UNIVERSITY OF BOTSWANA
FACULTY OF HUMANITIES

AN EXPLORATION OF KNOWLEDGE SHARING PRACTICES OF MEDICAL PRACTITIONERS AT PRINCESS MARINA HOSPITAL, BOTSWANA

STUDENT NAME: ONKGAPETSE TSIMARU
STUDENT ID: 200203950

SUPERVISOR: DR A. MUTSHEWA

A DISSERTATION SUBMITTED IN PARTIAL FULLFILLMENT OF THE REQUIREMENTS OF MASTERS IN ARCHIVES AND RECORDS MANAGEMENT

9/29/2020

DECLARATION

The author declares that the work contained in this dissertation is entirely her scholarly work. It has not be submitted either in whole or part to any other institution for a similar or any other degree.

Onkgapetse Tsimaru

_____

Date: 29 September 2020

DEDICATION

This study is dedicated to my daughter, Lorraine Mofenyi, who has been my greatest source of support.

ACKNOWLEDGEMENT

The author would like to take this opportunity to thank the Almighty God for being the source of strength in difficult times. When all hope was lost, God through his word, provided hope and courage and for that I shall, for ever, be grateful. I also like to acknowledge the tremendous support provided by my supervisor, Dr. Mutshewa. He did not give up on me even when I was about to give up. His diligent and committed supervision provided a source of motivation.

I would also like to offer my appreciation to the management of Princess Marina hospital for giving me the opportunity to conduct my research in their organisation. This is also extended to the staff, who participated in this study despite their busy schedule.

ABSTRACT

The main purpose of the study was to explore the knowledge sharing practices of medical practitioners at Princess Marina Hospital, a public hospital in Botswana. Although the sharing of knowledge amongst medical practitioners has been found to have the potential to help in improving service delivery in health care, there is limited literature available to help in understanding how this can be effectively implemented in health care organisations. The study used the knowledge sharing model as a lens to understand the knowledge sharing practices of medical practitioners at Princess Marina Hospital. It focused on three main factors, which influence knowledge sharing performance in organizations. These factors are knowledge sharing process, knowledge sharing means and knowledge sharing governance mechanism. The study adopted an interpretive paradigm and is qualitative. It employed a case study research design to collect empirical data through interviews and observation. A combination of convenience and purposive sampling technique were used to identify 16 participants, who took part in the study. Thematic content analysis was used to analyse data. Themes were identified and coded, and categories and relationships were established.

Out of the 16 study participants, 11 were medical practitioners, made up of nurses and doctors, across the various levels of the hospital, two members of executive management, one head of medical department, one librarian and one head of Information Communication Technology (ICT).

The findings revealed that there are various formal procedures guiding knowledge sharing amongst medical practitioners at Princess Marina hospital such as induction programme, job rotation, medical teams and mentorship of new doctors. In addition, the findings found that there are various platforms used by medical practitioners to share and seek knowledge. Just like in other professions, medical practitioners have also taken advantage of modern technology to communicate and collaborate with others through e-mails and the internet. Furthermore, traditional forms of communication and collaboration, such as lectures, face-to-face meetings, weekly reporting meetings, shift change, workshops and seminars, as well as trainings, are used.

Lastly, the findings reveal that although the hospital is doing its best to promote knowledge sharing amongst medical practitioners, lack of resources, lack of knowledge sharing strategy, time constraints and lack of equipment hinder effective knowledge sharing at the hospital. Overall, the

findings reveal an appreciation of the efforts made by the hospital to facilitate knowledge sharing amongst employees and the importance of this in improving the delivery of health care. It is important that key resources, such as the development of a knowledge sharing strategy and a centralised knowledge repository, are put in place to ensure timely retrieval and access to information and knowledge.

Table of Contents

PRELIMINARY PAGE.....i-xiii

CHAPTER 1.....1

1.1 INTRODUCTION.....1

1.2 KNOWLEDGE IN THE HEALTH CARE SECTOR.....1

1.3 KNOWLEDGE SHARING IN HEALTH CARE.....2

1.4 PUBLIC HEALTH SYSTEM IN BOTSWANA.....2-3

1.5 PRINCESS MARINA HOSPITAL. 3

1.6 THEORETICAL FRAMEWORK.....4

1.7 STATEMENT OF THE PROBLEM.....5-6

1.8 OBJECTIVES OF THE STUDY.....6

1.9 RESEARCH QUESTIONS.....7

1.10 JUSTIFICATION OF THE STUDY.....7

1.11 SIGNIFICANCE OF THE STUDY.....8

1.12 SCOPE OF THE STUDY.....8

1.13 OUTLINE OF THE DISSERTATION.....8-10

1.14 SUMMARY.....10

CHAPTER 2.....11

2.1 INTRODUCTION.....11

2.1.1 The Concept of Knowledge 11-12

2.1.2 The Concept of Knowledge Sharing 12-13

2.2 THE NATURE OF KNOWLEDGE SHARING.....13-14

2.3 TYPES OF KNOWLEDGE SHARED 14

2.4 KNOWLEDGE SHARING PROCESSES IN HOSPITALS.....15-16

2.5 KNOWLEDGE SHARING GOVERNANCE MECHANISM.....16-21

2.6 IMPACT OF KNOWLEDGE SHARING IN HOSPITAL …......21-23

2.7 KNOWLEDGE SHARING PLATFORMS IN HOSPITALS.....23-24

2.8 CHALLENGES FACED BY MEDICAL PRACTITIONERS IN KNOWLEDGE SHARING.....24-28

2.9 THEORIES OF KNOWLEDGE SHARING 28-30

2.10 THEORETICAL FRAMEWORK OF THE STUDY.....30-32

2.11 SUMMARY OF LITERATURE REVIEW.....32-33

CHAPTER 3 METHODOLOGY 34

3.1 INTRODUCTION 34

3.2 RESEARCH APPROACH.....34

3.3 RESEARCH DESIGN.....35

3.4 OVERVIEW OF STUDY SETTING 36

3.4.1 Population of Study.....36-37

3.5 Sampling & Sample Size.....37-39

3.6 DATA REQUIREMENTS.......39-41

3.7 DATA COLLECTION INSTRUMENTS.....41

3.7.1 Interviews.....42

3.7.2 Observations.....42-43

3.8 DATA COLLECTION PROCEDURES.....43-44

3.8.1 Piloting of Data Collection Instruments.....44-45

3.8.2 Challenges Encountered During Data Collection.....45

3.9 DATA ANALYSIS.....45-46

3.10 ETHICAL CONSIDERATIONS.....46-47

3.11 LIMITATIONS OF STUDY.....47

3.12 SUMMARY OF METHODOLOGY.....47

CHAPTER 4 RESEARCH FINDINGS.....48

4.1 INTRODUCTION……..48

4.2 DEMOGRAPHIC DETAILS ……..48-50

4.3 PRESENTATION OF RESEARCH FINDINGS……..50

4.3.1 Objective 1: To describe the Knowledge Sharing Process at PMH……50-51

4.3.1.1 Formal Process of Knowledge Sharing……..51-55

4.3.1.2 Informal Process of Knowledge Sharing……..55-56

4.3.2 Objective 2: To Examine Knowledge Sharing Governance Mechanism at PMH……**56-57**

4.3.2.1 Organisational Culture……57-61

4.3.2.2 Technical Support……61-63

4.3.2.3 Organisational Context……63-65

4.3.3 Objective 3: To Establish Knowledge Sharing Performance at PMH……66-68

4.3.4 Objective 4: To Describe Knowledge Sharing Means/Platforms at PMH……68-69

4.3.4.1 Technology-Based Platforms……69-71

4.3.4.2 Non-Technology Based Platforms……71-74

4.3.5 Objective 5: To Identify the Challenges Faced by Medical Practitioners with Regard to Knowledge Sharing……75

4.3.5.1 Personal Factors……75-77

4.3.5.2 Organizational Factors……77-81

4.4 SUMMARY OF THE FINDINGS……81-82

CHAPTER 5 DISCUSSION OF RESULTS……..83

5.1 INTRODUCTION……..83

5.2 KNOWLEDGE SHARING PROCESS AT PMH……83-85

5.2. 1 Formal Process of Knowledge Sharing……86-88

5.2.2 Informal Process of Knowledge Sharing……88-89

5.3 KNOWLEDGE SHARING GOVERNANCE MECHANISM AT PMH……89

5.3.1 Technical Support……90-94

5.3.2. Organisational Context……94-96

5.3.3 Organisational Culture……96-98

5.4. IMPACT OF KNOWLEDGE SHARING AT PMH……98-100

5.5 KNOWLEDGE SHARING MEANS/PLATFORMS AT PMH……100-101

5.5.1 Technology-Based Platforms……101-104

5.5.2 Non-Technology Based Platforms……104-105

5.6 CHALLENGES FACED BY MEDICAL PRACTITIONERS WITH REGARD TO KNOWLEDGE SHARING……105

5.6.1 Individual Challenges……105-108

5.6.2 Organizational Challenges……109-112

5.7 SUMMARY OF THE FINDINGS……112

CHAPTER 6 SUMMARY, CONCLUSION & RECOMMENDATIONS……113

6.1 INTRODUCTION……113

6.2 SUMMARY OF THE FINDINGS……113

6.2.1 Knowledge Sharing Process at PMH……113-114

6.2.2 Knowledge Sharing Means/Platforms used at PMH……114

6.2.3 Knowledge Sharing Governance Mechanism at PMH……114-115

6.3 IMPLICATIONS OF THE FINDINGS……115

6.4 LIMITATIONS OF THE STUDY……115-116

6.5 CONCLUSION……116

6.6 RECOMMENDATIONS……117-118

6.7 SUGGESTIONS FOR FURTHER RESEARCH……118

REFERENCES……119-129

APPENDICES……130-166

LIST OF TABLES

Table 1: Study Participants……...39

Table 2: Data Requirements……..40

Table 4.2.1: Demographic Variables of Participants……48-49

Table 4.2.2: Profiles of Study Participants……49-50

LIST OF FIGURES

Figure 1: Knowledge Sharing Model……30

Figure 2: PMH Staff Compliment ……36

Figure 3: Data Collection Procedures……44

LIST OF ABBREVIATIONS

ABBREVIATION	DESCRIPTION
BRICS	Brazil, Russia, India, China and South Africa
HoD	Head of Department
ICT	Information Communication Technology
IoM	Institute of Medicine
IPMS	Integrated Patient Management System
IT	Information Technology
KBE	Knowledge Based Economy
KSM	Knowledge Sharing Model
OECD	Organization for Economic Cooperation and Development
PMH	Princess Marina Hospital
SET	Social Exchange Theory
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UB	University of Botswana
WHO	World Health Organisation

DEFINITION OF KEY CONCEPTS

Knowledge is "the skills and information used for problem solving, it is the things that an employee needs to know to reach the most effective performance in the organisation", (Hamornik & Juhasz, 2010:104).

Knowledge Sharing in the context of this study is described as the "clarification and dissemination of updated health information to staff, decision makers and other stakeholders through interactive communication" (Asemahagn, 2014: Background).

Medical Practitioners also referred to as health professionals are those "individuals who are accredited and registered as a health professional upon completing a course of study (meeting the specified requirements), and usually licensed by a government agency to practice a health related profession such as dentistry, medicine, nursing, occupational health and physical therapy" (Business Dictionary)

CHAPTER 1

1.1 INTRODUCTION

The last two decades, or so, have witnessed a rising interest in knowledge as a valuable asset in organisations (Alajmi, Marouf & Chaudhry, 2015). Organisations around the world are embracing knowledge sharing as a strategy for competitive advantage, and the development of innovative products and services. Similarly, health care organisations are adopting knowledge sharing as a strategy to improve the quality of health care. Effective knowledge sharing among health practitioners has been identified as one of the key ingredients for hospitals to improve health care (Lema, 2017; Asemahagn, 2014: Background; Ghosh & Scott, 2008; Alhalhouli, Hassan & Abualkishik, 2013). Quality health care has been described by the Institute of Medicine (IoM) as that which is safe, effective, patient-centred, timely, efficient and equitable. Thus, the provision of quality health care, as described above, could benefit from the exchange of knowledge among health care providers within and outside the organisation.

1.2 KNOWLEDGE IN THE HEALTHCARE SECTOR

By its nature, the health care industry is knowledge intensive and medical practitioners are considered knowledge workers, who create and apply medical knowledge in their daily medical routines. The health care industry produces and uses complex and massive volumes of information and knowledge from medical research, as well as from daily interactions with patients (Badimo & Buckley, 2014; Ghosh & Scott, 2008). This knowledge is produced and used by different specialists in different departments within the hospital.

As is in all forms of knowledge, medical knowledge is in two forms, explicit and tacit. Explicit knowledge is that which is documented in the form of research and procedure manuals, medical reports and policy documents. Tacit knowledge is in the form of experiences, skills and expertise of medical professionals. Unlike explicit knowledge, which is documented, tacit knowledge is gained through continuous years of practical experience. Both forms of knowledge are critical in the medical practice. Therefore, to be able to deliver safe and quality health care, medical professionals must have access to and use both forms of knowledge (Tabrizi & Morgan, 2014). Thus, proper knowledge sharing is critical in achieving quality health care.

1.3 KNOWLEDGE SHARING IN HEALTH CARE

Knowledge sharing is defined as a social interaction involving the exchange of ideas, opinions and beliefs among professional communities (Azad, 2015: 1; Gebretsadik, et al., 2014:241). In health care, knowledge sharing has been described as the "clarification and dissemination of updated health information to staff, decision makers and other stakeholders through interactive communication" (Asemahagn, 2014: Background).

Medical work is a team work comprising several medical professionals, who, in some cases, are dispersed across diverse geographical locations, yet working together to provide quality patient care. Thus, the need for effective team collaboration to ensure that team members share knowledge to achieve quality patient care is critical. In addition, team collaboration is needed in instances (complex medical cases) where two or more doctors, sometimes in different hospitals or countries need to discuss and share their professional experiences to address a medical case. Therefore, as indicated, the provision of safe and quality patient care is highly dependent on the sharing of medical knowledge amongst medical professionals. For example, in the developing countries, available evidence shows that countries, such as South Africa, Ethiopia, Malaysia and others, are now realising the importance of knowledge sharing amongst medical practitioners in improving health care (Badimo & Buckley, 2014; Asemahagn, 2014: Background; Okoroji, Velu & Sekaran, 2013; Adeyeleru, Kalema & Motlanthe, 2019). Hence, studies, such as this one, which provides empirical evidence through case studies on how knowledge sharing takes place in a hospital situation are critically important.

1.4 PUBLIC HEALTH SYSTEM IN BOTSWANA

Botswana's public health care is provided through the Ministry of Health and Wellness (MoHW) using a decentralised system. In this system, primary healthcare is at the heart of service delivery. Botswana's public health service is regulated by the Public Health Act of 2002, Cap 63.1, as well as the Botswana Public Health Policy of 2011. Botswana has 27 health districts for the delivery of public health care. This consists of an extensive network of health facilities comprising hospitals, clinics, health posts and mobile clinics. Public hospitals are classified into three categories, namely; primary, district and referral hospitals. Princess Marina falls under the category of referral hospitals (Government of Botswana, 2015).

Botswana's health system is experiencing a serious shortage of medical professionals. This challenge is also noted in Botswana's National Health Policy of 2011. The World Health Organisation (WHO) also notes the same challenge as the main factor which contributes to poor delivery of health care in developing countries (WHO Regional Office for Africa, 2014). In Botswana, the situation has been compounded by the fact that until August 2009, the country had been operating without a medical school. The absence of a medical school made the training of medical doctors costly for a developing country like Botswana. Consequently, Botswana only managed to train few doctors as it relied on institutions abroad, which was very expensive for the country. Botswana's medical school established at the University of Botswana (UB) is at an infant stage, and produces only few medical doctors per year (~35 graduates). This number is not enough to satisfy the current market demand as evidenced by the continued reliance on expatriates in the public health system, especially specialist doctors.

1.5 PRINCESS MARINA HOSPITAL

Princess Marina hospital is one of the oldest hospitals in the country, and it is located in Botswana's capital city, Gaborone. It was established in 1966, but started operation in April 1967 as a small hospital servicing about five thousand (5000) people per year. It is named after Princess Marina, the aunt to Queen Elizabeth II. Princess Marina had represented the British Government during Botswana's independence celebrations on 30 September 1966. As Gaborone rapidly grew in terms of infrastructure and population, the hospital experienced challenges of meeting the growing medical demand. Currently, Princess Marina Hospital is servicing Gaborone's more than 232,000 residents, as well as attending to referrals from all over the country; hence the huge patient caseload (Ngidi, 2015; Government of Botswana, 2011, 2017).

The hospital provides a variety of services from general to specialised services, which, in some cases, are not available elsewhere in the country. These include surgery, dietetics, oncology, intensive care and many other specialised services. The provision of these specialised services requires specialised medical expertise. Nevertheless, the limited resources and growing demand for quality health care has put more pressure on the hospital's already limited resources, and the shortage of qualified and experienced medical practitioners is a big challenge (Botswana Health Policy, 2011; Nkomazana et al., 2014).

1.6 THEORETICAL FRAMEWORK

There are many theories that have been used in researches focusing on knowledge sharing. But the most commonly used are the Theory of Reasoned Action (TRA), the Theory of Planned Behaviour (TPB) and the Social Exchange Theory (SET). These theories posit that knowledge sharing is a social construct involving human interactions within an organisational setting. They also contend that knowledge sharing is embedded within work practices and processes. Therefore, it should be examined not only within the social context of individuals, but also in the context of their environment (Koushazade, Omidianpoor & Zohurian, 2015:130).

Furthermore, the theories posit that understanding of the behaviours of individuals involved in knowledge sharing is very important because it is the behaviour which determines the sharing or not sharing of knowledge (Liu, et al., 2011; Jinyang, 2015; Kim & Park, 2017; Bock & Kim, 2002; Raychav & Weisberg, 2009; Rahab & Wahyuni, 2013). Drawing from the above theories, factors including attitude, intention, subjective norm, perceived behavioural control, benefit, satisfaction and cost are key determinants of knowledge sharing (Mahmood, et al., 2011, Allameh, et al, 2012, Hassan, et al., 2016; Abdur-Rafiu & Opesade, 2015; Lin, Chen & Wu, 2004; Huang & Chen, 2015).

Tabrizi and Morgan (2014), in their study of a hospital in the United Kingdom, developed another model which they call the Model of Knowledge Sharing. This model identified three main perspectives of knowledge sharing through a rigorous search of literature. These perspectives are knowledge sharing process, knowledge sharing means and knowledge sharing governance mechanism. According to Tabrizi and Morgan (2014), these three elements are interrelated and interdependent, hence should be studied together to understand their relationships and dependencies. Although it is a new model with limited evidence of application, it was preferred for the purpose of this study, which sought to integrate the three perspectives, as espoused by the Tabrizi and Morgan's knowledge sharing model, to examine the knowledge sharing practices at Princess Marina Hospital. The model is discussed, in detail, in the next chapter on literature review.

1.7 STATEMENT OF THE PROBLEM

The provision of quality health care to patients is central to the vision, mission and value principles of any health care provider, and Princess Marina Hospital, is no exception. The Government of Botswana recognises health care provision as a right to every citizen, and this is enshrined in the country's National Health Policy of 2011. Princess Marina Hospital, as the main referral public hospital, is under pressure to provide safe and quality patient care. The hospital needs to come up with innovative and efficient strategies to ensure quality and safe patient care.

The provision of high quality health care is not without challenges. For instance, the health sector is faced with increased growth of rare and complicated diseases. On the service front, there are new discoveries in terms of disease treatment and patient care from continuous medical research. Thus, this makes health care a complex enterprise that requires medical professionals to bring together various skills from different medical fields, expertise and knowledge to work as a team. These medical professionals include medical assistants, nurses and doctors with different specialisations. Thirdly, the tools, such as information communication technologies and the work environment critical for knowledge sharing, are not always supportive of effective knowledge sharing. In Botswana, like in many developing countries, the health sector is experiencing a scarcity of skilled health professionals, especially specialist doctors (Botswana Health Policy, 2011; Nkomazana et al., 2014), as well as budgetary constraints. Furthermore, the few available skilled employees within the health care system often change jobs or venture into private practice, leaving the hospital without skills required to carry out daily medical routine. Thus this makes effective knowledge sharing amongst medical practitioners critical to the delivery of health care and the sustainability of the health system.

Hospitals have been identified as knowledge intensive organisations. This knowledge is, in most cases, fragmented and dispersed across the various medical units. Hence, there is a need for a well-coordinated knowledge sharing strategy to ensure that the knowledge is maximally distributed and applied to improve service delivery. Studies have shown that several benefits could be derived from an effective knowledge sharing practice. For instance, an effective knowledge sharing can reduce instances of missed diagnosis, wrong treatment and unexpected mortality, as well as reducing administrative costs (Adeyelure, Kalema & Motlanthe, 2019; Badimo & Buckley, 2014; Gebretsadik, et al., 2014; Tasselli, 2015; Asemahagn, 2014: Background; Gider, Ocak & Top,

2015). In addition, knowledge sharing can provide medical practitioners with a platform for professional collaboration between experienced and upcoming professionals. This would ensure that experienced professionals impart their experiences, skills and knowledge to new professionals. This will help alleviate the problems which result from the shortage of professionals in short and long-term basis.

However, despite the importance of knowledge sharing, a review of literature shows a scarcity of empirical evidence of knowledge sharing practices amongst medical practitioners, particularly in developing countries (Okoroji, Velu & Sekaran, 2013; Moahi & Bwalya, 2017; Asemahagan, 2014: Background; Alhalhouli, et al., 2013). Literature from Botswana does not show any research initiatives that have examined knowledge sharing amongst medical practitioners in the country (Botswana Public Health Act Cap 63:01, 2002; Botswana National Health Policy, 2011; Nkomazana et al., 2014; Seitio-Kgokgwe, et al., 2014; Tlogelang, 2013; Mogwe, 2014; Mokone, et al., 2014). The scarcity of empirical research on knowledge sharing practices in the health sector in Botswana poses a challenge in understanding how the health system in Botswana is making use of the available knowledge resources, and also how prepared the health sector is in embracing the fourth industrial revolution. Thus, the study explored the knowledge sharing practices of medical practitioners at Princess Marina Hospital as they carry out their daily medical routine.

1.8 OBJECTIVES OF THE STUDY

The purpose of this study was to explore the knowledge sharing practice of medical practitioners at Princess Marina Hospital. The specific objectives are:

1. To describe the knowledge sharing processes at Princess Marina Hospital.
2. To examine the knowledge sharing governance mechanisms at Princess Marina Hospital.
3. To establish the impact of knowledge sharing at Princess Marina Hospital.
4. To describe the knowledge sharing means/platforms at Princess Marina Hospital.
5. To identify the challenges faced by medical practitioners with regard to knowledge sharing at Princess Marina Hospital.

1.9 RESEARCH QUESTIONS

The primary research question guiding this study is: How do medical practitioners at Princess Marina Hospital share knowledge? The question was addressed through answering the following specific research questions:

1. What are the processes of sharing knowledge at Princess Marina Hospital?
2. How is the knowledge sharing governance mechanism at Princess Marina Hospital?
3. What is the impact of knowledge sharing on Princess Marina Hospital Performance?
4. What knowledge sharing means and platforms are used by medical practitioners at Princess Marina Hospital?
5. What are the main challenges or bottlenecks that hinder effective knowledge sharing?

1.10 JUSTIFICATION OF THE STUDY

Knowledge sharing among medical practitioners in public hospitals in Botswana provides an interesting area of research. This is mainly because there has been a shift towards the Knowledge Based Economy (KBE) by governments all over the world. Botswana too has adopted the KBE to diversify away from the mineral led economy. In hospitals, knowledge is now considered a key resource for improved quality health care (Abdollahpour & Naji, 2016; Sibbald, et al., 2013; Gider, Ocak & Top, 2015). Although this is the case, it has been pointed out that this knowledge can only improve health care if it is maximally shared amongst all medical team members.

As noted, Botswana, just like other developing countries, is faced with a severe shortage of qualified and experienced medical professionals, and it relies mostly on expatriates. Therefore, there is a need to collect empirical evidence, which would help in understanding the process of knowledge sharing amongst medical practitioners within hospitals. This understanding would guide how knowledge sharing can be adopted as a strategy to ensure that the country maximises the use of the available medical expertise it has. In view of this, there was a need to carry out this study in order to understand how the available knowledge is being shared and imparted amongst medical professionals.

1.11 SIGNIFICANCE OF THE STUDY

Unlike in other fields, such as entrepreneurship and manufacturing, the review of literature has revealed scarcity of empirical evidence on how knowledge is shared within the health sector. Therefore, the findings of this study would serve as a resource for health administrators, policy makers and health professionals. The study's findings would guide the effective adoption and implementation of appropriate knowledge sharing practices in public hospitals in Botswana. For Princess Marina Hospital, this study would help the hospital carry out an assessment of how it can maximise the available knowledge resources it has to ensure short, medium and long-term provision of quality health care. Furthermore, the study would add to the knowledge sharing literature, thereby adding to the body of knowledge in the field of knowledge management.

1.12 SCOPE OF THE STUDY

The study focused on exploring the knowledge sharing practices of medical practitioners at Princess Marina Hospital. The target group was all the staff involved in the provision of patient care (medical team members) comprising doctors and nurses, as well as the hospital management. The aim was to engage all stakeholders influencing knowledge sharing as presented in the adopted knowledge sharing model. The study was conducted through observations and interviews of selected practitioners at Princess Marina Hospital. The study was conducted over a period of 12 months.

1.13 OUTLINE OF THE DISSERTATION

The study explored the knowledge sharing practices of medical practitioners at Princess Marina Hospital. This dissertation is made up of six chapters which include the introduction, literature review, research methodology, research findings, discussion of the research results and summary and recommendations. Each chapter is briefly discussed in the below section.

1.13.1 Chapter 1: Introduction

This chapter introduces the study area. It provides the definitions, overview and the context in relation to the knowledge sharing practices of medical practitioners. The chapter presents elements, which help readers to understand the study area much better. It gives an overview of the Botswana health system, as well as that of Princess Marina Hospital. In addition, the chapter

presents the theoretical framework, statement of the problem, objectives, research questions, justification, significance and the scope of the study.

1.13.2 Chapter 2: Literature Review

This chapter reviews the literature related to the study, such as literature relating to knowledge sharing in hospitals or health care environments. The aim of this chapters was to identify available or previous studies relating to the research subject, identify the key findings and discussions of these studies and identify theoretical framework applied in these studies. In addition, a review of literature provided more information and knowledge on the study, and this helped to identify gaps in the literature.

1.13.3 Chapter 3: Research Methodology

This chapter outlines the research methodology applied in this study. It describes the methods and provides the rationale behind the adopted research paradigm. The chapter discusses issues such as the research design or research paradigm, study setting and population, sampling methods and sampling size, data requirements, data collection instruments, data collection procedures, a description of the type and method of data analysis, ethical consideration and study limitations.

1.13.4 Chapter 4: Research Findings

In this chapter, the raw findings from the data are presented according to the research questions. The main focus of this chapter is to present the findings of the study.

1.13.5 Chapter 5: Discussion of the Results

This chapter discusses the raw data from the research findings. The raw data is analysed to get the meaning to help answer the research questions and make sense of the data. The discussion of the findings is made in comparison with the findings from previous studies. The analysis of data helps to identify data categories, patterns and data relationships. The analysis provides an answer to the research questions and provides new knowledge in relation to the research area. The data is analysed and presented through text and tables for easy understanding.

1.13.6 Chapter 6: Summary, Conclusions and Recommendations

This is the final chapter which concludes the study. It summarises the findings of the study and proposes recommendations on what can be done in relation to the findings. It also presents academic contributions made by the study. It also highlights opportunities for further research in relation to the study area.

1.14 SUMMARY

The delivery of quality health care to patients is a very complex and expensive undertaking, which is highly dependent on specialised knowledge from a variety of medical fields. Patient care is provided by a team of medical professionals each having a specialised field of medicine. This shared care is highly dependent on the seamless sharing of knowledge amongst these professionals. Therefore, it is important that there is an understanding of how knowledge sharing can be implemented within a health care organisation by examining the factors affecting effective knowledge sharing for efficient and quality health care. Knowledge sharing amongst medical professionals is critical as it provides short, medium and long-term benefits to the hospitals and the health system in general.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

For an in-depth understanding of the knowledge sharing practices of medical practitioners, a review of literature related to knowledge sharing in health care was conducted to identify key developments and theoretical frameworks. In addition, the literature review helped the researcher to understand what other researchers have found out as well as to identify areas for further research. The literature review is meant to understand knowledge sharing through identifying key themes in knowledge sharing as identified by the research questions.

This chapter is organised as follows: First it is the introduction, followed by the discussion of the concept of knowledge and knowledge sharing as applied in the medical field. Then, a discussion of the nature of knowledge sharing in health care and theories of knowledge sharing. The chapter also reviews the literature related to the research questions and theoretical framework. Lastly, a summary of the key findings from the reviewed literature is presented.

2.1.1 The concept of knowledge

The review of literature revealed many definitions of knowledge from scholars depending on what field they view knowledge from. According to Omotayo (2015:04) "knowledge is the insights, understandings, and practical know-how that people possess. Hence, Davenport, De long and Beers (1998) defines knowledge as information combined with experience, context, interpretation, reflection and perspective that adds a new level of insight". From this definition, we understand that knowledge is dependent on the individual's own understanding, interpretation, belief and experiences, and it is that which enables people to function. In organisations, knowledge is embedded in codified documents or repositories, as well as in organisational routines, processes, practices and culture.

Another definition by Alipour, Idris and Karimi (2011:62) refers to knowledge "as the whole body of cognition and skill which individuals use to solve problems which include both theoretical and practical everyday rules and instructions for action and although is based on data and information, it is constructed by individuals hence it is always bound to a person".

From a medical perspective, knowledge is the skills and information which are used for problem solving and is applied and shared in a group. In other words, knowledge refers to the things which an employee need to know to perform at their maximum level like doing routine medical tasks that are not easy to express or describe in words (Hamornik & Juhasz, 2010:110).

Omotayo (2015:07) provides a very interesting perspective, as he believes that knowledge is a product of the interaction of the two dimensions of knowledge, which are explicit and tacit knowledge. This involves people sharing their internal tacit knowledge by socialising with others and then others internalising the shared knowledge and share with others and that process creates new knowledge and the cycle or process starts again. For the purpose of this study, knowledge means the skills and information used by medical practitioners to solve medical problems and provide quality and safe patient care.

2.1.2 The concept of knowledge sharing

From the reviewed literature, there seems to be no single definition of knowledge sharing. Instead, researchers adopt definition and explanation of knowledge sharing depending on their perspectives and context. However, there is a common perspective amongst many scholars. Most of them believe that knowledge sharing is a social process that involves human interaction; hence it is difficult to implement (Lin, 2007; Gebretsadik, et al., 2014; Gider, Ocak & Top, 2015; Radaelli, Lettieri & Masella., 2015). Based on this consensus, **knowledge sharing** has been described as a social interaction, which includes the voluntary exchange of ideas, opinions and photographic images among professional communities, partners or groups within an organisation (Azad, 2015: 01; Gebretsadik, et al., 2014:241). In addition, knowledge sharing has been described in terms of team members sharing task related ideas, information and suggestions necessary for adapting, extending and creating new knowledge leading to innovation (Tabrizi & Morgan, 2014:50). This definition is more applicable to the hospital environment, as medical work is a team work. Health care teams work collaboratively towards achieving a common goal of providing safe and quality patient care.

From a health care point of view, Asemahagn (2014: Background) contends that "health care knowledge sharing can be characterised as the clarification and dissemination of updated health information to staff, decision makers and other stakeholders through interactive communication".

This definition highlights that knowledge sharing is a process that needs the participation of several stakeholders involved in the provision of health care.

2.2 THE NATURE OF KNOWLEDGE SHARING IN HEALTH CARE ORGANISATIONS

Health care is provided by a diverse team comprising nurses, physicians, lab technicians, radiographers, among others. At times, some members of the team are located in different geographical areas, but working on one patient. Quality patient care is dependent on collaboration between all those involved in patient care. It is, thus, critical that they share knowledge for effective diagnosis and treatment. Compared to other organisations, team collaboration and coordination in hospitals is highly needed because the provision of patient care is dependent on the compatible efforts of a lot of specialists that interact with each other (Acharyulu, 2011). Supporting the above statement, Hamouda, Feki & Chourabi, (2015:04) highlight that sharing of medical knowledge, especially the patient medical history in hospitals, is critical as it allows for improvement in the precision of diagnosis and care quality.

It has been pointed out that health care professionals are the creators and users of knowledge within a hospital and this knowledge should be translated into organisational knowledge through effective sharing practices (Gider, Ocak & Top, 2015; Badimo & Buckley, 2014). In the medical profession, knowledge is distributed and shared amongst medical team members as they interact hence this is considered as team knowledge. This interaction and sharing leads to improved patient care and safety (Hamornik & Juhasz, 2010).

According to Zhou and Nunes (2012), knowledge sharing in hospitals between medical practitioners is very critical for patient care. This is because there are daily referrals of patients from general practitioners to specialist doctors or even between hospitals. Hence referring physician should share clinical diagnosis of the patient being referred with the specialist doctors to ensure seamless coordination and care.

In addition, it has been pointed out that medical knowledge is vast and exists in a variety of sources and formats, and is dispersed across the different departments of the hospital. Therefore, there is a need to combine this varying medical expertise to continuously deliver quality, safe and affordable patient care; hence knowledge sharing is a major driver for standardisation and improvement in this sector (Radaelli, Lettieri & Masella, 2015; Curran & Abidi, 2006). The hospital environment

dictates that physician, nurses and hospital administrators work as a team in order to reach the highest level of patient care.

2.3 TYPES OF KNOWLEDGE SHARED BY MEDICAL PRACTITIONERS

A review of literature (e.g. Ghosh & Scott, 2008; Badimo & Buckley, 2014; Alajmi, Marouf & Chaudhry, 2015; Hamornik & Juhasz, 2010; Bhatti, Latif & Rao, 2014; Curran & Abidi, 2006) revealed that hospitals are knowledge organisations, which create and apply massive volumes of information and knowledge in their daily work, such as conducting research, clinical trials and treatment of patients. Generally, knowledge is categorised into two forms in organisations, being tacit and explicit, and the same applies to hospital organisations. Tacit knowledge is knowledge which is found in people's or individuals' heads, and it is very difficult to transmit and share. This includes individual's beliefs, experiences and skills. In contrast, explicit knowledge is documented or codified knowledge, which is easily transmitted and shared, such as organisational policy documents, operating manuals and procedures.

Just like other professionals, in order to provide quality patient care, medical practitioners use both tacit and explicit knowledge. A review of literature revealed that medical practitioners create and apply knowledge gained from a variety of sources. For example, they create and apply knowledge they have learnt during their training, the knowledge gained from their interactions with patients, as well as individual knowledge derived from professional experience. In addition, medical care teams share a variety of information and knowledge with each other to look after their patients' health care needs, such as periodic patient reports, patient clinical data and research data (Zhou & Nunes, 2012; Gider, Ocak & Top, 2015; Koushazade, Omidianpoor & Zohurian, 2015).

Moreover, Bolarinwa, Salaudeen and Akande (2012) found that medical practitioners share knowledge, such as clinical experiences, operational polices, data from clinical observations, diagnostic tests and records of patient treatments. Lastly, in their research, Tabrizi and Morgan (2014:50) found that "delivering safe and high quality care to patients is highly dependent on medical practitioners sharing four types of knowledge: namely medical knowledge, scientific knowledge, incident knowledge and experience knowledge".

