseline from which to develop a strategy for future healthcare quality development. Furthermore, this study will contribute to MoH policy maker knowledge and organisation planning.

6.2 Recommendations

The recommendations have been devised from the findings of this study and are separated into recommendations for the MoH and recommendations for the National and International Accreditation Bodies.

6.2.1.1 Recommendations for the MoH

- Benchmarking MoH hospitals against more advanced quality certified healthcare organisations within the context of Saudi Arabia.

- More MoH funding should be accessible to each health directorate in order to allow for human, financial and material resources to be available as required and to facilitate the process.
- Dissemination of standardised quality terminologies to be used within MoH hospitals.
- Including quality subjects in the university curriculums for all healthcare specialities.
- Re-evaluation of the effectiveness and efficiency of the MoH clinical auditing programme.
- Establishment of a specialised team to monitor the 'post accreditation phase' and ensure continuous improvement and evaluation.
- Public sharing of QCI of the accredited hospitals to improve transparency and accessibility of information and encourage competitive benchmarking.
- Incentives and rewards for the top ranked accredited hospitals.

6.2.1.2 Recommendations for National and International Accreditation Bodies

- Conducting unannounced team surveys for the accredited hospitals.
- Delegating quality surveyors to report any violations or breaching of quality in accredited hospitals.

6.2.1.3 Recommendations for future research

This study was mainly concerned with reviewing quality indicators and manager perspectives. Future research on patient perceptions of quality and accreditation projects would be recommended to obtain further knowledge regarding the impact of patient value on quality initiatives.

6.3 Dissemination plan

This thesis has utilised critical analysis to determine the differences in the quality of healthcare provided by accredited and non-accredited hospitals by focusing on indicator results and manager perspectives. Recommendations have been devised as a result and will be submitted to the MoH in order to re-evaluate the current accreditation programme and identify more efficient ways to improve the quality of healthcare. A meeting will be requested between the researcher and the general director of the quality directorate of the MoH to discuss these findings and to devise a suitable plan to put the recommendations into practice.

A copy of the results will be made available to all healthcare professionals involved in the study and a publication will be released for all other healthcare professionals, with the main aims, objectives and findings summarised in a peer-reviewed setting such as the International Journal for Quality in Healthcare. The findings will be available through the University of Salford Library via the PhD website in the UK. I will present findings at conferences, both nationally in Saudi Arabia and internationally at conferences organised by, for example, the WHO and the NHS, and also make poster presentations available at the International Society for Quality in Healthcare (ISQua). Seminars will be provided for healthcare professionals involved in management or policy decision making processes, along-with guidelines for training, if required, for hospitals who do not meet the accreditation standards and seek to improve quality of care.

I will study post-doctoral courses to increase my knowledge and add to this information that has been found.

6.4 Limitations

As with all studies, there are certain limitations that will affect the results of the study and must be taken into consideration. These limitations are:

- 9 indicators of the 49 were not completed by the hospitals and therefore had to be excluded from the study. This left only 40 indicators that were able to be examined.
- Currently there are changes occurring in Saudi Arabia, both in a political sense and an economic one, therefore the changes that are occurring are inevitable and require some direction in regards of healthcare in KSA. The study was limited to MoH hospitals only, therefore it is difficult to obtain an impression of the exact standard of quality across the entirety of the healthcare system in Saudi Arabia.
- Only the perspective of managers was gathered, there was no input from the patients as to how they view the quality of healthcare that they receive, therefore data from patients may provide a perspective that differs from the results of this study.
- The information was sourced from the observations and analysis of others. If I had stayed in the hospitals and observed first hand I may have had a different viewpoint.

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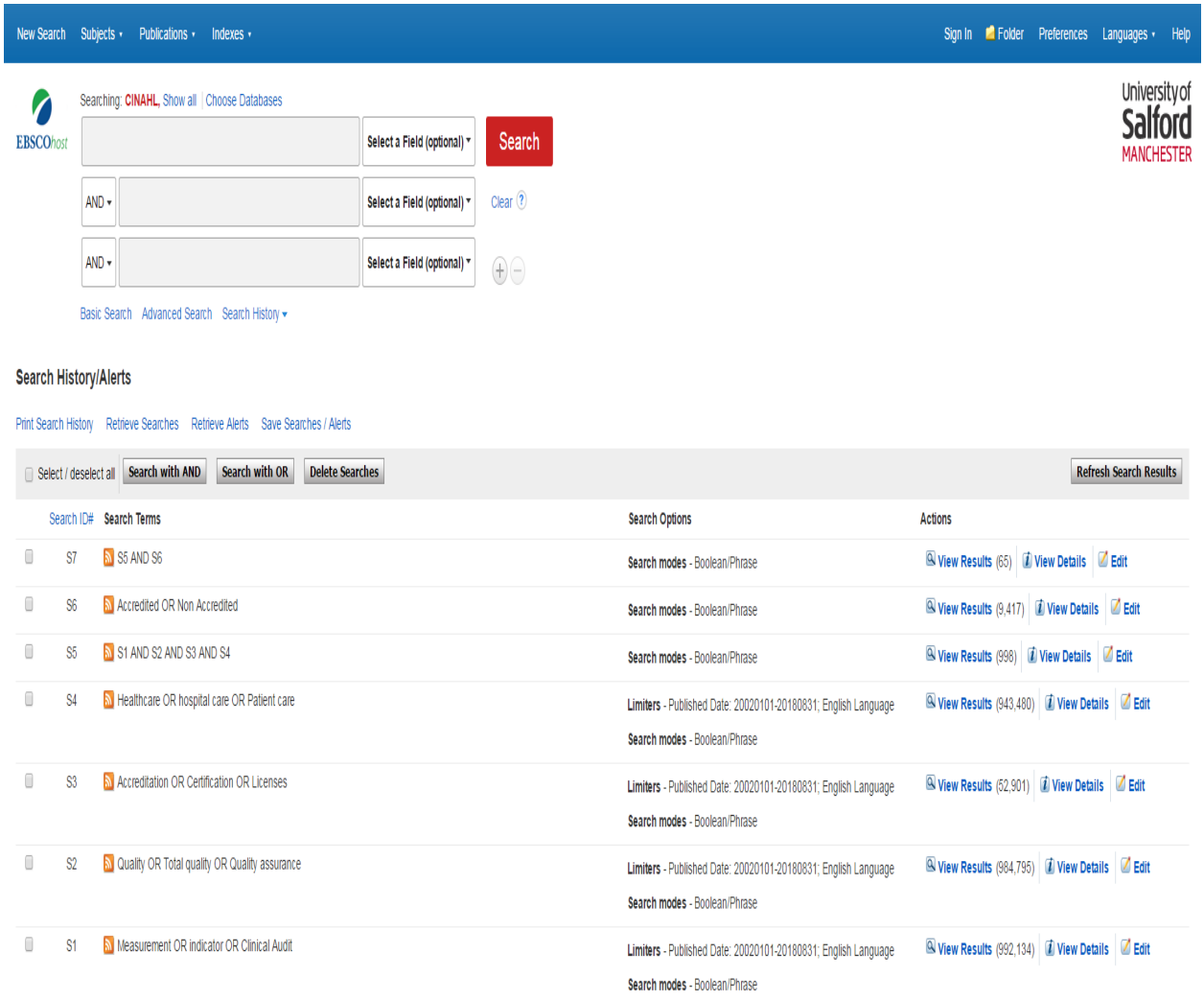
Appendices

Appendix 1 -Database search result.



Appendix 2: Hawker`s Assessment Tool

Author and title:					
Date:					
	4 Good	3 Fair	2 Poor	1 Very poor	Comments
1. Abstract and title					
2. Introduction and aims					
3. Method and data					
4. Sampling					
5. Data analysis					
6. Ethics and bias					
7. Findings/results					
8.Transferability/generalizability					
9. Implications and usefulness					
Total score					

1. Abstract and title: Did they provide a clear description of the study?

Good Structured abstract with full information and clear title.

Fair Abstract with most of the information.

Poor Inadequate abstract.

Very poor No abstract.

2. Introduction and aims: Was there a good background and clear statement of the aims of the research?

Good Full but concise background to discussion/study containing up-to-date literature review and highlighting gaps in knowledge.

Clear statement of aim AND objectives including research questions.

Fair Some background and literature review.

Research questions outlined.

Poor Some background but no aim/objectives/questions, OR

Aims/objectives but inadequate background.

Very poor No mention of aims/objectives.

No background or literature review.

3. Method and data: Is the method appropriate and clearly explained?

Good Method is appropriate and described clearly (e.g., questionnaires included).

Clear details of the data collection and recording.

Fair Method appropriate, description could be better.

Data described.

Poor Questionable whether method is appropriate.

Method described inadequately.

Little description of data.

Very poor No mention of method, AND/OR

Method inappropriate, AND/OR

No details of data.

4. Sampling: Was the sampling strategy appropriate to address the aims?

Good Details (age/gender/race/context) of who was studied and how they were recruited. Why this group was targeted. The sample size was justified for the study.

Response rates shown and explained.

Fair Sample size justified.

Most information given, but some missing.

Poor Sampling mentioned but few descriptive details.

Very poor No details of sample.

5. Data analysis: Was the description of the data analysis sufficiently rigorous?

Good Clear description of how analysis was done.

Qualitative studies: Description of how themes derived/ respondent validation or triangulation.

Quantitative studies: Reasons for tests selected hypothesis driven/ numbers add up/statistical significance discussed.

Fair Qualitative: Descriptive discussion of analysis.

Quantitative.

Poor Minimal details about analysis.

Very poor No discussion of analysis.

6. Ethics and bias: Have ethical issues been addressed, and what has necessary ethical approval gained? Has the relationship between researchers and participants been adequately considered?

Good Ethics Where necessary issues of confidentiality, sensitivity, and consent were addressed.

Bias: Researcher was reflexive and/or aware of own bias.

Fair Lip service was paid to above (i.e., these issues were acknowledged).

Poor Brief mention of issues.

Very poor No mention of issues.

7. Results: Is there a clear statement of the findings?

Good Findings explicit, easy to understand, and in logical progression.

Tables, if present, are explained in text.

Results relate directly to aims.

Sufficient data are presented to support findings.

Fair Findings mentioned but more explanation could be given.

Data presented relate directly to results.

Poor Findings presented haphazardly, not explained, and do not progress logically from results.

Very poor Findings not mentioned or do not relate to aims.

8. Transferability or generalizability: Are the findings of this study transferable (generalisable) to a wider population?

Good Context and setting of the study is described sufficiently to allow comparison with other contexts and settings, **PLUS** high score in

Question 4 (sampling).

Fair Some context and setting described, but more needed to replicate or compare the study with others, **PLUS** fair score or higher in

Question 4.

Poor Minimal description of context/setting.

Very poor No description of context/setting.

9. Implications and usefulness: How important are these findings to policy and practice?

Good Contributes something new and/or different in terms of understanding/insight or perspective.

Suggests ideas for further research.

Suggests implications for policy and/or practice.

Fair Two of the above (state what is missing in comments).

Poor Only one of the above.

Very poor None of the above

Examples of appraisal of articles using Hawker's Assessment Tool

Author and title: Al Tehewy, M., Salem, B., Habil, I., & El Okda, S. (2009). Evaluation of accreditation program in non-governmental organisations' health units in Egypt: Short-term outcomes. *International Journal for Quality in Healthcare*, *21*(3), 183–189.					
Date:					
	4 Good	3 Fair	2 Poor	1 Very poor	Comments
1. Abstract and title	4				
2. Introduction and aims	4				
3. Method and data	4				
4. Sampling	4				
5. Data analysis	4				
6. Ethics and bias			2		
7. Findings/results	4				
8.Transferability/generalizability	4				
9. Implications and usefulness			2		
Total score	32				

Author and title: Juul, A. B., Gluud, C., Wetterslev, J., Callesen, T., Jensen, G., &Kofoed-Enevoldsen, A. (2005).The effects of a randomised multi-centre trial and international accreditation on availability and quality of clinical guidelines. *International Journal of Healthcare Quality Assurance Incorporating Leadership in Health Services*, *18*(4–5), 321–328.					
Date:					
	4 Good	3 Fair	2 Poor	1 Very poor	Comments
1. Abstract and title		3			
2. Introduction and aims	4				
3. Method and data		3			
4. Sampling		3			
5. Data analysis	4				
6. Ethics and bias				1	Not reported
7. Findings/results	4				
8.Transferability/generalizability	4				
9. Implications and usefulness			2		
Total score	28				

Author and title: Peabody, J.W., Quimbo, S.A., Shimkhada, R., Woo, K., & Solon, O. (2008). Should we have confidence if a physician is accredited? A Study of the Relative Impacts of Accreditation and Insurance Payments on Quality of Care in the Philippines. *Social Science & Medicine, 67(4), 505-510*. doi: 10.1016/j.socscimed.2008.04.013					
Date:					
	4 Good	3 Fair	2 Poor	1 Very poor	Comments
1. Abstract and title		3			
2. Introduction and aims	4				
3. Method and data	4				
4. Sampling	4				
5. Data analysis	4				
6. Ethics and bias				1	Not reported
7. Findings/results	4				
8.Transferability/generalizability	4				
9. Implications and usefulness	4				
Total score	32				

Author and title: Miller, M. R., Pronovost, P., Donithan, M., Zeger, S., Zhan, C., Morlock, L., & Meyer, G. S. (2005). Relationship between performance measurement and accreditation: Implications for quality of care and patient safety. *American Journal of Medical Quality*, *20*(5), 239-252					
Date:					
	4 Good	3 Fair	2 Poor	1 Very poor	Comments
1. Abstract and title	4				
2. Introduction and aims	4				
3. Method and data	4				
4. Sampling		3			
5. Data analysis	4				
6. Ethics and bias				1	Not reported
7. Findings/results	4				
8.Transferability/generalizability	4				
9. Implications and usefulness		3			
Total score	31				

Appendix 3 List of Indicators

Dimension	N	Indicator
Health Organisation Professional performance indicators	1.	Rate of patients who spent 24 hrs or more in the ER/month
	2.	Average patients waiting time in the ER from registration till ICU admission/month
	3.	Average patients waiting time in the ER from registration till ward admission (except to ICU)/month
	4.	Average patients waiting time in ER from registration till transferred to other hospital month
	5.	Percentage of admitted cases for 30 days or more in hospital words /month
	6.	Average patients waiting time for scheduling routine surgical operations/month
	7.	Average patients waiting time for scheduling routine endoscopies/month
	8.	Operation cancellation rate (routine operations)/month.
	9.	Endoscopies cancellation rate (routine endoscopies)/month
	10.	Adult ICU occupancy rate month
	11.	Average length of stay in the adult ICU/month
	12.	Percentage of admitted cases for 30 days or more in adult ICU/month.
	13.	NICU occupancy rate/month
	14.	Average length of stay in the NICU/month
	15.	Percentage of admitted cases /for 30 days or more in NICU month.
	16.	Percentage of specialties that booking urgent appointment takes more than 2 weeks for new cases/month.

	17.	Percentage of specialties that booking routine appointment takes more than 4 weeks for new cases/month.
	18.	Percentage of specialties that booking admission for routine surgical procedures takes more than 4 weeks for new .cases/month
	19.	Percentage of patients not (attending OPD specialty)/ month.
	20.	Average turnaround time for CBC from time received till time delivered in the lab for inpatient.
	21.	Average turnaround time for Chemistry from time received till time delivered in the lab for inpatient.
	22.	Average turnaround time for blood culture from time received till time delivered from the lab. For inpatient /month.
	23.	Average turnaround time for histopathology from time received till time delivered from the lab/month.
	24.	Average U/S booking time for OPD patients/month.
	25.	Average CT scan booking time for OPD patients/month.
	26.	Average MRI booking time for OPD patients/month.
Health Organisation KPIs	27.	Hospital Mortality Rate (inpatient)/month.
	28.	Operative Mortality Rate /month.
	29.	Unscheduled return to O.R within 48hrs/month.
	30.	Number of patient falls /month.
	31.	Number of medication errors/month.
	32.	Ventilator Acquired Pneumonia (VAP) rate/month.
	33.	Surgical Site Infection (SSI) rate/month.
	34.	Number of patients developed bed sores during hospitalisation including ICU (new cases)/month
	35.	Number of code blue /month.
	36.	Caesarean Section Rate /month.
	37.	Central Line Infection Rate CR-BSI)/month.

	38.	Number of needle stick injury/month.
	39.	C.P.R Failure Rate/month.
	40.	Number of intra-operative cardiac arrest/month.
	41.	Number of post-operative cardiac arrest within 48hrs /month.
Health Organisation Productivity indicators.	42.	Average Length Of Stay (ALOS) in the hospital /month
	43.	Number of admissions /month.
	44.	Number of discharges/month.
	45.	Number of ER visits/month.
	46.	Number of surgeries/month.
	47.	Number of endoscopies /month.
	48.	Occupancy Rate/month.
	49.	Number of outpatient visits/month.

Appendix 4 - Interview Guide

1. In general, can you explain what do you mean by quality in your hospital?
2. In your opinion how does quality Programme improve quality of care in your hospital? Examples.
3. From your observations do you think quality Programmes improve the clinical performance of healthcare workers and how?
4. In your opinion, how does a quality Programme affect patients and staff satisfaction in your hospital?
5. In your opinion how does quality Programme affect communication between professionals in your hospital?
6. When an error occurs what procedures are followed to manage this in your hospital?
7. In your experience how does your hospital help you learn from your mistakes?
8. Can you tell me what level of importance your hospital management put on quality and can you give an example to support your answer?
9. When a patient is transferred between department or out of the hospital can you tell me how the handover process?
10. What is the reporting system in your hospital and how the quality improved the use of this system?
11. From your observations do you think healthcare workers are concerned about personal consequences when they report an error in your hospital? Please explain the reasons for your answer?
12. From your experience, what is the safety and how does quality Programme affect the safety in your hospital?
13. In your opinion how does quality Programme affect teamwork between your hospital departments?

14. Can you tell me anything else about quality Programme in your hospital which we did not cover during this interview? Can you give me an example please?

N	Dimension	Question
1.	Over all understanding of quality	In your opinion, how do you define the quality of healthcare?
2.	Application of precautions	In your opinion, how can you prevent spread of infection in your hospital?
3.	Staffing	From your observation, what do staffing levels have on quality of care?
4.	Accreditation	In your opinion, how dos the accreditation system effect on quality of care.
5.	Safety	Can you tell me, what level of importance put in safety and can you give an example of to support your answer?
6.	Teamwork	How does teamwork within your hospital affect quality of care?

Appendix 5 - Participant Invitation Letter

Research project: Measurement of Healthcare Quality: A Comparative Study between Accredited and Non-Accredited Hospitals in Saudi Arabia

A Mixed-methods Study

My name is *Abdallah Alasmari.* I have been given the permission by the Ministry of Health to conduct this study at your hospital as one of the hospitals selected for this purpose. I am a postgraduate student of PhD in the School of Nursing, Midwifery, Social Work & Social Sciences University of Salford, United Kingdom.

I would like to invite you to participate and support me in my research on the subject mentioned above.

My supervisor of this research Study is: Dr. Karen Staniland. from the University of Salford.**:**Email k.staniland@salford.ac.uk

The Co supervisor is Professor Nick Hardiker from the University of Salford. Email.:N.R.Hardiker@salford.ac.uk

If you have any questions regarding the participation in this study please contact me at the following address:

(KSA)—[*afarhan61@hotmail.com*] Mobile: 0596198849

(UK)--Abdallah Alasmari, 20 Carnival Place Manchester.M14 7TN, phone number [+447405378019], email [**A.Alasmari@edu.salford.ac.uk**].

Regards

The aim of this study is to examine any potential differences in the quality of care between accredited and non-accredited hospitals provided by the Ministry of Health hospitals in Saudi Arabia in order to make recommendations for the improvement of healthcare quality in Saudi Arabia.

Time requirements: The interview requires about 1-2 hours to be completed.

Interview:

This interview will be recorded (you are not required to mention your name) and participation is voluntary. Moreover you can withdraw at any time without any conditions.

It is not expected that this research would raise any issue or that could cause personal problems or any other forms of disturbances. However, if you feel upset or disturbed by any of the questions or by the research process, you are advised to withdraw from the study.

Questionnaires answered will be stored in a safe place and no one will have access to them except the researcher and his supervisor. They will remain for (3) years following the submission of his thesis research, and will be destroyed after that.

Research process:

This study is expected to be completed by December, 2018, The results will be used for the final dissertation and disseminated in the form of conference presentation and journal articles without identifying the respondents. This Research has been approved by the Research Ethical Committee of the University of Salford in Manchester, United Kingdom .

Please submit the completed questionnaire and drop it in the box located in the main entrance of the conference hall.

Finally, I thank you for your cooperation and will contact you soon.

Best regards

Researcher /Abdallah Alasmari

Mobile/+447405378019

Appendix 6 -Research Participant Consent Form

Title of Project: Measurement of Healthcare Quality: A Comparative Study between Accredited and Non-Accredited Hospitals in Saudi Arabia. A Mixed-methods Study

RGEC Ref No:

Name of Researcher: Abdallah Alasmari

(Delete as appropriate)

➢ I confirm that I have read and understood the information sheet for the above study (version x- date) and what my contribution will be.	Yes	No
➢ I have been given the opportunity to ask questions (face to face, via telephone and e-mail)	Yes	No
➢ I agree to digital images being taken during the research exercises	Yes	No / NA
➢ I understand that my participation is voluntary and that I can withdraw from the research at any time **without giving any reason**	Yes	No
➢ I agree to take part in the above study		

Yes	No

Name of participant ……

Signature ……

Date…… …….

Name of researcher taking consent ……Abdallah Alasmari

Email: Aafarhan61@hotmail.com

Appendix 7 -Translation authentication

سلطان البقمي للترجمة المعتمدة
Sultan Al baqami for Certified Translation
الترجمة المعتمدة الفورية لجميع اللغات
C.R. No.: 469422 Mem. No.: 399946 ترخيص رقم : 469422 - رقم العضوية

خبرة عريقة في مجال ترجمة جميع اللغات
مكاتبنا منتشرة في جميع انحاء المملكة

شهادة

هذه شهادة بان ترجمة المستندات من اللغة العربية الى الإنجليزية والتي تقدم بها السيد / عبد الله محمد الاسمري وهي عبارة عن نصوص مفرغة من تسجيل لمقابلات شخصية ضمن دراسة الدكتوراه صحيحة المعنى دون أدني مسؤوليه عن المحتوى والتوقيعات وهذه شهادة منا بذلك.

مكتب سلطان البقمي للترجمة المعتمدة.

AFFIDAVIT

This is to certify that the translation of documents from Arabic to English, submitted by Mr. Abdullah Mohammed Al-Asmari, which is a transcript of recorded interviews in his study of PhD is correct in the matter of meaning. without any responsibility on content or signatures on original documents.

Sultan Albaqami for Certified Translation

الرياض- طريق الملك عبدالله – مقابل مطعم ماما نورة- ص.ب ٣٢٥٠٣ الرياض ١١٣٧١- واتس اب وجوال: ٠٥٥٨١٧٣٢٤٩ -٠٥٦٤٥٥٥٠٠٢
Riyadh – Kingabdullah Road- Opposite Mama Nora Resturant- P.O.Box 32503- Riyadh 11371 - Mobile&WhatsApp: 0564555002- 0558173249

Appendix 8 -University Ethical Approval

University of Salford MANCHESTER

Research, Innovation and Academic Engagement Ethical Approval Panel

Research Centres Support Team
G0.3 Joule House
University of Salford
M5 4WT

T +44(0)161 295 2280

www.salford.ac.uk/

5 February 2016

Dear Abdallah,

RE: ETHICS APPLICATION HSCR 15-159 – Measurement of Health Care Quality: A Comparative Study between Accredited and Non Accredited Hospitals in Saudi Arabia

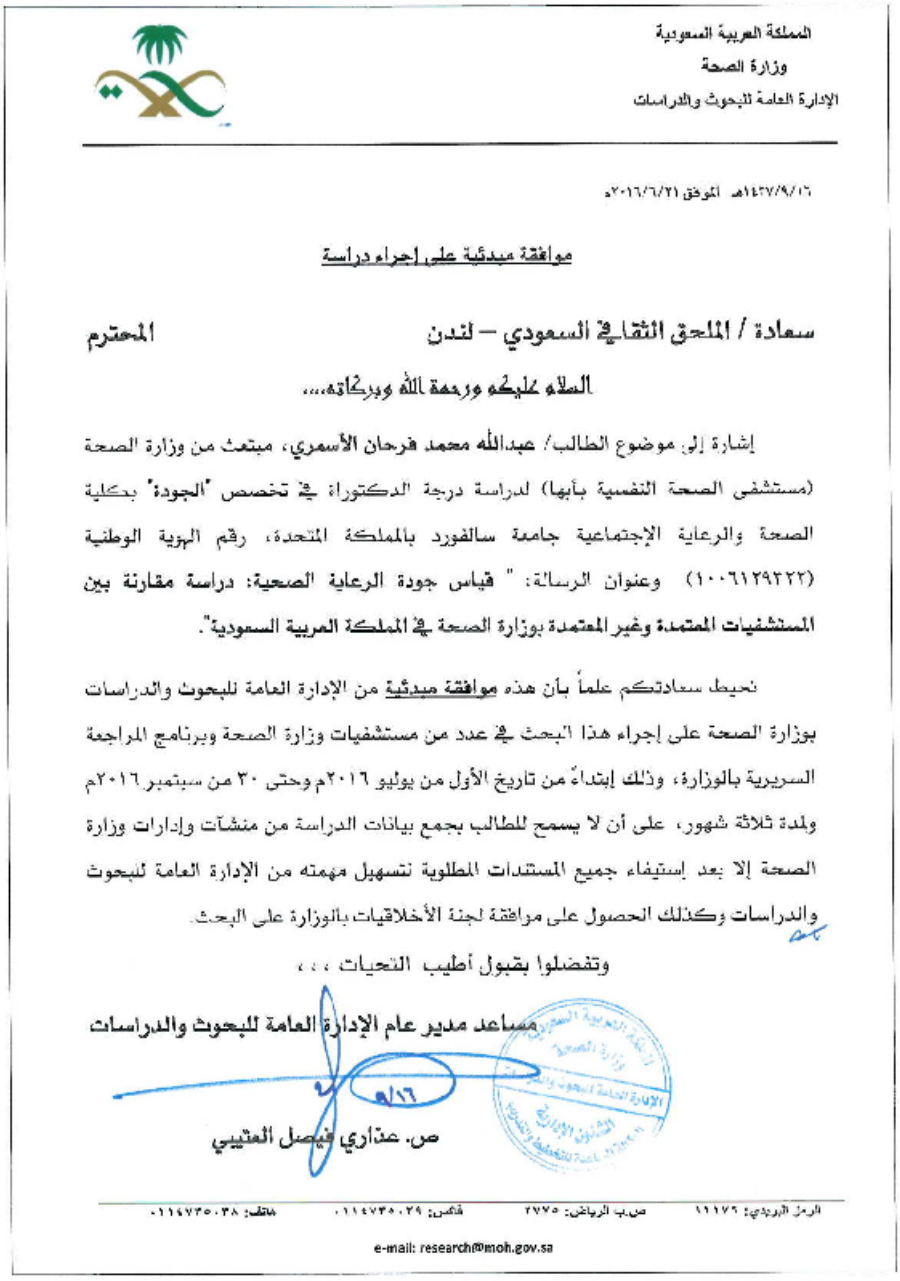
Based on the information you provided, I am pleased to inform you that application HSCR15-159 has been approved.