2.4 KNOWLEDGE SHARING PROCESSES IN HOSPITALS

The provision of quality health care demands the use of knowledge from different sources in terms of published research or evidence (explicit knowledge), as well as case based experiences of medical practitioners (tacit knowledge), hence the higher interaction and collaboration between medical team members is critical. Peer to peer collaboration in medical practice is a must to acquire and share knowledge in order to address the knowledge gap within the health system (Curran & Abidi, 2006). Therefore, knowledge sharing is a two way process, which involves two or more participants, which are the sender and receiver.

Although it may vary according to organisations, the process of knowledge sharing encompasses the identification or articulation of a knowledge need, identification of the knowledge source, retrieval and application of the knowledge to address or satisfy a knowledge need or solve a medical problem. Knowledge sharing process is a process of how knowledge flows from the sender to the receiver or between medical team members or departments. According to Lin (2007), knowledge sharing process involves the capturing, organising, reusing and transfer of experience based knowledge that resides within the organisation and making that knowledge available to others. Therefore, for the process to take place there has to be the person seeking knowledge and the one possessing the knowledge, which can be a person (tacit) or published materials (explicit). Kaartemo and Kansakoski (2018:04) describe knowledge sharing process "as an activity in which people make knowledge available to others which can result in the construction of new meanings and the creation of new knowledge".

In hospitals, knowledge sharing is being developed in the domain of electronic records management and through referrals, as well as care feedback (Gider, Ocak & Top, 2015; Badimo & Buckley, 2014). Moreover, medical decisions and evidence based practice in hospitals are dependent on the experiences and knowledge sharing practices amongst physicians. Sibbald et al., (2013) has pointed out that the process of knowledge sharing also takes place through mentorship where senior staff, often specialist doctors mentor junior medical practitioners. In addition, Adeyelure, Kalema & Motlanthe, (2019) found that when a doctor makes rounds to see patients, he or she is accompanied by junior doctors, nurses and other health care practitioners as a way to share knowledge with other team members. Furthermore, knowledge sharing occurs through interaction and collaboration between physicians and patients in consultation sessions (Zhou &

Nunes, 2012). Compared to other organisations, Gider, Oak and Top (2015) found that team collaboration and dependencies is much higher because the structure of service production process at hospitals requires compatible efforts of a lot of units and specialists that interact with each other. Therefore, the provision of safe and quality health care is highly dependent on effective team collaboration of all health team members, which can be formal or informal (Sibbald, et al., 2013).

In conclusion, it is believed that the process of sharing knowledge amongst peers is affected by the form in which knowledge is presented in terms of tacit or explicit. This is because explicit knowledge is easier to share than tacit. In addition, the process of knowledge sharing in hospitals is said to happen through both formal and informal means. For example, it can happen formally through mentorship programmes, medical seminars and conferences, training or informally through discussions among peers during their lunch break or a chat in the hallway (Sibbald, et al., 2013).

2.5 KNOWLEDGE SHARING GOVERNANCE MECHANISM IN HOSPITALS

Many researchers (Ryu, Hee Ho & Han, 2003; Ashwini & Harinarayana, 2015; Abdur-Rafiu, 2015; Hassan, et al., 2016) acknowledged that although important for improving organisational performance, knowledge sharing is not an easy activity, especially where knowledge is regarded or considered to be a source of power by those who possess it. Therefore, they can be unwilling to share it. In addition, knowledge sharing can be difficult if the organisational governance mechanism is not conducive or there are no motivating factors in place to promote knowledge sharing. Hence, effective knowledge sharing is dependent on the organisation's governance mechanism. Governance mechanism in this context comprises three main factors; which are technical support, organisational context, and organisational culture. The organisation's governing mechanism play a significant role in ensuring that knowledge sharing initiatives produce positive results. According to Zyngier, Burstein and McKay (2006), effective knowledge sharing is dependent on the organisation's governance mechanism or frameworks.

2.5.1 Technical support

In the context of governance mechanism, technical support comprises issues such as choosing the right ICT tools to facilitate knowledge sharing amongst employees, ensuring that staff have the necessary skills to use ICT tools and ensuring that the available tools are well maintained to ensure

uninterrupted usage. In addition, the ICT tools, which are being adopted, should be compatible with organisational processes so that they can help to improve efficiency in service delivery rather than hindering organisational performance. According to Hendricks (1999), the potential role of technology in supporting knowledge sharing goes beyond the ICT tools. Technology can bring about efficiency in terms of overall organisational performance in four main areas namely; reduction in knowledge sharing barriers, provision of speedy access to information and knowledge and improving of knowledge sharing process. Furthermore, technology has made it easy for organisations to locate knowledge carriers and knowledge seekers. The use of ICT may help facilitate new forms of knowledge sharing in an organisation, such as virtual knowledge teams. Shahid and Alamgir (2011) believe that the role of ICT in organisations continues to rise in different fields, and the health sector is no exception as ICT is now considered the main pillar of knowledge sharing amongst professional groups. Therefore, it is important that the right ICT tools are chosen and that there is improved access to such tools by all organisational employees. Huysman and Wulf (2004) believe that ICT has a positive contribution in knowledge sharing by offering opportunities to enhance knowledge sharing process and also leads to a more collective norm within a group. A study by Asemahagn (2014:Background) of a public hospital in Addis Ababa, Ethiopia, revealed that various stakeholders in health care are leveraging on ICT tools to deliver evidence based quality health care services.

In addition, for ICT tools to be effective, there is a need to ensure that new systems, which are adopted, are compatible with existing organisational processes and system or else there is a high chance that these systems are likely to fail. Researchers, like Radaelli, Lettieri & Masella (2015), observed that the introduction of new technologies or systems is a complex process, which employees normally resist because of fear of change. Therefore, it is very important that when a new system or technology is adopted, employees are well taken through and the systems is well integrated into existing processes for easy transition. A study conducted by Hamouda et al., (2015) found that most of the problems associated with the adoption of ICT are not necessarily IT faults, but the problem is that management, in most cases, bring about general tools, which do not meet the expectations of medical practitioners leading to low or non-utilisation of such tools. This sentiment is shared by Hall and Goody (2006:05) who pointed out that "when acquiring technology for organizational adoption it is not enough to simply deal with the equipment, complex institutional negotiation are also required".

Lastly, as part of technical support, there is a need to ensure that staff are capacitated with the right skills to be able to make maximum use of the adopted ICT tools and systems. Hamouda et al., (2015), have observed that most organisations do not reap the full benefits offered by ICT tools because employees do not have the right skills to use such tools, thereby leading to resistance.

In conclusion, the literature has emphasized the role of ICTs as valuable means of facilitating knowledge sharing for organisations wanting to reap the maximum benefits of their knowledge resources. However, the literature has revealed that despite the positive benefits of the application of ICTs in knowledge sharing, there are some disadvantages which come with the use of ICTs, such as the elimination of human social interaction. This being the case, the positive benefits of ICTs seem to overshadow its negatives. Therefore, for organisations to achieve the benefits presented by ICTs, most researchers have cautioned that organisational leadership should ensure that the right tools are chosen, staff are well trained to use the tools, there is regular servicing of tools and that the adopted ICTs should be compatible with organisational processes.

2.5.2 Organisational context

The review of literature has revealed that organisational context equally plays a key role in facilitating knowledge sharing amongst organisational employees. Organisational resources (human and financial) and leadership support have been identified as the key components of organisational context in the literature on knowledge sharing. Therefore, the availability or non-availability of these factors have a significant impact on the success or failure of knowledge sharing initiatives in an organisation. Organisational managers should acknowledge that employees, not technology, are fundamental for effective knowledge sharing; hence it is very important for organisations to provide sufficient resources so as to encourage or motivate employees to share knowledge with peers (Ngah & Ibrahim, 2011).

The role of leadership cannot be over-emphasised for the success of knowledge sharing initiatives. Therefore, knowledge sharing should be a priority for the organisation's leadership as a strategy to improve organisational performance by using the knowledge resources they have more intelligently. Leadership has been identified as instrumental in identifying the knowledge needs of the organisation and aligning them to the organisation's overall strategy. The hospital leadership plays a significant role in ensuring that the hospital environment (leadership support, culture and

structure) facilitate effective knowledge sharing. This would assist in the effective deployment of organisational resources and implementation of successful knowledge sharing initiatives.

According to Zyngier, Burstein and McKay (2006), the task of management is to create a culture that views the creation, utilisation and sharing of knowledge as being a normal function within the organisation. Therefore, managers should play a leading role as far as knowledge sharing initiatives or activities are concerned. Tang (2017) believes that a leader should keep the influence so that employees are affected by the leadership behaviour and copy that behaviour for effective knowledge sharing. Blanc & González-Romá (as cited in Tang, 2017), believe that "there is not a learning without a common vision". Hence, Tang (2017:5428) has highlighted that a "successful leader could create individual vision and guide people to possess the common vision to work for the organization and achieve the objectives". This means the hospital leadership should acknowledge the importance of knowledge sharing by developing knowledge sharing strategy and convince employees of the importance of that strategy in order to achieve organisational goals.

2.5.3 Organisational culture

Organisational culture is considered a critical factor to the organisation's ability to create value from its knowledge resources. Thus, culture can have a significant influence on knowledge sharing, which can either be positive or negative. Organisational culture means different things to different professional groups which is influenced by their organisational environment. Sensuse et al., (2016:110) has defined organisational culture as "a set of norms, beliefs, values and assumptions held by members of the organisation and influence the behaviour of the organisation". According to the above definition, organisational decisions and actions are influenced by the behaviours of employees in that organisation which varies from organisation to organisation. Therefore, Tang (2017:1833) believes that "an organisational culture is the philosophy that instructs an organisation and it represent the major values and criteria of the organisation". From the context of this study, organisational culture is believed to be the systems which govern the conduct of people and how the organisation operates in terms of language and communication, work efficiency, meaning of authority, hierarchy and managerial power, strategic change and creation and utilisation of knowledge (Indeje & Zheng, 2010:05). Organisational culture plays a significant role in influencing employee's attitude towards the adoption of knowledge sharing initiatives. This, then, means that if the organisational environment promotes or values the

importance of knowledge sharing initiatives, the success of knowledge sharing will be likely higher.

From the context of this study, we see organisational culture manifesting itself through medical teams who are working towards a common goal of saving lives; hence they share the same values and beliefs. In this study, the researcher explored organisational culture focusing on two key factors; trust and motivation.

Although organisational culture and organisational context are usually used interchangeably, in the context of this study, there are explored as two separate factors. In this study, organisational context focuses on leadership support and resource allocation, while organisational culture focuses on identifying those factors which can motivate employees to share knowledge as well as those which can help build trust amongst the various medical teams. Several studies (Tang, 2017; Sensuse et al., 2016) have pointed out that trust and motivation can help to ensure that employees are comfortable with each other and that they are voluntarily seeking knowledge from their co-workers, as well as share their knowledge with others. Therefore, organisational culture is focusing on issues such as promoting collaboration amongst employees and collaboration in organisational activities, recognition of those employees who engage in knowledge sharing initiatives. Motivation in terms of rewards can assist in the success of knowledge sharing in organisations because rewards can encourage employees to share knowledge. Rewards are important because the success of knowledge sharing is mainly dependant on individuals, hence the need to motivate employees to voluntarily engage in knowledge sharing activities (Hendricks, 1999; Asrar-ul-Haq & Anwar, 2016; Radaelli, Lettieri & Masella, 2015).

Lastly, the provision of effective and efficient health care is provided through medical teams. Hence, there is a need for collaboration and knowledge sharing amongst team members. This can only be achieved if there is trust among team members. Therefore, in this study, culture refers to employee's trust in team work and having confidence in the ability of the team (Ghassemzadeh, et al., 2013). In addition, Zahari et al., (2014) have advised that organisational leadership should conceive and adopt a culture of knowledge sharing so as to make employees understand and appreciate the value of knowledge sharing. This can be achieved by putting in place the necessary initiatives to ensure effective implementation.

Emphasising the importance of organisational culture, Tang (2017) has challenged organisational managers to be innovative and come up with initiatives, which motivate and promote knowledge sharing and exchange to form a knowledge sharing culture. Team collaboration, supportive and oriented culture is believed to have a positive impact on knowledge sharing among health professionals.

Furthermore, as part of organisational culture, the organisational structure has been identified as having a huge impact on the success or failure of knowledge sharing initiatives. Arzi et al., (2013) have emphasized the need for the organization to provide opportunities for employee interactions at all levels. They emphasized the need to ensure that organisational hierarchy and seniority are not hindrances to effective knowledge sharing. A sentiment shared by Sensuse et al., (2016) who pointed out that organisational culture can either be a barrier or enabler of knowledge creation and sharing depending on how it is structured within the organisation.

In conclusion, it has been pointed out that although individual factors have an influence on knowledge sharing, organisational culture (factors) have a far stronger influence for effective knowledge sharing (Ghassemzadeh et al, 2013). Knowledge sharing initiatives should be part of organisational culture (wide strategy) where all employees are engaged in knowledge sharing initiatives or agenda.

2.6 IMPACT OF KNOWLEDGE SHARING ON HOSPITAL PERFOMANCE

The emergence of complex and rare diseases in recent years and the limited budget allocations is pressurising hospitals to deliver quality health care services with limited resources. Therefore, the sharing of the hospital's knowledge resources is believed to be a critical issue to help hospitals attain the desired results. To achieve safe and quality patient care, hospitals need to integrate the different medical expertise at its disposal to come up with innovative ways of medical diagnosis, care and treatment. According to Zahari, et al, (2014), the sharing of knowledge is very critical for improved organisational performance because shared knowledge stay with the giver, while enriching the receiver and breeding new ideas. The performance of an organisation is dependent on the effective sharing of its knowledge resources.

Many studies (Ngah & Ibrahim, 2011;Hamouda, et al, 2015; Bhatti, Latif & Rao, 2014; Shahmoradi, Safadari & Jimma.,2017;Radaelli, Lettieri & Masella, 2015) have shown that

knowledge sharing can lead to improved organisational performance through improved service delivery, as well as providing employees with opportunities for learning, which improves employee's competencies. In addition, knowledge sharing helps in improving organisational internal work processes (Zahari, et al., 2014).

According to Ngah and Ibrahim (2011), there is a direct positive relationship between knowledge sharing and organizational performance. Zyngier, Burstein & McKay., (2006) and Molete, Dehinbo & Dehinbo, (2015) found that where there are systems in place to capture, use and re-use the experiences of others, there is innovation and creativity leading to improved service delivery and overall organisational performance. Therefore, it is believed that sharing of knowledge in hospitals is not only beneficial to the hospital's performance, but can lead to the improvement in the quality of services the hospital provides to patients, which, in turn, translates into enhancement of the health of the whole community (Sharafian, Shokrpour & Salehpour, 2014; Nicolini, et al., 2008). This means that effective knowledge sharing can make a significant impact on the organisation's overall performance in the long run; hence organisations should strive to overcome the challenges in order to reap the rewards.

Even though the importance of knowledge sharing is highly emphasised in many studies, the review of literature (Adeyelure, Kalema & Motlanthe, 2019; Asemahagan, 2014; Okoroji, Velu & Sekaran, 2013; Gebretsadik, et al., 2014) revealed that it is poorly practised in developing countries. According to Asemahagan (2014), medical professionals in resource limited countries are not effectively sharing their knowledge and this behaviour has been identified as the main reason for high cases of medical errors and unexpected mortality. To support this observation, researches carried out in a teaching hospital in Iran and in hospitals in Kuwait revealed that knowledge sharing is poorly practised in those health care organisations. The findings revealed that there were a lot of restrictions in place for knowledge sharing in the health sector, and this situation has been identified as the reason for the inefficient use of knowledge resources within health care organisations (Acharyulu, 2011).

Furthermore, Bolarinwa, Salaudeen and Akande (2012), observed that while knowledge sharing practices are extensively employed in business and other sectors, their use in the health sector has been very limited, especially in developing countries where their application has been very low as shown by the lack of cited literature on their use in developing countries.

Another study by Alajimi, Marouf and Chaudhry (2015) of doctors in hospitals in Kuwait in 2015, revealed that knowledge sharing among medical practitioners is not effective as little attention was paid to the activities that promote knowledge sharing among medical practitioners.

2.7 PLATFORMS/MEANS USED IN KNOWLEDGE SHARING BY MEDICAL PRACTITIONERS

Knowledge is shared in many ways in an organisation. It can be done through verbal discussions among professional colleagues, team interactions, studying of procedure manuals, meetings, socialisation, mentorship programmes or the use of modern communications technologies. According to Azad (2015:01), socialisation is the process whereby new professionals gain relevant knowledge and skills as they interact with professionals in a social group. Several studies (Okoroji, Velu & Sekaran, 2013; Koushazade, Omidianpoor & Zohurian 2015; Moahi & Bwalya, 2017; Ashwini & Harinarayana, 2015) show that the most common and effective platform for knowledge sharing is information communications technology tools, such as social networking tools (Facebook, LinkedIn, & Twitter) and internet applications, such as e-mails.

According to Tabrizi and Morgan (2014), knowledge sharing is made possible through knowledge sharing means. According to the knowledge sharing model, these are platforms which facilitate the transmission or dissemination of knowledge from the source to the receiver or between two people. Knowledge sharing means are divided into two main categories of technology based and Non-technology based platforms. It is important to note that although technology is critical to enable knowledge sharing, it is not the only means. Knowledge sharing can be done using traditional Non-IT means, such as face to face interactions and communications, training, meetings, discussion forums, communities of practice and professional seminars and conferences. Asemahagan (2014: Background) also points out that medical teams share knowledge through lecturing, questions and answer sessions, practical demonstrations, discussions, internet, video and audio conferencing. Knowledge is also shared through mentorship programmes between team members where senior doctors mentor junior doctors (Sibbald, et al., 2013; Acharyulu, 2011).

In addition, like other professionals, medical professionals take advantage of the opportunities presented by information communications technology tools for knowledge sharing as they are perceived to be much cheaper, faster, convenient, and can reach many people anywhere any time.

Examples of ICT-based platforms used in knowledge sharing are internet based tools and social media like Facebook, LinkedIn, Academia.edu, Skype, telemedicine and others. In recent years, social media networks have become very popular amongst professional groups and there are the most preferred means to create and share knowledge among communities of practice. Social network sites enable people to connect with each other online irrespective of time and geographical locations, thus providing convenience to the users (Alhalhouli, Hassan & Abualkishik, 2013; Al Ma'aitah, 2008; Usman, 2015).

Extant literature shows that knowledge sharing can be done through different means within an organisation with some being social interaction tools at individual level, while others are wide organisational tools. For example, Koushazade, Omidianpoor and Zohurian (2015:130) warn that although technology enables knowledge sharing, it is only a tool that aids organisational information flow and cannot create knowledge. For knowledge sharing to be effective for both the individual employee and the organisation, it is important that the right platform is chosen.

2.8 CHALLENGES FACED BY MEDICAL PRACTITIONERS IN KNOWLEDGE SHARING

Although knowledge sharing has been identified as a critical component for improved organisational performance, empirical evidence has revealed that it is still a challenge facing many organisations. According to Ashwini and Harinarayana (2015:17), investigations show that knowledge sharing practice is still not an obvious organisational reality as there are many issues hindering its effectiveness.

A review of the literature revealed three main categories of the challenges impacting knowledge sharing in organisations. These are; individual, organisational and technological barriers. Okoroji, Velu and Sekaran (2013), Moahi and Bwalya (2017), Asemahagan (2014) and Alhalhouli, Hassan & Abualkishik (2013) have identified that there are challenges which hinder effective knowledge sharing by medical practitioners in most health care organisations. They also argue that these challenges are similar, especially for resource limited countries. These challenges are discussed below.

2.8.1 Individual Barriers

A review of literature has revealed that there are challenges or barriers hindering employee's effective knowledge sharing at an individual level. These barriers pose a significant challenge to organisations because the success of knowledge sharing is mostly dependant on the individual's willingness to share knowledge. This is because it is the organisational employees who are the knowledge creators. Thus, it is important that barriers hindering knowledge sharing at individual level are identified and addressed to ensure the success of knowledge sharing initiatives. The literature has also revealed a number of challenges which impact knowledge sharing at an individual level, such as lack of time, lack of confidence or fear, poor communication, age difference, gender, educational status, cultural differences, language barriers, knowledge gap, lack of motivation, poor salaries, physical distance, patient load and isolation. These challenges have been identified to have a significant impact on the success of knowledge sharing in organisations because, as previously discussed, knowledge sharing is dependent on the willingness of individual employees. Hamornik and Juhasz (2010:108) have made a very interesting discovery as they identified that in comparison to other professions in high risk environments, the structure of medical teams is much more hierarchical. Hamornik and Juhasz (2010:108) found that "there is an important status difference between doctors and nurses and these differences influence their communication, thereby leading to decreased horizontal communication and less needful interrelations". In addition, this structure puts more emphasis on leadership, which has a negative impact on the medical team's shared cognition and knowledge sharing as doctors feel superior to nurses and this affects team relations as doctors prefer to share knowledge with other doctors rather than with nurses.

Moreover, it has been found that lack of trust is one of the main factors hindering effective knowledge at individual level. Shahid and Alamgir (2011) found that trust among the knowledge possessors plays a crucial role in knowledge sharing because sometimes some employees tend to doubt the quality and credibility of the knowledge career or source which leads to poor knowledge sharing. The same discovery was made by Badimo and Buckley (2014), while conducting a study of improving knowledge management practices in South African health care system. The study found that lack of trust and open-mindedness among employees were the main hindrances to knowledge sharing in the department. In addition, time constraints has been identified as the

biggest impediment to knowledge sharing. This is because, in most cases, medical practitioners are overwhelmed with work pressures; thereby fail to engage in knowledge sharing activities (Adeyelure, Kalema & Motlanthe, 2019).

2.8.2 Organisational Barriers

A review of literature has revealed another category of barriers believed to impact knowledge sharing at the organisational level. These include poor leadership, lack of recognition and incentive system, poor corporate culture, communication flow and organisational structure, lack of staff recognition, resource shortage, poor infrastructure, lack of knowledge repository and conducive working environment. Leadership has been identified as one of the key factors impacting the success of knowledge sharing in an organization. According to Adeyelure, Kalema and Motlanthe (2019), leadership plays a crucial role in developing organisational plans and enforcing decision making in organizations. Therefore, it is very important that the organisational leadership provides proper coordination and management of knowledge sharing initiatives and strategy. Unfortunately, a review of literature has revealed that because of poor leadership approach, most employees are not aware of the importance of knowledge sharing which tends to be a barrier to knowledge sharing. Studies by Gebretsadik et al., (2014) and Okoroji, Velu and Sekaran (2013) have revealed that there is poor leadership in most health care organisations, which is a result of poor knowledge sharing practices.

In addition, some studies have revealed that the lack of reward and recognition is another barrier impacting knowledge sharing within an organisation. A study by Okoroji, Velu and Sekaran (2013) ranked lack of rewards and recognition at number two in terms of importance of the factors influencing employees to share knowledge. This shows that rewards and recognition should be taken seriously in order to motivate employees to share knowledge. Furthermore, lack of resources has been identified to have a negative impact on knowledge sharing. Several studies (Badimo & Buckley,2014; Adeyelure, Kalema & Motlanthe, 2019; Okoroji, Velu & Sekaran, 2013; Gebretsadik et al., 2014; Asemahagn, 2014: Background; Olok, Yagos & Ovuga, 2015; Makhanya,2018) have revealed that shortage of human resources and inadequate ICT resources are hindering effective knowledge sharing by employees in health care organisations. The same findings were made by Gider, Ocak & Top, (2015) while conducting a study on the perceptions of physicians about knowledge sharing barriers in the Turkish health care system. The findings

revealed that inadequate resources was a hindrance to effective knowledge sharing among physicians.

According to Sibbald et al., (2013), organisational culture and structure is key in supporting knowledge sharing initiatives. Culture has been identified as one of the key factors that can enable or impede knowledge sharing. Despite this, Gider, Ocak and Top (2015), Nicolini et al., (2008), Asrar-ul-Haq and Anwar (2016), have revealed that there is poor knowledge sharing culture in most health care organisations, and this is considered a major barrier to the success of knowledge sharing initiatives.

2.8.3 Technical Barriers

In addition to individual and organisational barriers, there are those barriers which are technology related, such as poor information technology infrastructure, unreliable internet connection and poor equipment maintenance, systems failure, interoperability issues, and acceptance and user friendliness of the system. Several studies (Hamouda et al., 2015; Badimo &Buckley, 2014; Olok, Yagos & Ovuga, 2015) have shown that technology is an enabler to successful knowledge sharing; hence the lack of ICTs can have serious consequences for health care organisations. According to Moahi and Bwalya (2017:61) "health care professionals especially in developing countries in most cases find themselves isolated in rural areas where the infrastructure to enable knowledge sharing such as computers and internet connectivity are often non-existent or obsolete and not adequate".

In addition, the lack of skills to use ICTs is a serious challenge facing health care organizations. A study by Hamouda, et al (2015) found that there was lack of ICTs skills amongst medical practitioners, which created a dilemma leading to staff abandoning such tools as health information systems and computerised patients records systems. The same issue was made found by Olok, Yagos and Ovuga (2015), while conducting a study of Knowledge and attitudes of doctors towards e-health use in health care delivery in government and private hospitals in northern Uganda. The study found that the level of ICT skills demonstrated by medical practitioners was likely to be a major hindrance to the use of ICT. Lastly, access to ICT tools has also been identified as one of the major hindrances to knowledge sharing. This according to the literature is mostly prevalent in developing countries. Seven studies (Badimo & Buckley,2014; Adeyelure, Kalema & Motlanthe, 2019; Okoroji, Velu & Sekaran, 2013; Gebretsadik et al., 2014; Asemahagan, 2014; Olok, Yagos

& Ovuga, 2015; Makhanya,2018) conducted in four developing countries of Ghana, Ethiopia, South Africa and Nigeria highlighted the lack or shortage of ICT tools as the major barrier to knowledge sharing amongst medical professionals. Furthermore, a study by Asemahagan (2014) also reported that poor ICTs access hinders effective knowledge sharing.

In conclusion, the literature has highlighted that for medical care organisations to maximise the benefits of their knowledge assets, there is a need to identify and understand the barriers impacting knowledge sharing in order to come up with effective measures to address such challenges. This would help in improving efficiency in service delivery and reduction in medical errors. This can be achieved by cooperation and commitment by all stakeholders involved in hospital health care.

2.9 THEORIES OF KNOWLEDGE SHARING

Research on knowledge sharing in organisations has drawn from a number of theories. The development of knowledge sharing theories started with the social exchange theory by Homan in 1958, which is commonly used in studying knowledge sharing behaviour of individuals or interpersonal interactions (Lin, Cheng & Wu, 2004; Jinyang, 2015). This theory posits that the sharing of knowledge between individuals is dependent on the cost-benefit analysis (Kim & Park, 2017; Lin, Cheng & Wu, 2004; Jinyang, 2015; Liu et al., 2011). From the social exchange theoretical perspective, social exchange is defined as the "transactions or relationships between two or more parties. For example, relationships between employees and their employer or organization that involves unspecified future obligations for which future repayment or return is expected for the contribution made" (Kim & Park, 2017:03).

According to the social exchange theory, the process of knowledge sharing is a social exchange between individuals within an organisation hence individuals determine their interactions with others. These interactions between individuals are dependent on the perceived benefits for the individual, hence they can choose to share or not to share depending on the benefit to be derived from the interaction (Kim & Park, 2017; Lin, Cheng & Wu, 2004; Jinyang, 2015; Liu et al., 2011). This benefit or economic exchange can motivate individuals to engage in a social relation with others by sharing their knowledge. The main factors which determine the sharing of knowledge in this theory are cost, benefit, outcome, satisfaction and dependence. This theory posits that the

sharing of knowledge between individuals is dependent on the benefit, satisfaction and outcome, which the individual will get from such exchange against the cost of engaging in such an exchange.

Another commonly used theory in studying knowledge sharing is the theory of Reasoned Action (TRA) developed by Fishbein and Ajzen in 1967. This theory seeks to explain an individual's voluntary behaviour and explain the relationship between attitude and human behaviour in the knowledge sharing process. This theory seek to understand an individual's basic motivation to perform an action or engage in an activity. The TRA states that the knowledge sharing behaviour of an individual is determined by the individual's pre-existing attitude, behavioural intention and subjective norm (Bock & Kim, 2002; Reychav & Weisberg, 2009; Rahab & Wahyuni, 2013; Mahmood, Qureshi & Shabazz, 2011). According to the TRA, knowledge sharing is dependent on the individual's intention to share knowledge, the individual's attitude towards knowledge sharing and his or her subjective norm (Raza, et al., 2015; Ryu, Hee Ho & Han, 2003; Wang and Noe, 2010; Alhalhouli et al., 2013). The factors impacting knowledge sharing in this theory are the individual's attitude, intention and subjective norm.

In addition, there is the Theory of Planned Behaviour (TPB) by Ajzen (1985). This theory was amended in 1991 and it has also been widely used in knowledge sharing research. This theory is an extension of the TRA. Just like the TRA, the TPB suggests that the best way to predict a person's behaviour is through the individual's behavioural intention (Hassan, et al., 2016). In addition to the three variables identified (attitude, intention and subjective norm) to impact knowledge sharing in the TRA, the TPB states that there is a fourth variable of perceived behavioural control, which is have a strong influence on the individual's ability to perform a behaviour as observed by several studies (Goh & Sadhu, 2013; Abdur-Rafiu & Opesade, 2015; Huang & Chen, 2015; Hsien et al., 2014).

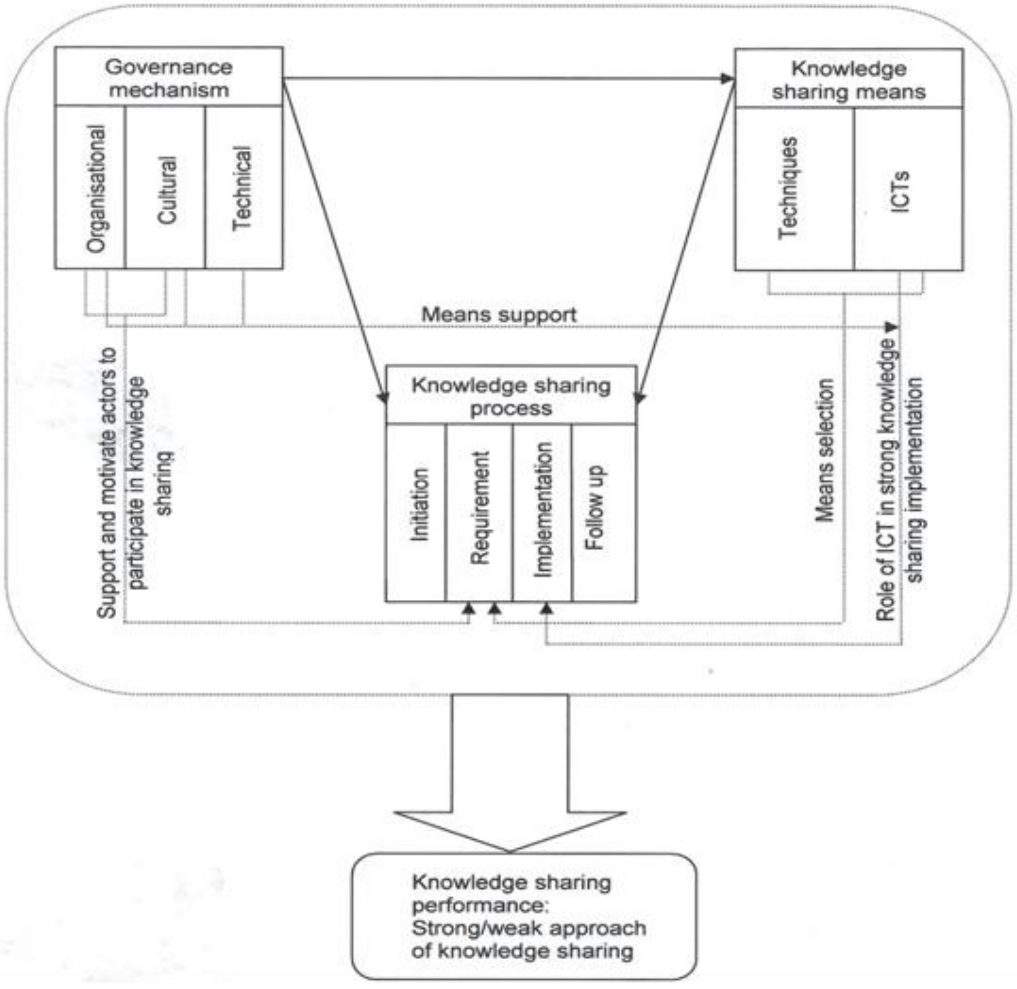
Expanding on the knowledge sharing theories, Tabrizi and Morgan developed a new model through a rigorous search of literature in 2014. This model identified three main factors from the knowledge sharing literature as key factors which have a significant impact on effective knowledge sharing. This discovery led to the development of a new model called the Knowledge Sharing Model. This model was developed by grouping several factors identified in previous studies of knowledge sharing into three key themes and then integrating all these themes into a theoretical framework. This is a relatively new theory and was applied for the first time to study knowledge

sharing in a hospital in the United Kingdom in 2014. There is limited empirical evidence on its application and effectiveness. This model has been adopted in this study to provide further empirical evidence of its relevance and applicability to examine knowledge sharing in a health care facility. The model is shown in Figure 1 below and is explained under the model.

2.10 THEORETICAL FRAMEWORK OF THE STUDY

For the purpose of this study, a **knowledge sharing model** was adopted as it was considered the most applicable to help in addressing the research questions. This model presents the inter-relationships of the various factors involved in patient care in a hospital or the health care delivery process as discussed below. The aim of conducting this study was to explore the knowledge sharing practices of medical practitioners at Princess Marina Hospital.

Figure1: Knowledge Sharing Model (Tabrizi & Morgan, 2014)



As can be seen in Figure 1 above, the three constructs are the main perspectives for effective knowledge sharing. These constructs are knowledge sharing process, knowledge sharing means and knowledge sharing governance mechanisms. These constructs impact on one another as shown by the arrows in Figure 1. Each construct is characterised by various factors, which are the elements that define knowledge sharing.

According to the knowledge sharing model, there is a strong interrelationship between the three main constructs which impact on knowledge sharing performance. The model posits that knowledge sharing performance is influenced by the knowledge sharing means and knowledge sharing governance mechanism on the knowledge sharing process. According to this model, knowledge sharing means have a direct impact on knowledge sharing process. This is because it is the knowledge sharing means (techniques and technology) which facilitate the knowledge sharing process. In addition, knowledge sharing governance mechanism has a direct impact on the knowledge sharing process. It provides an enabling environment and support necessary for effective knowledge sharing. Furthermore, knowledge sharing governance mechanism indirectly influences the choice and usage of knowledge sharing means. Therefore, a strong knowledge sharing performance is highly dependent on these three factors. A balanced relationship of these three factors can lead to a strong knowledge sharing performance in an organisation while an imbalance amongst these factors could lead to a weak knowledge sharing performance.

From the knowledge sharing model, we can see that for effective knowledge sharing to take place, there is a need for a well-structured process to facilitates the activities for it to take place, and this process is in four stages; initiation, requirement, implementation and follow-up. Then there is a need for the means to facilitate the knowledge sharing, which, according to this model, can be in two forms of the technology and the non-technology (techniques) platforms. Lastly, there is the organisational governance structure in which the knowledge sharing takes place, which can be organisational, cultural and technical supporting factors. The arrows in the diagram in figure 1 above show the interrelationships and interdependences amongst these three constructs in influencing the performance of knowledge sharing which can either be weak or strong.