If there are any changes to the project and/ or its methodology, please inform the Panel as soon as possible by contacting Health-ResearchEthics@salford.ac.uk

Yours sincerely,

Sue McAndrew
Chair of the Research Ethics Panel

Appendix 9 - MOH Ethical approval



المملكة العربية السعودية
وزارة الصحة
الإدارة العامة للبحوث والدراسات

١٤٣٧/٩/١٦هـ الموفق ٢٠١٦/٦/٢١م

موافقة مبدئية على إجراء دراسة

المحترم سعادة / الملحق الثقافي السعودي – لندن

السلام عليكم ورحمة الله وبركاته،،،

إشارة إلى موضوع الطالب/ عبدالله محمد فرحان الأسمري، مبتعث من وزارة الصحة (مستشفى الصحة النفسية بأبها) لدراسة درجة الدكتوراة في تخصص "الجودة" بكلية الصحة والرعاية الإجتماعية جامعة سالفورد بالمملكة المتحدة، رقم الهوية الوطنية (١٠٠٦١٢٩٢٢٢) وعنوان الرسالة: " قياس جودة الرعاية الصحية: دراسة مقارنة بين المستشفيات المعتمدة وغير المعتمدة بوزارة الصحة في المملكة العربية السعودية".

نحيط سعادتكم علماً بأن هذه موافقة مبدئية من الإدارة العامة للبحوث والدراسات بوزارة الصحة على إجراء هذا البحث في عدد من مستشفيات وزارة الصحة وبرنامج المراجعة السريرية بالوزارة، وذلك إبتداءً من تاريخ الأول من يوليو ٢٠١٦م وحتى ٣٠ من سبتمبر ٢٠١٦م ولمدة ثلاثة شهور، على أن لا يسمح للطالب بجمع بيانات الدراسة من منشآت وإدارات وزارة الصحة إلا بعد إستيفاء جميع المستندات المطلوبة لتسهيل مهمته من الإدارة العامة للبحوث والدراسات وكذلك الحصول على موافقة لجنة الأخلاقيات بالوزارة على البحث.

وتفضلوا بقبول أطيب التحيات ،،،

مساعد مدير عام الإدارة العامة للبحوث والدراسات

ص. عذاري فيصل العتيبي

الرمز البريدي: ١١١٧٦ ص.ب الرياض: ٧٧٧٥ فاكس: ٠١١٤٧٣٥٠٢٩ هاتف: ٠١١٤٧٣٥٠٣٨

e-mail: research@moh.gov.sa

Appendix 10 - Protecting Human Research Participants certificate

Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural

Date of completion:

Certification Number:

Appendix 11- Descriptive Statistics of Professional Performance Indicators of Healthcare Organisation

Indicators	Hospital Size	Accreditation: Non-accredited M	SD	N	Accredited M	SD	N	Total M	SD	N
Rate of patients who spent 24 hrs or more in the ER\ Monthly	Small	.06	.261	32	.10	.236	17	.07	.251	49
	Medium	.01	.027	7	.93	3.650	23	.71	3.203	30
	Large	2.65	4.581	3	2.13	3.220	6	2.30	3.435	9
	Total	.24	1.238	42	.78	2.848	46	.52	2.234	88
Average patients waiting time in the ER from registration till ICU admission\ Monthly	Small	203.92	431.052	32	389.11	676.751	17	268.17	529.714	49
	Medium	228.27	304.183	7	558.11	1200.181	23	481.15	1063.965	30
	Large	265.99	112.264	3	1082.14	2069.287	6	810.09	1686.978	9
	Total	212.41	393.640	42	564.01	1179.065	46	396.20	907.351	88
Average patients waiting time in the ER from registration till ward admission (except to ICU)\ Monthly	Small	117.44	118.074	32	155.23	126.236	17	130.55	121.021	49
	Medium	140.33	85.435	7	258.86	324.935	23	231.21	290.185	30
	Large	334.60	297.144	3	344.27	537.748	6	341.04	450.367	9
	Total	136.76	138.108	42	231.70	306.089	46	186.39	244.385	88
	Small	168.59	266.075	32	347.03	446.999	17	230.50	345.963	49

Indicators	Hospital Size	Accreditation								
		Non-accredited			Accredited			Total		
		M	SD	N	M	SD	N	M	SD	N
Average patients waiting time in the ER from registration till transferred to other hospital\ Monthly	Medium	189.96	148.315	7	510.99	885.413	23	436.08	786.351	30
	Large	298.24	192.869	3	615.24	920.394	6	509.57	750.916	9
	Total	181.41	244.340	42	463.99	746.848	46	329.12	580.340	88
Percentage of admitted cases for 30 days or more in hospital words\ Month	Small	7.63	9.190	32	7.05	3.516	17	7.43	7.665	49
	Medium	13.22	13.335	7	8.26	7.477	23	9.42	9.152	30
	Large	8.20	3.121	3	10.53	5.464	6	9.75	4.738	9
	Total	8.60	9.734	42	8.11	6.021	46	8.34	7.967	88
Average patients waiting time for scheduling routine surgical operations\ Month	Small	11.44	16.994	32	14.14	17.950	17	12.38	17.193	49
	Medium	15.83	11.560	7	27.52	33.679	23	24.79	30.223	30
	Large	13.79	2.641	3	12.25	9.073	6	12.76	7.334	9
	Total	12.34	15.528	42	20.58	26.977	46	16.65	22.521	88
Operation cancellation rate (routine operations)\ Monthly	Small	8.40	9.487	32	8.00	9.605	17	8.26	9.430	49
	Medium	6.84	9.458	7	13.06	9.539	23	11.61	9.731	30
	Large	7.40	4.345	3	17.65	16.050	6	14.23	13.855	9
	Total	8.07	9.080	42	11.79	10.805	46	10.02	10.136	88

Indicators	Hospital Size	Accreditation								
		Non-accredited			Accredited			Total		
		M	SD	N	M	SD	N	M	SD	N
Adult ICU occupancy rate\ Monthly	Small	63.48	21.646	32	69.17	20.287	17	65.46	21.149	49
	Medium	78.65	21.858	7	74.60	23.571	23	75.55	22.877	30
	Large	75.47	19.014	3	93.30	5.442	6	87.35	13.725	9
	Total	66.87	21.907	42	75.03	21.881	46	71.14	22.150	88
Average length of stay in the adult ICU\ Monthly	Small	5.10	3.245	32	7.69	5.460	17	6.00	4.277	49
	Medium	8.60	5.488	7	7.97	3.971	23	8.11	4.274	30
	Large	6.32	2.052	3	14.88	18.005	6	12.03	14.899	9
	Total	5.77	3.784	42	8.77	7.751	46	7.34	6.332	88
Percentage of admitted cases for 30 days or more in adult ICU\ Monthly	Small	14.38	12.573	32	17.74	19.309	17	15.54	15.132	49
	Medium	19.03	20.737	7	15.69	14.066	23	16.47	15.528	30
	Large	16.54	16.039	3	21.38	15.885	6	19.77	15.096	9
	Total	15.31	14.076	42	17.19	16.153	46	16.29	15.140	88
Percentage of specialties that booking urgent appointment takes more than 2 weeks for new cases\ Monthly	Small	1.75	5.047	32	1.25	2.697	17	1.57	4.351	49
	Medium	12.90	16.782	7	14.08	21.530	23	13.80	20.253	30
	Large	7.38	6.476	3	19.64	22.330	6	15.55	18.966	9
	Total	4.01	8.991	42	10.06	18.287	46	7.17	14.843	88

Indicators	Hospital Size	Accreditation								
		Non-accredited			Accredited			Total		
		M	SD	N	M	SD	N	M	SD	N
Percentage of specialties that booking routine appointment takes more than 4 weeks for new cases\ Monthly	Small	6.84	9.776	32	7.09	11.157	17	6.92	10.160	49
	Medium	24.88	13.605	7	27.13	22.311	23	26.61	20.418	30
	Large	29.82	21.054	3	35.48	30.552	6	33.59	26.499	9
	Total	11.49	13.894	42	20.81	22.617	46	16.36	19.430	88
Percentage of specialties that booking admission for routine surgical procedures takes more than 4 weeks for new cases\ Monthly	Small	11.80	19.069	32	7.86	11.512	17	10.43	16.811	49
	Medium	18.87	16.613	7	19.32	24.895	23	19.22	22.963	30
	Large	30.71	25.381	3	19.39	17.124	6	23.16	19.400	9
	Total	14.33	19.363	42	15.09	20.349	46	14.73	19.774	88
Percentage of patients not attending OPD (specialty)\ Monthly	Small	31.01	15.081	32	41.55	16.162	17	34.67	16.113	49
	Medium	29.23	13.145	7	33.90	16.483	23	32.81	15.681	30
	Large	23.79	10.791	3	35.71	9.424	6	31.74	10.961	9
	Total	30.20	14.374	42	36.96	15.765	46	33.73	15.410	88
	Small	55.33	49.934	32	59.64	51.362	17	56.83	49.940	49

Indicators	Hospital Size	Accreditation								
		Non-accredited			Accredited			Total		
		M	SD	N	M	SD	N	M	SD	N
Average turnaround time for CBC from time received till time delivered in the lab. for inpatient\ Monthly	Medium	77.19	50.037	7	61.20	47.232	23	64.93	47.515	30
	Large	34.96	15.440	3	71.32	56.808	6	59.20	49.062	9
	Total	57.52	48.686	42	61.94	49.002	46	59.83	48.621	88
Average turnaround time for Chemistry from time received till time delivered in the lab. for inpatient\ Monthly	Small	74.10	47.724	32	80.29	44.525	17	76.25	46.267	49
	Medium	120.36	35.914	7	89.44	43.233	23	96.65	43.147	30
	Large	60.52	26.095	3	91.72	61.225	6	81.32	52.501	9
	Total	80.84	47.711	42	86.35	45.362	46	83.72	46.312	88
Average turnaround time for blood culture from time received till time delivered in the lab. for inpatients\ Monthly	Small	4.86	2.558	32	4.96	1.108	17	4.89	2.153	49
	Medium	5.64	2.918	7	5.05	1.697	23	5.18	2.002	30
	Large	6.84	4.534	3	3.35	1.129	6	4.51	2.996	9
	Total	5.13	2.741	42	4.79	1.519	46	4.95	2.182	88
	Small	10.12	14.004	32	5.11	3.957	17	8.38	11.733	49

Indicators	Hospital Size	Accreditation								
		Non-accredited			Accredited			Total		
		M	SD	N	M	SD	N	M	SD	N
Average U/S booking time for OPD patients\ Monthly	Medium	7.37	5.188	7	15.60	12.436	23	13.68	11.638	30
	Large	25.27	16.679	3	16.98	10.943	6	19.74	12.712	9
	Total	10.75	13.545	42	11.90	11.061	46	11.35	12.251	88
Average CT scan booking time for OPD patients\ Monthly	Small	5.16	7.196	32	4.13	2.718	17	4.80	6.013	49
	Medium	6.20	2.824	7	9.96	6.950	23	9.08	6.395	30
	Large	9.20	3.665	3	17.80	18.101	6	14.93	15.054	9
	Total	5.62	6.491	42	8.83	9.075	46	7.30	8.065	88

Appendix 12- Descriptive Statistics of Health Organisation KPIs

		Accreditation								
	Hospital	Non-accredited			Accredited			Total		
Indicators	Size	M	SD	N	M	SD	N	M	SD	N
Hospital Mortality Rate (Inpatient)\ Monthly	Small	1.71	1.433	32	1.64	.947	17	1.69	1.276	49
	Medium	2.66	2.226	7	2.94	1.673	23	2.87	1.779	30
	Large	1.66	1.012	3	3.13	1.938	6	2.64	1.774	9
	Total	1.87	1.568	42	2.48	1.593	46	2.19	1.602	88
Operative Mortality Rate\ Monthly	Small	.07	.149	32	.06	.112	17	.07	.136	49
	Medium	.08	.066	7	.13	.187	23	.12	.167	30
	Large	.03	.031	3	.04	.061	6	.04	.050	9
	Total	.07	.133	42	.09	.153	46	.08	.143	88
Unscheduled return to OR within 48 Hrs\ Monthly	Small	.14	.333	32	.15	.179	17	.15	.287	49
	Medium	.54	.976	7	.34	.370	23	.38	.555	30
	Large	.53	.843	3	1.28	2.439	6	1.03	2.010	9
	Total	.24	.535	42	.39	.932	46	.32	.768	88
Number of patient falls in year	Small	3.47	4.174	32	4.24	4.265	17	3.73	4.177	49
	Medium	10.86	7.493	7	14.74	16.204	23	13.83	14.615	30
	Large	18.00	13.748	3	22.00	17.944	6	20.67	15.890	9
	Total	5.74	7.078	42	11.80	14.509	46	8.91	11.907	88
	Small	228.65	551.205	32	437.58	1028.530	17	301.14	747.625	49

Indicators	Hospital Size	Accreditation								
		Non-accredited			Accredited			Total		
		M	SD	N	M	SD	N	M	SD	N
Number of medication errors\ Monthly	Medium	1406.13	1523.476	7	1831.59	5594.354	23	1732.31	4925.048	30
	Large	275.97	200.728	3	163.71	186.974	6	201.13	187.279	9
	Total	428.28	876.013	42	1098.86	4029.501	46	778.81	2978.844	88
Ventilator Acquired Pneumonia Rate (VAP)\ Monthly	Small	11.75	36.026	32	2.11	2.693	17	8.40	29.362	49
	Medium	7.78	7.380	7	5.86	5.316	23	6.31	5.779	30
	Large	4.34	.405	3	4.36	1.961	6	4.35	1.563	9
	Total	10.56	31.537	42	4.28	4.457	46	7.27	22.112	88
Surgical Site Infection (SSI) Rate\ Monthly	Small	.48	.628	32	.58	.484	17	.52	.579	49
	Medium	.17	.193	7	.60	.537	23	.50	.511	30
	Large	.23	.275	3	.77	.523	6	.59	.511	9
	Total	.41	.569	42	.61	.508	46	.52	.545	88
Number of patients developed bed sores during hospitalisation including ICU (new cases)\ Monthly	Small	.97	2.193	32	.49	.573	17	.81	1.808	49
	Medium	2.10	2.087	7	2.86	4.145	23	2.68	3.747	30
	Large	6.06	7.626	3	5.24	4.702	6	5.51	5.341	9
	Total	1.52	2.984	42	2.30	3.678	46	1.93	3.368	88
Number of code blue\ Monthly	Small	12.65	11.911	32	11.03	11.323	17	12.08	11.618	49
	Medium	25.81	17.561	7	31.18	24.372	23	29.93	22.798	30

Indicators	Hospital Size	Accreditation								
		Non-accredited			Accredited			Total		
		M	SD	N	M	SD	N	M	SD	N
	Large	20.43	10.600	3	59.55	83.245	6	46.51	68.860	9
	Total	15.40	13.570	42	27.43	36.774	46	21.69	28.685	88
Central Line Infection Rate (CR-BSI)\ Monthly	Small	6.96	9.351	32	7.99	13.856	17	7.32	10.987	49
	Medium	7.04	13.187	7	7.28	15.394	23	7.23	14.689	30
	Large	4.88	2.645	3	4.15	5.221	6	4.40	4.349	9
	Total	6.83	9.603	42	7.14	13.734	46	6.99	11.876	88
Number of needle stick injury\ Monthly	Small	1.00	1.321	32	.90	.737	17	.97	1.145	49
	Medium	1.65	1.089	7	2.06	1.459	23	1.97	1.375	30
	Large	2.85	2.719	3	1.90	1.415	6	2.22	1.823	9
	Total	1.24	1.455	42	1.61	1.328	46	1.44	1.394	88
C.P.R Failure Rate\ Monthly	Small	65.72	18.467	32	64.85	12.414	17	65.42	16.486	49
	Medium	61.46	18.442	7	63.03	10.985	23	62.67	12.742	30
	Large	65.44	8.792	3	51.89	15.191	6	56.40	14.475	9
	Total	64.99	17.719	42	62.25	12.515	46	63.56	15.194	88
Number of intra-operative cardiac arrest\ Monthly	Small	.09	.244	32	.06	.140	17	.08	.212	49
	Medium	.06	.083	7	.25	.331	23	.20	.301	30
	Large	.33	.289	3	.28	.276	6	.30	.263	9
	Total	.10	.233	42	.18	.279	46	.15	.259	88

Indicators	Hospital Size	Accreditation								
		Non-accredited			Accredited			Total		
		M	SD	N	M	SD	N	M	SD	N
Number of post-operative cardiac arrest within 48hrs\ Monthly	Small	.05	.153	32	.07	.144	17	.05	.149	49
	Medium	.12	.168	7	.31	.633	23	.26	.563	30
	Large	.06	.096	3	.46	.593	6	.32	.513	9
	Total	.06	.152	42	.24	.511	46	.15	.393	88

Appendix 13- Descriptive Statistics of Organisation Productivity Indicators

		Accreditation								
	Hospital	Non-accredited			Accredited			Total		
Indicators	Size	M	SD	N	M	SD	N	M	SD	N
Average Length Of Stay (ALOS) in the hospital\ Monthly	Small	4.75	4.292	32	3.70	.848	17	4.38	3.520	49
	Medium	4.75	1.868	7	5.19	2.160	23	5.09	2.073	30
	Large	4.89	1.892	3	5.50	1.651	6	5.30	1.641	9
	Total	4.76	3.823	42	4.68	1.851	46	4.72	2.943	88
Number of admissions\ Monthly	Small	791.12	447.296	32	608.29	349.063	17	727.69	421.379	49
	Medium	1099.31	504.969	7	1077.83	646.836	23	1082.84	608.479	30
	Large	1996.03	1091.884	3	1230.68	551.292	6	1485.80	796.521	9
	Total	928.55	591.479	42	924.24	586.457	46	926.30	585.466	88
Number of discharges\ Monthly	Small	721.55	366.181	32	605.22	349.643	17	681.19	361.219	49
	Medium	1081.30	516.400	7	1088.74	670.196	23	1087.01	629.227	30
	Large	1965.13	1105.665	3	1227.44	559.964	6	1473.34	798.527	9
	Total	870.33	559.125	42	928.14	602.013	46	900.55	579.335	88
Number of ER visits\ Monthly	Small	9544.04	4673.758	32	8321.16	3096.339	17	9119.78	4201.100	49
	Medium	14823.19	3085.222	7	14397.47	5792.306	23	14496.80	5239.775	30

Indicators	Hospital Size	Accreditation: Non-accredited M	Non-accredited SD	Non-accredited N	Accredited M	Accredited SD	Accredited N	Total M	Total SD	Total N
	Large	14073.46	4419.561	3	15261.56	4746.482	6	14865.52	4395.077	9
	Total	10747.43	4861.877	42	12264.59	5631.346	46	11540.49	5303.142	88
Number of surgeries\ Monthly	Small	146.62	149.627	32	132.70	88.153	17	141.79	130.745	49
	Medium	275.73	104.964	7	330.79	164.015	23	317.94	152.474	30
	Large	632.08	373.502	3	405.31	227.955	6	480.90	283.214	9
	Total	202.81	205.428	42	267.30	182.024	46	236.52	195.127	88
Occupancy Rate\ Monthly	Small	79.11	113.578	32	69.36	70.057	17	75.73	99.946	49
	Medium	58.50	14.342	7	63.64	17.208	23	62.44	16.495	30
	Large	70.73	12.289	3	78.41	8.203	6	75.85	9.725	9
	Total	75.08	99.258	42	67.68	43.841	46	71.21	75.173	88
Total outpatient visits\ Monthly	Small	4424.99	2970.238	32	3835.58	1170.916	17	4220.50	2497.020	49
	Medium	7038.81	4423.494	7	9221.28	4762.158	23	8712.04	4704.677	30
	Large	9268.78	3855.831	3	11283.43	9267.493	6	10611.88	7642.681	9
	Total	5206.61	3537.887	42	7499.89	5441.801	46	6405.37	4747.944	88

Appendix 14- Mann-Whitney Tests and Mean Rank Statistics – Categorical Variable: Accreditation

	Test Statisticsa
Indicators	Mann-Whitney U
Professional Performance Indicators of Healthcare Organisation	
Rate of patients who spent 24 hrs or more in the ER\Monthly	764.000
Average patients waiting time in the ER from registration till ICU admission\Monthly	856.000
Average patients waiting time in the ER from registration till ward admission (except to ICU)\Monthly	745.000
Average patients waiting time in the ER from registration till transferred to other hospital\Monthly	846.000
Percentage of admitted cases for 30 days or more in hospital words\Month	843.500
Average patients waiting time for scheduling routine surgical operations\Month	789.000
Operation cancellation rate (routine operations)\Monthly	654.000
Adult ICU occupancy rate\Monthly	736.000
Average length of stay in the adult ICU\Monthly	653.500

	Test Statisticsa
Indicators	Mann-Whitney U
Percentage of admitted cases for 30 days or more in adult ICU\Monthly	896.000
Percentage of specialties that booking urgent appointment takes more than 2 weeks for new cases\Monthly	706.000
Percentage of specialties that booking routine appointment takes more than 4 weeks for new cases\Monthly	689.500
Percentage of specialties that booking admission for routine surgical procedures takes more than 4 weeks for new cases\Monthly	934.500
Percentage of patients not attending OPD (specialty)\Monthly	743.500
Average turnaround time for CBC from time received till time delivered in the lab. for inpatient\Monthly	858.000
Average turnaround time for Chemistry from time received till time delivered in the lab. for inpatient\Monthly	877.000
Average turnaround time for blood culture from time received till time delivered in the lab. for inpatients\Monthly	947.000
Average U/S booking time for OPD patients\Monthly	839.000
Average CT scan booking time for OPD patients\Monthly	691.000

	Test Statisticsa
Indicators	Mann-Whitney U
Health Organisation KPIs	
Hospital Mortality Rate (Inpatient)\Monthly	696.000
Operative Mortality Rate\Monthly	844.500
Unscheduled return to OR within 48 Hrs \Monthly	675.000
Number of patient falls in year	647.500
Number of medication errors\Monthly	736.000
Ventilator Acquired Pneumonia Rate (VAP) \Monthly	850.500
Surgical Site Infection (SSI) Rate\Monthly	639.000
Number of patients developed bed sores during hospitalisation including ICU (new cases)\Monthly	786.500
Number of code blue\Monthly	797.500
Central Line Infection Rate (CR-BSI)\Monthly	934.500
Number of needle stick injury\Monthly	741.000

	Test Statisticsa
Indicators	Mann-Whitney U
C.P.R Failure Rate\Monthly	783.000
Number of intra-operative cardiac arrest\Monthly	758.000
Number of post-operative cardiac arrest within 48hrs\Monthly	693.000
Organisation Productivity Indicators	
Average Length Of Stay (ALOS) in the hospital\Monthly	802.500
Number of admissions\Monthly	961.000
Number of discharges\Monthly	907.000
Number of ER visits\Monthly	824.000
Number of surgeries\Monthly	722.000
Occupancy Rate\Monthly	927.000
Total outpatient visits\Monthly	674.500

a. Grouping Variable: Accreditation

Appendix 15 - Kruskal-Wallis Tests - Categorical Variable: Interaction Term (Accreditation * Size)

Test Statisticsa,b

Indicators	Chi-Square	df	Asymp. Sig.
Health Organisation Professional Performance Indicators			
Rate of patients who spent 24 hrs or more in the ER\Monthly	12.638	5	.027
Average patients waiting time in the ER from registration till ICU admission\Monthly	4.849	5	.435
Average patients waiting time in the ER from registration till ward admission (except to ICU)\Monthly	9.459	5	.092
Average patients waiting time in the ER from registration till transferred to other hospital\Monthly	4.428	5	.490
Percentage of admitted cases for 30 days or more in hospital words\Month.	6.304	5	.278
Average patients waiting time for scheduling routine surgical operations\Month.	11.268	5	.046
Operation cancellation rate (routine operations)\Monthly	13.435	5	.020

Adult ICU occupancy rate\Monthly	12.959	5	.024
Average length of stay in the adult ICU\Monthly	13.425	5	.020
Percentage of admitted cases for 30 days or more in adult ICU\Monthly	1.216	5	.943
Percentage of specialties that booking urgent appointment takes more than 2 weeks for new cases\Monthly	18.539	5	.002
Percentage of specialties that booking routine appointment takes more than 4 weeks for new cases\Monthly	33.624	5	.000
Percentage of specialties that booking admission for routine surgical procedures takes more than 4 weeks for new cases\Monthly	8.508	5	.130
Percentage of patients not attending OPD (specialty)\Monthly	6.470	5	.263
Average turnaround time for CBC from time received till time delivered in the lab. for inpatient\Monthly	4.463	5	.485
Average turnaround time for Chemistry from time received till time delivered in the lab. for inpatient\Monthly	8.854	5	.115
Average turnaround time for blood culture from time received till time delivered in the lab. for inpatients\Monthly	5.455	5	.363
Average U/S booking time for OPD patients\Monthly	14.817	5	.011
Average CT scan booking time for OPD patients\Monthly	22.985	5	.000

Health Organisation KPIs

Hospital Mortality Rate (Inpatient)\Monthly	14.783	5	.011
Operative Mortality Rate\Monthly	10.199	5	.070
Unscheduled return to OR within 48 Hrs \Monthly	15.170	5	.010
Number of patient falls in year	30.182	5	.000
Number of medication errors\Monthly	11.168	5	.048
Ventilator Acquired Pneumonia Rate (VAP) \Monthly	9.073	5	.106
Surgical Site Infection (SSI) Rate\Monthly	10.651	5	.059
Number of patients developed bed sores during hospitalisation including ICU (new cases)\Monthly	25.745	5	.000
Number of code blue\Monthly	16.553	5	.005
Central Line Infection Rate (CR-BSI)\Monthly	1.262	5	.939
Number of needle stick injury\Monthly	19.310	5	.002
C.P.R Failure Rate\Monthly	5.898	5	.316
Number of intra-operative cardiac arrest\Monthly	19.694	5	.001
Number of post-operative cardiac arrest within 48hrs\Monthly	12.471	5	.029

Organisation Productivity Indicators

Average Length Of Stay (ALOS) in the hospital\Monthly	10.858	5	.054
Number of admissions\Monthly	21.096	5	.001
Number of discharges\Monthly	22.115	5	.000
Number of ER visits\Monthly	27.175	5	.000
Number of surgeries\Monthly	35.345	5	.000
Occupancy Rate\Monthly	11.814	5	.037
Total outpatient visits\Monthly	33.080	5	.000

a. Kruskal Wallis Test

b. Grouping Variable: Interaction Term

Appendix 16 -Arabic Transcript samples

التسجل ضروري...

لا مشكله..

طبعاً التسجيل هذا جزء أساسي من عملية المقابلة ممكن تنهيها في أي وقت بعدم المشاركة أو إذا رغبت في ذلك. معلوماتك ستكون سرية ولا يشار اليك أو لمنصبك أو مكانك بأي حال من الأحوال .ان استخدام البيانات كلها لأغراض بحثية دراسية، وقد تستخدم فقط بعد خمس سنوات عن طريق وزارة الصحة باستخلاص النتائج إلتي حصل عليها الباحث بعمل مشاريع تحسينية .