Relating the Knowledge sharing Model to the study, hospital administrators fall into the category of knowledge sharing governance mechanism. This is because they provide the overall support

and motivation to ensure that medical practitioners perform at their best and that patients receive safe and quality health care. Factors/variables impacting knowledge sharing at this level are the organisational culture, technical support and organisational structure. The hospital also has employees in the form of medical practitioners who provide safe and quality care to patients on a daily basis. Medical practitioners create, use and share the knowledge for improved health care. These employees need to be motivated and supported to share their knowledge through rewards and incentives, and the provision of conducive work environment.

Secondly, service provision is provided according to laid down processes and procedures which employees (medical practitioners) have to follow. These include the admission of patients into the hospital, discharge, running of tests, emergency care and others. All these processes feed into each other hence requiring the sharing of knowledge by medical practitioners. The process of knowledge sharing can also be initiated where experienced professionals mentor the new medical professionals. There are also situations where experienced professionals encounter a rare and complicated medical case, he or she has never experienced. This requires collaboration with experienced colleague to solve the case and in this process, the less experienced acquires new knowledge.

Lastly, there is the means in the form of techniques and technologies which are used to enable the process of knowledge sharing. The hospital needs to have ways in which employees interact with each other and in the process share knowledge with peers. These ways could be both formal and informal as well as technology based or non-technology based. These can be through staff meetings, learning sessions, communities of practice, seminars and workshops, knowledge repositories, discussion forums and others. In this study, the researcher used the Knowledge Sharing Model as a lens to explore knowledge sharing practice at Princess Marina hospital.

2.11 SUMMARY OF LITERATURE REVIEW

From the reviewed literature, it is evident that knowledge sharing is an important element to minimise the skills shortage and improve health care, especially in developing countries. It is very important to recognise that knowledge sharing is made up of three main elements, which are the people who create and share the knowledge, and the enabling environment for its effective sharing. Significantly, also the processes for knowledge sharing, as well as the technology and techniques

which facilitate this process. These elements should be balanced for the successful knowledge sharing practices. The next chapter presents the methodology of the study.

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

This chapter presents the research methodology. First, is the introduction followed by research paradigm, study design, population of the study, sampling, data requirements, data collection instruments and procedure, ethical considerations, limitations of the study and a summary of the research methodology.

3.2 RESEARCH APPROACH/PARADIGM

This study adopted an interpretive approach. According to the interpretive paradigm, reality is socially constructed as humanity interacts with the world around it (Antwi & Hamza, 2015:219). There are many realities depending on the environment in which humanity exists and the way they interpret that reality. The interpretive view posits that behaviour of individuals is shaped by their context (the environment in which they exist). That being the case, the researcher believes that knowledge sharing is a social construct, which results from the social interactions of individuals and their environments. Kuhn (1970) posits that interpretive paradigm is concerned with the world as it is, from subjective experiences of the world and that it applies meaning oriented methodologies, such as interviews or participants observations, rather than measurements to support this view. Furthermore, Rahi (2017:01) is of the view that true knowledge can only be obtained by a deep interpretation of the subject or phenomenon; hence the need to study knowledge sharing practices of medical practitioners within context such as Princess Marina Hospital.

In this study, knowledge sharing is believed to result from the interactions that take place between the medical practitioners at Princess Marina Hospital during their provision of health care, which can happen either between medical practitioners themselves or between medical practitioners and their patients. Therefore, the researcher believed that it was appropriate to understand the knowledge sharing practices of medical practitioners at Princess Marina Hospital by soliciting their views, opinions and experiences on how they engage in knowledge sharing within the context of their work environment. This way, the researcher believed that the study would reveal an in-depth understanding of the perception of medical practitioners in relation to the concept of knowledge sharing as applied in their every day work.

3.3 RESEARCH DESIGN

The study is qualitative, and it uses a case study design. This is because the study is aimed at examining the knowledge sharing practices from the perspective of those studied (Anderson, 2010; Griffin, 2004; Atieno, 2009). Qualitative research involves the collection, analysis and interpretation of data that relate to the social world, together with the concepts and behaviours of the people within it, and this data cannot be easily translated into numbers (Anderson, 2010: 01). It focuses more on an in-depth understanding and explanation of some aspects or issues of social life and usually uses words rather than numbers when analysing data (Bricki & Green, 2007: 03; Yin, 2004:06; Anderson, 2010:142; Atieno, 2009:16). The qualitative approach is more appropriate to this study, whose aim was to explore the knowledge sharing practice at Princess Marina Hospital as it is understood and defined by medical practitioners and those who provide direct support to the work they do.

The researcher is of the view that to understand the knowledge sharing practices of medical practitioners, the study subjects should not be removed from their environment. This is because it is the environment in which they exist which shapes their beliefs, actions, perceptions, as well as their behaviours, which, in turn, influences their decisions to share or not to share knowledge. Hence, the adoption of a case study design enabled the researcher to closely examine the data within a specific context. According to Zainal (2007:02), "case studies in their true essence, explore and investigate contemporary real life phenomenon through a detailed contextual analysis of a limited number of events or conditions and their relationships." Supporting this assertion, Yin (2004) pointed out that compared to other research design, a case study has the ability to examine in-depth case within its real context. This description is in line with the main aim of this study, whose intention was to understand the knowledge sharing practices of medical practitioners through capturing their experiences, views and perceptions. Heale & Twycross (2018:07), have described a case study as "an intensive, systematic investigation of a single individual, group, community or some other unit in which the researcher examines in-depth data relating to several variables". Furthermore, a case study has been defined as "a research approach which is used to generate an in-depth, multi-faceted understanding of a complex issue in its real life context" (Crowe et al., 2011:01).

3. 4 OVERVIEW OF STUDY SETTING

The study was carried out at Princess Marina Public Hospital, which is located in Gaborone, Botswana. Princess Marina Hospital is one of the major Public hospitals in Botswana and it is the main referral hospital in the country. The study focused only on Princess Marina Hospital. The hospital is servicing around 37,000 of the city's residents as well as receiving patients from all over the country (Botswana Government, 2011). This means, that the site is a high volume environment, which creates and uses a significant amount of information and knowledge; hence it was considered a good case study for assessing knowledge sharing amongst medical practitioners in the country.

Figure 2. PMH Staff Complement-2019

CADRE	**NO**
Executive Management	4
Medical services	211
Nursing services	655
Allied Services	48
Diagnostic services	38
Human Resources	27
Operations	257
Material supply management	13
Maintenance services	41
Management Information services	16
Biomedical Engineering services	2
Public relations	2
TOTAL	**1314**

Source: PMH Establishment Register-2019

3.4.1 POPULATION OF THE STUDY

The study population comprised 904 different medical practitioners, with a variety of medical background, specialities and experiences as well as of different ethnicities and nationalities. Princess Marina Hospital medical practitioners are comprised of medical practitioners with different professional background, such as medical doctors, nurses, pharmacist, radiographers and medical consultants. For the purpose of this study, the data was only sourced from the hospital's

medical doctors, professional nurses, hospital management, information technology and the library using semi- structured interviews.

The nursing staff comprised nurses of different nursing professions and qualifications, who are registered with the Botswana Health Professions Council and Botswana Nurses Association in order for them to practice in Botswana. This category of medical practitioners ranges from registered nurses and midwives with qualifications ranging from Diploma to Master's Degree. The second category is of medical doctors of varying medical specialities and experiences registered with the Botswana Health Professions Council and in possession of a license permitting them to practice in Botswana. This category of medical practitioners is made up of medical interns, medical officers, resident doctors and specialist doctors. In addition to medical practitioners, the study population included the hospital management and some members of support staff (Librarian and the Information Technology Officer). This category of staff was considered crucial for this study because of the role it plays in knowledge sharing as guided by the adopted Knowledge Sharing Model.

In addition to interviews, the hospital's establishment register and organisational structure provided during the study served as valuable sources of secondary data. Lastly, observations were also employed as another form of data collection. The researcher observed the knowledge sharing practices of medical practitioners by attending two knowledge sharing platforms; namely weekly reporting meeting and shift change. These two platforms provided the opportunity to observe how the sessions are conducted in terms of knowledge sharing and observing the level of interaction between doctors. The main aim of observation was to observe the sitting arrangement of participants, as well as observe how sessions are conducted. In addition, participant's behaviours were observed during the session by observing their reactions as they engage and interact with each other. Observation served as an opportunity to validate data gathered through interviews.

3.5 SAMPLING AND SAMPLE SIZE

The researcher undertook a familiarisation tour of the hospital and arranged an introductory meeting with two departmental matron, three ward matrons and two departmental heads using the hospital's Establishment Register. This familiarisation tour was meant to understand more about the structure of medical departments at Princess Marina Hospital in order to identify participants

for the study. From this meeting, it was evident that the hospital has a big establishment and a diverse and complex structure making it difficult to study the entire population. Therefore, the researcher narrowed the focus of the study to medical practitioners in the four medical departments or wards of surgery, accidents and emergency, obstetrics and gynaecology and antenatal care as the study population. This decision was taken because it was not possible to interview the entire population as the study population is too big, therefore time consuming as well as labour/resource intensive to test the entire population, hence a sample of few medical practitioners and support staff. This decision is supported by Etikan, Musa and Alkassim, (2016) who pointed out that in all forms of research, testing the entire population is normally near impossible; hence the use of standard practice, which is to sample a balanced representation of the entire population.

Furthermore, the complex nature of Princess Marina Hospital made probability sampling difficult as data collected from the Establishment Register was arranged in no order making it difficult to identify which department the medical practitioners belonged. Furthermore, the target population works different shifts and rotates across the various medical wards; thereby making it difficult to secure a scheduled appointment. All these factors made it difficult to employ any form of probability sampling hence the researcher adopted convenience sampling to identify medical practitioners available to participate in the study.

Convenience sampling is a non-probability sampling technique, where members of the target population that meet certain practical criteria, such as easy accessibility, geographical proximity, availability at a given time or the willingness to participate are included for the purpose of the study (Etikan, Musa & Alkassim,2016). Supporting this statement, Showkat and Parveen (2018) pointed out that in convenience sampling, the researcher chooses subjects who are readily accessible or available as per their own convenience. This definition correctly explains the scenario that led to the researcher adopting the use of convenience sampling, as it was very difficult to employ other forms of sampling due to inaccessibility and unavailability of the study population. Hence, the only form of sampling most appropriate was convenience sampling as it allowed the researcher to choose participants who were available and willing to take part in the study.

In addition to medical practitioners, data was collected from some members of management and two support departments through a sampling technique known as purposive sampling. This was through conducting interviews with some selected members of the hospital management

comprising the deputy hospital superintendent, matron, one medical departmental head, head of IT and a librarian. These categories of staff were purposely selected because of their positions and the functions they play in the management of the hospital, as well as the roles they play in the knowledge sharing process as per the adopted knowledge sharing model. This form of sampling has been employed in other studies such as a study by Okoroji, Velu and Sekaran (2013), Zhou and Nunes, (2012) and Kothari et al., (2012). According to Etikan, Musa and Alkassim (2016), purposive sampling or judgement sampling is where the researcher chooses or targets participants deliberately due to the qualities the participants possess in relation to the study subject, which is the reason that this study targeted the identified participants.

Table 1. Study Participants

Category	**Designation**	**Number**
Management	Deputy Hospital superintendent	1
Management	Chief Matron	1
HoD	Head of Surgery	1
ICT	Head of -ICT	1
Library	Librarian	1
Medical Practitioners	(Doctors +Nurses)	11
Total		**16**

3.6 DATA REQUIREMENTS

For an in-depth understanding of the knowledge sharing practices of medical practitioners at Princess Marina Hospital, there was a need to collect a variety of data or information to help describe the phenomenon being studied, such as contextual, demographic, as well as perceptual as presented in Table 2 below (Bricki & Green, 2007:21). Contextual information, such as the hospital's organisational structure and establishment register, were reviewed. In addition, demographic data, describing the background of the participants, such as their occupation, age, qualification, gender and ethnicity, were also recorded. Furthermore, perceptual information were collected through interviews to get the perceptions, views and experiences of participants as they share knowledge with colleagues. Finally, the researcher observed the interactions of medical

practitioners across the various levels during knowledge sharing sessions of shift change and quality assurance meetings and experienced how medical practitioners share knowledge.

Table 2: Data Requirements

Research questions	**Types of information to collect**	**Sources of information**	**Data collection instruments**
What are the processes of sharing knowledge at Princess Marina Hospital	Contextual data (understand the context in which the study participants or our sample operate from	Medical practitioners	Observations interviews
How is the knowledge sharing practice governed at Princess Marina Hospital?	Contextual information Perceptual	Medical practitioners	Interviews Observations
3. How effective is the knowledge sharing at Princess Marina Hospital?	Contextual and Perceptual Information	Medical practitioners	Interviews Observations
4. What knowledge sharing means and platforms are used by medical practitioners at Princess Marina Hospital?	Contextual and perceptual data	Hospital administrator, Medical practitioners	Interviews

What are the challenges that hinder effective knowledge sharing?	Contextual and Perceptual information	Medical practitioners Hospital Administrator	Interviews

The table above presents the various forms of data collected and the different data collection instruments used to collect such data in response to the research questions. According to the above table data such as demographic, contextual and perceptual data was collected from study participants which comprise of medical practitioners (doctors and nurses), hospital management and support staff.

3.7 DATA COLLECTION INSTRUMENTS

To effectively explore the knowledge sharing practices of medical practitioners at Princess Marina Hospital, qualitative data collection instruments were used. The data was collected through semi-structured interviews. According to Abawi (2013), a semi-structured interview is an interview comprising a number of planned questions, but unlike structured interview, the researcher has more freedom to modify the questions as he or she deems appropriate. Semi-structured interviews were deemed relevant and appropriate for this study because of the need to get an in-depth understanding of the knowledge sharing practices of medical practitioners within the context of Princess Marina Hospital. Open-ended questions were preferred in order to engage the participants fully in the conversation in order to get their views concerning the process they use in sharing knowledge with their co-workers. To be able to achieve this, contextual, demographic and perceptual data was needed. Similar studies (Asemahagn, 2014; Gebretsadik, et al., 2014; Badimo & Buckley, 2014 and Adeyelure, Kalema & Motlanthe, 2019) were conducted using the same strategy. In addition, observation of participant's interactions and communication was conducted to get a clearer understanding of the process of how they share and impart knowledge. Each of the data collection tools used are explained in details in the following section;

3.7.1 Interviews

Face-to-face interviews were conducted with identified participants through convenience sampling technique. It comprised 11 medical practitioners. In addition, 2 members of the hospital's executive management, 1 head of medical department, a librarian and the head of the Information Technology. Although the study was focusing on assessing the knowledge sharing practices of medical practitioners, other categories of staff were selected because of the role they play in knowledge sharing as presented in the adopted knowledge sharing model. Furthermore, they were selected in order to get a balanced view of knowledge sharing as experienced across the various levels of responsibilities. The interview was semi-structured to capture data that provides an in-depth understanding of the phenomenon through engaging the respondents on an extensive discussion of the phenomenon. Interview is one of the most commonly used instruments in data collection for qualitative study as it is believed to provide rich descriptive data, which gives a deeper understanding on the personal experiences of participants in relation to the phenomenon (Gill, Stewart & Chadwick, 2008; Panahi, Watson &Partridge, 2012; Sibbald, et al., 2013). In addition, similar studies, such as a study by Tabrizi and Morgan (2014) in a hospital in the United Kingdom, employed the same technique. Adeyelure, Kalema and Motlanthe (2019) in a study of a South African hospital also used interviews to collect data.

3.7.2 Observations

In addition to interviews, data was also collected through observations. First, the researcher was invited to the morning weekly reporting meeting and shift change and had an opportunity to experience real life interactions and discussions between medical practitioners. Observation is one of the data collection tools used in qualitative research to observe the behaviour of research subjects in relation to the phenomenon being studied. Observation provided an opportunity for the researcher to collect data on a wide range of participants' behaviours, to capture their interactions and to explore the participants' knowledge sharing practices in real situations. The researcher observed how knowledge is shared by medical practitioners through their interaction, discussion of cases and sharing of ideas and experiences during their morning case reporting and shift change. Each department has scheduled weekly case reporting meetings where the head of the department chairs and directs proceedings of the discussions. In addition, there are three shifts a day at the hospital and in each shift, there is a team leader who arranges for case briefings between those

knocking off and those coming in to provide a platform for handing over of cases and sharing of patient experiences and observations to ensure continuous and seamless patient care.

3.8 DATA COLLECTION PROCEDURE

Data was collected after attaining a research permit from the University of Botswana Institution Review Board, Ministry of Health and Wellness and finally Princess Marina Hospital. Data collection was done by the researcher and was conducted in two phases. First, an appointment was requested with the public relations unit of Princess Marina Hospital and the Human Resources department to understand the structure of the hospital and get the required documentation (establishment register and organisational structure), as well as contact personnel in medical departments/wards.

Appointments were made with contact people who then invited the researcher to their morning reporting session for an introductory meeting in the selected wards/departments. It was through these meetings that the researcher briefed the participants about the study and arranged for interviews with those who were willing to take part in the study. These meetings, although formal, are relaxed and very interactive. Medical practitioners and heads of wards engage on topical medical issues to share their experiences, opinions and expertise. The interviews were scheduled as per the participants' availability and preferred location within Princess Marina. All interviews were face-to face where the researcher asked questions and wrote notes as the interviewee responded to the questions. In addition to writing down the participant's responses, the researcher also observed and captured the participant's reactions and expressions/mannerism (body language) as they responded to questions and participate during the quality assurance sessions.

As part of the preparations for data collection, a written interview guide was prepared to guide the interview process and it was given to participants before the start of the interview for their appreciation, but there were some additional questions coming up during the interview. Data collection was done in two phases, first interviews were scheduled with medical doctors and nurses while the second phase was focusing on management, the library and the ICT department. In addition, the researcher was invited to sit in during one weekly reporting meeting and one shift change.

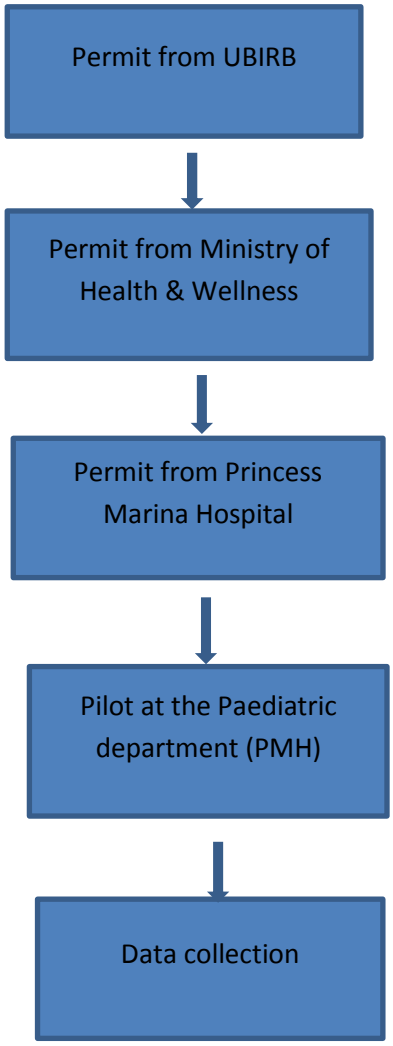


Figure 3: Data Collection Procedure

3.8.1 Piloting of Data Collection Instruments

To ensure that the relevant information was collected to achieve the objectives of the study, data collection instruments were piloted at the Paediatric department within Princess Marina Hospital. This department was chosen as the suitable piloting site because it had similar study subjects and similar work processes as the study location. The piloting of data instruments played an important role as it helped the researcher to review the instruments and the necessary amendments were made before rolling out to the whole hospital. Piloting of data collection instruments helped to improve the research instrument. Firstly, piloting of the data collection instruments helped the researcher to assess the level of understanding of the questions by the participants, which resulted in the

review of the questions to make them simple to understand by all. Secondly, the piloting of instruments gave the researcher an idea of how long it would take to administer the interview which led to the researcher combining some of the related questions in order to reduce the number of questions and time spent in one interview. Care was taken so that the amendment did not compromise the quality of the study.

3.8.2 Challenges Encountered during Data Collection

As with any other studies, the researcher experienced some challenges during data collection. During the initial visit and presentation to the participants in the introductory meetings, many medical practitioners showed interest in participating in the study and even scheduled interviews with the researcher. However, when the time came for the actual interviews, many kept on postponing the interviews, others ended up withdrawing from participating in the study. Most of the reasons given were lack of time to participate in the study and busy work schedule and even for those who attended the interviews some ended up rushing through the interview as they had competing priorities. Similar challenges are highlighted by Panahi, Watson and Partridge (2012) who pointed out that access to medical practitioners was the most difficult part of their research due to their busy work schedule. Therefore it is difficult to get them to participate in a non-medical research. Despite all the above challenges, the researcher was able to collect valid data, which enabled the answering of the research questions.

3.9 DATA ANALYSIS

Data collected was mainly unstructured and text-based. The researcher employed an inductive approach to analyse the data using a technique known as thematic content analysis as suggested in the literature (Noble & Smith, 2014; Wong, 2008; Burnard, et al, 2008; Flick, 2013 & Kawulich, 2004). This approach was chosen because there is no empirical evidence of the phenomenon being studied. Therefore, raw field data collected from interviews was used to develop the structure of analysis guided by the research questions and the theoretical framework.

The data was analysed immediately after collection by reading through the scripts trying to make sense of the data. Firstly, a list of data categories was developed through continuous reading and close examination of the interview scripts. Secondly, broad data categories were identified by combining concepts with similar features or relationships as guided by the research questions.

From the categorised data, emerging themes were identified informed by the research questions and some themes were adopted from the literature. Identified themes were categorised into labels and key factors under each category were identified by continuous reading of the field data until the researcher was satisfied that there were no more key issues emerging (Hesse-Biber, 2010). Finally, data relationships and dependencies were established under the categorised data and major themes were defined and reported as key findings of the study.

3.10 ETHICAL CONSIDERATIONS

Ethical standards are very important in any research, and this study is no exception. The medical profession observes strict ethical code of conduct, hence the issue of professional ethics and conduct are held in high regard. Medical professionals are expected to uphold such ethics, failure to which can result in the suspension or even cancellation of practice license. In addition, there is the issue of doctor-patient confidentiality and trust, where the patient information is protected from third party access. These issues can hinder participants from answering some of the questions for fear of violating their code of ethics. Hence, the researcher observed all ethical requirements as outlined in the research permit while conducting this research.

3.10.1 Informed Consent

Before the study could begin, the researcher sought consent from the participants through a brief meeting explaining the purpose and importance of the study, and what was required from them, as well as their rights. Consent forms were explained and issued to all individuals, who showed interest to participate in the study in duplicate, one copy for the participant and the other copy was for the researcher.

3.10.2 Confidentiality and Security of Personal Information

In addition to seeking participant's consent, all data and information collected during data collection and all throughout the cause of the study was safely stored. The entire interview scripts were stored safely to ensure confidentiality of sensitive information. There was no third party access to collected data as data collected during interviews were accessed by the researcher only. Furthermore, the researcher had the obligation to respect the confidentiality of the participant's

data. Therefore, the use of codes was adopted to protect the identity of the participants and all information-identifying individuals was safely stored.

3.11 LIMITATIONS OF THE STUDY

The study investigated the knowledge sharing practices of medical practitioners of Princess Marina Hospital only. Therefore, the findings cannot be generalised to represent the medical population in Botswana. In addition, the complex nature of the structure of Princess Marina Hospital made the application of probability sampling difficult; hence the use of convenience sampling which limited the generalisation of the study only to Princess Marina Hospital medical practitioners.

3.12 SUMMARY OF METHODOLOGY

This chapter presented a detailed account of the research methodology and research procedures applied in this study. The study was qualitative and employed a case study design. It was carried out at Princess Marina Hospital targeting medical practitioners as the study subjects. The study employed two non-probability sampling techniques known as convenience and purposive sampling to identify study subjects and collected data through interviews and observation. Thematic content analysis was used to analyse data, which was unstructured and text-based, and data relationships and dependencies were established for a clear understanding of the knowledge sharing practices of medical practitioners at Princess Marina Hospital.

CHAPTER 4

RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter presents the findings of the study. Data was collected through face-to-face interviews with medical practitioners, some members of the hospital management and two members of the support departments working at Princess Marina Hospital. In addition, data was collected through observations of knowledge sharing sessions, such as weekly reporting and shift change meetings. The findings are organised as per the research objectives. The purpose of the study was to explore the knowledge sharing practices of medical practitioners at Princess Marina Hospital. The specific objectives were to

- Describe the knowledge sharing processes at Princess Marina Hospital
- Examine the knowledge sharing governance mechanism at Princess Marina Hospital
- Establish the impact of knowledge sharing at Princess Marina Hospital
- Describe the knowledge sharing means/platforms at Princess Marina Hospital
- Identify the challenges faced by medical practitioners with regard to knowledge sharing at Princess Marina Hospital.

The chapter has three sections comprising of the demographic details of the participants, followed by the presentations of the findings as per the research objectives and finally, a summary of the key findings.

4.2 DEMOGRAPHIC DETAILS

Table 4.2.1: Distribution of Study Participants

No	Department	No of Interviewees
1	Surgical ward	3
2	Accidents and Emergency	3
3	Obstetrics and Gynaecology	3

4	Antenatal	2
5	Management	2
6	HoD	1
7	Library	1
8	IT Department	1
	Total	**16**

Table **4.2.1** shows the distribution of participants who took part in the study according to the departments. Eleven were medical practitioners, two were members of executive management, and one was a head of department, while two were members of the support departments of library and Information Technology. These figures show that a total of 16 employees participated in the study. Regarding the gender of the participants, 9 (56.2%) were males and 7 (43.7%) were females. In terms of nationality, 11(68.75) were Batswana while 5(31.25%) were foreign nationals/expatriates. All the five foreign nationals were specialist doctors. This is worrisome if it means that the hospital is dependent on foreign nationals for specialised medical care, which can leave a huge gap when they return to their country thereby compromising the efficient delivery of health care.

Table 4.2.2. Participants Profiles

Measure	**Items**	**Frequency**	**%**
Career/Profession	**Medical Practitioners**		
	Specialist	5	31.25
	Resident	1	6.25
	Medical officer	2	12.5
	Registered nurse	6	37.5
	Support Staff		
	I T officer	1	6.25
	Librarian	1	6.25
Experience	Less than 2 years	1	6.25
	2 years-5 years	2	
	6 years-10 years	1	12.5
	Above 10 years	12	6.25
			75
Education	Graduate Degree	6	37.5

	Bachelor's Degree Diploma	9 1	56.25 6.25
	Total	**16**	**100**

Table 4.2.2 presents the profiles of study participants and includes their educational and professional background, as well as experience. As can be seen in the table, nine of the 16 participants were Degree holders, representing (56.25%), followed by six Post-Graduate Degree holders at (37.5%) and only one participant was a Diploma holder (6.25%). On the level of experience of the participants, one (6.25%) had between the ranges of 3 months and 2 years, 2 (12.5%) were between 2 and 5 years, 1 (6.25) between 5and 10 years while 12 (75%) were above 10 years. Furthermore, the findings show that five (5) of the 16 participants were specialist doctors, representing 31.25% of the study participants.

4.3 PRESENTATION OF THE RESEARCH FINDINGS

The findings are presented according to the objectives of the study and a knowledge sharing model was used to guide the data analysis. The model has identified three main factors which impact knowledge sharing in organisations, namely knowledge sharing process, knowledge sharing means and knowledge sharing governance mechanism. These factors informed the objectives of the study and guided the coding and categorisation of the data.

The findings of the study are presented in the next section in line with the objectives of the study.

4.3.1 Objective 1: To Describe the Knowledge Sharing Process at Princess Marina Hospital

The first objective of the study sought to describe the knowledge sharing process in place at Princess Marina Hospital. To gather the required data, fourteen participants comprising of two members of management, one head of department and eleven medical practitioners (nurses and doctors) were asked open-ended questions through interviews in order to get an in-depth understanding of the objective. The findings presented are from the analysis of the statements gathered from the participants during the interview process, and in some instances, the exact words of participants are used. Unlike in common processes of knowledge sharing where the receiver identifies a knowledge need, searches for the knowledge and access the knowledge, the findings

have revealed a different process of knowledge seeking and sharing at Princess Marina Hospital. Data gathered showed that there are standard processes designed to ensure that there is mandatory knowledge sharing and application between medical practitioners at Princess Marina Hospital. These processes are embedded in daily medical work routine, which fosters communication, interaction and collaboration as a way of working rather than waiting for the employee to initiate the process. In addition, data gathered during interviews showed that knowledge sharing takes place through both formal and informal processes. Hence, the findings are grouped into these two categories as discussed below.

4.3.1.1 Formal Processes of Knowledge Sharing

In order to establish whether there are any formal process of knowledge sharing at Princess Marina Hospital, the participants were asked if they were aware of any hospital processes/procedures for sharing knowledge amongst co-workers. This question was very important because it is important that every employee is aware of any organisational operational procedure or policy documents, which are intended to improve organisational performance and service delivery through knowledge sharing. This helps to ensure that all employees are able to deliver on the expectations and job requirements.

Data gathered revealed that the participants were aware of the formal procedures/processes of knowledge sharing in place amongst staff. The participants reported that the hospital has got formal procedures in place to ensure that co-workers and medical department interact, collaborate and share knowledge. For example, when asked if they are aware of any procedures or processes in place at Princess Marina Hospital for knowledge sharing, participant ***PMH-MP04*** said, "*Every medical practitioner is aware of such procedures or else you will not last here, because this is like the first thing you have to know in order to function here*". As can be deduced from the above statement, the hospital has got some laid down procedures, which are an integral part of the medical practice, thus, showing that there is commitment from the hospital management as these are standard requirements. In addition, ***PMH-EM01*** highlighted that all staff are required to know these procedures because they are a requirement for practice for each medical practitioner hence they are taught during new staff induction. Furthermore, ***PMH-HOD01*** pointed out that every medical practitioner is assigned to a medical team, which works with specialist doctors during

doctor's rounds. According to this participant, the idea is for medical practitioners to be engaged in the process and learn from each other, which also helps in their professional growth.

When asked to describe some of the processes and procedures available for knowledge sharing, participants pointed out that there are a number of procedures available for knowledge sharing amongst colleagues. Examples cited by some participants include orientation/induction workshops, job rotations and mentoring. For example, data gathered revealed that there are some procedures on how new medical practitioners joining the hospital are oriented and inducted on the job. To elaborate on this, participant ***PMH-EM02*** emphasised the existence of formal procedures by saying; "*the hospital is working very hard to ensure that every new employee is made aware and fully understands hospital's procedures. We have a very effective induction/ orientation programme in place. This programme is a month long training packaged to provide on the job training for our new nursing staff*". She pointed out that the induction is mandatory for all new employees and revealed that during this period, inductees rotate across various departments to ensure they are capacitated and familiarised with all aspects of nursing. She concluded by pointing out that at the end of the programme, they evaluate the effectiveness of the programme by administering an anonymous induction attendance questionnaire to be completed by all attendees. Comments and suggestions from the questionnaire are used to improve the programme.

The existence of an induction programme for all new employees at the hospital shows that, indeed, all hospital employees are introduced to the formal procedures for knowledge sharing because every employee is taken through an induction programme before they can be assigned to any department.

In addition to an induction programme, the findings have revealed that medical officers rotate across the various medical wards. When asked to outline procedures/processes available in the hospital for knowledge sharing, participant ***PMH-MP07*** said, "*Here nurses are very knowledgeable because the procedure requires that we change wards every two years, so we get to move from ward to ward, therefore, we know the various discipline of medicine*". In support of the above statement, data gathered revealed that medical practitioners (nurses and medical officers) rotate across the various medical wards after every two years. All the participants interviewed showed their appreciation of this arrangement. This procedure is meant to capacitate medical practitioners in all aspects of medical care. Majority of participants revealed that rotating across

medical wards give them an opportunity to familiarise themselves with all aspects of health care, which broadens their scope and knowledge.

In addition, data gathered revealed that for medical doctors, who comprise Interns and junior doctors, unlike for nursing staff, new staff work under the guidance of specialist doctors to induct and orientate them on medical procedures and processes applied in the hospital in relation to how to seek, share and apply knowledge in patient care. Responding to the question on how they share or impart their knowledge to junior doctors, participant ***PMH-MP04*** replied by saying that, "I*t gives me great joy to be able to nurture new ones, taking them under my care. It is very rewarding to have the opportunity to pass what I have learnt in my 26 years of medicine to those who are thirsty for knowledge, but mind you I also learn from them".* When asked how he learns from them, he responded by saying, *"They are the computer generation therefore they are highly inquisitive, always looking for ways to apply technology in modern medicine which is very interesting".*

Furthermore, one respondent highlighted that they share knowledge with each other through working in medical teams. According to the data collected, in order to ensure continuity of care, medical practitioners are required to work in medical teams. This is to ensure that all medical practitioners, with various medical speciality working on a patient, are able to share and discuss the patient's medical condition. This helps in coming up with an appropriate intervention or treatment.

Appreciating her role as a medical team member, participant ***PMH-MP01*** quipped, "*We attend to our patients in teams, which are made up of a specialist doctor, myself as a junior doctor, and a nurse, and this is very good as it helps in understanding how the patient's case is progressing so that we are able to offer the best treatment. Also for some of us who have just started our career, you find that you have never seen such a case before, but through working with more experienced doctors with exposure to diverse medical cases, we get to acquire new knowledge, but not only that, it also build our confidence. This is good because even when specialists are not around we are able to apply the knowledge we have learnt from previous similar cases*". This sentiment was shared by participant ***PMH-MP11,*** who pointed out that sometimes doctors are overwhelmed with many patients, especially at the emergency ward, but they are able to assist patients until the doctor can attend to them through the knowledge and experience acquired from working in medical teams.

Furthermore, participant ***PMH-HOD01*** said *"In addition to working in medical teams, each medical department/ward holds weekly case reporting meetings which is called surgical quality assurance and this is an effective way of discussing cases and another process we use to share medical knowledge amongst medical practitioners. This is a process which looks at specific management of patients to draw learning experiences from their condition*". He went on to explain that these meetings are held on a selected day every week in each medical ward. Medical teams select one particular case, which they have encountered during the week and make a presentation to the rest of staff. This is normally a case considered to provide an opportunity for learning and provide new knowledge and then will make a presentation to the whole team for discussion.

When asked what they think is their role in the process of knowledge sharing as medical practitioners, participant ***PMH-MP09*** laughed and then said, "*What an interesting question, my role is to present interesting cases which I encountered during the week at case reporting meetings to a group of medical experts for discussions. The discussion here is very wonderful; this is where you get to learn from the best in the field, which really broaden, my knowledge of medicine and gives young professionals the opportunity to learn from experienced professionals"*. According to some of the participants, this is one of the formal processes in which knowledge is shared amongst medical practitioners at Princess Marina Hospital.

The data also showed that there is another knowledge sharing process taking place at the medical wards where there are medical briefings before every shift starts. "*A day at Princess Marina hospital is made up of three shifts, which are morning, afternoon and midnight shift, at the end and beginning of every shift, teams knocking off hand over cases to those coming in*" quipped one participant. According to this respondent, this is a process meant to ensure continuity of patient care. Furthermore, data has revealed that there are processes where two medical wards share knowledge on a patient's medical case, who is being transferred from one ward to another. Medical practitioners from these two medical wards are required to share knowledge and observations concerning the patient's medical condition to ensure that there is continuity of care. For example, a patient transferring from maternity ward to internal medicine.