طبعاً البحث والأسئلة ستكون وهي انه ليس هناك سؤال و جواب وستكون اقرب الى دردشة عن مضمون الموضوع و انت تعطي رأيك بكل صراحة بكل شفافية ،أنا أستخلص منها في التحليل كيف ان رأيك مختلف عن رأي الاخرين..

احنا كنا نتكلم عن موضوع المؤشرات ()...

كان هناك مؤشرات تجمع عن طريق المراجعة الإكلينيكية (وكانت شاملة لجوانب الرعاية الصحية في المستشفى وكانت يستفاد منها كبيره جدا في تحسين وتطوير الخدمة الموجودة في المستشفى المؤشرات لدينا في المستشفى عددهم 63 حيث انهم في الأصل كانوا 49 صاروا 63 مؤشر شاملة لكل الاقسام الموجودة في المستشفى يعني المؤشر الهام الذي تقدر تستفيد منه مستقبلا في بناء أو عمل مشاريع تحسينية تجمع شهرياً ونحللها ونستفيد منها في عمل مشاريع تحسينية، إضافةً إلى ان المديرية العامة للشئون الصحية متابعة باستمرار لجمع البيانات وعندهم مشاريع تحسينية تبنوها على مستوى المنطقة كانت تقريبا 3 او 4 مشاريع. احنا بالنسبة لنا أيضا مشاريع عملناها بناء على معطيات المؤشرات كانت ممتازة ورائعة جدا.

ماهي المهام التي تم عملها؟ أو لو تعطينا أمثلة على المشاريع التي عملت بناء على قرار تم اتخاذه من نتائج المؤشرات؟

يوجد لدينا مشروعين بنيناها واستفدنا من نتائج المؤشرات..

أولا- معدل الانتظار في الطوارئ.. كان عندنا معدل الانتظار في الطوارئ أكثر من 75 دقيقة المريض من دخوله الطوارئ حتى يتم تنويمه داخل المستشفى.

هذه الـ 75 دقيقة كنا نراها عالية مقارنة بأعداد المرضى الموجودين لدينا، فبناء عليها اتخذنا قرار في ان نعمل مشروع التحسين ، الحمد لله انخفضت نسبة أو معدل انتظار المرضى إلى45 دقيقة .

الثاني- هو نسبة عمليات الولادة القيصرية (الولادة بعمليه جراحية) ،طبعا المعدل العالمي والمعتمد هو 25 في المية. كان تعتبر اشكالية لدينا حيث انها تصل احيانا الى 50 او حتى الى 55 في المية.

اتخذنا بعض الاجراءات التصحيحية احنا وصلنا في بعض الأشهر إلي صفر عدد العمليات القيصرية. إضافةً إلي ان أي عملية قيصرية يتخذ القرار فيها الطبيب يجب ان يعطي مبررات العملية القيصرية من اجل لو صار في ارتفاع في النسبة يكون هناك مبررات لكل حالة يعمل لها عمليات قيصرية ...

!!نعم يمكن وصلنا في بعض الأشهر الى 0..الى 10 الى 15 لكن في بعض الأشهر الثانية فيها ارتفاع لكن كان للارتفاع مبرر .يعني كل حالة موجودة يوجد لها تبرير لماذا عملت عملية قيصرية فهذه من ضمن المشاريع إلتي تبنيناها في المستشفى بناء على معطيات المؤشرات .

إضافةً إلى انه هناك مشروع ثالث الذي هوا حساب الفترة الزمنية للتحاليل المخبرية (turnaround time) حيث كانت تأخذ وقت طويل من الطوارئ حتى تصل للطوارئ . كانت تأخذ أحيانا ساعة إلى ساعة ونص فحاولنا قدر المستطاع أننا نخفض الوقت بقدر المستطاع وأصبحت النتائج عندنا أفضل.

من القسم المسؤول أو من الأشخاص المسؤولين عن متابعة المؤشرات وعمل المشاريع التحسينية؟

يوجد لدينا قسم مستقل وهو قسم الجودة ، قسم الجودة يجمع البيانات ويتابعها مع الأقسام إذا كان هناك بعض المعدلات الغير طبيعية يناقشها مع الأقسام المعنية. ثم ان الأقسام المعنية يتخذون فيها قرار بأنها تحتاج الى عمل مشروع تحسين. بالطبع إذا كان هناك انحرافات على المعدلات الطبيعية واضحة ممكن نعمل عليها مشروع تحسين بناء على اتخاذ القرار من المراجعة الاكلينيكية كمتابعة للبيانات ومن القسم المعني كمسؤول عن الاجراءات الطبية الموجودة لديهم ويتخذ عليها قرار في عمل مشاريع تحسينية.

قد يكون في المشاريع التحسينية أشياء جديدة على المنشأة بالنسبة لثقافة الجودة فما هو دور قسم إدارة الجودة ؟ هل يقودون او يشاركون في عمل المشاريع التحسينية؟

طبعا قسم الجودة هو ركن أساسي في أي مشروع تحسين داخل المستشفى ولابد ان يكون مشارك في المشاريع التحسينية وليس بالضرورة أن يكون هوا إلقائد للمشروع لأنه أحيانا ليس صاحب علاقة مباشرة بالموضوع ،ولكن يكون مشارك كموجه في استخدام ادوات الجودة وطريقة عمل المشاريع فيكون دورهم في مشاريع التحسين تسهيلي اكثر ما إنك قيادي. طبعا تسهيل

لمشروع التحسين في استخدام البيانات وتحليلها واستخدام أدوات الجودة فهذا هو موضوع دور الجودة في مشاريع التحسين الأقسام المعنية قائد الفريق يكون من القسم المعني في المشروع التحسيني .

القسم المعني(المراجعة الاكلينيكية) يأخذ المؤشرات كاملة ويعمل عليها مقارنات ويتم مناقشتها في فرق عمل خاصة بهذا المشروع ويعملون عليها مشروع التحسين باستخدام ادوات الجودة المعتمدة في المستشفى .

في رآيك ماذا تعني الجودة في مستشفاكم؟

الجودة في المستشفى في رأيي هي التحسين المستمر، أي أن أي عمل موجود في المستشفى هو قابل للتحسين ونعمل على التحسين المستمر لأي إجراء او عملية موجوده داخل المستشفى هذا هوا باختصار معنى الجودة برأيي.

كيف ترى ان الجودة حسنت في الخدمات الموجودة لديكم في المستشفى مع ذكر امثلة للتوضح لو سمحت؟

طبعا بالنسبة للجودة كان لها دور كبير في تحسين الخدمة، وقبل تحسين الخدمة نشر ثقافة جديدة التي هي ثقافة الجودة ، فكان لها دور كبير (قسم الجودة) في نشر الثقافة هذه بين العاملين في المستشفى ماهي أهدافها ماذا تعني ماذا نستفيد منها. وطبعا قسم الجودة له دور كبير في نشر هذه الثقافة .إضافةً إلى إن الجانب الذي ركزنا عليه هو الاجراءات سواء كانت الاجراءات الادارية أو الاجراءات الطبية بناءً على ما تتطلب معايير الجودة.

كانت الثقافة السائدة الموجودة قبل معايير الجودة، ان هذا العمل كان يعمل سابقاً بطريقة ما ونحن ذهبنا على نفس الطريق سواء أكان الإجراء صحيح أو خاطئ هذا هو الاجراء السابق و احنا مستمرين عليه حتى جاءت الجودة وغيرت ثقافة العمل. واصبحنا نعمل حسب معيار محدد واذا كان المعيار يتطلب انه يتم عمل الاجراءات بطريقة معينه فانه يتم الالتزام بذلك . ومن ضمن الأمثلة التي حسنتها الجودة اننا ركزنا في البداية على أهداف سلامة المرضى. كان المريض عندما يدخل المستشفى مثلا وعنده عمليه جراحية يقوم الطبيب بتقرير ان هذه الحالة تحتاج إلى عملية جراحية يكتب في ملفه امر بالعملية ويتم تنويم المريض وفي اليوم الثاني ينقل للعمليات ويتم عمل العملية حسب الاجراءات الروتينية العادية ثم يخرج، وهذا قد يسبب أخطاء طبيه. الان من ضمن متطلبات الجودة ومتطلبات سلامة المرضى ان هذا المريض يمر بمراحل كثيرة ،،،اولا -تعريف كامل بالمريض وتاريخ المرض كامل ويكتب في ملفه كامل التاريخ المرضي في ملفه في نماذج خاصة ويتخذ الفحوصات كاملة قبل ما يتخذ إجراء أي عملية . ثانيا-يتم تعريف المريض بوضع بياناته في معصمه حيث تكتب بياناته كاملة ولا بد ان يكون أقل شيئ معرفين للمريض الذي هوا اسمه ورقم ملفه. وتكون موجودة طوال مدة بقائه داخل المستشفى. ثم ان على الطبيب قبل ما ينقل المريض للعمليات يعمل له اشاره على مكان العملية لكي يتأكد في غرفة العمليات ان هذا هو المريض الصحيح

وانه سيتم عمل الاجراء في المكان الصحيح وإضافةً إلى اشراك المريض حتى بالتعريف بنفسه يعرف بنفسه المريض للطاقم الطبي قبل ان يتم تخديره. وكل هذه الاجراءات تكون موثقة في ملف المريض عندما يتم استقباله في العمليات وكل هذا من ضمن الاجراءات الجديدة .

ويتم تعبئة نماذج لكي يتم التأكد هل تم التعريف بالمريض بالطريقة الصحيحة نعم

هل ملف المريض مكتمل نعم

فحوصات الطبية مكتملة نعم

كشف طبيب التخدير للعملية نعم

مضادات حيوية إذا كان يحتاج أي مضادات حيوية أعطيت له نعم

وجود إشارة لمكان العملية نعم

كل هذا طبعا في نموذج موجود فيها اجراءاتيتم التاكد منها قبل استقبال الحالة في العمليات فهذه يتأكدون منها قبل تدخل العمليات ،وعندما يدخل المريض للعمليات ويصبح على طاولة إجراء العمليات في غرفة العمليات قبل ان يبدأ الطبيب باستخدام المشرط وقبل ما يتخدر المريض يتم التأكد من نوع الجراحة الموجودة عنده وهل الأدوات كاملة التي يحتاجها الطبيب في إجراء العملية موجودة ام لا ولها نماذج خاصة. إضافةً إلى انه الطبيب عندما ينتهي العملية وقبل اغلاق العملية يوجد نموذج آخر لعد الأدوات التي استخدمت في العملية ويتأكدون بان كل الأدوات موجودة لكي لا يتم نسيان شيء داخل بطن المريض او ان هناك شيء مفقود خلال إجراء العملية.

وبعدها يخرج المريض الى غرفة الافاقة ولها نموذج خاص لمتابعة المريض حتى يستقر وضعه ويصبح ممكن نقله للقسم المنوم فيه. هذه باختصار بعض الأشياء التي أضافتها الجودة في تقديم الخدمة الطبية وهذا مثال من عدة امثلة كثيرة وهناك إجراءات كثيرة سواء كانت اجراءات إدارية أو حتى فنية.

بالنسبة للإجراءات التي ذكرتها وانها تمنع وجود الخطأ الطبي سواء في تعريف المريض او عمل الاجراء الصحيح له.. ماذا لو حصل هناك خرق لهذه الاجراءات ،كيف تتصرف مستشفاكم بناء على طرق الجودة التي تعلمتموها أو بناء على الثقافة التي انتشرت عندكم عن الجودة ؟

طبعا في إذا حصل هناك أي خطأ في التعامل في هذه الاجراءات كاملة مع المريض فان الاجراء سيكون تصحيح الخطأ ويبدأ من الموظف نفسه الذي ارتكب الخطأ في إنه يبلغ على الخطأ المرتكب بنفسه أو حتى أي شخص آخر كان موجود او شاهد الخطأ ويقوم بالتبليغ.طريقة التبليغ عندنا نموذج يسمى(OVR) وهو الإبلاغ عن حدوث خطأ عرضي.

الاخطاء فيها ثلاث أنواع وهي:

ولكل واحد منها تعامل خاص.

: يجب اتخاذ اجراء لحظي في حينه ولا يمكن تأخيره وممكن يتخذ اجراء لتصحيح الخطأ إلذي حصل.

:يتعامل معه ممكن في وقت لاحق لكن يجب ان يتخذ فيه إجراءات تصحيحية وفريق العمل يجتمع ويناقش الموضوع و مناقشة الخطأ الذي حصل ويتخذون فيه إجراءات تصحيحية وفي توصيات وما الي ذلك.

ونفس الجراءمع فهذه بالنسبة للإجراءات التصحيحية إلتي ممكن إنها تعمل تبدأ من الشخص نفسه المرتكب الخطأ او أي شخص اخر شاهد الخطأ هذا في تصحيح الخطأ او الخلل الذيي حصل.

هل ممكن تشرح لنا بطريقة مفصلة عن كيفية التعامل مع الخطأ وكيفية حله و كيفية علاجه ولو في أمثلة ممكن تعطينا ؟

بالنسبة للأخطاء طريقة الإبلاغ عنها في نموذج خاص بالتبليغ (OVR) يكون الشخص الذي ارتكب الخطأ أو أي شخص أخر شاهد أو سمع عن الخطأ بالإبلاغ يكتب النموذج هذا ويسلم للجودة خلال 24ساعة لقسم الجودة وعندما يصل لقسم الجودة حسب التصنيف الموجود عندهم حسبما شرحنا سابقا.

:طبعا هذا من الأخطاء التي حسب تعريفاتها انه خطأ غير مقصود أدى إلي وفاة أو فقد عضو او فقد وظيفة عضو وهذا خطا أثره كبير فيتم التعامل معه في حينه 24 ساعة في فريق خاص يجتمع ويجتمع مع الأعضاء او الأشخاص إلذين كان لهم علاقة بالخطأ ومناقشة الخطأ من جميع جوانبه ويعمل فيها تحليل الفجوه ويتخذون فيها إجراءات تصحيحية تبدأ من نفس اليوم الذي اكتشف فيه الخطأ خلال ال 24 ساعة من ارتكاب الخطأ .