In addition to responses from participants, the researcher was privileged to attend meetings of the two sessions (weekly case reporting and shift briefing) discussed above to observe the proceedings. From the observations made by the researcher, it emerged that sharing knowledge amongst

medical practitioners is taken seriously at Princess Marina Hospital. This is because all the above mentioned processes are strictly adhered to and attendance is mandatory. In addition to heads of medical wards being the ones leading the sessions, the researcher observed that the presentations, discussions and exchange of ideas are done with passion and that although formal, the environment was relaxed.

Furthermore, data gathered revealed that Princess Marina Hospital has got a formal working relationship with two leading private hospitals in the country, namely; Bokamoso and Gaborone Private Hospital in the form of a Memorandum of Agreement. This agreement is tailored to enable interaction and collaboration amongst medical practitioners in the hospitals. In addition, an interview with a librarian revealed that the library plays a role in the knowledge sharing process through the dissemination and sharing of knowledge amongst Princess Marina Hospital employees. The library facilitates knowledge dissemination by ensuring that they acquire collections which support medical care, as well as informing medical practitioners of any new publications related to their job through emails. Furthermore, the library has taken the initiative to make follow ups with medical practitioners to encourage them to deposit their conference materials at the library to be accessed by all.

4.3.1.2 Informal Processes of Knowledge Sharing

Data revealed that there are other processes of knowledge sharing at Princess Marina Hospital, which are informal. Some of the participants revealed that they sometimes prefer to share knowledge in an informal setting, especially in situations where they are not confident or sure of the case. For instance, one junior doctor said, "*Sometimes I am not comfortable to deliberate on a case during our formal weekly reporting meeting because I am not confident enough. Rather I prefer to later seek the opinions of my colleques or share my observations with those we are in the same level during our own time so that if I am wrong, at least I do not look stupid in front of my superiors".*

In addition, some participants revealed that they frequently share and seek knowledge in an informal way because it is easier and faster. For example, one participant revealed that one day he was working a night shift and received a very complicated case, which was an emergency, and it was the first time in his career to encounter such a case. He revealed that unfortunately the

specialist doctor was not in so he called his doctor friend from a different hospital to discuss the case and they were able to come up with the correct diagnosis and provided the right treatment.

In order to establish participant's involvement in the processes of knowledge sharing, participants were asked how often do they share knowledge with co-workers and what kind of knowledge do they share. The findings show that all interviewees across the different levels of authority or position participate in knowledge sharing as they highlighted that knowledge sharing is a must in their practice. One participant who identified herself as a resident doctor, said: "*I share knowledge with co-workers like daily because in my work environment we always encounter emergence of new diseases and also as a resident doctor there is no how I can be a specialist without collaborating, sharing and seeking knowledge from others. Therefore, the job demands collaboration with experienced doctors in my area in order to gain more insight in to the field".* Participants were further asked what kind of knowledge they share. One participant, who works in antenatal ward, responded that she and her co-workers share knowledge on new medical nutritional products, new drugs, new research findings, new medical technology and equipments, conference proceedings and case studies. Other participants revealed that they share knowledge on new drugs, new treatment methods, as well as new research findings, in order to stay informed on new developments in the field.

In summary, the findings have revealed that knowledge sharing is considered very critical in the medical profession and that the nature of the job demands knowledge sharing between professionals. In addition, the findings have revealed that medical practitioners are aware of the procedures available for knowledge sharing and that every medical practitioner is engaged in knowledge sharing.

4.3.2 To Examine the Knowledge Sharing Governance Mechanism at Princess Marina Hospital

The second objective of the study focused on examining the knowledge sharing governance mechanism at Princess Marina Hospital. According to Tabrizi and Morgan's model, one of the main factors for effective or successful knowledge sharing within an organisation is the way in which the process of knowledge sharing is governed. The model claims that an organisation's governance mechanism can lead to the success or failure of knowledge sharing. The model further claims that knowledge sharing governance mechanism is made up of three main aspects or factors,

namely organisational culture, technical support and organisational context. All the three factors need to be balanced in order to ensure knowledge sharing effectiveness within an organisation. Therefore, in this study each of these factors were examined to establish how they apply within the context of Princess Marina Hospital. This was achieved through an analysis of participant's responses to open ended questions which were posed to all sixteen respondents comprising of two members of management, one head of department, eleven medical practitioners, one ICT officer and the librarian as presented in the section below.

4.3.2.1 Organizational Culture

According to the Knowledge Sharing Model, organisational culture is one part of knowledge sharing governance mechanism that is focusing on ensuring that management provides an enabling work environment to motivate employees to seek and share knowledge with each other, as well as strive to build trust amongst medical teams. Therefore, organisational culture in the context of this study, is looking at two key factors, namely: trust and motivation. There is a need to ensure that there is trust amongst medical teams in order for knowledge sharing to take place. In addition, knowledge sharing requires individual participation, hence it is very important that employees are motivated to voluntarily share their knowledge with others. According to Tabrizi and Morgan's model, this can be achieved by providing some incentives, which promote knowledge sharing amongst employees such as organisational rewards. Each of the above two factors are discussed below.

4.3.2.1.1 Trust

Trust among employees is believed to be very important in ensuring the success of knowledge sharing in an organisation. Panahi, Watson and Patridge (2012) have revealed that it is only when employees are comfortable with each other that they can seek knowledge from others, as well as share knowledge with others. Thus, organisations should strive to promote an environment where there is trust amongst employees to ensure that employees are comfortable with each other. Relating this statement to Princess Marina Hospital, data gathered from interviews showed that trust plays an important role in medical practitioner's decision to engage or not engage in knowledge sharing. In addition, the findings have revealed that trust also plays a critical role in deciding on whom medical practitioners seek knowledge from, as well as who to share knowledge with. For example, when asked whom do they share knowledge with and why, participant ***PMH-***

MP07 pointed out that although he shares and seeks knowledge from his team members, most of the time he seeks knowledge only from the people whom he trusts in terms of expertise and experience in a particular medical case. This sentiment was shared by most participants who stressed that patient care is a matter of life and death, hence one needs information and knowledge from a reliable source to avoid unnecessary mistakes, which can be life threatening.

In addition, ***PMH-MP06*** pointed out that; "*For me, I am comfortable seeking knowledge only from the people whom I trust because that way I can use that knowledge for clinical decision without any doubt"*. Furthermore, participant pointed out that they think that for a medical team to be successful in providing patient care, team members need to trust each other because at times we need to make collective emergency medical decisions in order to save lives, but if there is lack of trust, there can be some hesitation, which can delay treatment leading to fatalities which could have been prevented. Therefore, participants believed that it is not the role of management to build trust amongst medical team members, but rather it is the team leader and team members who can put aside their differences and strive to establish trust amongst each other for the common good. When asked if they trust members of their teams, most participants pointed out that they do trust their team members because they share the same goal which is to save lives. Participants also acknowledged that sometimes they differ in opinions on what to do during emergencies. However, they highlighted that they always discuss their views and reach a consensus which is best for the patient. Stressing on the importance of trust amongst medical teams, ***PMH-MP09*** said: "*As team members, you need each other because at times you can encounter a very complicated medical case requiring quick decision, which requires collective team consensus with little time for individual opinion, but collective decision as a unit in order to save lives and you can only achieve that if there is trust within the team".*

In general, the findings presented a general consensus that trust is very important for knowledge sharing to be effective. This sentiment is supported by responses from the management, who highlighted that trust amongst medical team members is very important for improved service delivery because it is only when people trust each other that they can perform at their best.

4.3.2.1.2 Motivation

Several studies (Okoroji, Velu & Sekaran, 2013; Shahmoradi, Safadari & Jimma, 2017; Gebretsadik et al.,2014; Asemahagn, 2014: Background; Hendriks,1999; Radaelli, Lettieri &

Masella,2015;) have pointed out that for knowledge sharing to be effective, organisations should consider providing incentives to encourage employees to voluntarily participate in knowledge sharing activities. Motivation is believed to play a significant role in influencing employees to share their knowledge with co-workers. In this study, the findings have shown that employees are engaged in knowledge sharing activities within the hospital. This can be attributed to the fact that these knowledge sharing activities are mandatory to all employees at Princess Marina Hospital. For example when asked whether they are engaged in knowledge sharing activities and why, Participant ***PMH-MD04*** responded by saying: "*Yes, I am engaged in knowledge sharing activities because they are a must for all employees*". Whether this might be the case or not, most respondents have revealed that they are engaged in knowledge sharing not only because it is mandatory, but also for their own professional growth. Most participants revealed that they are engaged in knowledge sharing because it provides them with an opportunity to learn from others and also help them build confidence in their knowledge and skills.

When responding to a question on what does she think is the benefit of knowledge sharing, participant ***PMH-MP11*** said: "*Although it is mandatory to every employee working in medical wards, for me I do it because it gives me the opportunity to interact and work with other doctors, who, most of them, are well respected in the field. Interaction and collaboration with the best in the field, especially as a resident doctor is a rare opportunity, hence I am always grateful to such encounters*". In addition, participant ***PMH-MP02*** pointed out that knowledge sharing activities are very important to them as doctors because their main aim is to save lives and they can only achieve that through continuous interaction and collaboration with others, which gives them the platform to improve their knowledge and skills.

That being the case, participants pointed out that more needs to be done to motivate more employees to be enthusiastic, while engaging in knowledge sharing activities. For example when asked what they think can encourage employees to engage more in knowledge sharing. Most participants argued that management should come up with some form of incentives which can encourage more people to engage and prioritise knowledge sharing. For example, participant ***PMH-MP03*** responded by saying, "*The problem is that most people think that promotion and salary increment are the major form of motivation, but that is not the case. For example, increasing access to computers and installation of internet in the medical wards can motivate employees to engage in knowledge sharing because it means they will no longer take long time to access*

computers". This sentiment was shared by most participants, who pointed out that compared to private hospitals, access to computers in public hospitals is a serious challenge which hinder effective communication and collaboration. Most participants proposed that the hospital needs to invest more on modern technology to reduce manual systems and improve service delivery. One participant suggested that the hospital should adopt modern technology, which will make communication and collaboration with others more exciting, faster and interactive without necessarily having to be in the same room. For example, participant ***PMH-MP11*** highlighted the need for the hospital to invest in modern ICT by saying: "*Some of our best colleagues are working in other areas making collaboration difficult, but if we have modern communication technology equipments, we can easily connect and work together in real time therefore improving service delivery"*. To emphasise on the importance of modern technology as a motivating factor for knowledge sharing, participant ***PMH*-MP02** pointed out that, "*The hospital is very big and the wards are scattered all over, instead of moving up and down the hospital, we should adopt modern communication tools so that it is easy to connect with others anywhere and anytime, that way I believe more people will be engaged*".

Furthermore, data revealed that the manual system used in the library is also a barrier to knowledge sharing. Participants suggested that the library should be transformed to play a significant role in supporting knowledge sharing initiatives within the hospital like the acquisition of online materials such as medical journals as they provide current information unlike print information materials. This suggestion was welcomed by the researcher, who observed that the library is still operating manually, which is tedious, an inconvenience and time consuming for both librarians and the users.

In addition, data has revealed that team collaboration is another element of positive knowledge sharing culture at Princess Marina Hospital as it is compulsory. Data has revealed that collaboration amongst medical teams also plays an important role in encouraging more medical practitioners to engage in knowledge sharing as some get to work alongside their mentors. To support this statement, data showed that every medical team is made up of medical professionals across the various levels of responsibility, medical expertise and experience and each medical team is led by a specialist doctor (senior doctor). This team collaboration by professionals from varying and diverse medical specialities provides an enabling environment (motivation) for junior doctors, interns and general practitioners to learn from more experienced doctors.

In general, the findings have revealed that the organisational culture is conducive for knowledge sharing. However, there is a consensus that there are some gaps, which need to be addressed by providing some incentives to motivate employees to be passionate about knowledge sharing. In addition, responses from participants showed that trust is very important amongst medical teams in order to provide safe and quality health care. Therefore, there is a need for the management to help medical teams build trust amongst team members.

4.3.2.2 Technical Support

According to the adopted model of this study, technical support is one of the element of governance mechanism that is critical to ensuring the success of knowledge sharing. Technical support is concerned with acquiring the right ICT tools or equipment, ensuring that the available tools are well maintained and that staff are capacitated to make use of the acquired ICT tools to support effective knowledge sharing. To assess the effectiveness of technical support to facilitate knowledge sharing at Princess Marina Hospital, the researcher focused on three main issues namely; the availability of ICT tools, maintenance of equipment and medical practitioner's ICT skills.

4.3.2.2.1 Availability of Equipment/ICT tools

In relation to the availability of ICT tool/equipment, data has revealed that the hospital has adopted the use of ITC tools, such as computers, networked printers, photocopiers, scanners, radiation machines, x-ray machines and application such as patient management system. All this equipment is meant to bring about efficiency in health care delivery.

However, responses from participants have revealed that the available equipment is not adequate. For example, participant ***PMH-MP05*** said that: "*There is a serious shortage of computers in our department as there is only one central computer in each ward, which is shared by all and to make matters worse, it does not have internet connection which is of no help when you need information to assist in making clinical decision*". Supporting this statement, ***PMH-EM 02*** highlighted that they are aware of the shortage of equipment especially computers and printers, in medical wards and they are working hard to source funds to acquire more equipment. Still on the issue of shortage of computers, participant ***PMH-MP09*** said that: "*Imagine you want to search for something urgently and then the other person also wants to do something which is urgent, it is really frustrating".*

Lastly, ***PMH-SD02*** highlighted that the shortage of ICT equipment is a serious concern in the hospital. He pointed out that it is a difficult challenge to overcome as it is a result of inadequate budget allocation, which is not peculiar to Princess Marina Hospital, but it is a challenge affecting most government ministries and departments.

4.3.2.2.2 Equipment Maintenance

The second issue was concerned with servicing and maintenance of available ICT equipment/tools to ensure that equipment are always in good working condition. The findings revealed that there is a service plan which the ICT department has entered into with the service provider to ensure that there is uninterrupted service and there is efficient response to call logs on computers and their accessories, such as printers, scanners and others. In addition, an interview with participant ***PMH-SD02*** revealed that there is an ICT strategy in place, which, among others, things helps in the overall planning in terms of the acquisition, maintenance and replacement of ICT equipment. To support this statement, participant ***PMH-SD02*** said: "*Although the available ICT equipment are inadequate as we are unable to procure all the required equipment, the good thing is that our equipment are serviced regularly as we have a good service plan for our equipment*".

This view was also supported by most participants, who pointed out that in terms of equipment maintenance, the ICT department is doing a good job as most of the time equipment are in good working condition. In addition, participants revealed that they have observed a compliance to scheduled replacements of equipment after a certain period of time. However, most participants pointed out that although there has been a slight improvement as compared to the previous years, the ICT department is slow in responding to employee's queries. An observation which the ICT department acknowledged, but revealed it mostly happens in situations where equipment need to be replaced before their scheduled replacement period and this requires financial resources.

4.3.2.2.3 ICT Skills

The final issue on technical support focused on assessing the ICT skills of the medical practitioners in terms of the maximum use of the tools. Data revealed that all participant have some basic ICT training which enables them to use the available tools. For example, participant ***PMH-MP06,*** when responding to a question on what kind of ICT skills they possess, said: "*I know some basic tricks on computers, which i learnt from college and also our ICT department normally conducts training to help us learn some new things".* The findings also revealed that the level of ICT skills

amongst the participants differs. For example, data showed that participant with high qualifications and training, have enhanced ICT skills, which they have acquired as part of university studies. In addition, the data showed that age matters in terms of ICT skills and usage. Responses from young professionals showed that they have acquired their ICT skills from university training and that they seem to be more receptive to modern technology as compared to older professionals, who most of them, possess limited ICT skills acquired through on-the job training. Participant ***PMH-MP04*** said: "*For me I am still struggling with this manual systems because I am used to doing things on the computer, but unfortunately when I arrived here I realised that I have to adapt to the manual way of doing things*".

On the contrary, one participant said "*I am not that conversant with this modern technology because during our school days, there were no computers hence I only got to know ICTs through our in- house training, but still this technologies are very complicated to use hence I am fine with manual system*. Furthermore, one participant pointed out she is comfortable with manual system as they are just as effective, therefore, she does not see the need to change.

Lastly, ***PMH-SD02*** pointed out that they conduct regular training for all staff as a way to equip them with the required skills, especially when they have new system or new machine they train staff to use such equipment. However, he acknowledged that not all staff attend such training due to other commitments.

4.3.2.3 Organisational Context

Organisational context is another crucial element of knowledge sharing governance mechanism concerned with providing leadership support and the necessary resources (human and financial) to knowledge sharing initiatives and activities. Assessing the organisational context of Princess Marina, the data was collected focusing on two main issues of supportive leadership and the provision of resources.

4.3.2.3.1 Leadership Support

Data shows that despite the absence of a knowledge sharing strategy, hospital leadership shows some commitment towards knowledge sharing. The data has revealed that the hospital leadership is leading the knowledge sharing initiatives. For example, data collected has revealed that the heads of each ward lead the weekly case reporting meetings, senior doctors lead the medical teams,

while ward matron lead the morning reporting meetings. To confirm the level of management engagement in knowledge sharing activities, participant ***PMH-HOD01*** said: "*The monthly quality assurance taking place in each medical ward is spearheaded by the management team*". This is an observation noted by the researcher, while attending the quality assurance and morning reporting meetings.

According to the data, most junior staff pointed out that they receive good support from their supervisors, which they attributed to the good service they are providing to their patient despite the shortage of resources. When asked how easy it is to approach their superiors, participant, ***PMH-MP02*** said: "*We are very fortunate to have a boss like ours, it is because of him that were go through each day. He is very appreciative and supportive of our work and motivates us by constantly reminding us of the reasons why we chose this profession and why we wake up every day, which is to save lives*".

Data gathered shows that the hospital leadership show some commitment to knowledge sharing between the medical practitioners. Responses from participants show that the hospital management is providing many platforms and opportunities for knowledge sharing by all medical practitioners. Therefore, it is up to the individual employees to play their part. An assertion supported by the findings, which revealed that senior doctors lead all medical teams and teaching presentations.

4.3.2.3.2 Organisational Resources (Financial and Human)

In order to ensure the success of knowledge sharing, there is a need to ensure that necessary resources, such as human and financial, are available to support knowledge sharing initiatives. All medical practitioners interviewed decried the lack of staff, leading to long hours of work. They pointed out that it takes very long to employ new doctors and nurses or even to replace the one that resigns, a sentiment which the management did not dispute. Participant ***PMH-EM02*** pointed out that they are also not able to retain the ones they have as they are competing for the same professionals with other employers, who offer better pay in the health sectors, especially for skilled medical practitioners. This claim is supported by many vacancies in the hospital establishment register.

For example, one participant said: "*Here, there is no rest, we are always busy running around as you can see the long ques, which have become our daily experience*". An observation made by the

researcher during some interview appointments where some started later than the agreed time while some were even postponed or cancelled due to time constraints.

To confirm the severity of the challenge, participant ***PMH-EM02*** explained that the shortage of medical practitioners is having a negative impact on service delivery as the available staff are overwhelmed due to the number of patients they attend to on a daily basis. In addition, participants revealed that the situation is also made worse by the fact that Princess Marina Hospital is a major referral hospital, and it receives many patients from all over the country. This is more than what the available staff can handle. Most participants agreed that the shortage of human resource is the main reason, in most cases, patients have to wait a long time to receive medical care.

In addition to the lack of human resources, both management and employees revealed that the hospital is faced with a serious shortage of funds. They pointed out that the financial resources allocated to the hospital is inadequate to cater for all the hospital requirements, hence they are forced to prioritise key functions. Participant ***PMH-EM01*** emphasised the shortage of funding by saying that, "*We wish we could do more to acquire adequate equipment, such as computers, to support knowledge sharing initiatives. Unfortunately, as you know, this is a government hospital funded through public funds, therefore, we need to ensure we use funds prudently by channelling the limited funding to ensure we honour our obligation, which is quality patient care*". This sentiment was shared by ***PMH-MP09,*** who revealed that the lack of funds also impacts on daily medical supply since they are not able to buy adequate equipment. Lastly, an interview with the librarian revealed that there is limited budget, which impacts the library as a repository of the organisation's explicit knowledge resources to play a meaningful role in facilitating knowledge sharing amongst medical practitioners.

In overall, the findings revealed that the hospital leadership is committed to ensuring the success of knowledge sharing by providing platforms where experienced doctors are able to provide guidance, support and impart their knowledge and experience to new professionals. However, the shortage of resources is hampering the efforts made to ensure effective knowledge sharing among the hospital employees.

4.3.3 Objective 3: To Establish the Impact of Knowledge Sharing at Princess Marina Hospital

The third objective of the study sought to establish the level of impact of knowledge sharing towards the overall performance of Princess Marina Hospital. All sixteen study participants provided their responses to a variety of questions under this objective. This was very important so that the gaps can be identified and addressed to ensure the hospital maximises its use of knowledge resources. To determine the level of impact of knowledge sharing on hospital performance, three issues were assessed and they include the frequency in which medical practitioners are involved in knowledge sharing, knowledge sharing initiatives and the importance of knowledge sharing. In addition, the researcher looked at issues such as the existence of a knowledge sharing strategy and a centralised knowledge repository.

4.3.3.1 The frequency in which medical practitioners are involved in knowledge sharing

Data collected through interviews, with both the hospital management and staff, the findings revealed that there was knowledge sharing at Princess Marina Hospital. This is because when asked how often they shared/sought knowledge from co-workers and why, 10 of the 16 participants responded by saying that they always share and seek knowledge with co-workers before making any clinical decisions. This shows that the majority of medical practitioners are continuously engaged in knowledge sharing in carrying out their daily medical work. According to participant ***PMH-MP05***, it is important for medical practitioners to seek knowledge from co-workers, especially in situations where they encounter a medical case for the first time, to avoid making unnecessary mistakes. When asked how frequently this happen, he pointed out that this happens frequently. Participant ***PMH-MP02*** said that, "*I always consult with colleagues on a daily basis because this is a very complicated and risky profession and we are talking about people's lives here. Therefore, you have to consult to avoid making mistakes which can cost lives*".

In addition, data collected and some observations made during interactions with medical practitioners show that there is knowledge sharing at Princess Marina Hospital. A response to the question on what is their views on the effectiveness of knowledge sharing at Princess Marina Hospital saw 12 out of 16 participants rating knowledge sharing effectiveness to be fair. One participant emphasised the level of effectiveness of knowledge sharing by saying that although they were not aware that what they are doing is related to the concept of knowledge management,

their work environment dictates that they work together, share ideas, collaborate in order to ensure that they combine their expertise to provide the best patient care possible. This is shown by the various team collaborations available at Princess Marina Hospital, which provide a platform to ensure that knowledge is shared amongst co-workers. Participant ***PMH-MP05*** said that, "*Is not like I have a choice, I am required to work with interns so that they acquire the medical knowledge for them to qualify as medical practitioners, although it requires patience, it is good as it reduces our work pressure in the long run*".

4.3.3.2 Knowledge Sharing Activities/Initiatives

Data collected showed that there are many activities, which promote communication, interaction and collaboration amongst medical practitioners within Princess Marina Hospital. When asked which of the available knowledge sharing activities they are involved in, all participants revealed that they are engaged in all of the activities or processes of knowledge sharing as they are mandatory. These activities are weekly reporting meetings, departmental meetings, workshops and seminars, medical lectures and quality assurance teams. They continued to point out that all the available activities for knowledge sharing are tailored such that there are embedded within their daily medical routine.

For example, participant ***PMH-MP03*** pointed out that "*At the end of every shift, it is a medical practitioner's duty to ensure that they hand over and brief those who are beginning the shift of all cases they have handled, both pending and completed ones*". This, according to participants, is standard practice in the medical environment. This statement reveals that the job environment dictates knowledge sharing amongst medical practitioners. In addition, ***PMH-MP05*** said: *It is our duty as senior doctors to present to new junior doctors during our quarterly medical lectures or when there is a need. This is a platform designed to discuss topical medical issues and this is a very interactive session*". The findings reveal that there are knowledge sharing platforms or sessions at Princess Marina Hospital.

4.3.3.3 Importance of Knowledge Sharing

Data collected showed that, medical practitioners at Princess Marina Hospital appreciate the importance of sharing knowledge with colleagues. When asked to explain how important it is to share knowledge with co-workers, all participants provided many reasons why they believe it is important. Most participants noted that knowledge sharing and consulting colleagues in their

profession is very important because their work is interdependent. They pointed out that sharing of knowledge offers medical practitioners an opportunity to learn from each other, it provides them with opportunity for growth, and brings about standardisation in patient care. To emphasise the importance of knowledge sharing amongst medical practitioners participant ***PMH-MP03*** said that "I*n this profession, working in silos will lead you know where, the most important thing is saving lives therefore the patient comes first and one can only achieve that if they are willing to share and consult with others*". In addition, participants pointed out that they can only grow as medical practitioners through collaboration and networking with other professionals both within the hospital and other hospitals all over the world.

Furthermore, data revealed that there is no knowledge sharing strategy in place at Princess Marina Hospital. This observation was also made by the researcher. In addition, the findings showed that there is no centralised knowledge repository. This means that knowledge is fragmented across the various medical wards without any centralised place to capture, organise and store all medical knowledge (tacit and explicit) available in the hospital. The lack of a recentralised knowledge repository can lead to delays in the identification, retrieval, sharing and application of knowledge and this can pose risk in service delivery.

The findings revealed that there is knowledge sharing taking place at Princess Marina Hospital as shown by the various knowledge sharing activities available and the number of staff involved in these activities. However, the findings have also identified some gaps which need to be addressed, such as lack of a knowledge sharing strategy as well as the lack of a centralised knowledge repository. Improving these issues can help to improve knowledge sharing performance amongst medical practitioners. These gaps are presented under the challenges hindering effective knowledge sharing under objective 5.

4.3.4 Objective 4: To Describe the Knowledge Sharing Means/Platforms at Princess Marina Hospital

The fourth objective of this study focused on analysing data for knowledge sharing means/platforms used at Princess Marina Hospital. Data was collected from responses derived from various questions related to communications platforms used in the hospital which were posed to all the study participants. This is because the adopted model of knowledge sharing used in this study claims that in order for knowledge sharing to take place in an organisation, it is important

that the organisation choose the appropriate knowledge sharing means to facilitate the knowledge sharing process. In addition, the model claims that the choice of knowledge sharing means can have an impact on the success or failure of knowledge sharing in an organisation. According to this model, knowledge sharing means refers to the platform or the tools, which are used to ensure that knowledge is passed from one end (sender) to another (receiver). Furthermore, this model posits that these knowledge sharing means or platforms are divided in two categories, which are technology based and non-technology based platforms.

To validate this claim, participants were asked to list the tools/platforms, which they use to share knowledge with co-workers within Princess Marina Hospital. The responses gathered from the participants showed that there are two main categories in which knowledge is shared amongst medical practitioners at Princess Marina Hospital. Firstly, data has revealed that knowledge is shared using traditional forms of communication (non-technology based), such as face-to-face meetings, workshops and seminars and lectures. In addition to traditional forms of knowledge sharing, medical practitioners have adopted modern technology as a tool to share knowledge, such as e-mail and the internet. Each of the platforms are discussed, in detail, in the section below.

4.3.4.1 Technology-Based Platforms

These are technological platforms, which enable medical practitioners to communicate, collaborate, network and share medical experiences and knowledge with other medical practitioners both within and outside the hospital. In addition, IT-based platforms allow medical practitioners to search and access medical information and knowledge resources, such as medical journals, case studies, as well as newly published medical researches anywhere, anytime using computers and smartphones. Just like other professionals, the findings of this study has revealed that medical practitioners at Princess Marina Hospital have also taken advantage of modern technology. Data has shown that medical practitioners use tools, such as the internet and e-mail to share, communicate, collaborate and access medical information and knowledge. Each of these tools are discussed below.

4.3.4.1.1 Internet

When asked how they facilitate knowledge sharing amongst medical practitioners, the IT officer said that, "*Our job as the IT department is to facilitate communication, collaboration and networking amongst all employees of Princess Marina Hospital and all our stakeholders*". He

went on to explain that like all other government departments, Princess Marina Hospital is connected to a government network. Participant revealed that they use the internet to communicate and collaborate with colleagues, as well as to seek and share information and knowledge with co-workers within Princess Marina Hospital and outside. Participant ***PMH-MP06*** explained why he uses the internet by saying: *"Nowadays, the internet has made life much easier, for some of us who have studied outside the country, we are still able to be in touch with our former professors in real time who are our mentors through this technology".* This sentiment was shared by other participants who pointed out that if it was not due to the challenges of bandwidth, the internet would be the most preferred channel of communication, collaboration and interaction amongst co-workers. Supporting participant's views, the librarian pointed out that the internet is the most preferred by his clients (medical practitioners) because it is a rich source of up to date medical information and knowledge, enabling easier, flexible and faster access to information unlike the library.

Participant ***PMH-MP01*** pointed out that she strongly believes that the internet provides medical practitioners with an opportunity to keep abreast with new medical research findings and publications to update their knowledge and skills, as well as to stay informed on current issues relating to the developments in the medical field. That being the case, participants pointed out that they are currently forced to use the traditional forms of collaboration and communication, such as face-to-face meetings, due to the challenges such as slow and poor internet connection. In addition, participants highlighted that poor and unreliable internet connection makes searching and retrieval of required information very slow and time consuming and that it is only few computers which have internet connection.

4.3.4.1.2 E-mails

Still on the use of information technology tools, data has shown that majority of participants use E-mails as another form of communication and knowledge sharing with colleagues at Princess Marina Hospital. Data collected shows that despite shortage of work computers, e-mail is the most commonly used IT platform by medical practitioners to communicate and share information with colleagues, both within the same department, within Princess Marina and outside. When asked which of the tools are the most commonly used in knowledge sharing and how helpful are these tools, participant ***PMH-MP07*** said that, "*For me, I prefer communicating with colleagues through*

e-mail because it is very convenient and free as it is connected to the government network and unlike other applications such as Facebook it is the easiest to use". This is a sentiment shared by most participants, who pointed out that they work different shifts and across various wards, therefore, have limited face-to-face interaction, hence e-mail communication with colleagues is the easier and most convenient way to share clinical experiences and knowledge. However, many participants pointed out that having only one computer in each medical ward means that there is limited access to computers making e-mail communication difficult leading to some employees resorting to use their personal laptops for official purposes.

In summary, the data collected from the IT department revealed that the hospital has an average network infrastructure, which although inadequate is able to support the needs of Princess Marina Hospital, such as internet connection, networked printers and photocopiers, as well as IT systems or application, such as the Integrated Patient Management System. When asked about the distribution and status of ICT equipment in place at Princess Marina Hospital, the IT officer responded by saying that, O*ur IT equipment are regularly serviced and are distributed according to the structure of wards or departments. Although shared by all staff in each ward, every staff member has access to such equipment through a service account, but there is no internet connection meaning that staff are only limited to manage and view documents, which, in itself, a disadvantage but at least there is something.*

4.3.4.2 Non-Technology Based Platforms

Non-technology based platforms are those that use traditional methods of communication. These are knowledge sharing platforms, which are not technology dependent, such as face-to-face meetings, lectures, workshops and seminars and trainings. A detailed description of each platform used by the medical practitioners at Princess Marina Hospital to share knowledge is provided below.

4.3.4.2.1 Face-to Face Meetings

An analysis of the data revealed that meetings were the most popular form of communication and knowledge sharing amongst medical practitioners at Princess Marina Hospital. Data gathered from interviews revealed that there are different categories of meetings for different employees within the hospital, such as departmental meetings, weekly case reporting and weekly morning briefings. Each of these meetings are described in the following section.

4.3.4.2.1.1 Departmental Meetings

Data gathered has revealed that each medical department is required to hold one meeting every month and this is a meeting attended by all employees working in that particular ward or department. For example, the surgery department comprised two wards, being male and female ward, each is headed by a ward matron, and the expectation is that all employees of these two wards attend this meeting. The meeting is chaired by the head of department, who is a senior doctor. This is a meeting where general issues of service delivery are discussed, communication of any new information or organisational policy or procedures. In addition, this is also a platform used to share ideas and experiences on how to improve patient care. To underscore the importance of departmental meetings, participant ***PMH-MP03*** pointed out that departmental meetings are a good way of communication and sharing of any new information or policy changes with staff. According to him, this is good as it is an instant two-way interaction. He further pointed out that departmental meetings also give staff the opportunity to interact with their superiors outside the office. However, participant ***PMH-HOD01*** acknowledges that although meetings are an effective way of communication, it is not easy to hold frequent meetings as the hospital is very big and employees are very busy; thereby limiting the number of meetings they hold in a year.

4.3.4.2.1.2 Weekly Morning Meetings

An analysis of the data has revealed that in addition to departmental meetings, each medical ward holds one meeting on a selected day every week. These meetings are attended by both nurses and medical doctors to discuss general issues of service delivery in that particular ward, such as the number of cases received, treatment options, challenges encountered and solutions to remedy such challenges. In short, although it is a mandatory meeting, this is a relaxed session where daily medical issues and experiences are presented, discussed and resolved and there is random participation. All participants interviewed acknowledged the importance of these meetings because they believe that they give them a chance to sit down interact and reflect as a team.

To appreciate the importance of holding these meetings, one participant ***PMH-MP08***, said that "*All through the week, everyone is busy with patients and paper work, therefore, we do not have enough time to discuss patient's cases. Therefore, weekly morning meetings bring us together to share our medical experiences, observations, discoveries and insights with each other*". In addition, the relaxed nature of this sessions provides junior doctors with an opportunity to interact

with senior doctors in a less-formal setting where they are able to freely ask questions relating to their routine encounter and observations. To underscore the importance of face-to face meetings, participant ***PMH-EM01*** said that, although *technology is good, it cannot replace the effectiveness of face-to-face interaction which provides emotional and physical human interaction. This is key in our social interaction as we need to know and embrace each other as colleagues".*

4.3.4.2.1.3 Weekly Case Reporting

In addition to scheduled monthly departmental meetings and weekly morning meetings, the data shows that there are weekly case reporting meetings. These meetings are attended by medical doctors only and are held on a selected day every week in each medical ward. According to ***PMH-HOD01***, *The idea behind holding these meetings is to facilitate experience and knowledge sharing amongst our doctors so that every doctor in the ward can gain experience and learn from each other, that way we are able to capacitate our employees*". This is a meeting where medical practitioners select one particular case, which they had encountered during the course of their practice during the week and make a presentation to the rest of the staff. According to responses from the participants, normally they chose a case, which provide an opportunity for learning and new knowledge and then make a presentation to the rest of the team for discussion.

It is through these meetings where medical practitioner's especially young professionals, learn from experienced professionals. For example, in these sessions, a team leader presents a case they have encountered, then the chair of the session asks the team what their diagnosis was and how they handle the case. After responding to the questions, the case is open to the floor to get the views of the participants and, at the end a final conclusion is made on what is the correct way to handle the case. This presentation, question and answer session help in imparting knowledge to those who have never encountered such cases.

As part of data collection, the researcher was privileged to attend one of the session and from the researcher's observation, even though this meeting is chaired by the head of department (senior doctor), it is casual and less formal and there is no protocol in terms of the sitting arrangement, hence less intimidating to young doctors or visitors. The researcher observed during this meeting that participants value these sessions as shown by their enthusiasm and passion.

All the above meetings are face to face meetings and data revealed that all participants were in agreement that face to face meetings were the most commonly used and most effective form of

communication and knowledge sharing at Princess Marina Hospital. One participant ***(PMH-EM-02)*** said that, "*face to face meeting is the norm here because as you can see staff do not have their own computers. Therefore, we still have a long way to go in terms of technology adoption because here access is limited. But for us, we are old school so meetings work just fine. For me I think face-to face-meetings are more effective as it brings that physical human interaction, which is not there in this social media technology*".

4.3.4.2.2 Conferences and Workshops

Furthermore, conferences and workshops were mentioned as other platforms, which are used at Princess Marina Hospital for sharing knowledge amongst staff. Responding to a question on whether there are any professional development opportunities for staff, participant ***PMH-EM01*** said that, *"there are some workshops, which are organised by the hospital for medical practitioners to share professional knowledge and experiences, in most cases these workshops are facilitated by our own staff, but for more exposure we sometimes invite someone from outside"*. The participant also highlighted that in addition to holding internal workshops for staff, the hospital do send staff members to relevant workshops and conferences organised by other medical organisations/bodies regionally and even internationally. These workshops are very important as they provide medical practitioners with an opportunity for professional development as they acquire new skills. All participants agreed that workshops and conferences, especially regional and international conferences present opportunities for networking and collaboration with other professionals all over the world. This broadens their scope in terms of knowledge, skills and experiences leading to improved patient care.

In conclusion, the findings have revealed that there are two main platforms in which knowledge is shared at Princess Marina Hospital, namely; technology based platforms and non-technology based platforms. In addition, the data have revealed that although the hospital has adopted modern technology, traditional forms of knowledge sharing remain the most preferred form of communication, interaction and collaboration amongst medical practitioners at Princess Marina Hospital. This is because the hospital is still lagging behind in terms of use of modern technology as shown by the limited ICT resources in the medical wards.

4.3.5 Objective 5: To Identify Challenges faced by Medical Practitioners with regard to Knowledge Sharing at Princess Marina Hospital.

The fifth objective of the study focused on identifying the challenges that are faced by medical practitioners with regard to knowledge sharing at Princess Marina Hospital. This is important because, it is only through identifying and understanding the challenges that impede effective knowledge sharing amongst medical practitioners that can guide the hospital in coming up with effective measures to address them. Sixteen responses were received from all the study participants (management, head of department, medical practitioners, librarian and ICT officer) which provided insight in relation to the objective being adressesd. Data collected showed that there are some challenges that hinder medical practitioners from sharing knowledge with co-workers. These challenges are grouped into two main categories namely; personal and organizational as discussed below.

4.3.5.1 Personal Factors

Personal or individual factors are those which hinder knowledge sharing at an individual level. Data collected has shown that lack of trust, lack of time and rewards are the three main challenges that hinder individual practitioners to share knowledge with colleagues. A detailed description of each of these challenges is provided in the section below.

4.3.5.1.1 Lack of Trust

Data collected has revealed that trust is one of the barriers or challenges hindering employees from sharing knowledge with co-workers. Some of the participants pointed out that they only share knowledge or seek knowledge from the people they are more familiar with and those they trust. According to the participants, medical care is a very sensitive environment, which is concerned with people's lives. Thus, they want assurance that the knowledge or information they receive is from a reliable and trustworthy source. To emphasise the issue of trust, ***PMH-MP05*** said that, "*You know sometimes you are in a very serious and emergency situation not knowing what to do with a patient, therefore you are forced to seek second opinion, but you don't just call anyone. It has to be someone you know you can trust their opinion and judgement or otherwise patient's live is at stake, even your career is on the line".*

Most participants shared this sentiment as they pointed out that accuracy is very important in the medical field to avoid mistakes. Therefore, one has to trust the person they seek knowledge from.

4.3.5.1.2 Time Constraints

Data collected during interviews also revealed that there is limited time to fully engage in knowledge sharing. Participants revealed that sometimes they miss some of the sessions because they are busy with patients. Most participants attribute this situation to the shortage of staff experienced in medical wards. Most participants pointed out that although they appreciate the importance of knowledge sharing, their shifts are very long and hectic such that there is no time for networking and engaging in knowledge sharing activities. Participant ***PMH-MP01*** emphasised the lack of time by pointing at the long queue in the waiting room and said "*Just have a look, this is our daily encounter, we are always busy with patients that there is no time to do anything else, we only get short break for eating and quick rest"*. This is an observation that was also made by the researcher during most interview appointments.

During data collection, the researcher observed that most interviews started way past the time agreed because the medical practitioners were still attending to patients. In addition, there were some frequent phone call interruptions during interviews, and, in some instances, participants were called out for some emergency situation thereby making the interview session to take longer than expected and in some cases this led to postponement.

4.3.5.1.3 Lack of Rewards,

Data collected also revealed that lack of incentives is one of the critical factors which hinders effective knowledge sharing amongst medical practitioners. Participants believe that there is need for incentives which can motivate more employees to share knowledge. The findings have revealed that there are no rewards specific to knowledge sharing amongst workers. Rather participants pointed out that they share knowledge with co-workers because it helps them in terms of professional development and growth, but wish there could be some rewards for such because it can help in motivating more staff to share knowledge. For example, when responding to a question on what types of incentives they think can encourage knowledge sharing, participant ***PMH-MP06*** said that, "t*he problem is that people always think that when you talk of rewards you are talking about money, but there are other things that can motivate employees other than money. For*

example, for me, I wish the hospital can increase the number of people sending for further studies, as well as those attending medical conferences".

Most participants pointed out that they share knowledge not because they expect rewards, but voluntarily share it because it gives them a platform to learn from each other. It also helps in improving patient care, which is their primary goal as medical practitioners.

Participant ***PMH-MP10*** shared the same sentiment by saying: "*We share knowledge because we are passionate about our work and because it gives us an opportunity to learn from others".* He pointed out that professional development opportunities are very limited as one has to have worked for many years in order to be considered for further studies or else one has to self-sponsor.

To confirm that indeed there are no rewards for knowledge sharing, a question on how they motivate employees to share knowledge was posed to the management, participant ***PMH-EM02*** responded by saying, "*There are no rewards specific to knowledge sharing, but rather we do have rewards which are embedded within the performance management system, which is mandatory for all public employees*". He continued to explain that the reason is that the hospital does not consider knowledge sharing as a standalone exercise, but an activity embedded within a daily medical routine. According to him, the nature of medical profession requires continuous learning in order to improve one's medical expertise and that can only be achieved through collaboration and networking with others in the field; hence the need for knowledge seeking and sharing. Therefore, although not disputing the need for rewards, he believes that every medical practitioner should strive to work and learn from others in order to gain more knowledge and experience which is beneficial to the organisation, and even more to the individual medical practitioner. This sentiment was shared by most participants.

4.3.5.2 Organisational Factors

Unlike individual factors, organisational factors are those influencing knowledge sharing at an organisational level. The findings have shown that there are three main challenges which hinder effective knowledge sharing at Princess Marina Hospital which are lack of resources, limited technical support (systems support) and lack of ICT skills/training. Each of these factors are discussed below.

4.3.5.2.1 Lack of Resources

Organisational resources, such as human, financial, ICT equipment, information and knowledge resources sharing is a combination of processes, technology and people. In addition, knowledge sharing, are key in ensuring that knowledge sharing is effective. For example, the adopted model claims that knowledge is constrained in the absence of knowledge sharing means. These claims mean that there is a need for resources in order to ensure effective knowledge sharing. This being the case, data collected through interviews with medical practitioners at Princess Marina Hospital has shown that the majority of participants complain of inadequate resources, human, financial and equipment. The lack of resources impact on the success of knowledge sharing. This sentiment was also shared by participants from the management team, who pointed out that they wish they could do more, but are sometimes limited by the lack of resources, especially staff, nurses and doctors, as well as financial resources.

The lack of human resources is also shown by many vacancies in the establishment register. To understand the situation clearly, participants were asked to describe the challenges hindering them from sharing knowledge, all of them were in agreement that their workload is too much; hence becoming a barrier for effective knowledge sharing and collaborative engagements. One participant said: "*We have long hours, it is only because of the passion I have for my job that I am still here or else I would have long followed my counterparts, who have left for greener pastures*". Participants pointed out that the shortage of personnel means that the available staff are overworked leaving no room for full participation in knowledge sharing activities as they are always overwhelmed with priority issues, such as attending to patients and meeting deadlines.

In addition, majority of participants pointed out that there is inadequate ICT equipment (computers and laptops), as well as slow and unreliable internet connection. This situation means staff are unable to search for information they need to help in making urgent clinical decisions as well as to collaborate with other colleagues outside Princess Marina Hospital. This sentiment is backed by the lack of internet connection in medical wards and even the use of one central workstation, which is shared by all staff in each ward. Interview with the head of ICT also confirmed this situation.

Furthermore, data collected has shown that the hospital is still lagging behind in terms of access to online information and knowledge resources. This was highlighted during an interview with the participate ***PMH-SD-01,*** who pointed out that there is no internet resources in the library. This,

according to the librarian, is due to the shortage of financial resources, which is makes it difficult to subscribe to online information resources, such as medical journals, as there are expensive. The participant further highlighted that the library is allocated a small fraction of the budget that is not enough to subscribe to the necessary information materials to support medical practitioner's information needs. From the researcher's observation, the library is still operating with physical collection only and thus, published materials are not updated regularly, which means there is a high chance that there are delays in access to updated knowledge and information. In addition, the library operates normal work hours of 07:30 -16:30, while medical practitioners work twenty-four hour shifts. This is an inconvenience to medical practitioners as they can only access the library during normal working hours, whereas they need knowledge resources to make urgent clinical decisions 24/7.

4.3.5.2.2 Limited (ICT) Technical Support,

According to participants, the technical support they receive from the ICT department is, at times, limited and slow. They pointed out that there is usually some delays in attending to faulty or broken equipment. Although most acknowledged that it is not a prevalent issue, most pointed out that when they encounter a technical problem with their computers, photocopiers, machines and printers, it takes time for the ICT department to attend to such issues. The break up in the equipment hamper service delivery. For example, to emphasise the impact of this, ***PMH-MP08*** said, "*Our main objective is to save lives and when it comes to saving life, time is of essence, we cannot risk even one day without the x-ray printer not working as it can lead to unnecessary death due to delayed diagnosis and treatment".*

This observation was acknowledged by ***PMH-SD02,*** who revealed that they usually outsource repair services for some equipment, which they do not have in-house skills to attend to and that usually takes time. However, he pointed out that although they have financial challenges, they are always striving to do the best they can in order to attend to equipment faults and staff queries in the shortest time possible. This being, the case, he pointed out that sometimes faults are not related to equipment problems, but rather, the lack of IT skills amongst users.

4.3.5.2.3 Lack of Training/Limited IT skills,

According to the head of ICT, although IT equipment are inadequate, most employees are unable to maximise on the limited ICT resources available mostly because of resistance to change. An

observation was also highlighted by some of the medical practitioners themselves. According to him, most employees especially older staff members, do not embrace ICT. Instead, they prefer to use the traditional ways of communication and collaboration, which they are most familiar and comfortable with such, as face-to-face communication and meetings. He highlighted that it is only younger employees who embrace technology, but they are also limited, as in some cases, they do not have capacity to explore most features available in those equipment. "*As the IT department we organise workshops regularly to capacitate employees, but unfortunately majority of employees miss such trainings, as they are in most cases busy with patients".*

Data collected shows that majority of participants complained of slow internet. They pointed out that the internet in the hospital is very slow as it takes time to access e-mail, let alone open a word document. They pointed out that this hampers service delivery because time is of essence in providing efficient medical care hence they need faster internet connection to communicate, search and share patient diagnosis and treatment in order to reduce unnecessary mortalities. Sharing his frustrations, participant ***PMH-MP07*** said that, "*The internet here can be very frustrating, it will take time just to open a small page document. I sometimes wonder whether it is only my computer or what".*

In addition, some of the participant pointed out that contrary to what many believe, they are not resisting the use of modern technology but rather they have limited skills to use such tools. To explain the statement further, participant ***PMH-MP08*** said: "*You know, sometimes management like to introduce new things without adequately training staff on how to use such tools. They will call you for just one hour and then expect you to use such complicated tools*". He pointed out that this normally slows their job hence they choose to use the manual systems as is less complicated. This being the case, most participants pointed out that they do not have any challenge in using modern technology as they find it easy to use, but rather the challenge is limited access to ICT resources.

Finally, the findings showed that there is no knowledge sharing strategy and no centralised knowledge repository. Responses from participants showed that sometimes the hospital wastes money and time repeating projects because they do not know that the same project was done before. This, they attribute to the fact that, in most cases the employees, who were involved with the project are no longer working in the hospital anymore. According to ***PMH-MP11*** this is

something which could be avoided if the hospital had a centralised place where all knowledge gained through projects and internal clinical research is captured and stored to ensure that it can be a reference point for those who need it. In addition, participants believed that the capturing of project information would also help in capturing employees who were involved in the project which can help in identifying knowledge sources within the hospital. This would help in timely retrieval and application of knowledge when needed. Although appreciating the available processes for knowledge sharing, responses from participants highlighted that they believe that if there was a strategy in place, knowledge sharing activities would be well coordinated. The absence of a knowledge sharing strategy is a weakness, which can hinder effective coordination, implementation and monitoring of knowledge sharing initiatives within the hospital. In addition, the absence of a centralised knowledge repository can hinder effective identification, organisation, storage, retrieval and utilisation of the available knowledge resources. In addition, the lack of a coordinated capturing and storage of knowledge resources can lead to loss of knowledge especially tacit knowledge.

4.4 SUMMARY OF THE FINDINGS

This chapter presented the findings of the study. The data collected has revealed that participants are aware of the importance of knowledge sharing in their work and are fully engaged in the process of knowledge sharing. The findings indicated that even though Princess Marina Hospital has got no clearly defined knowledge sharing strategy, the work environment is conducive for knowledge sharing as revealed by the availability of formal procedures and processes facilitating knowledge sharing amongst employees, such as induction programs, medical teams, staff rotations and many others. In addition, the data revealed that although the hospital still uses traditional forms of knowledge sharing, like face-to-face meetings, workshops and seminars, there are some technology based platforms, which are used to seek and share knowledge like the internet and e-mails. Furthermore, the findings have revealed that the hospital leadership is leading most knowledge sharing activities, which shows appreciation and commitment on the part of the hospital management on the importance of knowledge sharing for improved health care delivery.

However, the data has also revealed that the knowledge sharing governance mechanism at Princess Marina Hospital needs to be improved to ensure that the three components of the governance structure namely; technical support, organisational context and organisational culture are balanced

to provide a conducive environment for effective knowledge sharing. Lastly, the data has revealed that although tremendous strides have been made, challenges, such as inadequate resources, both human and financial, limited IT skills amongst employees, and lack of time to engage in knowledge sharing, are the main hindrance to effective knowledge sharing amongst employees.

CHAPTER 5

DISCUSSION OF THE RESULTS

5.1 INTRODUCTION

The previous chapter used thematic content analysis to analyse data. The findings were presented in accordance with the research objectives. This chapter discusses the findings of the study. The study was guided by the knowledge sharing model, which presented three major themes of knowledge sharing process, knowledge sharing means/platforms and knowledge sharing governance mechanism. These three themes guided the research questions and data collection and analysis. This chapter discusses the main research findings to answer the question: "***How do medical practitioners at Princess Marina Hospital share knowledge***? Data was analysed based on the three themes to determine how and the extent to which they influence the knowledge sharing practices of medical practitioners at Princess Marina Hospital. These themes represent the key factors which influence knowledge sharing and each theme and sub-theme is discussed in the section below in relation to the findings. In addition, relevant literature is also used to support the findings.

5.2 KNOWLEDGE SHARING PROCESS

Unlike in other literature (Hendriks, 1999; Nonaka & Takeuchi, 1995; Nonaka, 1994) where knowledge sharing is described as a two-way process with the sender and the receiver, the findings of this study have shown a different process of knowledge sharing. According to the findings, the process of knowledge sharing at Princess Marina Hospital is embedded within medical practitioner's daily work routine. This means that knowledge sharing is a continuous daily routine among the medical practitioners in all medical wards. Data has shown that medical care is provided in medical teams and that knowledge sharing is a mandatory standard procedure which dictates the sharing of knowledge among medical teams as a way of working.

Unlike in other literature, which suggests that for knowledge sharing to take place there is a need for a person (receiver) who is seeking knowledge and the person (sender) who has the knowledge. The data collected have revealed that the provision of health care through medical teams means that there is no individual knowledge seeker and knowledge source, but rather every medical case received presents an opportunity for knowledge seeking and sharing amongst medical teams. This

means that every medical team member is both a knowledge source and knowledge seeker. In addition, the working in medical teams means there is continuous team collaboration and communication leading to knowledge sharing and skills transfer. These findings mean that unlike in other studies where there is a need for someone to initiate the knowledge request and then the knowledge source to share the knowledge. Working in medical teams foster team collaboration and communication among team members leading to continuous knowledge creation, sharing and application. This difference in the process of knowledge sharing may be attributed to the nature and structure of medical organisations which is a bit complex and different from other organisations. According to Hendriks (1999), Nonaka and Takeuchi (1995) and Nonaka (1994), knowledge sharing is a two-way process, that takes place between two people, the sender and the receiver. Therefore, for knowledge sharing to take place there is a need for a person (receiver), who is seeking knowledge, and the person (sender), who has the knowledge. However, from this study, the findings have shown a different result. Data has revealed that knowledge sharing is not a step-by-step process waiting for the knowledge seeker to find the knowledge source. According to the findings, the process of knowledge sharing is a continuous process of creation, sharing and application of knowledge among knowledge participants, knowledge source and knowledge seekers. This discovery means that there is no standard process of knowledge sharing, but rather the process of knowledge sharing is dependent on the individual organisation's context and structure.

Secondly, the study revealed that knowledge sharing could happen at both individual and organisational level. This means that knowledge sharing at Princess Marina Hospital occurs in two levels. First, it occurs at individual level, between individual medical practitioners, as well as at organisational level, between medical teams and medical departments or wards. Lastly, the findings have highlighted that for knowledge sharing to take place, there is a need for a process, which will help or guide employees to engage in knowledge sharing. This finding is in agreement with the findings by Tabrizi and Morgan (2014) as well as the findings of other studies, such as Okoroji, Velu and Sekaran, (2013), Badimo and Buckley (2014), Adeyelure, Kalema and Motlanthe (2019), which have revealed that a clearly defined and documented knowledge sharing process is a key factor which influences the knowledge sharing practice of medical practitioners. This, then, means that for medical practitioners to engage in knowledge sharing, there is a need

for a clearly defined and documented process, which is easily accessible and easy to understand by all involved in the process.

In the context of this study, the above statement posits that the decision to engage or not to engage in knowledge sharing by medical practitioners at Princess Marina Hospital is guided by the processes and procedures, which are available for knowledge sharing within the hospital. For example, if the medical practitioners are aware and understand the processes for knowledge sharing, they can easily engage in knowledge sharing activities. However, if the processes are cumbersome and complicated to understand, only a few medical practitioners will take part in knowledge sharing. Responses from participants also revealed that they take part in knowledge sharing process because they are clear and easy to follow or apply as they are embedded within daily medical routines. Secondly, staff are taken through an induction process to be capacitated with the knowledge and skills of how to engage in these processes. This revelation means that one of the factors which influence medical practitioner's engagement in knowledge sharing is how simple and well defined the process is. From these findings, we understand that simplicity and easy accessibility of processes are some of the factors that influence or encourage knowledge sharing amongst medical practitioners.

This is supported by the literature, which has revealed that organisational processes can facilitate or hamper knowledge sharing by employees. The above can be achieved by having a knowledge sharing strategy in place. However, the study has found that although Princess Marina Hospital has formal processes and procedures in place for knowledge sharing among medical practitioners, it has no knowledge sharing strategy in place. The absence of a knowledge sharing strategy at Princess Marina hospital was not a surprising finding because most of studies conducted (Adeyelure, Kalema & Motlanthe, 2019; Makhanya, 2018; Asemahagan, 2014:Background; Olok, Yagos & Ovuga, 2015) have revealed the same results. Moving forward, it is important that the hospital develops an organisational wide knowledge sharing strategy to coordinate the development and implementation of all knowledge sharing initiatives.

In summary, the findings of this study have found that there are two main processes used by medical practitioners to share knowledge with colleagues at Princess Marina Hospital. These processes are either formal or informal, but are both used by medical practitioners to share and seek knowledge with co-workers. A detailed discussion of these processes are discussed below.

5.2.1 Formal Knowledge Sharing Process

According to Bell et al., (2010), a clearly defined and documented knowledge sharing process facilitates knowledge sharing amongst professional groups in an organisation. In the context, of this study, a clearly defined and documented knowledge sharing process is a formal process or procedure that is governing and guiding knowledge sharing between employees within an organization. A formal process in this context refers to an adopted way of doing things within an organisation. In the context of knowledge sharing, it refers to those processes, which have been developed and adopted by an organisation to guide on how employees can share and seek knowledge.

As seen with the findings, Princess Marina Hospital has got some laid down procedures and processes on how employees can share and seek knowledge. These processes and procedures are contained in documents like policy documents and induction manual. These procedures are mandatory. Unlike as revealed in some literature, Hendriks (1999), Nonaka (1994) and Tabrizi and Morgan (2014), where knowledge sharing is initiated when the employee develop a knowledge need and identify a knowledge source in order for knowledge sharing to take place, the data from this study has revealed a different picture. The data has revealed that knowledge sharing at Princess Marina hospital is a continuous process which occurs daily amongst medical practitioners because it is embedded within their daily work routine. For example, the work environment at Princess Marina Hospital is tailored such that there is a mandatory daily communication, interaction and collaboration amongst medical practitioners. Supporting this revelation, Zhou and Nunes (2012), in a study of identifying knowledge sharing barriers in Chinese hospitals discovered that knowledge sharing is not a step-by-step process as described in Tabrizi and Morgan's knowledge sharing model, as well as Nonaka's model. Zhou and Nunes (2012) have pointed out that knowledge sharing process is the daily communication, interaction and collaboration, which occurs in consultation sessions between a senior doctor, a patient, a nurse and a junior doctor, who make up a medical team.

Furthermore, Sibbald et al., (2013) has pointed out that the process of knowledge sharing is consisting of mentorship of team members where senior residents mentor junior staff members. In addition, Nilsen (2011) has pointed out that knowledge sharing in health care is a result of patient referrals between medical practitioners (general doctors and specialist doctors), who need to share

the patient's medical history to come up with effective treatment methods. All the above findings are similar to the findings of this study, which also describes the process of knowledge creation, sharing and application within medical wards.

Secondly, the findings have revealed a number of processes which guide and facilitate knowledge sharing between employees, such as rotation of nurses across the different medical wards, mentorship of junior doctors, doctor's rounds and working in medical teams, which brought about staff development. The above findings were expected and concurs with similar studies on knowledge sharing amongst medical practitioners such as a study by Adeyelure, Kalema and Motlanthe (2019). To assess the extent of engagement in these processes among medical practitioners, the researcher analysed data to see how many employees are involved in knowledge sharing. The findings showed that all participants were involved in knowledge sharing as all the available knowledge sharing processes, such as job rotation, doctor's rounds and mentorship, are mandatory hospital procedures. In addition, the researcher asked the participants why they participate in knowledge sharing. Other than being a mandatory process, all participants pointed out that they engage in knowledge sharing because it helps them in terms of professional growth by providing them with a platform to gain more experience and skills, which boost their confidence. One participant pointed out that knowledge sharing activities help them as new medical professionals to interact and learn from more experienced professionals.

These findings are supported by Hall and Goody (2006), who have pointed out that the success of knowledge sharing is also dependent on how medical practitioners perceive knowledge sharing. This is assessed in terms of perceived value to those who take part in the process. According to the findings of this study, other than that being a mandatory process, responses showed that most medical practitioners are voluntarily engaged in knowledge sharing for their individual benefits. Medical practitioners value the importance of knowledge sharing for their own professional development. This finding is consistent with the findings of other studies, such as Adeyelure, Kalema and Motlanthe, (2019), Badimo and Buckley (2014), Sibbald et al., (2013) and Olok, Yagos and Ovuga (2015). This means that individual benefits/value is a motivating factor, which encourages medical practitioners to participate in knowledge sharing. This finding challenges medical organisations, Princess Marina Hospital included, to be creative and introduce rewards system which encourage employees to be willing to translate their individual knowledge into key organisational knowledge resources because they see value for themselves.

In terms of staff engagement in the process, the findings have revealed that all medical practitioners are involved in the outlined processes. In addition, the findings have revealed a general appreciation of the available knowledge sharing processes by participants. Most participants revealed that they are engaged in knowledge sharing because they believe that other than improved patient care, knowledge sharing provides them with a platform for professional growth and skills transfers. This sentiment is shared by Hamouda, Tantan and Boughzala (2018), who revealed that the transmission or sharing of knowledge, experiences and know-how is part of the job in health organisations. They pointed out that the training of medical practitioners is based on the principle that the oldest or more experienced has to teach the new ones.

5.2.2 Informal Knowledge Sharing Process

Although there are some formal procedures in place to guide knowledge sharing, the study has revealed that there are some informal processes in which knowledge sharing takes place at Princess Marina Hospital. These are processes which are not documented or formally recognised, but are important for knowledge sharing, such as lunch break discussions. For example, when asked with whom do they share knowledge and why, one participant explained that he prefers to share and seek knowledge through informal means with his peers during lunch breaks or free time. He went on to explain that in this way, he is able to get the feedback faster and easier. The same findings were discovered by a study conducted by Sabeeh, Mustapha and Mohamad in 2017 where they found that knowledge sharing takes place within informal settings, such as coffee breaks and face-to-face chats in the hospital lobby. Supporting this form of knowledge sharing, Tasselli (2015) pointed out that it is important to understand and appreciate that knowledge is not bound by formal guidelines or procedures. Therefore, knowledge resides in both formal and informal processes. Furthermore, Sibbald et al., (2013) pointed out that informal knowledge pathway exists between medical practitioners, which are just as effective as formal processes. This is a very important observation which highlights that both formal and informal processes of knowledge sharing are equally important and that they should be documented. This is because some people might have valuable knowledge, but lack the confidence to share that knowledge in front of their bosses but can be comfortable around those in the same level.

In summary, the data revealed two key findings from this study. Firstly, the findings have revealed that unlike described in the literature, there is no standard process of knowledge sharing but rather

the process is dependent on the individual organisation's structure and context. The process is different from organisation to organisation. Secondly, the findings have revealed two main processes of knowledge sharing at Princess Marina Hospital, which are formal and informal processes. This finding is consistent with previous studies on knowledge sharing. From the findings, we understand that these processes are equally important for effective knowledge sharing amongst medical practitioners in an organisation. Therefore, it is very important that all medical practitioners are made aware of these processes and their importance in the organization's overall performance. This means that some of the knowledge especially the one which is shared through informal processes are not captured, therefore, can easily get lost. It is important that there is a systematic way of capturing, organising and storing all organisational knowledge to ensure that individual knowledge is turned into organisational knowledge for improved patient care. That way the organisation will ensure that the available knowledge resources are readily accessible to all who need it when they need it and also employees will know where to go when they need knowledge. In addition, systematic capturing and storing of organisational knowledge helps the hospital to build the institutional memory and ensures that knowledge is not lost when experienced employees leave the hospital or retire.

5.3 KNOWLEDGE SHARING GOVERNANCE MECHANISM

According to Tabrizi and Morgan's knowledge sharing model, knowledge sharing governance mechanism is one key element of effective knowledge sharing in an organisation. Knowledge sharing governance mechanism in this study is concerned with the hospital's governing structures, which can enable or promote knowledge sharing amongst employees of Princess Marina Hospital. Consistent with extant literature, the findings have revealed that there are three main factors, which make up knowledge sharing governance mechanism at Princess Marina Hospital. The three main factors are organisational context, organisational culture and technical support. Data has shown that these factors have an impact on medical practitioner's knowledge sharing practices which can either be positive or negative. According to the findings, knowledge sharing governance mechanism at Princess Marina Hospital are embedded within the organisational environment under which the medical practitioners operate. Each of the three sub-themes are discussed in detail in below.

5.3.1 Technical Support

Similar to literature Tang (2017), the findings have shown that technical support is one of the three factors which play a significant role in facilitating medical practitioner's decision to engage or not engage in knowledge sharing. In addition, the literature have revealed that the use of ICTs in knowledge sharing by medical staff improve service delivery in health care organisations. For example, Sabeeh, Mustapha and Mohamad (2017) found that the utilisation of ICTs in knowledge sharing in health care organisations is very important as it enables medical practitioners to efficiently engage in knowledge sharing activities. Furthermore, Gebretsadik et al., (2014) found that through the utilisation of ICT tools, medical staff are able to easily conduct patient admission, diagnosis, treatment and monitoring. Technical support in this study refers to the support, which is provided to the medical practitioners in terms of the use of ICTs to perform medical duties, such as diagnosis, treatment and monitoring of patients. This performance of medical duties normally happens through interaction, communication and collaboration among medical staff and patients. According to the literature, the use of ICTs plays a significant role in facilitating knowledge sharing among professional groups. Molete, Dehinbo and Dehinbo (2015), Sabeeh, Mustapha and Mohamad (2017), Gebretsadik, et al., (2014) and Acharyulu, (2011) have revealed that ICT tools are key in ensuring effective knowledge sharing amongst medical practitioners, which is believed to improve service delivery. During the analysis of field data, key three factors under technical support emerged from the data which guided the categorisation of the findings. These factors were the availability of the required ICT equipment, maintenance of the equipment or tools and ICT skills among employees to use the equipment. In this study, technical support was defined in two contexts. Firstly, technical support was defined by assessing the availability of the right ICT tools and the regular maintenance of such tools. Secondly, technical support was defined by assessing staff's skills in terms of possessing the requisite skills to be able to use the available tools. In addition, technical support was described by assessing whether the available ICT tools were compatible with organisational process. Supporting this view, a study by Hamouda, Tantan and Boughzala (2018) on understanding the barriers to knowledge sharing in the French Health care system found that one of the barriers hindering effective application of ICT in knowledge sharing is the lack of customisation of the technology to suit the organisational process and the needs of users. All these definitions were guided by the knowledge sharing model and knowledge sharing literature. All these factors have been identified in the literature (Ajmal & Koskinen, 2008;

Shahmoradi, Safadari & Jimma, 2017; Hamouda, Tantan and Boughzala (2018) to play a significant role on the successful application of ICT to facilitate knowledge sharing effectiveness in medical organisations. From this statement, we learn that for knowledge sharing to be successful in organisations, there is a need to adopt the right tools and provide employees with the right skills to use the tools and ensure that tools are always in good working condition to derive maximum value. Each of the identified factors under technical support are discussed below.

5.3.1.1 Availability of ICT Tools

In terms of the availability of ICT tools, the findings have revealed that there is limited access to ICT tools in terms of access to computers and reliability of internet connection. For example, the findings have revealed that there is only one central computer in each medical ward to be used by all employees within that particular ward, and that this one computer does not have internet connection. The limited number of computers in the medical wards means that access to computers is very limited to enable effective knowledge sharing by medical practitioners. For employees to communicate and collaborate with other professionals, they need access to computers. In addition, they need the internet in order for them to send and receive e-mails, search medical journals and chat with others through modern social media tools, like Facebook and twitter, which are shown to improve knowledge sharing among professionals (Sibbald, et al., 2013; Acharyulu,2011; Molete, Dehinbo and Dehinbo, 2015, Panahi, Watson & Partridge, 2012; Shahmoradi, Safadari & Jimma, 2017). This finding means that even if they are willing to share and collaborate with other professionals, employees are limited as a result of the limited equipment. However, this finding is not unique to Princess Marina Hospital. The same observation was made by Adeyelure, Kalema and Motlanthe (2019) where they found out that there is a shortage of computers in South Africa's health system where 10 or more employees were sharing one computer. In addition, Gebretsadik et al., (2014) received the same results, while conducting a study of knowledge sharing practices and its associated factors of health care professionals of public hospitals in northern Ethiopia.

The above results are not surprising as the shortage of ICT tools, as a barrier to knowledge sharing, is a common occurrence in most organisations across developing countries, especially in Sub Saharan Africa. While in developed countries, especially China and Australia, the findings have revealed the opposite results. For example, Panahi, Watson and Partridge (2012), while examining the potential of social media for tacit knowledge sharing amongst physicians in Australia, found

that there were various social media tools used by physicians to share knowledge, such as blogs, Facebook, LinkedIn, physician's only social networks, YouTube and many others. Most of these tools, although available in some developing countries and proven to be helpful in promoting knowledge sharing among medical practitioners, are out of reach for the majority of medical practitioners, such as those at Princess Marina, because they are expensive to use. From the above findings, as well as the reviewed literature, one can only think that the poor service delivery across majority of health care organisations in developing countries may be as a result of the limited application of ICTs in knowledge sharing among medical practitioners. This is because the extant literature has emphasised the importance of ICT in facilitating knowledge sharing which leads to improved health care.

At Princess Marina Hospital, the findings have revealed that medical practitioners are not able to access, search, communicate and collaborate effectively with their peers, both within the same ward, hospital and even outside the hospital. In addition, the findings have revealed that the hospital library is still operating manually. This means the library is not only unable to subscribe to current and updated medical journals and online knowledge resources, but that the library is not able to play its meaningful role in terms of supporting and facilitating knowledge sharing amongst employees.

5.3.1.2 Maintenance of ICT Tools/Equipment

In addition to access to ICTs, it is important to ensure that the available tools are regularly maintained to ensure uninterrupted access and use. This can be achieved through regular servicing of equipment. This is supported by literature which revealed that despite the importance of ICTs in facilitating knowledge, there are of no value if they are always broken or damaged, hence there is a need for regular maintenance of equipment. Unlike studies such as that of Makhanya (2018), which revealed poor maintenance of equipment, the findings of this study have revealed that although there is a shortage of ICT tools, the available tools are well maintained through regular servicing. The findings revealed that the ICT department has, developed a maintenance plan which is under implementation. In addition, there is a service level agreement between the hospitals' ICT department and the service provider, which is well coordinated and executed to ensure that all ICT equipment and tools are always functioning. Furthermore, the findings have revealed that there is an ICT strategy in place, which takes care of such things as the acquiring of ICT tools, even

distribution of equipment, training of staff, maintenance, servicing and replacement of damaged equipment. These results were not expected considering the fact that the hospital has limited number of computers. This is a positive strength on the part of Princess Marina, which can be used as a foundation to build a good ICT infrastructure to support knowledge sharing. In addition, this result gives hope that the hospital has the capability to support knowledge sharing amongst employees.

However, the data has revealed that although the ICT department its doing its best to ensure that equipment are always in good working condition, there are some instances where it takes a long time to attend to faulty equipment, especially where funds are required. This is an observation which the head of ICT did not dispute, as he acknowledged that sometimes they have challenges of replacing damaged equipment due to financial constraints especially for those equipment which broke before their lifespan of five years. He however, pointed out that the situation happens on rare occasions. That being the case, the findings have revealed that this is not a prevalent issue as it happens on rare occasions.

5.3.1.3 ICT Skills

Furthermore, in order to ensure effective utilisation of the ICT equipment, there is a need to ensure that employees are well capacitated to use the technology or else it will be of no value. Literature (Hamouda et al., 2015; Hendricks, 1999; Shahmoradi, Safadari & Jimma, 2017) has revealed that employees can only derive benefit from ICTs if they have the skills to make maximum use of such equipment. Data have revealed that, the ICT department is conducting continuous training throughout the year to capacitate staff on how to use ICT tools. However, the study has found that there are some skills gaps in terms of the overall usage of these tools. The findings have revealed that there is limited skills amongst staff as some staff have revealed that they only have basic computer skills. This means that employees are limited to manoeuvre through various internet applications to seek and share knowledge. In addition, the limited ICT skills can be the reason for most people preferring to use Non-IT based platforms for communication and collaboration rather than IT-based ones. The same findings were found in a studies conducted by Adeyelure, Kalema and Motlanthe (2019), Makhanya (2018) and Hamouda et al (2015), who found that staff have limited skills to use computers and this hinders them from sharing their knowledge with others. A study by Hamouda et al (2015) revealed that the non-usage of ICT tools is sometimes as a result

of lack of training, which leads to employees resisting the technology. In addition, a study by Olok, Yagos and Ovuga (2015) of a study found that the level of ICT skills shown by participants is likely to be the major hindrance to the use of ICT in knowledge sharing. The lack of access and lack of ICT skills in most developing countries is worrisome considering the speed in which the world is moving towards a knowledge based economy.