Adverse error :هوا خطأ غير مقصود لم يؤدي إلى فقد حياة أو فقد عضو أو فقد وظيفة فهذا يتعامل معه خلال 48الى ساعة ممكن انه يتخذ فيه إجراءات تصحيحية من قسم الجودة مع القسم المعني في الخطأ هذا ويتخذ فيه بعض إجراء التصحيحية لتلافي تكرار مثل هذا الخطأ.

Near miss: هوا بين البين لا هوا خطأ فادح ولا هوا خطأ ارتكب وأدى إلى مشكله ولكن إنه ممكن في المستقبل يؤدي إلى خطأ إلى كبير او جسيم وتتخذ فيه الاجراءات التصحيحية من حين وصول التقرير خلال 24 ساعة يجتمعون مع القسم المعني ويتخذ فيه إجراءات وتوصيات تصحيحية من قبل فريق الجودة وفريق القسم المعني فهذه التصنيفات الثلاثة للأخطاء عموما التي تحصل في المستشفى و طريقة الإبلاغ عنها.

من مشاهداتك وملاحظاتك لما دخلت الجودة مثلا الثقافة لدى الجميع هل ترى ان الجودة حسنت من الأداء الاكلينيكي في المستشفى وإذا كان شواهد على ذلك ممكن تعرضها ؟

فعلا بالنسبة لتحسين الجودة ودورها في تحسين الخدمة أو الخدمة الإكلينيكية لها دور كبير جدا جدا وكانت وساهمت في تحسين الخدمة وفي تحسين مخرجات الخدمة الموجودة من ضمن الامثلة إلى ممكن ان نطرحها وهو ما قلنا سابقا ان العمليات الجراحية والجراحات إلى ممكن انها تعمل. إضافةً إلى بعض المشاريع التي تبنيناها التي هي في الطوارئ سواءً من الفحوصات الوقت الذي ممكن تستغرقه الفحوصات في المختبر او حتى بقاء المريض في قسم الطوارئ حتى حين دخوله إلى داخل المستشفى، ايضا اللجان الطبية :اللجان الطبية ايضا لها دور كبير في مناقشة الحالات الموجودة التي هي حالات المراضة أو الوفيات تناقش في لجان خاصة فيها. مخرجات حالات توقف القلب ونجاح معدل نجاح إجراء الإنعاش القلبي من فشله وأسباب الفشل هذه كلها الجودة لها دور كبير في تحسين الخدمة في مناقشة كل هذه الحالات هذه أمثلة بسيطة. مثلا لجنة المراضة: اصبح هناك لجنة تناقش كل الحالات إلتي حصل عندها مضاعفات ناتجة عن الخدمة الموجودة ،ولماذا حصلت المضاعفات هذه وما هي اسبابها وما هي الحلول التي ممكن إنها تعمل في تحسين الخدمة وتلافي تكرار مثل هذه الأخطاء .إضافةً إلى ان في الدليل الموجودة في مكافحة العدوى التي هي العدوى الناتجة عن الاستخدام جهاز التنفس الصناعي ومعدلها داخل المستشفى العدوى المكتسبة داخل المستشفى وايضا الالتهابات الناتجة عن استخدام القساطر الطبية سواء كانت القساطر البولية أو القساطر المركزية للقلب .

انا انبه انه في أي وقت لك الحق أنك تقطع المحادثة ونحن لا نريد ان يكون هناك تأثير سواءً على شخصك أو على العمل لإجراء هذه المقابلة.

ما في أي اشكالية .. شكرا ..

هذا بالنسبة لمتابعة جميع حالات العدوى المكتسبة داخل المستشفى الناتجة عن تقديم الخدمة من ضمن الأشياء التي ساهمت الجودة في رفع الحس لدى العاملين في تجنب أي سبب او خلل في تقديم الخدمة ممكن يؤدي إلى ضرر على المريض هاذي من ضمن الاجراءات التي حسنتها الجودة وكانت من حسنات الجودة وهذا غيضٌ من فيض.

لعلنا ننتقل ونتكلم عن الرضاء وعن مجمل المرضى والموظفين في سؤال واحد وانت تفصل لنا بطريقتك كيف أثرت الجودة على رضاء الموظفين والمرضى؟

طبعا قبل معايير الجودة ما كان في مصطلح اسمه رضاء. يعني انه نكون صريحين وواقعين ما كان فه شيء اسمه انك تبحث عن انطباع المريض وعن الخدمة المقدمة له نهائي ممكن إنك تشوف هل المريض هذا كشخص هوا مرتاح عن الخدمة التي قدمت له او لاء عن طريق انه فيه شكوى أو ما فيه شكوى فهذا هو كان المعيار الوحيد في إنك تعرف إن هذا مبسوط من الخدمة أو لاء فكان هذا هو المقياس الوحيد. إضافة إلى الموظفين ما كان فيه اي اهتمام بالموظف هل هو مرتاح في المستشفى هل مرتاح في بيئة العمل هل هو مرتاح في القسم الذي يعمل فيه؟ لم يكن هذا المبدأ موجود قبل الجودة ،وعندما بدأنا في تطبيق الجودة كانت هذه المعيارين أو هذه الامرين من المعاير الموجودة في معايير الجودة ويجب تطبيقها ولها آلياتها .فيما يخص العاملين في المستشفى يجب على الاقل إنك يتم عمل مسح ميداني لجميع العاملين في المستشفى ويكون في بنود كثيرة تعرف منها هل الموظف هذا مرتاح وعنده انطباع جيد عن بيئة العمل ام لاء فهذه المسوحات الميدانية اصبحنا نعملها سنويا عن انطباع الموظفين وارتياحهم في بيئة العمل داخل المستشفى ولنا تقريبا ست سنوات ونحن نعمل المسح الميداني مرة في السنة وفيه نتائج موجودة وفيه بعض الملاحظات التي عملنا عليها في انطباع ورضاء الموظفين إضافة إلى رضا وانطباع وارتياح المرضى.

معايير الجودة هي المطلوبة مطلب أساسي لكن إلذي دعم الموضوع هذا فيما بعد استحدثت الوزارة ادارة حقوق وعلاقات المرضى. ومن مهام قسم حقوق وعلاقات المرضى الأساسية هوا المسوحات الميدانية لانطباع المرضى وصنفتها الى:

مرضى العيادات

مرضى التنويم

مرضى الطوارئ.

وكل قسم له بعض البنود الخاصة فيهم في قسمه ويبني عليه ويعطي انطباعه وملاحظاته على الخدمة المقدمة في الأقسام هذه. ويوجد تطبيق لدعم الموضوع فيما يخص المرضى لهم برنامج مركزي في الوزارة لكل مستشفى لها اسم مستخدم وكلمة مرور خاصة للبيانات هذه بصفة شهرية ويقوم التطبيق بعمل نتيجة نهائية لانطباع وارتياح المرضى داخل المستشفى ويعمل الرسومات البيانيه المطلوبة التي تدعم موضوع انطباع وارتياح المرضى. هذا البرنامج خدمنا كثير وسهل علينا مهمة إنا

نعمل مسوحات ميدانية لانطباع وارتياح المرضى . وفيما يخص برنامج الموظفين يحتاج من الوزارة انها تعمل فيه وتدعمه مثل ما دعمت برنامج انطباع وارتياح المرضى .. وهذا مرتبط بالمستشفيات .. لجميع المستشفيات جميع المستشفيات .

نريد ان تكلمنا الأن عن رأيك في كيف كان تأثير الجودة على الاتصال بين الموظفين هل الجودة تدخلت و صححت أو عززت أو هل كان هناك تأثير على مسألة الاتصال بين الموظفين ؟

بالتأكيد فيه كثير أمور اهتمت فيها الجودة، الاتصال الفعال هومن ضمن أهداف سلامة المرضى وخاصة في الموضوع الطبي. بمعني التواصل ما بين الطبيب والتمريض في تقديم الخدمة أو الفني في أي قسم أخر في تقديم الخدمة الطبية يجب إن يكون التواصل موثق يعني كتابي إلا في بعض الحالات التيي ممكن يعمل فيها تواصل (شفهي) لكن هذه الحالات محدودة أولا لسلامة المريض إضافة إلى ضمان حق الطبيب في إنه عمل الاجراء المناسب وضمان حق الفني ايضا بانه قام باتخاذ الإجراء المناسب لتوصيات الطبيب فأصبحت الأمور كلها يجب ان تكون مكتوبة.. ايضا الاوامر الشفهية لها اجراءات خاصة وليس انه امر شفهي وانتهى ولكن يتم هذا في حالات الطوارئ عندما يعطي الطبيب امر شفهي أولا: يجب على مستقبل الامر سواء أكان طبيب أخر أو تمريض أو فني إن يعمل (ريد باك) بمعنى يكتب الامر إلذي قاله الطبيب ثم يعيده على الطبيب لكي يتأكد ان هذا فعلا هو الامر الصحيح الذي امر بها الطبيب أو لا. وهذه يوثق ايضا في ملف المريض ان هذا امر شفهي وعمل اجراء الريد باك الذي كتبها هوا أو الذي كتبها المستقبل للأمر إلى كتبها عنده كنوتة ثم أعاد قراءتها على الطبيب. فهذه من ضمن الاجراءات التي صححتها الجودة في إنك يجب عمل التواصل ما بين العاملين وخاصة في المجال الطبي. إضافة إلى انه في بعض الحالات كمثال (panic value) هذه الموجودة في الاشعة أو المختبر .. عندما يكون هناك نتائج حرجة سواء اكانت في الاشعة أو في المختبر يجب ان تسجل في سجل خاص ويقوم الفني او الطبيب الموجود في القسم بالتواصل مع القسم المعني الذي فيه المريض ويتواصل مع الطبيب المعالج أو مع الفريق الموجود إلذي يشرف على حالة المريض في إنه يبلغه بدون حتى ما يرسل النتيجة الورقية يبلغه بنتيجة التحليل انه يوجد panic value عند هذا المريض من اجل ان يقوم الطبيب المعالج باتخاذ الاجراء المناسب للمريض ،ولها سجلات خاصة موجودة في القسم فهذه من ضمن الاجراءات التي صححتها الجودة في التواصل فيما بين الموظفين.

لو مثلا اكتشفوا انه فيه خطأ في panic value ولم يتم التبليغ عنها ما هو الاجراء المتبع فيها ؟

بالنسبة panic value يتم تعبئة نموذج الإبلاغ عن الأخطاء (OVR) سواء القسم المعني القسم الاخر الذي قد يكون المختبر أو الأشعة او القسم المشرف على حالات المريض وبناء على الحالة إذا كانت النتيجة تؤثر على حالة المريض فيتخذ فيها

إجراء يعني ممكن يكون حتى اجراء إداري وليس فقط تصحيحي. وربما انه يعمل إجراء إداري لمعاقبة الموظف مرتكب هذا الخطأ بالإضافة الى الاجراء التصحيحي لضمان عدم تكرار الذي هوا مناقشتها مع فريق العمل فريق الجودة الفريق المعني والمشرف والفريق الذي باشر حالة المريض.

بالنسبة للأخطاء هذه التي تحدث ويتم معالجتها أو يتم مناقشتها والخروج منها أكيد يخرج بحلول لكن يمهنا مع الحلول انه يكون في دروس مستفادة يعني لو عند مثلا بعض الأمثلة تعطينا ما هي الدروس المستفادة من بعض الأخطاء التي حصلت وتمت معالجتها؟

) تمت مناقشة الحالة مع فريق العمل والحالة sentinel eventخطأ جسيم(طبعا في بعض الحالات التي حصلت وسجلت مع فريق الأخطاء الجسيمة ومع الطبيب والفريق المعالج للحالة وكان هناك بعض الاجراءات. طبعا الحالة هذه كانت معرضة إنه تموت في أي لحظة لانه كان عندها تاريخ مرضي سابق وممكن انها تموت في أي لحظة. بعد تحليل الحالة هذه ما طلعت انها خطأ. يمكن في الظاهر انها خطأ لكن بعد تحليل التاريخ المرضي كان ممكن انها تكون معرضة للوفاة في أي لحظة بحكم تاريخ المرض الموجود عندها. لكن من ضمن الاشياء التي تمت ملاحظتها في مناقشة الحالة هذه انه في بعض الاجراءات أو بعض الامور إلتي كانت خاطئة وتحتاج إلى التصحيح والتحسين. مثلا : معرفة العاملين في القسم بطريقة الاناونس(نظام التبليغ) يعني كيف تعمل التبليغ انه يوجد عندك حالة تحتاج تدخل مثل حالات توقف القلب، واننا نحتاج إلى تفعيل أو استدعاء) فلذلك تحتاج تعمل رمز التبليغ. هنا اكتشفنا قصور من الممرضة إلى كانت موجودة لم تكن CPRفريق الإنعاش القلبي(تعرف الألية المستخدمة لأنها حديثة. وربما انها لم تحضر بعض الدورات النهمة للموظفين الجدد. هذه من ضمن الحالات إلتى من مناقشة الحالات تم اكتشافها. الامر الثاني كان هناك في بعض الأدوية الناقصة في عربة التدخل الطارئ . وهذه من الاشياء التى اكتشفناها من تحليل الحالة كان في بعض الاجراءات الإدارية قبل ما تدخل الحالة مفروض انها تكون مستوفاة .اكتملت يعني في نماذج الموافقات على إجراءات التنويم. كانت كاملة وموقعين عليها لكن بعض البيانات ما

Appendix 17- English Interpretation samples

The recording is necessary ...

No problem.