Some participants pointed out that they are not conversant with ICT tools, such as how to search for information through the internet and how to create e-mail addresses because they were not trained to do so. However, the ICT department pointed out that the majority of employees miss scheduled trainings. The reasons advanced for non-attendance by some of the employees were cited as busy schedule, trips or leave and other work commitments, while, in some few cases there is resistant to change. Gider, Ocak and Top (2015) has also noted this challenge where they found that there was unwillingness by staff to utilise ICT tools as they were not familiar with them or that they were not trained on the new technology systems and processes. The above findings mean that there is a need for new capacity development initiatives to ensure that all employees are capacitated and have confidence to embrace modern technology and that the hospital considers the concept of change management whenever a new system is adopted. This will bring about positive results in terms of staff embracing new initiatives.

5.3.2 Organisational Context

According to Tabrizi and Morgan (2014), organisational context, such as leadership support, human and financial resources and equipment, plays an important role in ensuring that there is effective knowledge sharing by supporting knowledge sharing practices and initiatives. In addition, Gider, Ocak and Top (2015) pointed out that people are the core of creating organisational knowledge. Therefore, it is important that hospitals offer employees enough time and resources to be able to share their knowledge effectively.

This study has found that employees work very long hours leading to limited or no time to engage in knowledge sharing activities. For example, participants have pointed out that although they consider face-to face meetings to be an effective platform for knowledge sharing, all participants acknowledged that meetings are not convened as planned. This, according to them is due to lack of time because of other pressing and urgent commitments. This statement means that sometimes medical practitioners do not engage in knowledge sharing activities not because they are not

interested, but because they are busy with other work commitment. Therefore, they miss opportunities for knowledge sharing and professional development. This finding is similar to the findings of other studies such (Adeyelure, Kalema & Motlanthe, 2019; Makhanya, 2018; Asemahagan, 2014; Gebretsadik et al., 2014). This finding was expected because the reviewed literature, pointed out that medical practitioners work long hours as a result of shortage of skilled medical professionals. This observation reveals that this challenge is not peculiar to Princess Marina Hospital, but a common challenge facing many health care organisations.

In addition, the data revealed that leadership support is an important factor which facilitates knowledge sharing amongst employees. This is supported by some studies (Adeyelure, Kalema & Motlanthe, 2019), who found that leaders set the example for the rest of the staff for any initiative in an organisation. For instance, they have the power to shape how the organisation approaches and deals with knowledge sharing initiatives. The findings revealed that there is a good leadership support at Princess Marina hospital. For example, data revealed that heads of medical departments are leading knowledge sharing activities and platforms such as weekly case reporting meetings, quality assurance, medical teams, shift handover and departmental meetings. This is a positive strength on the part of Princess Marina and can be used to strengthen knowledge sharing among medical practitioners. Supporting the above statement, Adeyelure, Kalema & Motlanthe (2019:121) pointed out that "Management plays a vital role in developing plans and enforcing decision making in organizations". This means that supportive leadership is one of the critical factors which can ensure the success of knowledge sharing within an organisation.

In addition, the findings revealed that there is good support provided by senior doctors to junior doctors, coupled with support from supervisors. For example, when responding to a question on how is it easy to approach management, one participant, said "*Although the environment is hectic and tough, we are able to pull through because of the support and encouragement we receive from our supervisors, especially our head of department".* This is a contradiction to the findings of similar studies (Gebretsadik, et al., 2014; Karamat et al., 2018) which found that leadership support is one of the challenges frustrating medical staff's efforts to share knowledge. In addition, a study by Gebretsadik et al., (2014) in public hospitals in northern Ethiopia, revealed a lack of supportive leadership is the reason for poor knowledge sharing amongst medical practitioners. These findings mean that although there are some gaps in some areas, knowledge sharing can be successful at

Princess Marina Hospital because of the dedicated and supportive leadership, as well as committed employees, which together provide a conducive environment for knowledge sharing to thrive.

However, the findings have revealed that there is lack of resources, such as financial resources, which make it difficult to procure all the required equipment such as ICT equipment, and the acquisition of knowledge resources which can facilitate knowledge sharing. For example, the findings revealed that the library is allocated a small budget, which leaves it with no funds to acquire or subscribe to online knowledge resources. In addition, the findings have revealed that there is a serious shortage of human resources as shown by lot of vacancies in the establishment register leading to long hours of work for available staff. Unfortunately, this is a finding which is common across many studies which have revealed that shortage of skilled medical practitioners is one of the challenges facing health care organizations in developing countries which Botswana is a part of. These findings were highly expected because the Botswana Statistics (2017) report and the OECD (2019) have revealed that most countries in the Sub Saharan Africa are faced with a critical shortage of skilled health professionals.

The above findings have revealed three key areas under organisational context, which can hamper or promote knowledge sharing among medical practitioners. Firstly, the findings revealed that medical practitioners work long hours leaving limited time to engage in knowledge sharing. Secondly, on a positive note, the findings revealed that the leadership of Princess Marina is committed to supporting medical practitioners to engage in knowledge sharing and that there is enough support from supervisors to their juniors. Lastly, there is a shortage of resources such as human and financial, which could hamper effective knowledge sharing. There is a need to address the identified weaknesses to ensure effective knowledge sharing leading to maximum utilisation of the available knowledge resources.

5.3.3 Organisational Culture

According to Dean (2002), the biggest challenge hindering knowledge sharing in hospital organisations is how to build an environment in which professional communities can trust each other, otherwise they are unlikely to share their knowledge. In addition, Addeirahman and Papamichail (2016) found that organisational culture affects the way in which individuals or groups of individual communicate, interact and share knowledge and they stress that it is the organisational culture, which is dominant in an organization over individual cultures.

Organisational culture is all about providing a conducive and enabling environment, which promotes and empowers sharing of knowledge by staff. This involves such things as building trust amongst staff, providing rewards for knowledge sharing, as well as creating room for staff to make mistakes and learn from mistakes in order for them to grow.

In this study, the findings have revealed that there is a knowledge sharing culture at Princess Marina. This is supported by evidence from participants, who pointed out that although there are some challenges hindering effective knowledge sharing, the environment is conducive for knowledge sharing to be successful. The findings revealed that the hospital management is very supportive of new initiatives geared towards improved service delivery and that there is guidance to junior employees by the senior medical practitioners, which is a positive sign.

However, the participants highlighted some areas which are a hindrance towards the success of knowledge sharing within Princess Marina Hospital. Data have revealed that there are no rewards system for knowledge sharing other than those embedded with the general performance management system, which is common across all government ministries. The lack of rewards is highlighted as a factor which discourages other employees, who might be interested in voluntarily participating in knowledge sharing, hence it is only done because it is mandatory. Many participants believe that it is important that there are rewards, such as recognition or training, for those who show more interest in sharing their knowledge with others. This sentiment is shared by Sajeva (2014), who pointed out that intrinsic rewards, such as recognising employees who have shown tremendous dedication of their time and effort in knowledge sharing activities are more effective than extrinsic rewards.

Participants pointed out that they engage in knowledge sharing because it helps them to improve on their medical skills, provide them with an opportunity to learn from others and help them to provide better medical care thereby saving lives, which is their primary goal. Todorova and Mills (2014) have pointed out that there is a need to offer rewards to those who participate in knowledge sharing process so that others can be motivated to participate as well.

In addition to rewards, trust has been highlighted in various studies as one of the key factors which play a significant role in promoting knowledge sharing among professionals. Just like results of similar studies (Brown & Calnan,2016; Wang, Tseng & Yen, 2014; Tasselli,2015; Gider, Ocak & Top, 2015; Zhou & Nunes, 2012; Asrar-ul-Haq & Anwar,2016) on knowledge sharing, the

findings of this study have revealed that trust plays a significant role in the decision to share or not share knowledge and with whom to share and seek knowledge. Responding to a question on whom do they share knowledge with and why, participant ***PMH-MP11*** pointed out that she normally shares knowledge with peers because she is comfortable amongst them. Explaining her statement further, she brought a very important point by pointing out that she only seeks and uses knowledge from the people she trusts such as those with diverse experience and those who are trustworthy. Concluding her remarks, she said: "I*t is very important to know whether the person or source you are consulting is a reliable source or else you will put patient lives in danger".* Addeirahman and Papamichail (2016), when conducting a study on the role of organisational culture on knowledge sharing, made similar observation. They found out that knowledge sharing cannot take place where there is no trust between the knowledge seeker and receiver, as well as where there is distrust amongst the medical team members. This result means that it is very important that there is trustful relationships between medical team members, especially that medical care is provided through medical teams at Princess Marina, to ensure that patients receive quality health care.

The above findings reveal that trust and rewards are the two important key components that make up organisational culture. It is very important to ensure that there is a reward system in place to encourage employees to voluntarily engage in knowledge sharing activities. In addition, there is a need to ensure that there is trust among medical team members to ensure that medical team members have confidence in the information and knowledge of other team members. This would help in building trust and confidence among team members, thereby improving patient care. Overall, there is a need to build a conducive knowledge sharing culture at Princess Marina Hospital. A conducive knowledge sharing culture would motivate more employees to engage in knowledge sharing voluntarily as they would gain personal satisfaction from doing so, and would improve service delivery.

5.4 IMPACT OF KNOWLEDGE SHARING ON PRINCESS MARINA

The study has revealed that the performance of knowledge sharing at Princess Marina Hospital is not only dependent on the medical practitioners participating in knowledge sharing, but rather by other factors, such as the knowledge sharing process, knowledge sharing means and knowledge sharing governance mechanism.

The overall results show that there is knowledge sharing at Princess Marina Hospital as shown by the general awareness and appreciation of the importance of knowledge sharing amongst staff as well as the existence of a number of knowledge sharing activities. In addition, the findings have revealed that all medical practitioners are engaged in knowledge sharing activities and that medical practitioners consider these activities very important. However, the findings have revealed that, there are some areas which need to be improved to ensure that effective knowledge sharing is achieved and that all medical practitioners are not only engaged in knowledge sharing but rather are passionate and participate voluntarily.

The findings have revealed that the hospital is still lagging behind in terms of leveraging on ICTs to improve communication, collaboration and networking between medical practitioners, medical wards and general communication within the hospital. The limited usage of ICT means that communication is delayed and that collaboration is limited, which hampers effective knowledge sharing. Several studies (Hamouda, Tantan & Boughzala, 2018; Muhammad & Anwar, 2016; Nicolini et al., 2008; Hamouda, Feki & Chourabi, 2015; Gider, Ocak & Top, 2015; Adeyelure, Kalema & Motlanthe, 2019; Asemahagan, 2014; Makhanya, 2018) have stressed the importance of technology in facilitating effective knowledge sharing within hospital organizations. Shahmoradi, Safadari and Jimma (2017) believe that technology can help improve on knowledge sharing amongst medical practitioners, especially in a big hospital. Moreover, there is a need to improve issues relating to the knowledge sharing governance mechanism at the hospital, specifically issues relating to limited resources (human and financial).

Furthermore, the findings have revealed other areas that need some improvement. For example, when asked what they think could be done to improve knowledge sharing, participants proposed that there is a need to improve the library in terms of financial resources. This is because they were of the view that the allocation of sufficient financial resources would enable the library to not only acquire physical information resources, but also subscribe to online knowledge resources. In addition, some of participants suggested that the library should collaborate with other libraries, more specifically the University of Botswana Teaching hospital as it is better resourced. This would help medical practitioners to have access to research findings and thereby enhance their knowledge.

The study's findings have revealed that knowledge sharing at Princess Marina hospital, although well organised, there is no central point (knowledge sharing strategy) where knowledge creation, storage and retrieval is managed. This means that knowledge sharing activities are fragmented and not well coordinated. Therefore, knowledge sharing takes place randomly. The same observation was made by Badimo and Buckley (2014) and Molete, Dehinbo & Dehinbo (2015), who found that although there is knowledge sharing among employees, this is not well executed due to the lack of a centralised knowledge system. The absence of a knowledge sharing strategy and a centralised knowledge repository means that knowledge is dispersed across the various hospital departments leading to delays in retrieval and access. Therefore, there is a need for a knowledge sharing strategy, as well as a centralised knowledge repository, to ensure efficiency and effectiveness in the use of the hospital's knowledge resources.

In summary, the findings have revealed that despite the absence of a well-documented knowledge sharing strategy, there is knowledge sharing taking place at Princess Marina Hospital. In addition, the findings have revealed that there is no centralised knowledge repository which is a weakness which can hamper knowledge sharing performance. From the reviewed literature, it has emerged that a knowledge sharing strategy is an important document which can help guide all the organisation's knowledge sharing initiatives. The strategy would identify all knowledge resources within the organisation (tacit and explicit), ensure that there are clear processes for knowledge sharing, the right tools are in place and well maintained to facilitate knowledge sharing. Lastly, the strategy would ensure that organisational factors (leadership, culture and structure) affecting knowledge sharing are in place. This is supported by Tabrizi and Morgan (2014:63), who revealed that "*knowledge sharing performance is influenced by the impact of knowledge sharing means and knowledge sharing governance mechanisms on the knowledge sharing process".* In addition, there is a need to develop a centralised knowledge repository to ensure efficiency in terms of knowledge creation, capture, retrieval and usage.

5.5 KNOWLEDGE SHARING MEANS/PLATFORMS

According to the knowledge sharing model, knowledge sharing means or platform is one of the key factors that determine the knowledge sharing practices of medical practitioners. In this study, knowledge sharing means refers to the tools, which facilitate the transfer or transmission of knowledge from one end to the other. This statement means that for knowledge sharing to take

place between medical practitioners, there is a need for a platform or tool, which facilitates the transmission of knowledge from one medical practitioner (source) to the other. Panahi, Watson and Partridge, (2012), Hendricks, (1999) Ajmal and Koskinen, (2008) and Acharyulu (2011) have also highlighted that knowledge sharing tools are key as they facilitate the knowledge sharing process because without the knowledge sharing means, knowledge sharing cannot take place. Therefore, knowledge sharing means is an enabler of knowledge sharing. Thus, according to Tabrizi and Morgan's model, choosing the right tools or platforms to facilitate knowledge sharing amongst medical practitioners in the organisation is very important to ensure seamless and uninterrupted knowledge transmission. During an analysis of data, two categories of knowledge sharing means or platforms were identified and divided into two sub-categories of IT- based platforms and non-technology based platforms. A detailed discussion of each of the knowledge sharing means sub-themes at Princess Marina Hospital is presented below.

5.5.1 IT-Based

The study has revealed that there are a number of tools or platforms, which are used to share and seek knowledge by medical practitioners at Princess Marina Hospital. These platforms are grouped into two main categories of technology based and non-technology based platforms. Technology based platforms in this study refers to those tools or platforms which are dependent on technology, while non-technology based are not technology dependent, such as face-to-face meetings, conferences, workshops and others. The findings have revealed that just like other organisations, Princess Marina Hospital to a limited extent, is slowly taking advantage of modern technologies in order to improve efficiency in service delivery.

The findings also revealed that there are a number of ICT tools used at Princess Marina Hospital such as e-mails, telephones, internet applications and Integrated Patient Management System (IPMS). This finding is consistent with the findings derived from a number of previous studies (Nicolini et al., 2007; Adeyelure, Kalema & Motlanthe, 2019; Molete, Dehinbo & Dehinbo, 2015; Panahi, Watson & Partridge, 2012). The above studies have highlighted that ICT tools are the most efficient knowledge sharing tools amongst medical practitioners in the provision of health care where timely decision making is critical. In addition, Nicolini et al., (2007) found that IT-based tools, such as electronic libraries and knowledge repositories, are an important source of knowledge and play an important role in supporting or facilitating clinical-decision making

process. Supporting the above assertion, the findings have revealed that the use of information technology tools have gained popularity amongst employees because it offers convenience and flexibility, especially e-mail, because it is easy and free to use.

The study found that e-mail is the most popular and commonly used information communication technology tool amongst medical practitioners at Princess Marina Hospital. The findings showed that medical practitioners use e-mail to communicate and collaborate with each other. The medical practitioners prefer e-mail because it offers a faster way of communication and knowledge transfer as well as provide convenience. E-mail offers flexibility in terms of time and location, which means collaboration is not only limited to colleagues within the same ward or hospital but other professionals in other hospitals and even outside the country, anytime they want as long as they are connected to the internet.

In addition to e-mails, medical practitioners use internet applications such as WhatsApp, Facebook, YouTube, and LinkedIn to connect, collaborate and access medical knowledge within Princess Marina Hospital. The internet provides a variety of options to medical practitioners as it provides a rich source of medical knowledge such as published research materials, clinical trials, as well as access to medical professionals all over the world. In addition, internet applications, such as YouTube, is a rich source of knowledge for medical practitioners as it offers video presentation which is easier to understand. According to Makhanya (2018), the internet enables rapid searching, retrieval and access to multiple sources of clinical information and knowledge from a variety of knowledge resources. This sentiment is shared by Panahi, Watson and Partridge (2012) in a study which examined the potential of social media for tacit knowledge sharing amongst physicians in Australia. However, Hamouda, Tantan and Boughzala (2018) argue that ICT is only an enabler of knowledge sharing, but the people and processes are the key drivers of effective knowledge sharing, a sentiment shared by Shahmoradi , Safadari and Jimma (2017). This argument calls for a balanced approach between people, processes and technology when developing a knowledge sharing strategy by the hospital.

Overall, the findings have revealed that the potential benefits which ICT tools offer are the ones attracting medical practitioners to prefer ICT tools over other forms of knowledge sharing platforms or means. The findings have revealed that information communications technology tools are the most popular and preferred form of knowledge sharing amongst medical practitioners. The

findings have revealed that the actual usage of such tools are limited due to a number of factors, such as limited access to computers, poor and unreliable internet connection, slow internet, low bandwidth and limited IT skills. This challenge is not only peculiar to Princess Marina Hospital but it is a challenge, which is more common in developing countries as observed by many studies, such as Okoroji, Velu and Sekaran (2013), Molete, Dehinbo and Dehinbo (2015), Adeyelure, Kalema and Motlanthe (2019), Asemahagan, (2014) and Olok, Yagos and Ovuga (2015). This calls for the hospital management to ensure that there is improved internet connection and that staff are capacitated with the necessary IT skills to be able to derive maximum benefits from what the internet offers

From the findings and the literature, we understand that having ICT tools in place alone is not a solution to effective knowledge sharing, but rather there is a need to choose the right tools which employees will be able to utilise to meet their knowledge sharing needs. For example, if staff do not have the necessary skills or have limited skills, as revealed in this study, it means the tools will be of no value because they are not satisfactorily achieving the intended purpose. In this study, the right ICT tools are considered those tools which offer participants the ability to collaborate and interact in real time such as Facebook, twitter, chat rooms and online discussion forums, which are not available at Princess Marina Hospital. These tools, which participants wished to have, are available in other countries especially developed countries, such as Australia, China and Malaysia (Panahi, Watson & Partridge, 2012; Okoroji, Velu & Sekaran, 2013). However, there are some developing countries which, despite challenges have made some significant strides in investing in modern technology. For example, a study by Adeyelure revealed that South African hospitals use various ICT tools for knowledge and information sharing amongst medical practitioners, such as Radiology Information System (RIS), Picture Archiving System (PAS) as well as a Facebook page dedicated for interaction and knowledge sharing by medical practitioners. These tools are considered effective in knowledge sharing as they provide the users with a platform to collaborate, comment, engage in discussions with peers, ask clinical questions, as well as ask expert opinions in real time which improves service delivery.

The findings of the study, together with literature showed that the hospital should invest in modern ICT tools to improve knowledge sharing amongst medical practitioners in order to improve staff skills and ultimately improve service delivery. This is supported by Panahi, Watson and Partridge (2012) by highlighting that modern tools, such as social media, offer a significant potential in

enhancing knowledge sharing through the provision of live conversations, networking and collaboration amongst medical practitioners.

5.5.2 Non-IT Based

In this study, it was established that apart from ICT based tools or platforms, there are other platforms used to share knowledge by medical practitioners at Princess Marina Hospital, such as face –to-ace meetings, conferences and workshops, as well as lectures. These are platforms which are considered as the traditional forms of communication and knowledge sharing. They are not dependent on technology hence they are called non-technology based platforms. These platforms are also considered to be the most popular and effective way of knowledge sharing amongst medical practitioners. This finding is consistent with some studies (Adeyelure, Kalema & Motlanthe, 2019; Sabeeh, Mustapha & Mohamad, 2017; Makhanya, 2018), who found that traditional forms of communication and knowledge sharing are still prevalent in most organisations. According to Badimo and Buckley (2014), through coaching, experienced professionals are able to teach new professionals and impart their skills and knowledge. The findings have revealed that face-to-face meetings are the most used knowledge sharing platform because they offer a two-way interactive process thereby providing participants with an opportunity for interaction and clarity of unclear issues instantly. This finding was expected especially in developing countries, where access to computers is still a dream for the majority of the population. In addition, as revealed in the literature, the high cost of internet and poor internet connectivity makes it difficult for most developing countries to solemnly rely on modern technology for their communication. For example, as already presented in the findings under chapter 4, there is only one computer in each medical ward which is shared by all staff and that these computers have no internet access.

In addition, participants highlighted that because they are not technology dependant, traditional meetings are a reliable form of communication and knowledge sharing platform. Similar observations were also noted in a study by Hamouda, Tantan and Boughzala (2018), who found that medical doctors prefer to share and discuss medical issues verbally, especially older doctors as they were not trained to communicate in electronic media. Although appreciating the efficiency of face-to-face meetings, the findings revealed that employees noted the disadvantages of face-to-face meetings. The study found that face-to-face meetings limit the frequency of interaction and

collaboration amongst staff because, at times, it is a challenge to adhere to the approved schedule of meetings as they operate under limited time and pressure. In addition, unlike IT-based tools, there is no flexibility and convenience in non-IT-based platforms resulting in poor attendance for such meetings because of other pressing commitments.

In summary, the findings have shown that medical practitioners at Princess Marina Hospital have adopted the use of modern communication technology for knowledge sharing in addition to traditional forms of communication. This is a good initiative which can help augment the shortfalls of each form of communication to ensure the seamless and uninterrupted communication and knowledge sharing among employees.

5.6 CHALLENGES AFFECTING KNOWLEDGE SHARING AT PRINCESS MARINA

The findings have revealed that there are several challenges that hamper medical practitioners at Princess Marina Hospital from effectively sharing knowledge with each other. In other studies, (Lee, 2017; Gider, Ocak & Top, 2015; Kamarat et al., 2018; Hamouda, Tantan & Boughzala, 2018), these are referred to as barriers to knowledge sharing while Asemahagan (2014) and Gebretsadik et al., (2014) referred to them as factors affecting knowledge sharing. An analysis of data has classified these challenges into two main categories of individual challenges and organizational challenges. This finding is similar to findings by studies of Okoroji, Velu and Sekaran (2013) and Kothari (2012). However, this finding slightly differs from the findings of a study by Asemahagan (2014) in hospitals in Ethiopia, who in addition to individual and organisational challenges, included technological challenge as another category of challenges hindering the effective knowledge sharing among medical practitioners. These challenges are discussed, in detail below.

5.6.1 Individual Challenges

The study found that there are challenges which are hindering medical practitioners from sharing their knowledge with colleagues or seeking knowledge from colleagues, and these are at a personal or individual level. These challenges include busy work schedule, lack of time, trust and lack of rewards. Similar challenges were also noted in a study conducted by Badimo and Buckley (2014) in a South African hospital, and another study by Adeyelure, Kalema and Motlanthe (2019), which investigated the factors that influence knowledge sharing in the South African health system.

5.6.1.1 Time Constraints

The findings have revealed that all participants have cited time constraints as one of the major hindrances to engaging in knowledge sharing. Participants highlighted that staff work long hours and, therefore, have limited time or sometimes have no time to engage in knowledge sharing activities. These results were expected because, it was very clear to the researcher, from the beginning of the study, that there is too much work pressure at the hospital as demonstrated by the frequent cancelation and postponement of appointments by the participants. In addition, working long hours is as a result of shortage of staff, which was shown by the number of vacancies in the hospital's establishment register. This finding is consistent with similar studies (Okoroji, Velu & Sekaran, 2013; Gebretsadik et al., 2014); Asemahagan, 2014; Gider, Ocak & Top, 2015). Adeyelure, Kalema and Motlanthe (2019), found that time was the biggest impediment of knowledge sharing amongst hospital employees as employees are mostly overwhelmed with work pressure. Therefore, they fail to engage in knowledge sharing activities. This is similar to the responses from participants in this study, who revealed that the lack of time means that they end up missing scheduled knowledge sharing activities. This is consistent with the findings of a study by Shahmoradi, Safadari and Jimma (2017), which revealed that reluctance of medical practitioners to engage in knowledge sharing activities is mainly due to lack of time.

According to the findings, most participants revealed that although they are engaged in knowledge sharing, they believe that if it was not due to the busy work schedule, they could do more. This challenge was noted by Molete, Dehinbo and Dehinbo (2015), who found that the promotion of knowledge sharing is one of the biggest challenges faced by many organisations due to busy employee schedule. Asrar-ul-Haq and Anwar (2016) made the same observation. The above findings mean that even if employees participate in knowledge sharing, they are mostly fatigued which can affect the quality of knowledge sharing sessions. The above findings show that there is a need to ensure that there is a balance so that staff can have time to do other equally important medical duties, which can improve patient care, such as engaging in knowledge sharing activities. Having time to engage in knowledge sharing activities would provide staff with a platform to gain skills and experience for professional growth. This, in turn, would benefit not only the individual employees, but lead to improved service delivery which is the main aim of the hospital.

5.6.1.2 Lack of Trust

Trust is another important factor that can promote or hinder knowledge sharing between employees in an organisation. According to Wang, Tseng and Yen (2014), trust is a very critical factor in knowledge sharing. This is because it is only when there is a trustful relationship between employees that knowledge sharing can take place. In this this study, the findings have revealed that employees usually share and seek knowledge from the people they trust. This means that where there is more trust, knowledge sharing is likely to be high and where there is less trust, there is going to be less sharing. For example, the data have shown that doctors prefer to share knowledge with other doctors, while the same goes for nurses. This result means that employees tend to feel comfortable sharing and seeking knowledge from employees in the same category or class. This is an interesting observation as it depicts that there are two distinct social structures within medical practitioners. For example, during an observation in one of the weekly case reporting meetings, the researcher observed that it was only medical doctors who were attending the quality review presentations. These findings can present challenges in the performance of medical teams especially as medical practitioners work in medical teams which comprises of employees from various medical fields.

Although not largely presented in the literature, there is evidence to support this result. For example, these findings are supported by the findings of a study by Tasselli (2015), which showed that nurses and doctors communicate mostly with peers to stay up to date and communicate less with other groups. His explanation is that this is because of the hospital's internal structures of both nurses and doctor's social networks. This explanation is very relevant in this study because the findings have revealed that although they work in the same hospital wards, nurses and doctors have two parallel structures and reporting lines. This arrangement seems to create two different social structures, which make it easy for one to share and seek knowledge from those in the same social group or network. Furthermore, Gider, Ocak and Top (2015) found that the hierarchical disparities between medical doctors and other medical practitioners is an impediment to knowledge sharing across the structures.

5.6.1.3 Lack of Rewards

Lack of rewards related to knowledge sharing was also highlighted as one of the barriers that hinders effective knowledge sharing amongst medical practitioners. Data collected reveals that

there are no rewards for staff who are engaging in knowledge sharing. This, according to the participants, together with long hours of work and too much work, give them no desire to voluntarily share knowledge, hence they do it because it is part of the job. However, not all is doom. Although they acknowledge that rewards will encourage knowledge sharing amongst participant, some participants pointed out that they are engaged in knowledge sharing processes and activities for their own individual benefits. Responses from the participants revealed that they are participating in knowledge sharing because it gives them a platform for professional development. Participants revealed that as they interact and collaborate with experienced and respected professionals in the field, they gain skills and confidence which help to build their career. For example, Badimo and Buckley (2014:3456) found that the benefit derived from knowledge sharing is more dependent on the individual employee as determined by the effort by the particular individual. In addition, Sajeva (2014:132) stressed that knowledge sharing is a voluntary act, hence it depends on the individual employee's willingness to participate in knowledge sharing, which is influenced by the benefit derived from such engagement.

These findings mean that medical practitioners, who do not see any value for them personally tend to participate in knowledge sharing activities just because they are expected to. This is a challenge which can seriously hamper knowledge sharing because the lack of motivation can compromise the quality of knowledge sharing activities. There is need for the hospital to consider introducing rewards system, which can boost employee's interest in knowledge sharing. Rewards, such as increasing the number of employees attending regional and international conferences, the number of employees going for further training and access to computers and internet connection, will go a long way in motivating staff to want to engage more in knowledge sharing.

Responding to a question on what they think can be done to promote knowledge sharing, some participants pointed out that they believe that if there were specific rewards for knowledge sharing, more staff would do it voluntarily. The lack of rewards, as a barrier to knowledge sharing amongst medical practitioners, is not peculiar to Princess Marina Hospital. It is a challenge faced by many organisations as found by Gebretsadik et al (2014) and Asemahagan, (2014). According to Asemahagan (2014), knowledge sharing is poorly practised in resource limited countries due to lack of rewards and recognition of knowledge sharing habit.

5.6.2 Organizational Challenges

The findings show that in addition to individual challenges hindering medical practitioners from engaging in knowledge sharing, similarly there are some challenges which are impeding knowledge sharing at an organisational level. The data shows that there are three main organisational challenges which hinder effective knowledge sharing at Princess Marina namely; limited ICT tools, lack of knowledge sharing strategy and lack of knowledge repository. The above challenges might be a bit different from studies carried out in other organisations. This is not necessarily a concern because although they perform similar functions, no organisation is the same hence there will be some similarities as well as some differences. For example, a study conducted by Asrar-ul-Haq and Anwar in (2016) found that organisational factors, such as poor knowledge sharing culture, lack of technical support and poor IT infrastructure could hamper effective knowledge sharing in an organisation. Although organisational factors might be different from organisation to organisation, most studies agree that organisational factors play a critical role in ensuring the success of knowledge sharing among employees in an organization. For example, Asemahagan, (2014) Gebretsadik et al., (2014) and Gider, Ocak and Top (2015) pointed out that organizational factors are the biggest threats for successful knowledge sharing. This is because it is the organisational factors which can provide an enabling knowledge sharing environment or culture. Each of organizational related challenges hindering effective knowledge sharing are discussed in the next section.

5.6.2.1 Limited ICT Tools

The findings revealed that lack of access to ICT tools, such as computers, slow and unreliable internet is affecting effective knowledge sharing by medical practitioners. This is supported by the participant's responses, which revealed that Princess Marina Hospital is still lagging behind in terms of leveraging on the various ICT tools available. Adeyelure, Kalema and Motlanthe (2019), Badimo and Buckley (2014), Gebretsadik et al., *(*2014), Moahi and Bwalya (2017), Asemahagan (2014), Makhanya (2018), Van Der Meer et al., (2013), Hamouda, Feki and Chourabi (2015) and Panahi, Watson and Partridge (2012) have revealed that modern technology such as social media platforms like Facebook and Twitter, offer exciting opportunities for effective knowledge sharing by medical practitioners.

The findings have revealed that access to computers is limited at Princess Marina Hospital. For example, the field data has revealed that there is only one computer per medical ward, which is shared by all medical practitioners in that particular ward. This means that employees wait long hours to access computers, which can result in delays in service delivery. In addition, these computers do not have internet connection. This means that staff are only limited to basic Microsoft programs and have to go to other offices to access the internet. This situation means that communication and collaboration with other practitioners is difficult. Therefore, this can hamper the provision of efficient patient care.

The limited access to computers by medical practitioners limits medical practitioners at Princess Marina from effective communication, collaboration and networking with other specialist within and outside the hospital. A review of the literature revealed that this challenge is not only peculiar to Princess Marina Hospital, but is experienced by many organisations, especially in developing countries. For example, a study by Adeyelure, Kalema and Motlanthe (2019) on the knowledge sharing in South African healthcare system found, that although most employees are computer literate, there is limited access to computers as more than ten employees share one or two computers. In addition, Makhanya (2018), while conducting a study of knowledge sharing in Nkangala District Municipality in South Africa, found that knowledge sharing is not effective in rural municipalities due to network challenges.

The findings from this study have also showed that limited ICTs is a challenge hindering effective knowledge sharing across the hospital's medical wards, which can hamper efficient service delivery. Considering efficiency brought about by the use of ICTs in the provision of health care as presented in the literature, the above findings challenge Princess Marina Hospital management to seriously consider benchmarking with other hospitals in the region. Benchmarking will guide the hospital in adopting relevant technology, which can bridge the digital gap among its employees and improve communication and collaboration among its medical practitioners, which would ultimately improve service delivery.

5.6.2.2 Lack of a Knowledge Sharing Strategy

The non-existence of a knowledge sharing strategy has also emerged as a challenge which hinders medical practitioners to effectively engage in knowledge sharing. Responses from participants has revealed that although there are procedures in place to guide knowledge sharing activities, the lack

of a knowledge strategy means these initiatives are not properly coordinated and managed. This challenge is not only faced by Princess Marina Hospital, but it is a challenge facing many organisations around the world. For example, the Brazilian Russian Indian Chinese and South African (BRICS) Ministers of Health also noted the absence of a knowledge sharing strategy as a hindrance to improving service delivery in health care during the meeting in December 2015. The BRICS Ministers of health acknowledged that the lack of knowledge sharing strategies amongst the BRICS countries in terms of health care is a serious challenge, which is hampering service delivery. Thus, the ministers committed to develop knowledge sharing strategies as a matter of urgency amongst themselves, as well as with other low and middle-income countries.

The findings have revealed that the absence of a knowledge sharing strategy is affecting effective knowledge sharing as it means knowledge sharing initiatives are fragmented and dispersed across the different medical departments. Each of the medical ward manages and monitors its own activities and this can hamper effective service delivery and also wastage of time and resources. The absence of an organisational wide knowledge sharing strategy makes the coordination and implementation of knowledge sharing initiatives challenging and ineffective.

5.6.2.3 Lack of a Knowledge Repository

The findings have indicated the non-existence of a central repository where employees can go to access knowledge when needed. According to Molete, Dehinbo and Dehinbo (2015), a central repository of all organisational knowledge resources such as patient's records, organisational reports and historical data, is vital to ensure timely access to knowledge for improved clinical decision-making. The lack of a knowledge repository at Princess Marina poses a challenge for effective knowledge sharing and hampers service delivery because it means knowledge is scattered and fragmented in the various medical departments. This situation hampers efficiency in terms of timeous identification, retrieval access and application of knowledge. This is not a good sign in health care organisation where timeous diagnosis and treatment is of paramount importance.

Similar findings were found in a study by Badimo and Buckley (2014) where respondents expressed that there is no central knowledge repository where they can access knowledge, and this was preventing them from sharing and applying knowledge effectively. In addition, Adeyelure, Kalema and Motlanthe (2019) observed that a lack of a well-structured and developed knowledge repository results in loss of knowledge leading to poor service delivery. According to Adeyelure,

Kalema and Motlanthe (2019), the provision of health care is time conscious, hence the need for a centralised source where medical practitioners can access relevant knowledge within a short period is critically important. A knowledge repository is an important tool, which can help Princess Marina Hospital to harness its knowledge resources by ensuring a central storage to facilitate knowledge creation, capture, retrieval and application.

5.7 SUMMARY OF THE FINDINGS

This chapter discussed the findings of the study on knowledge sharing practices of medical practitioners at Princess Marina Hospital. The factors influencing the knowledge sharing practices of medical practitioners have been discussed and categorised under three main themes of knowledge sharing process, knowledge sharing means/platforms and knowledge sharing governance mechanism. The first theme was further categorised into two sub-themes of formal and informal knowledge sharing process. The second theme had two sub-themes of technology based and non-technology based platforms, while the third theme was divided into two main themes of organisational context, organisational culture and technical support.

Furthermore, challenges which hinder effective knowledge sharing amongst medical practitioners were discussed and grouped into two main categories of individual factors, being lack of time, busy schedule and lack of rewards, while organisational factors include lack of ICT tools, lack of a knowledge strategy and knowledge repository. Lastly, the relationships amongst the three main themes were established. The findings revealed that effective knowledge sharing is dependent on the development of the right processes, the adoption of the right knowledge sharing means, as well as an effective knowledge sharing governance mechanism.

CHAPTER 6

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

This study explored the knowledge sharing practices of medical practitioners working at Princess Marina Hospital in Botswana. The findings have provided insights in relation to understanding how knowledge sharing takes place from the perspectives of the medical practitioners themselves. The findings would improve our knowledge and understanding of the processes of knowledge sharing within the hospital environment. Furthermore, the study would contribute in augmenting the literature gap by providing empirical evidence on how knowledge sharing is applied and can be applied within the medical field. This would help in providing new insights on how the sharing of medical knowledge can improve health care.

This chapter provides a summary of the key findings in relation to the knowledge sharing practices of medical practitioners at Princess Marina Hospital by drawing conclusions from the findings as presented and discussed in the previous two chapters. It presents a summary of the findings, explains the implications of the research findings and study contributions as well as highlights the limitations of the study. Lastly, the chapter concludes by providing some recommendations and opportunity for further research.

6.2 SUMMARY OF THE FINDINGS

The study explored the knowledge sharing practices of medical practitioners based on the three main themes and a summary of the findings in relation to each objective is provided below.

6.2.1 Knowledge Sharing Process

The first objective of the study sought to describe the knowledge sharing processes in place at Princess Marina Hospital. The findings revealed that there are some formal and informal processes of knowledge sharing amongst medical practitioners within the hospital. The findings further indicate that all medical practitioners are aware of the formal processes available to guide medical practitioners on how they can share and seek knowledge from each other because all employees have a role to play in these processes. The findings revealed that medical practitioners are aware

of these processes through a mandatory and robust induction program, which sees to it that all staff understand all the process and procedures, which they can use to collaborate with each other. The findings indicate that although employees were not aware that their collaboration, networking and interaction with each other in carrying out their work is called knowledge sharing, most are actively involved in knowledge sharing initiatives. The findings indicate that although staff share their knowledge with each other voluntarily. The nature of their job also demands that they share and collaborate with each other hence

6.2.2 Knowledge sharing Means

Secondly, for knowledge to flow from the sender to receiver, there is a need for a tool which transmits the knowledge from the sender to the receiver, which comes in the form of a tool referred to as a knowledge sharing means. These tools can be either technology based or non-technology based.

6.2.3 Knowledge sharing Governance Mechanism

There is a need to ensure that the environment in which the knowledge sharing is to take place is conducive for effective knowledge sharing. This is called the knowledge sharing governance mechanism, which provides the conducive environment for successful knowledge sharing, provide the resources such as the knowledge sharing means as well as developing a clear knowledge sharing process in the form of laid down procedures. In addition, knowledge sharing governance mechanism provides incentives to motivate employees to engage in knowledge sharing. The findings have revealed that in order for effective knowledge sharing to take place there is a need to ensure that these three factors are balanced. Furthermore, the findings have revealed that knowledge sharing governance mechanism is a mediating factor for improved knowledge sharing performance as it ensures there are processes in place to guide knowledge sharing, as well as choosing the right knowledge-sharing platform to facilitate the knowledge sharing process.

In summary, the study found that a balance of the three main factors identified by Tabrizi and Morgan (2014) in the knowledge sharing model are critical for the success of knowledge sharing performance within an organisation. These factors are grouped into three main themes of knowledge sharing process, knowledge sharing means and knowledge sharing governance mechanism. These three main themes were applied in assessing the knowledge sharing practices

of medical practitioners at Princess Marina Hospital to verify how applicable they are within the public health system in Botswana. These three main factors reveal that in order for knowledge sharing to be effective in an organisation firstly there is a need for a clear process, which would guide or provide a platform for the flow of knowledge from the knowledge holder to the knowledge seeker.

6.3 IMPLICATIONS OF THE FINDINGS

An analysis of the research findings helped in ensuring that the research objectives are achieved. The findings of this study have some significant implications for both the medical practitioners and the hospital management. Firstly, as a knowledge intensive organisation, there is a need for an in-depth understanding of the importance of knowledge sharing among medical practitioners in relation to improved service delivery. This will help the hospital in understanding the role of knowledge sharing in improving health care delivery. Secondly, the findings require that there is an understanding of the factors which can facilitate effective knowledge sharing in the context of Princess Marina Hospital. For example, the understanding of factors affecting knowledge sharing would guide management on how to create an enabling knowledge sharing environment/culture, which technological tools to use and effective ways of how the management can lead the knowledge sharing initiatives. In addition, the findings of this study require the hospital to understand the current challenges which are hindering effective knowledge sharing with the aim of finding ways to address such challenges.

Furthermore, the findings of this study suggest that medical practitioners should realise that knowledge sharing is not only beneficial to the hospital, but that it would provide a platform for their own professional development. This is because it is only when they have a better understanding of the importance of knowledge sharing to them as professionals that they can fully participate in the process. In summary, the findings of the study suggest that the adoption and implementation of knowledge sharing requires an organisational wide change management strategy.

6.4 LIMITATIONS OF THE STUDY

This study was focusing on exploring the knowledge sharing practices of medical practitioners within Princess Marina Hospital. As such, the study was only limited to Princess Marina Hospital's

medical practitioners and was limited to the sampled medical practitioners within the four medical wards and support staff. Therefore, the findings and conclusions derived from this study may not be generalised beyond Princess Marina Hospital, hence a study involving other public hospitals in the country is recommended. Furthermore, this study was a case study, which studied participants in their natural setting of Princess Marina Hospital. Therefore, the findings may not be applicable to other environments.

6.5 CONCLUSION

In conclusion, the study would contribute to the body of knowledge by providing empirical evidence on the knowledge sharing practices of medical practitioners in a public hospital in Botswana. In addition, the findings would add to the limited empirical research on knowledge sharing in different professions in Sub-Saharan Africa as the world gears towards the knowledge based-economy, Botswana being no exception. This study provides a foundation of knowledge, which would provide evidence based practice in policy planning and service delivery.

Furthermore, the study has successfully applied Tabrizi and Morgan (2014)'s knowledge sharing model. The findings have revealed that the three themes of knowledge sharing process, knowledge sharing means and knowledge sharing governance mechanism identified in this model are key for analysing or exploring knowledge sharing in a hospital. In addition, the findings have further revealed that there is need for a balance between these three themes in order to achieve an effective knowledge sharing performance. This is because these themes are related and interdependent. Furthermore, the findings have revealed that the success of knowledge sharing is dependent on effective processes guiding knowledge sharing, and that the processes for knowledge sharing are dependent on effective knowledge sharing governance mechanism and that effective knowledge sharing is dependent on choosing the right knowledge sharing platforms/tools which facilitate the knowledge sharing process.

Lastly, the study has revealed that knowledge sharing amongst medical practitioners is very critical for the provision of quality health care. This is because in the medical field, knowledge is very critical, especially experience and incidental knowledge, but evidence has shown that it is only when knowledge is shared that it can be of value in a hospital environment.

6.6 RECOMMENDATIONS

The findings of the study have revealed a number of issues or areas which requires some improvements. Thus, the researcher makes the following recommendations:

1. Develop a knowledge sharing strategy to guide all knowledge sharing initiatives; Knowledge sharing is one of the key components of a knowledge based economy especially in hospital organisation, where knowledge has been identified as a key resource which can improve skills and knowledge transfer leading to improved health care. This can only be achieved if there is an organisational wide knowledge sharing strategy, hence it is recommended that the hospital develops a knowledge sharing strategy which will guide the coordination, implementation and monitoring of all knowledge sharing activities and processes within the hospital.

2. Develop a centralised knowledge repository to capture and manage all organizational knowledge resources (explicit and tacit); Medical knowledge is a key resource in a hospital organisation. Therefore, it is recommended that the hospital through the library and ICT departments, develop a centralised knowledge repository where staff members can deposit medical resources from conferences, seminars and projects for easy access.

3. Library Partnership/ Collaborations; the hospital library to consider collaboration with other medical libraries especially the University of Botswana Teaching Hospital, so that employees can have 24 hours access to diverse and updated medical knowledge.

4. Funding Proposals; the library should consider putting up proposal for funding from partners such as the Bill and Melinda Gates Foundation, which already have a foot print in Botswana in terms of improving library and information resource centres in the country. This will help the library in terms of internet connection and subscription to online medical journals, which will be very beneficial to the medical practitioners in terms of access to latest research materials.

5. Due to the large number of employees and big size, the hospital should take advantage of ICTs to develop communication platforms, such as staff portal, in order to improve communication and interaction amongst staff.

6. There is need to invest more on ICT infrastructure in order to reap the benefits provided by technologies such as Telemedicine which will lead to efficiency in service delivery.

7. Introduction of Reward System; rewards is believed to play a significant role in motivating employees to share knowledge which can lead to improved organizational efficiency, hence there is need to provide rewards such as short term trainings and conferences to motivate employees to engage more in knowledge sharing activities.

6.7 SUGGESTIONS FOR FURTHER RESEARCH

This study explored the knowledge sharing practices of medical practitioners of Princess Marina hospital, and only a few medical practitioners took part in the study. Therefore, the researcher suggests that:

1. Further research be done in other public hospitals in the country. This would reveal whether the findings of the present study were peculiar to Princess Marina Hospital or not

2. Secondly, it is important to note that no study has been conducted on this issue in Botswana. Therefore, it is recommended that further research be conducted on this issue. The researcher believes that further research would help in providing diverse views on the issue. More knowledge on this issue can help to guide in developing national health strategies on how public hospitals can leverage on its knowledge resources as the country prepares to transform to the knowledge-based economy so that the health care system is prepared for this transformation. This is very important because the researcher has observed that there is limited literature on this issue even in Sub-Saharan Africa.

REFERENCES

Abawi, K. (2013) 'Data collection Instruments. Paper presented at: *Geneva Workshop.2014.* Training Course in Sexual and Reproductive Health Research.17 September, Geneva. Available at:https//www.gfmer.ch/SRH-course-2013/Geneva-workshop/Data-collection-instruments-Abawi-2014.htm

Abdollahpour, N. & Naji, S. (2016) 'Investigating Barriers to Sharing Knowledge from the Perspective of Shahid-Rajai Hospital's Nurses and Oil Company's Employees in Gachsaran', *Journal of Chemical and Pharmaceutical Research*, 8(3): 108-111.

Abdur-Rafiu and Opesade, A.O. (2015) 'Knowledge Sharing Behaviours of Academics in the Polytechnic', *Library Philosophy and Practice, (e-journal),* available at: http://digital commons.unl.edu/libphilprac/1287.

Acharyulu, G.V.R.K. (2011) 'Information Management in Health Care System: Knowledge Management Perspective, *International Journal of Innovation, Management and Technology*, 2(6): 534-537.

Addeirahman, M and Papamichail, K.N. (2016) 'The Role of Organizational Culture on Knowledge Sharing by Using Knowledge Management Systems in MNCs, *22ns Americas Conference on Information systems,* 11-14, San Diego.

Adeyelure, T.S, Kalema, B.M. and Motlanthe, B.L. (2019) 'An Empirical Study on Knowledge Sharing: A Case of South African Healthcare System, *Knowledge Management & E-learning*, 11(1):114-128. https//doi.org/10.34105/j.kmel.2019.11.007.

Ajmal, M.M and Koskinen, K.U (2008) 'Knowledge Transfer in Project Based Organizations: An Organizational Culture Perspective, *Project Management Journal*, 39(1):7-15.

Ajzen I. (1985) 'From Intentions to Actions: A Theory of Planned Behavior. In Kuhl J. and Beckmann J. (eds), Action Control, *SSSP Springer Series in Social Psychology*. Berlin: Heidelberg. https://doi.org/10.1007/978-3-642-69746-3_2

Al Ma'aitah, M. (2008) 'Using Electronic Collaborative Media in Knowledge Sharing Phases: Case Study in Jordan Hospitals, *International Journal of Education and Information Technologies,* 2(4): 238-247.

Alajmi, A., Marouf, A. and Chaudhry, A.S. (2015) 'Knowledge Management Practices: A Study of Knowledge Management Adoption Among Doctors In Kuwait, *International Journal of Social, Behavioural, Educational, Business and Industrial Engineering*, 9(1): 128-134.

Alhalhouli, Z.T., Hassan, Z.B and Abualkishik, A.M. (2013) 'An Updated Model to Enhance Knowledge Sharing Among Stakeholders in Jordanian Hospitals Using Social Media, *World Applied Science Journal*, 25(2): 270-280.

Alipour, F., Idris, K. and Karimi, R. (2011) 'Knowledge Creation and Transfer: Role of Learning Organization, *International Journal of Business Administration*, 2(3):61-67.

Allameh, S.M. et al., (2012) 'An Analysis of Factors Affecting Staff's Knowledge Sharing in the Central Library of the University of Isfahan Using the Extension of Theory of Reasoned Action, *International Journal of Human Resource Studies.* 2(1)158-174.

Anderson, C. (2010) 'Presenting and Evaluating Qualitative Research, *American Journal of Pharmaceutical Education,* 74(8):141.

Antwi, S.K. and Hamza, K. (2015) 'Qualitative & Quantitative Research Paradigm in Business Research: A Philosophical Reflection, *European Journal of Business and Management.* 7 (3): 217-225.

Arzi, *et al.,* (2013) 'Relationship Among Reward System, Knowledge Sharing and Innovation Performance, *Interdisciplinary Journal of Contemporary Research in Business*, 5(6):115-141.

Asemahagn, M.A. (2014) 'Knowledge and Experience Sharing Practices Among Health Professionals in Hospitals Under the Addis Ababa Health Bureau, Ethiopia. *BMC Health Services Research* 14:431. https://doi.org/10.1186/1472-6963-14-431.

Ashwini, K. and Harinarayana, N.S. (2015) 'Reflections on the Knowledge Sharing Practices Among Medical Professionals: A review, *International Journal of Library and Information Studies*, 5(1):10-19.

Asrar-ul-Haq and Anwar S. (2016) 'A Systematic Review of Knowledge Management and Knowledge Sharing: Trends, Issues and Challenges, *Cogent & Business Management,* 3:1127744.

Atieno, O.P. (2009) 'An Analysis of the Strengths and Limitations of Qualitative and Quantitative Research Paradigms 13:13-18

Available at: https://dx.doi.org/10.1080/23311975.2015.1127744

Azad, A.K. (2015) 'Necessity of Interaction and Sharing Knowledge and Skill Among Professionals & Professional Communities Between Developed-Developing countries, *Journal of Anesthesia & Critical Care:* Open Access, 3 (1):00087.DOI:10.15406/jaccoa.2015.03.00087

Badimo, K.H. and Buckley, S. (2014) 'Improving Knowledge Management Practices in the South African Health Care System, *International Journal of Social, Behavioural, Educational, Economic, Business and Industrial Engineering*, 8(11):3449-3458.

Bell, L.M. et al., (2010) 'Electronic Health Record-Based Decision Support to Improve Asthma Care: A Cluster-Randomized Trial, *Pediatrics*, 125(4):770-777. DOI: 10.1542/peds.2009-1385.

Bhatti, K.L, Latif, S. and Rao, N.I. (2014) 'Knowledge Sharing Intentions in Doctors of Private and Government Hospitals, *Business Management and Economics*, 2(8):128-133.

Bock, G. and Kim, Y. (2002) 'Breaking the Myths of Rewards: An Exploratory Study of Attitudes about Knowledge Sharing. *Information Resource Management Journal*, 15(2):14-21.

Bolarinwa, O.A., Salaudeen, A.G. and Akande, T.M. (2012) 'Overview of Knowledge Management Applications in Health Care Delivery of Developing Countries, *Academic Research International*, 3(3):38-45.

Bricki, N. and Green, J. (2007) 'A Guide to Using Qualitative Research Methodology, *Medecins Sans Frontiers.* http://hdl.handle.net/10144/84230

BRICS (2014). 'Proceedings of the 2014 BRICS Ministers of Health meeting. December, 5. BRICS Information Centre, Brasilia. Available at: http://www.brics.utoronto.ca/docs/141205-health.html

Brown, P.R. and Calnan, M.W. (2016) 'Chains of (dis)Trust: Exploring the Underpinnings of Knowledge Sharing and Quality Care Across Mental Health Services, *Sociology of Health and Illness*, 38(2): 286-305.

Burnard, P. et al., (2008) 'Analysing and Presenting Qualitative Data, *British Dental Journal*, 204(8):429-432.

Crowe, S. et al., (2011) 'The Case Study Approach, BMC Medical Research Methodology 11:100 available at: https://doi.org/10.1186/1471-2288-11-100

Curran, J. and Abidi, S.S.R. (2006) 'Evaluation of a Discussion Forum for Knowledge Sharing Among Emergency Practitioners: A Social Network Approach, *Ubiquity: Technologies for Better Health in Aging Societies*, 941-946.

Davenport, T. H., De Long, D. W. and Beers, M.C. (1998). Successful Knowledge Management Projects. Sloan Management Review, 39(2), 43-57.

Dean, B. (2002) 'Learning from Prescribing Errors, *Quality Safety Health Care*, 11(3):258–260. DOI: 10.1136/qhc.11.3.258

Etikan, I., Musa, S.A. and Alkassim, R.S. (2016) 'Comparison of Convenience Sampling and Purposive Sampling, *American Journal of Theoretical and Applied Statistics*, 5(1):1-4.

Flick, U. (2013) 'The SAGE Handbook of Qualitative Data Analysis: Mapping the Field'. *SAGE* Publications Ltd, London. DOI:10.4135/9781446282243

Gebretsadik, et al., (2014) 'Knowledge Sharing Practices and its Associated Factors of Healthcare Professionals of Public Hospitals in Northern Ethiopia, *American Journal of Health Research*, 2(5):241-246.

Ghassemzadeh, H. et al., (2013) 'Tacit Knowledge Sharing in Health Industry: Influences of Personal, Organizational and Social Factors, *East Asian Journal of Business Management*, 3 (1):29-35.

Ghosh, B. and Scott, J.E. (2008) 'Knowledge Management for Healthcare Organizations: Comparing Strategies with Technical Support, *Proceedings of the 41st Hawaii International Conference on System Science. DOI: 10.1109/HICSS.2008.228*

Gider, O., Ocak, S. and Top, M. (2015) 'Perceptions of Physicians About Knowledge Sharing Barriers in Turkish Health Care System, *Journal of Medical Systems*, 39 (42): 1-13.

Gill, P., Stewart, E. and Chadwick, B. (2008) 'Methods of Data Collection in Qualitative Research: Interviews and Focus Group, *British Dental Journal* 204: 291-295.

Goh, S.K and Sandhu, M.S. (2013) 'Knowledge Sharing Among Malaysian Academics: Influence of Effective Commitment and Trust, *Electronic Journal of Knowledge Management*, 11(1):38-48.

Government of Botswana (2015).'Botswana Public health Act 2002, Cap 63.01. https://www.laws.gov.bw/

Government of Botswana (2017) 'Central statistics office. Health Statistics: Stats brief 2007-2015. http://www.statsbots.org.bw/health-statistics-stats-brief-2007-2015-1.

Griffin, C. (2004) 'The Advantages and Limitation of Qualitative Research in Psychology and Education. *Scientific Journal of Psychological society of Northern Greece*, 2.

Hall, H. and Goody M, (2006) 'Knowledge Management, Culture and Compromise: Interventions to Promote Knowledge Sharing Supported by Technology in Corporate Environments, *Journal of Information Science*, 33(2):181-188. https://doi.org/10.1177/0165551506070708.

Hamornik, B.P. and Juhasz, M. (2010) 'Knowledge Sharing in Medical Team: Knowledge, Knowledge Management and Team Knowledge, *Periodica Polytechnica of Social and Management Sciences*, 2(2):103-111.

Hamouda, B.I., et al. (2015) 'Understanding Knowledge Sharing in Health Care System, *Proceedings of the Mediterranean Conference on Information Systems*, MCIS 2015 Proceedings, Samos.17. http://aisel.aisnet.org/mcis2015/17

Hamouda, B.I., Tantan, O.C, and Boughzala, I. (2018) 'Understanding the Barriers to Knowledge Sharing in the French Health Care System: A Conceptual Model and Research Propositions, *Twenty-fourth Americas Conference on Information systems*, New Orleans https://www.semanticscholar.org/paper/Understanding-the-barriers-to-Knowledge-sharing-in-Hamouda-Chourabi/bf6309e17970a25f4aecedf7c1f16230b73c08cb

Hassan, M. et al., (2016) 'Knowledge Sharing Behaviours of Business Teachers of Pakistani Universities: An Empirical Testing of Theory of Planned Behaviour, *European Scientific Journal*, 12(13):29-40.

Hendricks, P. (1999) 'Why Share Knowledge: The Influence of ICT on the Motivation for Knowledge Sharing, *Knowledge and Process Management*, 6(2): 91-100.

Hesse-Biber, S.J.N. (2010) 'Analysing Qualitative Data: With or Without Software. Available at www.research.com

Hsien, O.L, et al. (2014) 'A Study on the Correlations Between Knowledge Sharing Behavior and Organizational Citizenship Behavior in Catering Industry: The Viewpoint of Theory of Planned Behavior, *The Anthropologist*, 17(3): 873-881, DOI: 10.1080/09720073.2014.11891502.

Huang, C. and Chen, T. (2015 'Moral Norm and the Two-Component Theory of Planned Behaviour Model in Predicting Knowledge Sharing Intention: A Role of Mediator Desire. *Psychology*, 6 (13):1685-1699.

Huysman, M. and V. Wulf (2004) 'Social Capital and Information Technology, Massachusetts Institute of Technology, London

Indeje, W.G. and Zheng, Q. (2010) 'Organizational Culture and Systems Implementation: A Structural Theory Perspective. All Sprouts Content.349. http//aisle.aisnet.org/sprouts_all/349

Jinyang, L. (2015) 'Knowledge Sharing in Virtual Communities: A Social Exchange Theory Perspective, *Journal of Industrial Engineering and Management*, 8(1):170-183.

Kaartemo, V. and Kansakoski, H. (2018) 'Information and Knowledge Processes in Health Care Value Co-Creation and Co-Destruction, *SAGE*, 1-23

Karamat, J. et al., (2018) 'Barriers to Knowledge Management in the Health Sector of Pakistan. Sustainability,10,4155:DOI:10.3390/su10114155. Available atwww.mdpi.com/journal/sustainability

Kawulich, B. (2004) 'Data Analysis Techniques in Qualitative Research. *Journal of Research in Education,* 96-113

Kim, W. and Park, J. (2017) 'Examining Structural Relationships Between Work Engagement, Organizational Procedural Justice, Knowledge Sharing, and Innovative Work Behaviour for Sustainable Organizations, *Sustainability*, 9(2):205: www.mdpi.com/journal/sustainability.

Kothari, A. et al. (2012) 'The Use of Tacit and Explicit Knowledge in Public Health: A Qualitative Study, *Implementation Science,* 7(20). http//www.implementationscience.com/content/7/1/20

Koushazade, S.A., Omidianpoor, S. and Zohurian, M. (2015) 'The Impact of Organizational Factors on the Effectiveness of Knowledge Management Among Nurses, *International Journal of Hospital Research*, 4(3):129-135.

Kuhn, T. S. (1970) 'Research Methodology & Design', The Structure of Scientific Revolutions: 291-334, 2nd ed. Chicago, London: University of Chicago Press Ltd.

Lee, H. S. (2017) 'Knowledge Management Enablers and Process in Hospital Organisations, *Osong Public Health Res Perspect.* 8(1): 26–33.

Lema, B. (2017) 'A Framework to Support Knowledge Sharing Practice Among Health Care Professionals at Yekatit 12 Hospital Medical College. M. A. Thesis, Addis Ababa University, Addis Ababa

Lin, H. (2007) 'Effects of Extrinsic and Intrinsic Motivation on Employee Knowledge Sharing Intentions, *Journal of Information Science,* 33(2):135-149.

Lin, H. (2007) 'Knowledge Sharing and Firm Innovation Capability: An Empirical Study, *International Jurnal of Manpower*, 28(3/4):315-332. DOI 10.1108/01437720710755272.

Lin, T., Cheng, H.K. and Wu, S. (2004) 'To Share Knowledge or Not to Share: A Social Exchange Theory Perspective of Virtual Team Member's Behaviour, *Proceedings of the Second Workshop on Knowledge Economy and Electronic Commerce,* 4-7 Jan,317-329.DOI: 10.1109/HICSS.2006.177

Liu, C.C. et al., (2011) 'Knowledge Sharing as Social Exchange: Evidence from a Meta-Analysis. *Pacific Asia Journal of the Association for Information Systems.* 3 (4):21-47.

Mahmood, A., Qureshi, A.M. and Shahbaz, Q. (2011) 'An Examination of the Quality of Tacit Knowledge Sharing Through the Theory of Reasoned Action, *Journal of Quality and Technology Management,* 7(1):39-55.

Makhanya, L. (2018) 'Knowledge Sharing in Nkangala District Municipality. MA thesis, UNISA, Pretoria

Ministry of Health & Wellness (2011) 'Botswana Health Policy: Towards a Healthier Botswana: https://www.moh.gov.bw/Publications/policies/revised_National_Health_Policy.pdf.

Ministry of Health, available at www.moh.gov.bw

Moahi, K.H. and Bwalya, K.J. (2017) 'Knowledge Sharing for Healthcare and Medicine in Developing Countries: Opportunities, Issues and Experiences', Health Information Systems and the Advancement of Medical Practice in Developing Countries. Baltimore: IGI Global. DOI:10.4018/978-1-5225-2262-1.ch004

Mogwe, A.W. (2014) 'The Need for Health Informatics (HI) in Enhancing Botswana Health System Surveillance: A Case Study of Botswana Health Posts: *International Journal of Physical and Social Sciences,* 4(8):18-33.

Mokone, G.G., et al. (2014) 'Establishing a New Medical School: Botswana's Experience. *Academic Medicine,* 89(80):S83-S87.

Molete, K., Dehinbo, O.J. and Dehinbo, K.O. (2015) 'An Innovative Knowledge Sharing System for Collaboration in the Public Sector: The Case of a South African Government Department, *Proceedings of the World Congress on Engineering and Computer Science,* 1:21-23, San Francisco. https://pdfs.semanticscholar.org/38f1/74f56db1b70f157b032954132c9da55b9d12.pdf

Ngah, R. and Ibrahim, A.R. (2011) 'The Influence of Intellectual Capital on Knowledge Sharing: Small and Medium Enterprise's Perspectives, *IBIMA Publishing, DOI: 10.5171/2011.444770*

Ngidi, T. (2015) 'Management of Medical Records: A study at Princess Marina Hospital; Gaborone, Botswana.

Nicolini, A., et al., (2008) 'Managing Knowledge in the Healthcare Sector: A Review, *International Journal of Management Reviews,* 10(3):245-263.

Nilsen, L.L. (2011) 'Collaborative Work by Using Videoconferencing: Opportunities for Learning in Daily Medical Practice, *Qualitative Health Research,* 21(8):1147-1158.

Nkomazana, O. et al., (2014) 'Human Resources for Health in Botswana: The Result of In-Country and Reports Analysis. *African Journal of Primary Health Care & Family Medicine*, 6 (1):716. DOI:10.4102/phcfm.v6i1.716.

Noble, H. and Smith, J. (2014) 'Qualitative Data Analysis: A Practical Example, *Evidence Based Nursing*, 7(1) available at http://dx.doi.org/10.1136/eb-2013-101603

Nonaka, I. (1994) 'A Dynamic Theory of Organizational Knowledge Creation. *Organization Science*. 5 (1): 14-37.

Nonaka, I. and Takeuchi, H. (1995) 'The Knowledge-Creating Company: How Japanese Companies Create the Dynamics of Innovation. Oxford University Press, New York

OECD (2019), Recent Trends in International Migration of Doctors, Nurses and Medical Students, OECD Publishing, Paris, https://doi.org/10.1787/5571ef48-en.

Okoroji, O.C., Velu, C. and Sekaran, C. (2013). Exploring Knowledge Sharing Among Medical and Non-Medical Staff: A Case Study of an Ophthalmology Hospital in Malaysia, *African Journal of Business Management*, 7(35):3545-3558.

Olok, G.T., Yagos, W.O, and Ovuga, E. (2015) 'Knowledge and Attitudes of Doctors Towards E-Health use in Health Care Delivery in Government and Private Hospitals in Northern Uganda: A Cross Sectional Study, *BMC Medical Informatics and Decision Making*, 15(87).DOI:10.1186/s12911-015-0209-8.

Omotayo, F.O. (2015) 'Knowledge Management as an Important Tool in Organizational Management: A Review of Literature, *Library Practice and Philosophy*.1238. http://digitalcommons.unl.edu/libphilprac/1238.

Panahi, S., Watson, J. and Partridge, H. (2012) 'Potentials of Social Media for Tacit Knowledge Sharing Amongst Physicians: Preliminary Findings, *23rd Australasian Conference on Information Systems, 3-5 December,* Geelong. https://eprints.qut.edu.au/54520/.

Princess Marina Hospital, (2019) '*Princes Marina Establishment Register*. Internal Document. Unpublished.

Radaelli, G., Lettieri, E. and Masella, C. (2015) 'Knowledge Sharing Interventions in Healthcare: Evidence from the Literature, *International Journal of Engineering and Industrial Management*, 2:127-148.

Rahab, R. and Wahyuni, P. (2013) 'Predicting Knowledge Sharing Intention Based on Theory of Reasoned Action Framework: An Empirical Study on Higher Education Institution, *American International Journal of Contemporary Research*, 3(1):138-147.

Rahi, S. (2017) 'Research Design and Methods: A Systematic Review of Research Paradigms, Sampling Issues and Instruments Development, *International Journal of Economics & Management Sciences,* 6(2). Doi:10.4172/2162-6359.1000403.

Raza, A. et al., (2015) 'A Framework for the Analysis of Determinants of Social Media Acceptance in Higher Educational Institutes of Pakistan. *Proceedings of the 5th International Conference on Computing and Informatics* (ICOCI), 11-13 August, Istanbul, Turkey

Reychav, I. and Weisberg, J. (2009) 'Bridging Intention and Behaviour of Knowledge Sharing, *Journal of Knowledge Management,* 14(2):285-300.

Ryu, S., Hee Ho, S. and Han, I. (2003) 'Knowledge Sharing Behaviour of Physicians in Hospitals, *Experts Systems with Applications*. 25, (1): 113-122.

Sabeeh, Z., Mustapha, S and Mohamad, R. (2017) 'Healthcare Knowledge Sharing Among a Community of Specialised Physicians, *Cognition, Technology and Work*. http//doi.org/10.1007/s10111-017-0453-z.

Sajeva, S. (2014) 'Encouraging Knowledge Sharing Among Employees: How Rewards Matters, 19TH International Scientific Conference: Economics and Management, 23-25 April, *Proceedia Social & Behavioural Sciences*, 156:130-134, Riga.

Seitio-Kgokgwe, O. et al. (2014) 'Assessing Performance of Botswana's Public Hospital System: the Use of the World Health Organization Health System Performance Assessment Framework, *International Journal of Health Policy Management*, 3(4):179-189.

Sensuse, D. et al., (2016) 'Knowledge Management: Organization Culture in Healthcare in Indonesia, *2nd Information and Communication Technology-EurAsia Conference*, Bali.108-118,DOI:10.1007/978-3-642-55032-4_11.hal-01397152

Shahid, A. and Alamgir R. (2011) 'ICT Enabled Knowledge Sharing-The impact of ICT on knowledge sharing barriers: M. A Thesis, Malardalen University, Vasteras.

Shahmoradi, L., Safadari, R. and Jimma, W. (2017) 'Knowledge Management Implementation and the Tools Utilised in Healthcare for Evidence-Based Decision Making: A Systematic Review, *Journal of Health Sciences*, 27(5):541-558.

Sharafian, R., Shokrpour, N. and Salehpour, F. (2014) 'Evaluation of the Implementation of the Knowledge Management Processes in Shiraz University of Medical Sciences Teaching Hospital, *Journal of Health Management and Informatics,* 2(1):9-13.

Showkat, N. and Parveen, H. (2018) 'Non-Probability and Probability Sampling, *Journal of Mass Communication and Journalism,* 3(1):1-10.

Sibbald, S.L.et al., (2013) 'Knowledge Flow and Exchange in Interdisciplinary Primary Health Care Teams (PHCTs): An Explanatory Study, *Journal of Medical Library Association*, 101(2):128-137.

Tabrizi, N.M. and Morgan, S. (2014) 'Models for Describing Knowledge Sharing Practices in the Healthcare Industry: Example of Experience Knowledge Sharing, *International Journal of Management and Applied Research,* 1(2):48-67.

Tang, H. (2017) 'A Study of the Effect of Knowledge Management on Organizational Culture and Organizational Effectiveness in Medicine and Health Sciences, *EURASIA Journal of Mathematics Science and Technology Education*, 13(6):1831-1845. DOI:10.12973/eurasia.2017.00700a.

Tang, H. (2017) 'Effects of Leadership Behavior on Knowledge Management and Organization Innovation in Medicine and Health Sciences. *EURASIA Journal of Mathematics Science and Technology Education,* 13(8):5425-5433. DOI: 10.12973/eurasia.2017.00840a.

Tasselli, S. (2015) 'Social Networks and Inter-Professional Knowledge Transfer: The Case of Health Care Professionals, *Organization Studies (OS*), 36(7):841-872.

Tlogelang, G. (2013) 'ICT in improving health care, *Proceedings of the 2nd Annual Health Informatics Pitso,* Gaborone, June 12-13. Available at https://www.botswanaspeaks.gov.bw

Todorova, N and Mills, A. (2014) 'The impact of Rewards on Knowledge Sharing, Proceedings of the International Conference on Information Resources Management (CON-FIRM).27. http://aisle.aisnet.org/confirm2014/27.

Usman, S.H. (2015) 'A Survey on Students Preference in Knowledge Sharing Tools to Support Learning in Higher Education, *Journal of Advanced Management Science,* (3)4: 350-353.

Van Der Meer, R. et al., (2013) 'Teleconsultation Knowledge Sharing in Health Care: Resource Influences, *24th Australian Conference on Information System,* 4-6 December, Melbourne,1-12. RMIT. http//ro.uow.edu.au/eispapers/2146.

Wang, H., Tseng, J. and Yen, Y. (2014) 'How Do Institutional Norms and Trust Influence Knowledge Sharing: An Institutional Theory, *Management, Policy & Practice*, 16(3):374-391.