Actually, this recording is an essential part of the interview process that you can terminate at any time by not participating or if you wish. Your information will be confidential and not referred to you or your position or place in any way. The use of all data for research purposes, which may be used only five years later through the Ministry of Health, by using the results to do improvement projects.

The search and questions will be " Simi structure " Which is that there is no question and answer and it will be closer to chatting about the content of the topic and you can give your opinion honestly in all transparency, I draw from them in the analysis how your opinion is different from the opinion of others ….

We were talking about indicators.

There were indicators gathered through Clinical audit. It was comprehensive for healthcare aspects of the hospital and it used to be very large in improving and developing the service existing. in our hospital, we have 63 indicators, where they originally were 49, they became 63 indicators of all the departments in the hospital, meaning the important indicator that they can benefit in the future to build or operate monthly projects that collect and analyze it and benefit from it in the work of improvement projects. In addition, the General Directorate for Health Affairs, following-up the data collection and they have some improvement projects on their level. They were approximately 3 or 4 projects. For us also our improvement projects based on the data of the indicators were excellent and very impressive.

What tasks have been done? Or give us examples of projects that have worked on a decision taken from the results of the indicators?

We have two projects that we have built and have benefited from the results of the indicators.

I. Emergency waiting time..... We had an emergency waiting rate of more than 75 minutes for the patient to enter the emergency until he was admission to the hospital.

That's 75 minutes , As compared to the number of patients we have, we have made a decision to work on the improvement project , Alhamdulillah the ratio or patient waiting rate has fallen to 45 minutes .

The second is the proportion of cesarean delivery (birth by surgery). Of course, the global rate is 25%. It was considered problematic for us where it sometimes reaches 50 or even 55 per cent.

We have taken some corrective action, in some months, we have reached zero number of caesarean sections. In addition, any caesarean section in which a decision is made by the doctor should give justification to avoided the increase in the ratio, there should be good justification for each case that need caesarean sections.

!! Yes we can come in some months to 0... to 10 to 15 but in some of the other months there was a rise but the height was justified. I mean every existing case has a justification why did you make a caesarean it is among the projects that we have adopted in the hospital based on the data of the indicators.

In addition, there is a third improvement project in which turnaround time(TAT) to monitor the period for laboratory service. it was tokening a long time from emergency until they reached emergency. Sometimes it took more than an hour. We tried as much as possible to reduce time as much as we could and our results were better.

How is the responsible department or persons for collecting and monitoring the indicators and the work of the improvement projects ?

We have a separate department which is the quality department, the quality department collects the data and follows it with the departments if there are some abnormal rates discussed with the concerned departments. Then the departments concerned decide that they need to work on an improvement project. Actually, if there are deviations on normal rates, we may work on an improvement project based on the decision of the clinical review as a follow-up to the data and the concerned department as responsible for their existing medical procedures and decide on improvement projects.

In the improvement projects, there may be new things for the establishment in terms of quality culture. What is the role of the quality management department? Do they lead or participate in the work of the improvement projects?

Actually, the quality department is an essential part of any improvement project within the hospital It must be involved in the improvement projects It is not necessarily that it is the project leader because sometimes it is not directly related to the subject, but it is a participant in the use of quality tools and the way projects work. Facilitating more than leading of course, facilitate the project to improve the use of data and analysis and the use of quality tools. This is the role of quality in the projects of improvement and the department concerned head is the team leader of the relevant of the project .

The relevant department is clinical audit; they take full indicators and uses comparisons and discussed in a committee and works on the improvement project using quality tools approved in the hospital.

In your opinion, what does quality means in your hospital?

The quality in our hospital in my opinion is continuous improvement, i.e. any work in the hospital is subject to improvement and we are working to continually improve any procedure or operation within the hospital. This is a Shortcut sense of quality in my opinion.

How do you see that quality has improved in your existing services in the hospital with examples for clarification?

Actually, for quality it had a great role in improving the service, and before improving the service spread a new culture that is a quality culture, it she had a big role (quality section) in the dissemination of this culture among hospital staff what do you mean what we use. Of course, the quality section has a major role to play in the dissemination of this culture. Besides, the focus is on procedures, whether administrative procedures or medical procedures, based on quality standards .

The prevailing culture existed before the quality standards, that this work was working in some way and we went on the same path, whether the procedure is right or wrong This is the previous procedure and we continue to it until the quality came and changed the culture of work. We are working according to a specific standard and if the standard requires that the procedures be carried out in a certain way, we are committed to doing so. Among the examples that quality has improved, we focused initially on patient safety goals. When the patient enters the hospital for example and has a surgical operation, the doctor determines that this situation requires surgery to write in his file ordered the process and the patient is hypnotized and on the second day transferred to the operations and the process is done according to normal routines and then go out, and this may cause medical errors First, a full definition of the patient and the history of the disease is complete and write in his file the full history of the patient in his file in special

samples and take the complete tests before taking any action Second - the patient is defined by placing his data in his wrist where the data is written in full

and must be the least known to the patient who likes his name and his file number. And shall be present throughout his stay in the hospital Then the doctor before the transfer of the patient to the operation works to indicate the location of the operation to make sure in the operating room that this is the patient is correct and that the procedure will be in place and add to the inclusion of the patient even by definition himself knows himself patient to the medical staff before being anesthetized All these procedures are documented in the patient's file when they are received in the operations and all of these new procedures .

Forms are filled in to confirm whether the patient has been properly identified / yes

Is the patient file completed ? / Yes

Medical examinations are completed / Yes

The anesthesiologist revealed the operation / yes

Antibiotics If any antibiotics are needed he is given / yes

A reference to the place of operation / Yes

All of this, of course, in a model where there is a confirmed procedure before receiving the situation in the operations, these are confirmed before the intervention of operations, and when the patient enters the operations and becomes on the table to conduct operations in the operating room before the doctor starts using the scalpel and before the patient is sure to confirm the type of surgery And whether the full tools needed by the doctor to perform the operation exist or not and have special models. In addition to being a doctor when the operation is over and before

the operation is closed, there is another model to count the tools used in the procedure and make sure that all the tools are present so that nothing is forgotten inside the patient's abdomen or something is missing during the procedure.

Then the patient goes to the recovery room and has a special model to follow the patient until his position stabilizes and becomes possible to transfer to the dormant section. This is in short some of the things added by quality in the provision of medical service and this is an example of many examples and there are many procedures, whether administrative or even technical .

As for the procedures that you mentioned and they prevent the existence of medical error, whether in the definition of the patient or the correct procedure for him.... What if there is a breach of these procedures, how to behave your hospital based on the quality methods you learned or based on the culture that spread to you about quality ?

Of course, if there is any error in dealing with these procedures in full with the patient, the procedure will be correcting the error and starts from the same employee who made the mistake in that he is informed of the mistake committed himself or even any other person who existed or witnessed the error and reporting. A sample called (OVR) is reporting an accidental error.

The mistakes are three types :

1- Near miss
2- Sentinel event
3- Adverse error

Each one has a special treatment .

Sentinel Event: Instantaneous action must be taken in a timely manner and cannot be delayed and can take action to correct the error that has occurred .

Adverse error: It is possible to deal with it at a later time but corrective action must be taken and the Working Group will

meet, discuss the issue, discuss the error that took place and take corrective action, recommendations, etc.

And the isame with Near miss these are for corrective actions that can be run from the same person as the wrong perpetrator or any other person who has seen this error in correcting the error or the defect has happened.

Can you explain to us in a detailed way how to deal with the error and how to solve it and how to cure it even if there are examples you can give us ?

For Mistakes The method of reporting in an OVR form is that the person who committed the error or any other person has witnessed or heard of the reporting error This form is written and delivered to the quality department within 24 hours for the quality department and when it reaches the quality department according to their classification as explained above.

Sentinel event : Of course, this is one of the mistakes that according to their definitions is unintentional error led to the death or loss of a member or lost a member's job and this is a major error is dealt with in a timely manner 24 hours in a special team meets and meets with members or persons who had a relationship with error and discussion Error in all its aspects and where the gap analysis is conducted and corrective actions are taken from the same day on which the error was discovered within 24 hours of the error .

Adverse error: An unintended error that does not lead to loss of life, loss of a member, or loss of function. This can be dealt with within 48 hours. It may take corrective action from the quality department with the relevant section of this error and take some corrective action to avoid repeating such error.

Near miss: This is a possible error in the future that leads to a big or serious error and takes corrective action. When the report arrives within 24 hours, they meet with the concerned department and take corrective actions and recommendations from The quality team and the

department team concerned these three categories of general hospital errors and reporting .

From your views and observations when quality has entered, for example, culture for everyone. Do you think that quality has improved the clinical performance in the hospital and if evidence of this can be exposed ?

In fact, improving the quality and its role in improving the service or clinical service has a very, very, very big role, and it has contributed to improving the service and improving the existing service outputs, among the examples that we can offer, which we said previously that surgeries and surgeries may work. In addition to some of the projects that we have adopted, which are in the emergency, whether from the tests as long as possible take the tests in the laboratory or even the survival of the patient in the emergency department even when entering the hospital, also medical committees: Medical committees also have a significant role in the discussion of existing cases which are Cases of morbidity or mortality are discussed in special committees. The outcomes of cardiac arrest and success rate success rate of cardiac recovery from failure and the reasons for failure all these quality have a great role in improving service in the discussion of all these cases these are simple examples. For example, the morbidity committee: there is a committee to discuss all the cases where complications have resulted from the existing

service, and why these complications and what are the causes and what are the solutions that are possible to improve the service and avoid the recurrence of such errors In addition to the evidence in the fight Infection, which is the infection resulting from the use of the ventilator and its rate within the hospital acquired infection within the hospital and also infections resulting from the use of medical catheters, whether urinary catheters or central cardiac catheters .

I'm warning you anytime you have the right to interrupt the conversation and we don't want to have an effect either on your person or on the job to conduct this interview.

No problematical... Thank you..

This is for the follow-up of all infections acquired within the hospital resulting from the provision of service among the things that contributed to the quality of raising the sense of the workers in the avoidance of any cause or defect in the provision of service may lead to harm to the patient, among the measures that improved quality and were the merits of quality That is the tip of the iceberg

Perhaps we move on and talk about satisfaction and the whole patient and staff in one question and you tell us in your own way how quality affected the satisfaction of staff and patients ?

Of course before quality standards what was in the term named satisfaction. It means that we are frank and realistic What was the thing you are looking for the impression of the patient and the service provided to him final possible You see this patient as a person who is satisfied with the service provided to him or by a complaint or complaint, it was the only criterion You know that this is out of service or that was the only measure. In addition to the employees, there was no interest in the employee. Is he comfortable in the hospital ? Is he comfortable in the work

environment ? Is he comfortable in the section where he works ? This principle did not exist before quality, and when we started to apply quality, these standards or these standards were in the quality standards and must be applied and have mechanisms. For hospital staff, at least a field survey should be conducted for all hospital staff, These are field surveys we have been working on every year on the impression of employees and satisfaction in the work environment inside the hospital and we are almost six years and we are working field survey once a year and the results are present and some observations that p We in the impression and employee satisfaction as well as satisfaction and impression and satisfaction of patients .

Quality standards are a prerequisite, but to support this theme later, the Ministry has developed the Department of Patient Rights and

Relationships. The Department of Patients Rights and Relationships is the main field survey of patients' perceptions and classified them into :

Patients in clinics

Emergency patients

Each department has some special items in its section and builds on it and gives its impression and comments on the service provided in these sections There is an application to support the subject for patients with a central Programme in the ministry for each hospital with a special user name and password for this data on a monthly basis and the application makes a final result of the impression and satisfaction of patients inside the hospital and works drawings required to support the subject of the patient's impression and satisfaction. This Programme served us a lot and facilitated us the task of doing field surveys for the patient's impression and satisfaction

With regard to the staff Programme, the ministry needs to work and support it, such as supporting the patients' impression and satisfaction Programme This is related to hospitals All hospitals have all hospitals .

We want to talk now about how quality has affected the communication between staff. Is quality intervened, corrected, reinforced, or has there been an impact on the communication between employees ?

Of course, there are many issues in which quality is concerned. Effective communication is among the goals of patient safety, especially in the medical field. In the sense of communication between the doctor and nursing in the provision of service or technical in any other section in the provision of medical service must be a documented communication means in writing only in some cases where it is possible to work in the (oral) but these cases limited to the first safety of the patient in addition to ensure the right doctor In that he did the appropriate procedure and ensure the right of the technician also that he took the appropriate

action to the recommendations of the doctor so that all things must be written .. Oral orders also have special procedures and it is not verbal and ended, but this is in cases of emergency when the doctor gives an oral order first: The future of the matter, be it a brother doctor Or a nurse or a technician if he works (Redback) in the sense of writing the matter to the doctor and then return it to the doctor to make sure that this is really the right thing ordered by the doctor or not. This is also documented in the file of the patient that this is an oral and the work of the Reed Pak written by Hua or written by the future to order her writing as a note and then re-read the doctor. This is one of the measures that the quality has corrected in that you have to make communication between workers, especially in the medical field. In addition, in some cases such as the "panic value" found in the radiation or the laboratory .. When there are critical

results, whether in the radiation or in the laboratory must be recorded in a special record and the technician or doctor in the section to communicate with the relevant section in which The patient communicates with the treating physician or with the existing team who supervises the patient's condition that he informs him without even sending the paper result The results of the analysis indicate that there is a panic value in this patient in order for the physician to take appropriate action for the patient. These are among the measures that have been corrected by quality Communication among staff .

If for example they found out that there is a mistake in panic value and they are not reported what is the procedure?

For the panic value, the error reporting form (OVR) is filled The other department may be the laboratory, the radiologist or the department supervising the patient's cases. Depending on the situation, if the result affects the patient's condition, corrective. It may work as an administrative measure to punish the perpetrator of this error as well as corrective action to ensure that it is not repeated which Hua discussed with the team's quality team, the team concerned, the supervisor and the team that initiated the patient's case.