Wang, S. and Noe, R.A. (2010) 'Knowledge Sharing: A Review and Directions for Future Research, *Human Resource Management Review*, 20:115–131. DOI:10.1016/j.hrmr.2009.10.001

Wong, L. (2008) 'Data Analysis in Qualitative Research: A Brief Guide to Using Nvivo. *Malaysian family physician: The Official Journal of the Academy of Family Physicians of Malaysia*, *3*(1), 14–20.

World Health Organization (2006) 'The World Health Report: Working Together for Health. Available at: http//www.who.int/whr/2006/en/.

World Health Organization Regional office for Africa (2014). The health of the people: what works-the African regional health report. Available at: https://www.afro.who.int/publications/african-regional-health-report-2014-health-people-what-works

Yin, R.K. (2004) 'Complementary Methods for Research in Education, *American Educational Research Association,* 01-25

Zahari, A.S.M. et al., (2014) 'The Influence of Knowledge Sharing in Organizational Performance Amongst Insurance Companies in Malaysia, *Journal of Applied Environmental and Biological Sciences*, 4(5):1-7.

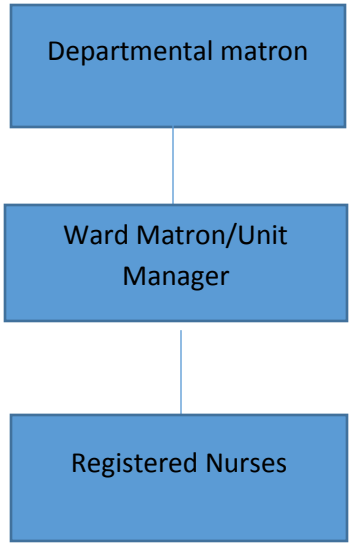
Zainal, Z. (2007) 'Case Study as a Research Method, *Jurnal Kemanusiaan*, 5 (1) available at: https://jurnalkemanusiaan.utm.my/index.php/kemanusiaan/article/view/165.

Zhou, L. and Nunes, M.B. (2012) 'Identifying Knowledge Sharing Barriers in the Collaboration of Traditional and Western Medicine Professionals in Chinese Hospitals: A Case Study, *Journal of Librarianship and Information Science*, 44(4):238-248.

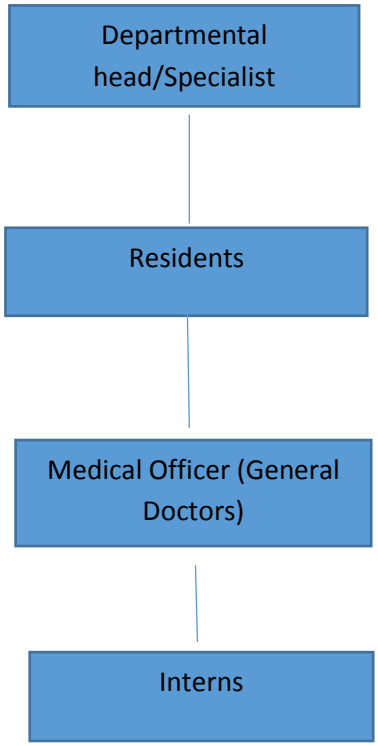
Zyngier, S., Burstein, F. and McKay, J. (2006) 'The Role of Knowledge Management Governance in the Implementation of Strategy, *Proceedings of the 39th Hawaii International Conference on System Sciences*. https://www.researchgate.net/profile/Frada_Burstein/publication/4216294.

APPENDICES

APPENDIX A: MEDICAL WARD STRUCTURE (NURSING)



APPENDIX B: MEDICAL WARD STRUCTURE (DOCTORS)



APPENDIX C: PARTICIPANTS CODES

NO	CODE	DESCRIPTION
1	**PMH**	Princess Marina Hospital
2	**PMH-EM**	Princess Marina Hospital-Executive Management
3	**PMH-HOD**	Princess Marina Hospital-Head of Department
4	**PMH-MP**	Princess Marina Hospital-Medical Practitioner
5	**PMH-SD**	Princess Marina Hospital-Support Department

APPENDIX D: **INFORMED CONSENT FORM (ENGLISH)**

PROJECT TITLE: An Exploration of knowledge sharing practices of medical practitioners at Princess Marina Hospital: Botswana

Principal Researcher: Ms Onkgapetse Tsimaru

Email Address: kymot.tsimaru@gmail.com

PURPOSE OF STUDY

You are being asked to participate in a research study that seek to gather information on the knowledge sharing practices of medical practitioners at Princess Marina Hospital. The study is aimed at getting your views and perceptions in relation to knowledge sharing as applied in your work environment. The main objective is to understand how knowledge is shared amongst staff members within Princess Marina hospital as they perform their day to day medical care. I have been selected as one of the participants to take part in this study due to the relevance of my job to the study.

PROCEDURES AND DURATION

If I decide to participate in this study, I will be invited to answer some questions by either completing of a questionnaire which will be administered by the researcher or participate in an interview discussion to be conducted by the researcher. The interview will take thirty (30) minutes and will be conducted at a location and time to be agreed upon between the interview and the interviewee.

RISKS AND DISCOMFORTS

Participating in this study will not pose any risk to my life, job or health in any way. As a participant I have the right to decline to answer any questions if I feel uncomfortable in any way.

BENEFITS AND/OR COMPENSATION

My participation in this study is voluntary hence there is no monetary compensation for taking part in this study. The findings of this study will be used by Princess Marina Hospital management to guide in the adoption and implementation of knowledge sharing initiatives. This will help in capacity building to ensure experienced professionals impart their skills and knowledge to new professionals for improved health care.

VOLUNTARY PARTICIPATION

My participation in this project is voluntary and I understand that I will not be paid for taking part in this study. I may withdraw and discontinue participation at any time without penalty and my withdrawal from this study will not affect my relationship with the University of Botswana in any way. I have had the purpose and nature of the study explained to me in writing and I have had the opportunity to ask questions about the study.

CONFIDENTIALITY

I understand that all information that I provide as part of this study will be treated confidential and my confidentiality as a participant in this study will remain secure. Subsequent uses of data and information will be subject to standard data use policies which protect the anonymity of individuals and organizations. I understand that all personal identifiable information I provide during the course of this study will not be used for any other project without my consent.

AUTHORIZATION

I have read and understood the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this study. I have been given a copy of this consent form to keep for myself. I understand that this research has been reviewed and approved by the University of Botswana Review Board, hence any research problems and questions regarding participants may be forwarded to the University Review Board.

I understand that for further questions or clarity concerning this study or consent form beyond those answered by the investigator, including questions about the research, my rights as a research participant; or if I feel that I have been treated unfairly and would like to talk to someone other than a member of the research team, I am free to contact the Office of Research and Development, University of Botswana, Phone: Ms Dimpho Njadingwe on 355-2900, E-mail: research@mopipi.ub.bw, Telefax: [0267] 395-7573.

_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Name of Researcher	Date	Signature

APPENDIX E: MOKWALO WA TETLA O O TLHALOSITSWENG (SETSWANA)

SETLHOGO SA TIRO: Tshekatsheko ya Ditsamaiso tsa Kabelano ya Kitso tsa badiredi ba botsogo mo Kokelong ya Princess Marina: Botswana

Mmatlisisi mogolo: Ms Onkgapetse Tsimaru

***Email*:** kymot.tsimaru@gmail.com

MAIKAELELO A PATLISISO

O kopiwa go tsenelela patlisiso e e kokoanyang dintlha ka ditselana tse badiredi ba botsogo ba di dirisang go abelana dikitso mo kokelong ya Princess Marina. Patlisiso e itebagantse le go itse megopolo le dikakanyo tsa gago mabapi le kabalano ya kitso jaaka e diragala mo tirong ya gago. Maikaelelo magolo ke go tlhaloganya gore kitso e abelanwa jang ke badiri mo kokelong ya Princess Marina,fa ba tsweletse ba dira tiro ya bone ya kalafi letsatsi le letsatsi. O tlhophilwe o le mongwe wa batsaya - karolo ba ba yang go tsenelela patlisiso, ka ntlha ya gore tiro ya gago e tsamaalana le yone.

TSAMAISO LE SEBAKA

Fa ke tsaya tshwetso go tsaya karolo mo patlisisong e, ke tla lalediwa go araba dipotso ka go tlatsa fomo ya dipotso e ke tla e fiwang ke mmatlisisi kana ka kopiwa go tsenelela potsolotso e e tla bong e tsamaisiwa ke mmatlisisi. Potsolotso e tla tsenela ko lefong le le tla bong le dumalanwe le ka nako e dumalanweng mme e tla tsaya metsotso ele masome mararo.

DITLAMORAGO LE DIKGORELETSI

Go tsaya karolo mo patlisisong e, ga gona go nna le matshosetsi ape mo botshelong, tiro le jone botsogo jwame ka tsela epe. Jaaka motsaya karolo ke na le tshwanelo ya go gana go araba dipotso dingwe fa ke bona di sa ntseye sentle ka tsela nngwe.

DIPOELO LE/KANA DIKATSO

Go tsaya karolo game mo patlisisong e ke ga boithaopo ka jalo ga ke na go duelelwa go e tsenelela. Maduo a dipatlisiso tse a tla dirisiwa ke botsamaisi jwa sepatela sa Princess Marina go tla ka

metlhale e e tla tokafatsang go abelana kitso magareng ga badiri ba botsogo go netefatsa gore badiri ba bagologolo ba arogana dikitso le ba basha go tokafatsa ditirelo tsa botsogo.

GO TSENELELA KA BOITHAOPO

Go tsenelela patlisiso game ke boithaopo, ebile ke tlhaloganya gore ga ke na go duelelwa go e tsenelela. Ke ka ikgogela morago kana ka emisa nako nngwe le nngwe fela go se na kotlhao, ebile go boela morago game ga go na go senya tirisanyo yame le Yunibesithi ya Botswana ka tsela epe. Ke tlhaloseditswe ka mokgwa le lebaka la patlisiso e ka mokwalo, ka ba ka neelwa le sebaka sa go botsa dipotso ka patlisiso.

SEPHIRI

Ke tlhaloganya gore dintlha tsotlhe tse ke di ntshang mo patlisisong e di tla a tshwarwa jaaka sephiri, gape sephiri same ke le moarabi mo patlisisong se tla tswelela se sireletsegile. Tiriso e e ka latelang ya dintlha tsa patlisiso e tla a bo e nyalana le melawana e e tlwaelegileng ya tiriso ya dintlha, e e sireletsang maina a batho kgotsa a makgotla. Ke tlhaloganya gore maina a me le tsotlhe tse ke di dirisang mo patlisisong ga di kake tsa dirisiwa mo tirong epe gape ke sa letlelela.

TETLELELO

Ke badile ebile ke tlhalogantse tlhaloso e ke e filweng. Ke arabilwe dipotso tsotlhe tsame mo go nkgotsofatsang, ebile ke a ithaopa go tsenelela patlisiso e. Ke filwe moruti wa mokwalo o wa tetla gore ke o ipeele. Ke tlhaloganya gore patlisiso e e sekasekilwe ya ba ya amogelwa (rebolwa) ke ba Lekoko la Tshekatsheko la Yunibesithi ya Botswana. Ka jalo dipotso kgotsa mathata ape fela a a amang batsaya- karolo di ka fetisediwa kwa Lekokong la Tshekatsheko la Yunibesithi ya Botswana.

Ke tlhaloganya gore fa ke na le dipotso tse di amanang le patlisiso e, kgotsa tumalano e ntleng ga tse di arabilweng ke mmatlisisi, ga mmogo le dipotso ka ga patlisiso e, ditshwanelo tsa me ke le mo tsaya karolo; kana ke akanya gore ga ke a tsewa sentle, ke gololesegile go ka ikgolaganya le ba ofisi ya patlisiso le ditlhabololo (Research and Development) ko University ya Botswana, mogala: Mme Mary Kasule mo 355 2911/2900, Email: mary.kasule@mopipi.ub.bw Telefax (0267) 395-7573.

Leina la Moarabi	Letsatsi	Monwana
Leina la Mmotsolotsi	Letsatsi	Monwana

APPENDIX F: INTERVIEW GUIDE-MEDICAL PRACTITIONERS (ENGLISH)

RESEARCH TOPIC: An Exploration of knowledge sharing Practice of medical practitioners at Princess Marina Hospital.

PARTICIPANTS BACKGROUND

Department: …….

Profession/Position: ……..

Nationality: ……..

Work Experience ……

Gender: Male/Female

Educational: Diploma/ Degree/ Post Graduate

GENERAL QUESTIONS

1. Describe how important is sharing your knowledge and work experiences with your co-workers?

2. Can you describe any formal procedures for capturing knowledge at Princess Marina hospital?
3. Are there any policies or procedures that govern knowledge sharing at Princess Marina hospital
4. How often do you share or seek knowledge with/from co-workers in your work?
5. Medical team is made up of people from different medicinal background, with whom do you prefer to share knowledge with or seek knowledge from and why?

6. Are you engaged in knowledge sharing, if yes, what are the things motivating you to share knowledge with co-workers?

7. When you face work related problem, how do you resolve it?

8. Do you think the hospital is supportive towards knowledge sharing among co-workers?

Please explain?

9. How do you seek and share knowledge with colleques?

10. What technological tools are used to share knowledge at PMH? Please name them

11. How helpful are the tools mentioned above in acquiring the knowledge you need? Please explain

12. Do you know how to use these tools?

13. From your own experience at Princess Marina, how can you describe the knowledge sharing environment?

14. When working on a project or attending a workshop, how do you ensure that other team members receive the information?

15. As a medical practitioner, what do you think is your role in the process of knowledge sharing?

16. Describe the opportunities available for staff professional development and capacity building to mentor new professionals at PMH?

17. What do you do to stay updated/ informed of the latest medical research findings?

18. Are you a member of a professional network outside PMH where knowledge is shared, if yes, what is the professional network and what kind of knowledge is shared?

19. When seeking knowledge how easy it is for junior professionals to approach senior staff, please explain?

20. Which are the activities and processes available for knowledge sharing at PMH

21. In your opinion, what activities do you think can encourage knowledge sharing among medical staff?

22. Is there any knowledge sharing activities that occurs between medical staff in your department and outside organizations? Please explain

23. Describe the challenges you face when sharing knowledge in your job?

24. Describe how you would like knowledge sharing to be practised at Princess Marina hospital?

25. How can you rate the overall effectiveness of knowledge sharing in Princess Marina Hospital?

END OF INTERVIEW, THANK YOU FOR TAKING TIME TO PARTICPATE IN THE INTERVIEW...!!!!!!!

APPENDIX G: POTSISISO YA KABELANO YA KITSO

Maikaelelo a potsisiso e ke go itse megopolo, dikakanyo le ditshwaelo tsa gago mabapi le ka fa o dirisang kitso ka teng o ntse o e abelana le ba bangwe jaaka lo tsweletse ka tiro ya lona mo kokelong ya Princess Marina.

DINTLHA KA MOARABI

Lephata: …….

Tiro/ Maemo: ……..

O mokae: ……..

Botsipa/Dikitso tsa tiro: ……

Bong: …….

Selekanyo sa thuto: Dithuto tsa dipoloma / Digarata/ Dithuto tse di tlatsang tsa Yunibesithi

DIPOTSO KAKARETSO

1. Tlhalosa botlhokwa jwa go abelana kitso le maitemogelo a gago le babereki ka wena?

2. Go na le ditsamaiso dife tse di tlhomameng tsa go tsaya/anywa kitso mo kokelong ya Princess Marina?

3. Kwala, o tlhomaganye melawana epe fela e e laolang kabelano ya kitso mo Princess Marina?

4. O abelana/anywa kitso makgetho a le kae le babereki ka wena mo tirong ya gago?

5. Ditlhopha tse di alafang balwetsi di agilwe ka badiredi ba bongaka ba dikitso le dithutego tsa bongaka tse di farologaneng, gantsi o abelana/anywa kitso le bo mang le gone ka go reng?

6. A o inaakantse le kabelano kitso, fa karabo ele ee, ke eng dilo tse di go kgothatsang go abelana kitso le babereki ka wena?

7. O dira jang fa o kopana le dikgwetlho mo tirong ya gago?

8. A o akanya gore boeteledipele jwa kokelo bo rotletsa kabelano kitso mo gare ga babereki? Tsweetswee tlhalosa karabo ya gago?

9. O abelana kitso jang le babereki ba bangwe mo tlhokomelong ya balwetsi?

10. Ke didirisiwa dife tsa maranyane tse di dirisiwang go abelana kitso ko kokelong ya Princess Marina? Tsweetswee di nankole.

11. Didirisiwa tse go builweng ka tsone fa godimo fa di mosola go le kae mo go thuseng go anywa kitso e o e tlhokang? Tsweetswee tlhalosa karabo ya gago

12. A o na le bokgoni jwa go dirisa didirisiwa tse?

13. Go ya ka maitemogelo a gago mo Princess Marina, o ka tlhalosa jang seemo sa kabelano ya kitso?

14. Fa le bereka mo projekeng kana le tseneletse thuto seka dipuisano le tlhomamisa jang gore bangwe ka lona ba bona dikitso tse le di anywileng?

15. Jaaka modiri wa botsogo, o akanya gore seabe sa gago ke eng mo tsamaisong ya kabelano kitso?

16. Tlhalosa dithulaganyo tse di leng teng tsa go tlhabolola dikitso le go tlhatlosa bokgoni jwa babereki ba bantšha mo tirong.

17. O dira jang go bona gore ga o salele ko morago ka dikitso tsa maduo a dipatlisiso tse disha?

18. A o bontlha jwa setlhopha sa baitseanape mo Princess Marian kana ko ntle ga Marina ko le abelanang/anywang dikitso tsa bongaka, fa karabo ele ee, ke setlhopha sefe se o inaakantseng naso le gone le abelana kitso efeng?

19. Fa le batla dikitso go motlhofo go le kae mo babereking ba maemo a a ko tlase go kopa thuso mo bagolwaneng ba bone?

20. Ke a fe mananeo le ditsamaiso tse di leng teng go abelana kitso ko PMH?

21. Go ya ka wena, ke mananeo a fe a a ka rotloetsang kabelano dikitso gareng ga babereki ba tsa bongaka?

22. A go nale mananeo a go abelana kitso a a leng teng gareng ga babereki ba bongaka mo lephateng la lona le ba maphata a ko ntle ga PMH? Tsweetswee tlhalosa karabo ya gago.

23. Tlhalosa dikgwetlho tse o lebaganang le tsone fa o abelana kitso mo tirong ya gago?

24.Tlhalosa ka fa o eletsang kabelano kitso e ka dirwa ka teng mo kokelong ya Princess Marina.

25. O ka lekanyetsa jang mosola otlhe wa go abelana kitso mo Princess Marina?

RE GO LEBOGELA GO TSAYA NAKO YA GAGO GO TSAYA KAROLO MO POTSOLOTSONG E!!!

APPENDIX H: INTERVIEW GUIDE (HOD)

Topic: **An Exploration of knowledge sharing Practice of medical practitioners at Princess Marina hospital.**
Department: _____
Position: _____

Part I: Participant Background

i. Please take me through your journey as a medical practitioner, how long have you been practicing medicine?
ii. What is your area of speciality?
iii. How long have you been with Princess Marina hospital?
iv. How long have you been the head of the Department?
v. Can you please tell me about your job, what is your job title?

Part II General Questions

1. Patient care is said to be team work; please can you describe the structure of your medical team(s) in caring for patients at Princess Marina hospital?
2. What is your opinion of knowledge sharing amongst your teams?
3. How do ensure that knowledge is shared seamlessly within your department as well as with other teams who participate in patient care?
4. What are activities/initiatives or measures that have been put in place to promote collaboration and knowledge sharing in your department?
5. Are there any laid down procedures for sharing knowledge amongst medical staff??
6. How aware are the medical staff of their roles in the knowledge sharing process?
7. What activities/platforms are available to promote interaction between staff in your department?
8. As a hospital, how do you ensure experienced medical practitioners mentor new professionals?
9. How do you ensure that you do not lose out the experience and knowledge of medical practitioners when they retire or resign?
10. As the Head of Department, how do you ensure that knowledge gained from seminars, workshops, conferences is shared amongst team members?
11. Tell me about availability of platforms or systems for staff to share knowledge both internally and externally?

12. What technological applications/tools are available to facilitate communication and collaboration amongst staff?
13. Does Princess Marina Hospital have professional networks which promote knowledge sharing amongst medical staff?
14. What incentives/rewards are given to encourage medical practitioners to share knowledge (e.g provision within the Performance Management System)?
15. How would you describe the level of knowledge sharing and collaboration amongst your medical team?
16. How could an effective knowledge sharing amongst medical staff under your supervision benefit your department?
17. Tell me about your departmental commitment to sharing knowledge amongst staff both internally and externally?
18. How important is knowledge sharing to health care delivery?
19. How adequate are your departmental resources (e.g human resources, ICT equipment, and meeting rooms) to facilitate knowledge sharing among staff?
20. What challenges could be hindering your team members from collaborating and sharing knowledge with each other?
21. Overall,
    a. Do you think the organization is doing enough to promote knowledge sharing amongst medical practitioners?
    b. What do you think needs to be done to enhance sharing of knowledge amongst the health practitioners at Princess Marina Hospital?

[In conclusion, is there anything you would like to share in relation to knowledge sharing which I might have left out?]

APPENDIX I: INTERVIEW GUIDE-ICT

Topic: **Assessment of knowledge sharing Practice of medical practitioners at Princess Marina hospital.**
Department: Information Communications Technology (ICT)
Position: _____

Part I: Participant Background

i. Can you please tell me about your job, what is the role of the ICT Department in supporting the activities of Princess Marina Hospital?
ii. What is your area of speciality?
iii. How long have you been with Princess Marina hospital and the IT Department?

Part II General Questions

1. Researchers have found out that ICTs are a key enabler for successful knowledge sharing amongst organizational employees, how would you describe your Department in terms of the Information Communications Technology infrastructure in facilitating knowledge sharing/collaboration amongst PMH employees?
2. Please describe the technological tools/applications you have in place to support the activities of Prince Marina Hospital?
3. In your opinion, does Princess Marina Hospital have adequate ICT tools to respond to its needs in the knowledge economy?
4. Can you describe the status/conditions of these tools?
5. From your observation, how effectively are staff using these tools?
6. Do you feel that medical staff have the skills and competencies necessary for them to use available knowledge sharing tools in their work?
7. Does your organization have a knowledge sharing strategy? Explain
8. Describe the systems for capturing and storing both internal and external knowledge in your organisation?
9. From your experiences in PMH, what are the challenges that you face in relation to the application of ICT tools/ applications for effective communication and collaboration amongst staff?
10. How can the challenges mentioned above be addressed?

11. Overall, do you think your department is doing enough to promote faster and easy communication and collaboration amongst Princess Marina Hospital staff?

[In conclusion, is there anything you would like to share in relation to knowledge sharing which I might have left out?]

APPENDIX J: INTERVIEW GUIDE -LIBRARIAN

Topic: **Assessment of knowledge sharing Practice of medical practitioners at Princess Marina hospital.**
Department: LIBRARY
Position: _____

Part I: Participant Background

i. Please take me through your journey as an information professional, how long have you been a librarian?
ii. How long have you been with Princess Marina hospital?
iv. How long have you been the head of the Library at PMH?

Part II General Questions

1. A Library is regarded as a repository for information and knowledge especially in the knowledge economy, can you please explain how your library supports the information needs of Princess Marina Hospital?

2.Can you please describe the types of collection you have in your library

3. Does the library have a collection development policy? Explain

4. The main core mandate of Princess Marina Hospital is to provide patient care; how does the library support medical staff in their role of providing patient care?

5. How often do staff of PMH visit the library to search for information related to their work?

6. How would you describe the level of knowledge of your library users in terms of searching for information?

7. As a library, how do you ensure that your user access materials which you do not have in your collection?

8. Describe the activities/initiatives which the library undertakes to promote its collection to target users?

9. What technological applications/tools does the library use to facilitate the dissemination of new information/materials to its users?

10. What kind of Technological tools does the library use to facilitate knowledge sharing amongst professional staff?

11. Does the library have adequate ICTs to capture and store explicit knowledge to make it accessible to users?

12. Describe the ways in which you capture knowledge created within PMH, e.g training manuals, projects report, research findings to ensure they can be accessed and used by others?

13.What is your view on the contribution of the library to the information needs of PMH?

14.What challenges does face in responding to the information and knowledge needs of Princess Marina hospital?

15. What needs to be done to address the challenges that the library faces?

[Always conclude your interview with an open statement that seeks to probe the respondent to say anything that you may not have covered which relates to knowledge sharing]

APPENDIX K: STUDY PERMITS

UNIVERSITY of BOTSWANA

Faculty of Humanities
Department of Library & Information Studies

Corner of Notwane and Mobuto Road
Gaborone, Botswana

Private Bag UB 00703
Gaborone
Botswana

Tel: [267] 355 2617
Fax: [267] 318 5098

MEMORANDUM

To: Office or Research and Development

From: Head, Department of Library and Information Studies

Date: 22nd March 2018

Subject: **Letter to support Onkgapetse Tsimaru's application for research permit**

This letter serves to inform you that Yvonne Cecil (ID 200403670), a student in the Department of Library and information Studies has satisfied the departmental requirements for a research proposal for a Master's degree dissertation. The title of her research project is "**an assessment of knowledge sharing practices of medical practitioners at Princes Marina Hospital: Botswana**"

I therefore support and endorse her application to seek permission to complete her research project

Sincerely,

Athulang Mutshewa, PhD
Head, Library and Information Studies

UNIVERSITY OF BOTSWANA
22 MAR 2018
DEPARTMENT OF LIBRARY & INFORMATION STUDIES

www.ub.bw

UNIVERSITY OF BOTSWANA

Office of the Deputy Vice Chancellor (Academic Affairs)

Office of Research and Development

Corner of Notwane and Mobuto Road, Gaborone, Botswana
Pvt Bag 00708 Gaborone Botswana
Tel: [267] 355 2900
Fax: [267] 395 7573
E-mail: research@mopipi.ub.bw

Ref: UBR/RES/IRB/BIO/GRAD/041

19th April 2018

Permanent Secretary
Ministry of Health and Wellness
The Permanent Secretary
Private Bag 0038
Gaborone, Botswana

RE: REQUEST FOR EXPEDITED REVIEW OF A RESEARCH PROPOSAL SUBMITTED BY Ms ONKGAPETSE TSIMARU

Since it is a requirement that everyone undertaking research in Botswana should obtain a Research Permit from the relevant arm of Government, The Office of Research and Development at the University of Botswana has been tasked with the responsibility of overseeing research at UB including facilitating the issuance of Research permits for all UB Researchers inclusive of students and staff.

I am writing this letter in support of an application for a research permit by Ms Onkgapetse Tsimaru, a graduate student at the Faculty of Humanities at the University of Botswana. Ms Tsimaru has proposed to conduct a study titled **"An Assessment of Knowledge Sharing Practices of Medical Practitioners at Princess Marina Hospital, Botswana".** The overall objective of the proposed study is to understand the knowledge sharing practice of medical practitioners at Princess Marina Hospital for improved health care delivery. It is hoped that the findings of this study will guide the effective adoption and implementation of appropriate knowledge sharing practices in public hospitals in Botswana. For Princess Marina Hospital, this study will help the hospital to assess how it can maximise the available knowledge resources in its custody to ensure short, medium and long term provision of quality health care.

The Office of Research and Development is satisfied with the process for data collection, analysis and the intended utilisation of findings from this research.

We will appreciate your kind and timely consideration of this application.

We thank you for your usual cooperation and assistance

Sincerely,

UNIVERSITY OF BOTSWANA
Office of Research & Development
2018 -04- 19
P/BAG UB 00708 GABORONE
TEL:+267 3552900/2902 FAX: +267 3957573
Email: research@mopipi.ub.bw

Dr M. Kasule
Assistant Director for Research Ethics, Office of Research and Development

PRIVATE BAG 0038
GABORONE
BOTSWANA
REFERENCE:

TEL: (+267) 363 2500
FAX: (+267) 391 0647
TELEGRAMS: RABONGAKA
TELEX: 2818 CARE BD

REPUBLIC OF BOTSWANA

MINISTRY OF HEALTH AND WELLNESS

REFERENCE NO: HPDME: 13/18/1 **24th April 2018**

Health Research and Development Division

Onkgapetse Tsimaru
University of Botswana
Private Bag 00708
Gaborone

Dear Onkgapetse Tsimaru

PERMIT: **AN ASSESSMENT OF KNOWLEDGE SHARING PRACTICES OF MEDICAL PRACTITIONERS AT PRINCESS MARINA HOSPITAL: BOTSWANA**

Your application for a research permit for the above stated research protocol refers. We note that your proposal has been reviewed and approved by University of Botswana Review Board.

Permission is therefore granted to conduct the above mentioned study. This approval is valid for a period of 1 year effective 24th April 2018.

This permit does not however give you authority to collect data from the selected site(s) without prior approval from the management. Consent from the identified individuals should be obtained at all times.

The research should be conducted as outlined in the approved proposal. Any changes to the approved proposal must be submitted to the Health Research and Development Division in the Ministry of Health and Wellness for consideration and approval.

Furthermore, you are requested to submit at least one hardcopy and an electronic copy of the report to the Health Research, Ministry of Health Wellness within 3 months of completion of the study. Approval is for academic fulfillment only. Copies should also be submitted to all other relevant authorities.

Thank you for your cooperation and your commitment to the protection of human subjects in research.

Yours faithfully

Ms S. Mosweunyane
for /PERMANENT SECRETARY

MINISTRY OF HEALTH RESEARCH DIVISION
2018 -04- 24
P/BAG 0038
GABORONE
REPUBLIC OF BOTSWANA

PLOT 1836 HOSPITAL WAY
TELEPHONE: 3621400
FAX: 3973776

REPUBLIC OF BOTSWANA

PRINCESS MARINA HOSPITAL
P. O. BOX 258
GABORONE
BOTSWANA

REF: PMH 5/79(456-1-2018) G

27th July 2018

Onkgapetse Tsimaru
Private Bag 0095
Gaborone

Dear Onkgapetse Tsimaru,

An Assessment of Knowledge Sharing Practices of Medical Practitioners at Princess Marina Hospital

The Research and Ethics Committee (REC) of Princess Marina Hospital is pleased to inform you that, at its meeting of the 26th July 2018, **approval** has been granted for you to carry out the study with the aforementioned title.

You are expected to uphold the highest standards of ethics during your study. Upon completion of your study, you are required to submit 2 copies of your research report to the committee.

Thank you.

Sincerely,

Rebecca Bale
For/Secretary Research and Ethics Committee

PLOT 1836 HOSPITAL WAY
TELEPHONE: 3621400
FAX: 3973776

REPUBLIC OF BOTSWANA

PRINCESS MARINA HOSPITAL
P. O. BOX 258
GABORONE
BOTSWANA

REF: PMH 5/79(456-1-2018) G

14th August 2018

Onkgapetse Tsimaru
Private Bag 0095
Gaborone

Dear Onkgapetse Tsimaru,

An Assessment of Knowledge Sharing Practices of Medical Practitioners at Princess Marina Hospital

The Research and Ethics Committee (REC) of Princess Marina Hospital is pleased to inform you that, at its meeting of the 26th July 2018, **approval** has been granted for you to carry out the study with the aforementioned title.

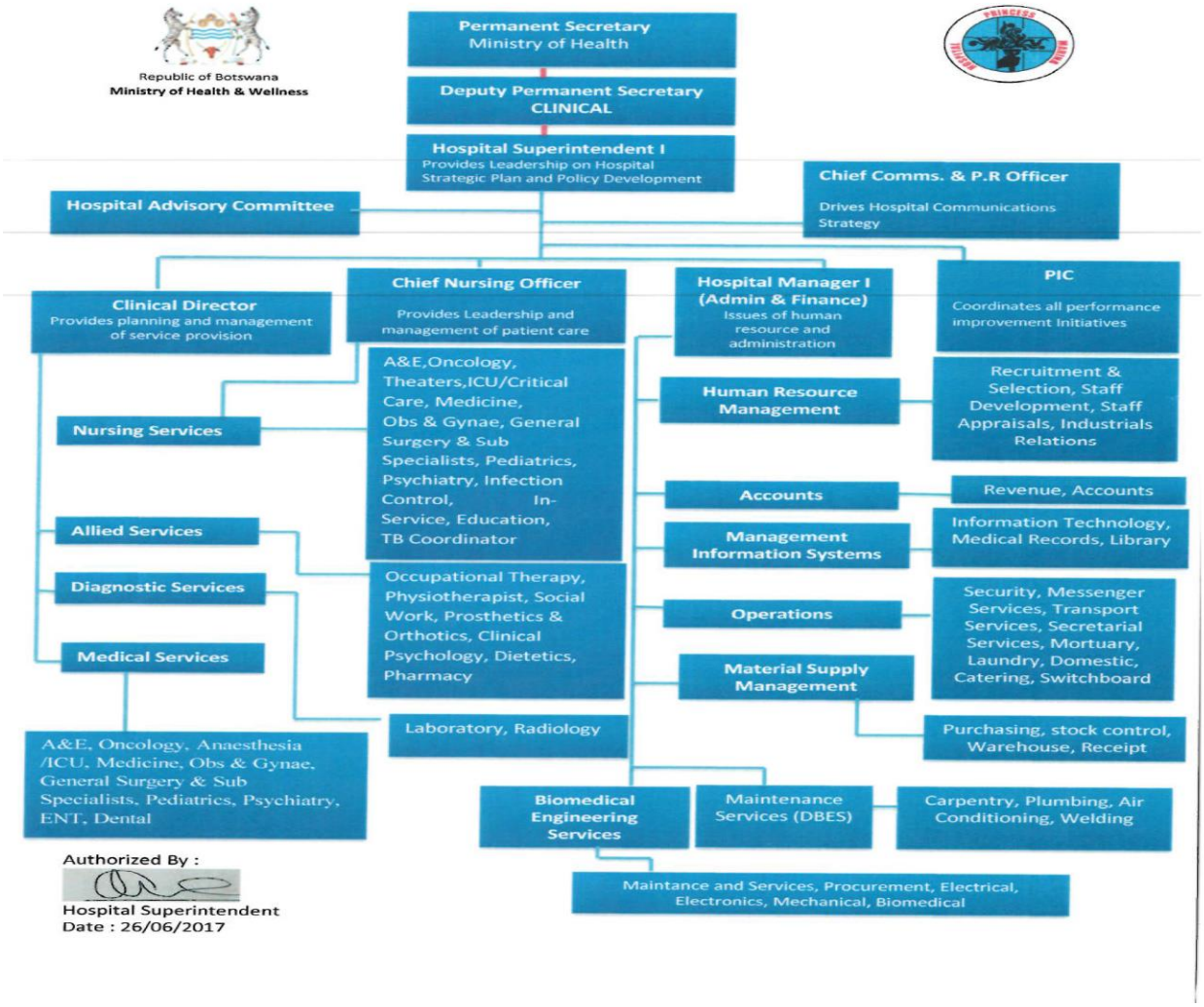
Kindly observe the following:

1. You are expected to uphold the highest standards of ethics during your study.
2. You are required to seek permission from REC, PMH before changing any aspect of your study
3. REC will have full access to the study at any time for the purposes of auditing
4. Upon completion of your study, you are required to submit a hard and soft copy of your research report to the committee.
5. This permission is valid for a period of one year (14th August to the 14th August 2019).

This letter supersedes the letter dated 27th July 2018.

Thank you.

Sincerely,

Rebecca Bale
For/Secretary Research and Ethics Committee

APPENDIX L: PMH ORGANIZATIONAL STRUCTURE