For these errors, which occur and are processed or discussed and out of them are sure to come out with solutions, but with solutions that it is in lessons learned means if, for example, some examples give us what lessons learned from some of the errors that have been processed?

Of course, in some cases that occurred and recorded a serious error (sentinel event) the situation was discussed with the team and the situation with the team of serious errors and with the doctor and the team of the situation and there were some procedures. Of course, she was exposed to dying at any moment because she had a previous history of illness and could die at any moment. After analyzing the situation this is what I called it wrong. This may be a mistake, but after

analyzing the history of the disease, it is possible that they may be at any moment dead by the history of the disease. But among the things that have been observed in this case discussion is that in some actions or some things that were wrong and need to be corrected and improved. For example: knowing the employees in the section in the manner of Announs (reporting system) means how the notification works that you have a case that needs intervention such as heart failure, and that we need to activate or call the CPR. Here we discovered palaces from the nurse to the present did not know the mechanism used because they are modern. Perhaps she did not attend some of the refresher courses for new employees. These are among the cases from which the cases were discussed. Second, there were some drugs missing in the emergency intervention vehicle. This is one of the things we discovered from the analysis of the situation was in some administrative procedures before the intervention of the situation is supposed to be completed means in the forms of approvals for the procedures of hypnosis. It was complete but two locations but some data were not.

Appendix 18-The template used for transcript data

Date:

Time:

Number of participant:

Given code for interviewee (participant):

Given code for interviewer (researcher):

Questions	Answer	Researcher note
Q1:		
Q2		
Q3		
Q4		

Appendix 20- sample of transcript one to one interview

Date: 20 Jul 2016

Time: 10:00 am- 11:00 am

Total Number of participant: 8

Given code for interviewee (participant): PA1

Given code for interviewer (researcher): I

The highlited words are the exact quotation used in the main thesis.

Questions	Answer	Researcher Note
Q1 Hi Good Morning. Is the information that I sent to you about my study is clear, and do you have any questions before we start? Can you introduce yourself e and your background experience as manger?	PA1: Good morning. Everything was clear thank you to send me the information prior the interview. I am PA1. I am the hospital director and my background is a physician. I have a long experience in working as hospital director, almost about ten years working.	This question used to get people talking and feeling comfortable.
Q2: Can you tell me when the quality programmes started in MoH hospitals and how do accept this change.	I have been working in the MoH since 2000, but I was thinking to work in another organisation, I mean in Aramco hospital or King Fisal hospital because,	This question used to get the participant to start

	in my opinion they were more advanced than MoH at providing good quality of care. Actually, the quality had a great role in improving the service, and before improving the service spread a new culture that is a quality culture in other hospitals . But after 2005 I stopped thinking about moving to other hospital because the quality Programme started.	thinking about the history of quality.
In your opinion, what does quality means in your hospital?	The quality in our hospital in my opinion is continuous improvement, i.e. any work in the hospital is subject to improvement and we are working to continually improve any procedure or operation within the hospital. This is a Shortcut sense of quality in my opinion.	This question provide base of understanding the frame of quality used by the participant.
In your opinion what was the benefit from quality Programme when you deal with problems to improve quality of care in your hospital?	Of course, if there is any error in dealing with these procedures in full with the patient, the procedure will be correcting the error and starts from the same employee who made the mistake in that he is informed of the mistake committed himself or even any other	This question focus on the quality tools

	person who existed or witnessed the error and reporting. and also quality has helped us find tools to deal with these errors and improve service and there are improvement projects based on this .A good tools are used to analyse the problem and develop an appropriate solutions such as PDCA ,FOCUS, bar chart and histogram and other effective tools.	

Appendix 19 -Translation authentication

سلطان البقمي للترجمة المعتمدة
Sultan Al baqami for Certified Translation
الترجمة المعتمدة الفورية لجميع اللغات
C.R. No.: 469422 Mem. No.: 399946 ترخيص رقم : 469422 - رقم العضوية

خبرة عريقة في مجال ترجمة جميع اللغات
مكاتبنا منتشرة في جميع انحاء المملكة

شهادة

هذه شهادة بان ترجمة المستندات من اللغة العربية الى الإنجليزية والتي تقدم بها السيد / عبد الله محمد الاسمري وهي عبارة عن نصوص مفرغة من تسجيل لمقابلات شخصية ضمن دراسة الدكتوراه صحيحة المعنى دون أدني مسؤوليه عن المحتوى والتوقيعات وهذه شهادة منا بذلك.

مكتب سلطان البقمي للترجمة المعتمدة.

AFFIDAVIT

This is to certify that the translation of documents from Arabic to English, submitted by Mr. Abdullah Mohammed Al-Asmari, which is a transcript of recorded interviews in his study of PhD is correct in the matter of meaning. without any responsibility on content or signatures on original documents.

Sultan Albaqami for Certified Translation

الرياض- طريق الملك عبدالله – مقابل مطعم ماما نورة- ص.ب ٣٢٥٠٣ الرياض ١١٣٧١- واتس اب وجوال: ٠٥٥٨١٧٣٢٤٩ -٠٥٦٤٥٥٥٠٠٢
Riyadh – Kingabdullah Road- Opposite Mama Nora Resturant- P.O.Box 32503- Riyadh 11371 - Mobile&WhatsApp: 0564555002- 0558173249

Appendix 20 Theme coding table

Main Theme	Subordinate theme	Theme	Sub-theme
Knowledge Code K.	Fundamental concepts KFC.	Theoretical understanding KFC 1 Quality Tools Knowledge K F C 2 Accreditation Knowledge K F C 1	

	Satisfactions KS		
		Patients Satisfactions KS 1	
		Staff Satisfactions KS 2	
	Reporting system KR		
		Sentinel Events KR2	

		OVR KR2 Clinical Indicators KR3	
Practice pattern Code P.	Safety PS	Facility Management & Safety PS 1	

		Patient Safety PS 2 Disasters P S 1	
	Precautions PP	Infection Control P P 2 Committee PT1	

	Teamwork PT	Plans PT2	

! Practice pattern Code P.	1.2 Reporting system KR	1.5.4	Patients Satisfactions KS 1	
		1.5.5	Staff Satisfactions KS 2	
		1.5.6	Sentinel Events KR 2	
	1.3 Safety PS	1.5.7	OVR KR2	
		1.5.8	Clinical Indicators KR3	

	1.4 Precautions PP	**1.5.9 Facility Management & Safety** PS 1	

	1.5Teamwork PT	**1.5.10 atient Safety PS 2** **1.5.11 isasters** P S 1 **1.5.12 nfection Control** P P 2 **1.5.13 ommittee** PT1 1.5.14 lans PT2	

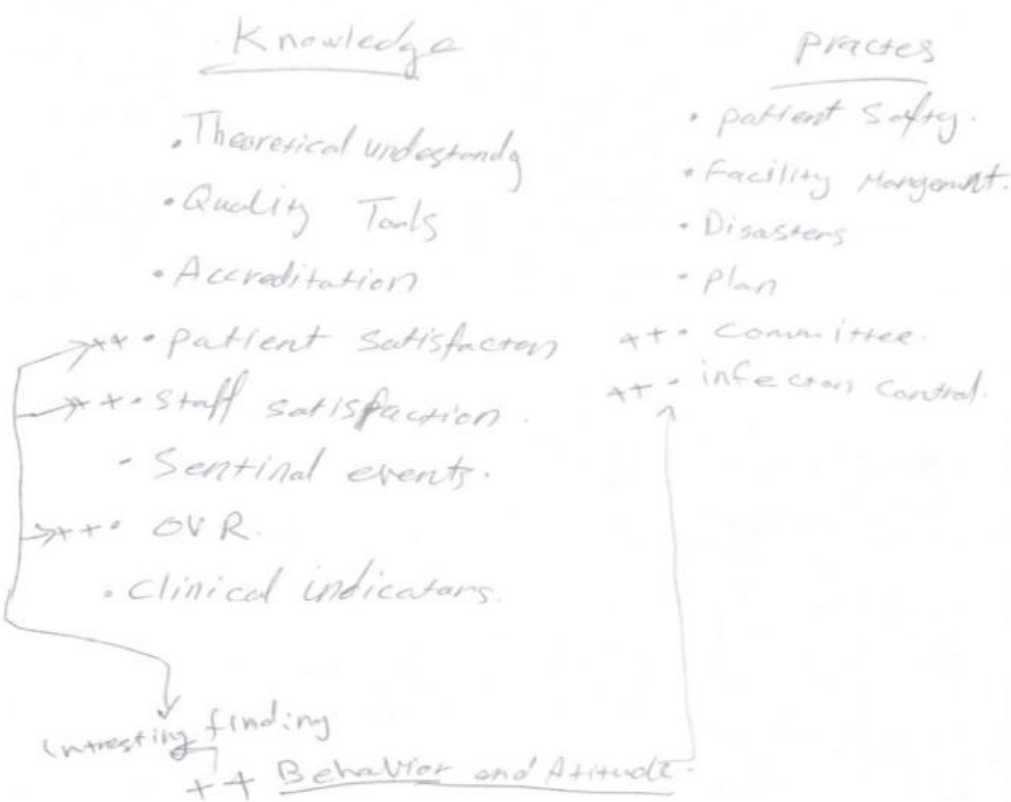
Appendix 21 - Analysis Process

Step ①

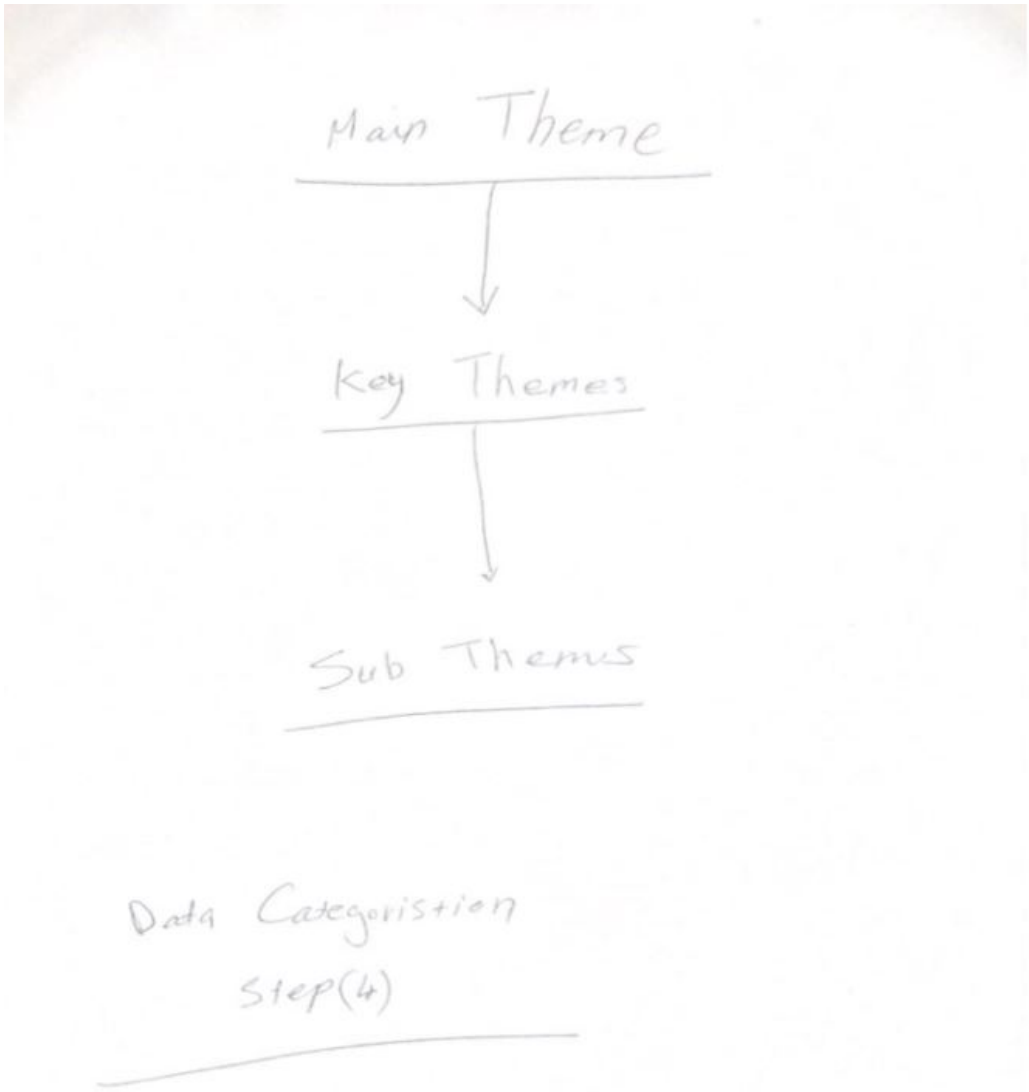
- Theoretical Issues
- Accreditation.
- indicators.
- Investigation Issues.
- Education Needs.
- Sentinal Events.
- patient Safety.
- training.
- infection Issues.
- Islation Room.
- Staff satisfaction
- Team work
- plans
- Errors.
- Accredited Body.
- Committee
- Facility Management.
- patient satisfaction
- Disasters.
- OVR
- Quality tools
- PDCA

step 2

Knowledge Vs Practes Issus



Step 3
Main Theme
Practice
Knowledge
Safety
Precautions
Teamwork
Committee
Plan
Disaster
Infection Control
Facility Management safety
Patient Safety
Satisfaction
Patient
Staff
Fundamental Concepts
Theoritical understanding
Quality Tools
Acceptance
Reporting System
OVR
Sentinel Events
clinical indicators
Behavior and Staff Attitude


Main Theme
Key Themes
Sub Themes
Data Categorisation
Step(4)