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An Investigation into Knowledge Sharing in Cross- Professional Teams in Healthcare A Multi-Method, Qualitative Case Study Design

By:

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Abstract

Background: Modern healthcare requires highly specialized healthcare professionals to communicate, share knowledge and work together, often under stressful conditions. Cross-professional collaboration is highly dependent on the collective knowledge of healthcare professionals and their willingness to share. This research considers the interaction of cross-professional collaboration and tacit knowledge sharing for effective healthcare and patient safety.

The Context: There is a paucity of research on healthcare, teamwork and knowledge sharing in Omani healthcare, contrasting with studies on Western healthcare. This research will explore the teamwork and knowledge sharing in an Omani hospital, providing a snapshot of current practices, and is the first empirical study of this type in Oman,

Aim: This research maps team types within a tertiary teaching hospital in Oman and deepens our understanding of the factors influencing KS in cross-professional teams with a focus on tacit knowledge. It maps the intersections between cross-professional teamwork and tacit knowledge, aiming to reconcile practice and evidence.

Method: A qualitatively driven exploratory multi-method design using a constructivist interpretivist approach. The research analysed 36 documents, 26 semi-structured interviews and 7 hybrid focus groups (HFGs) using participant-led creative exercises, the latter creating a non-traditional methodological approach to eliciting rich data. The data were integrated, and a thematic analysis applied to present a holistic exploration of the phenomena under study.

Findings: Official documentation rarely mentioned concepts such as ‘teamwork’, ‘collaboration’, ‘communication’, and ‘KS’, and participants understood these terms differently, as teams were created by different departments to suit specific needs. Nevertheless, all participants emphasised their collaborative and KS activities, describing them as both necessary and practised daily. Interpersonal qualities were highlighted as the major facilitators or barriers to KS and teamwork.

Conclusion: This study contributes to understanding the factors affecting KS within cross-professional teams in Oman. Tensions around team membership and KS between departments created unease for KS behaviours, but patient-centred care (PCC) was considered a unifying factor for teamwork and KS at every level. The use of HFGs allowed for the co-production of visual artefacts mapping KS and teamwork, creating rich data. These could be adapted for further research.

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Chapter

1

Introduction Chapter

Chapter Overview

This chapter outlines the context for the research, locating it within a focus of knowledge sharing (KS) and teamwork, particularly cross-professional teamwork, in healthcare. It sets out the structure of the study. It also introduces the case study, placing it within the current literature. It explains the choice of the case study by outlining how Oman presents an interesting and unique background for the study of teamwork and KS.

I outline the overall aim of this thesis, the primary objectives and research questions. It also provides an overview of the research method and its rationale. Finally, this chapter reflects upon my personal perspective on the thesis.



Introduction

Knowledge is considered an asset for any organisation's competitiveness, development and quality improvement, hence it is vital to understand and improve the ways in which knowledge is shared. The healthcare environment is knowledge rich and increasingly complex, largely as a result of increasing interdependency and interaction between disciplines and specialities (Plsek and Greenhalgh, 2001; Rouse and Serban, 2014). Knowledge sharing (KS) practices and behaviour between highly specialized healthcare professionals (physicians and nurses, and other paraprofessionals) are critical for ensuring healthcare quality, patient safety, and outcomes (Edgren, 2008). Tien and Goldschmidt-Clermont (2009:257) describe the healthcare system as "a complex integration of human-centered activities that is increasingly dependent on information technology and knowledge". Rouse and Serban (2014) explain that "understanding healthcare delivery as a complex adaptive system will help us design a system that is more efficient, effective, and equitable". Thus, if we can understand these systems, we can improve them, and my research will focus on human-centred interaction, conceptualising teamwork and knowledge as socially situated. Hence I will consider individual experience, views and practices of knowledge sharing within the healthcare teams, specifically how KS and teamwork are negotiated, practiced and experienced within cross-professional healthcare teams.

1.1. Research Background and Rationale

Cook *et al.* (2000) discuss healthcare complexity, in particular that whilst extensive specialization has increased the clinical potential of medical intervention and cure, this growing specialisation widens the expertise gap between the different specialities, creating and solidifying professional silos with minimal overlap between specialities and a consequent lack of KS (*Cf.* Finn and Waring, 2006). From the literature it is evident that many factors intertwine within such a complex system, as healthcare professionals must negotiate personal and institutional power, culture, professions, boundaries and factors every time they interact.



D'Amour *et al.* (2005:126) highlight this difficulty, stating that it is unrealistic to expect individuals to collaborate merely by bringing them together, rather:

“Since professionals have to trust each other before collaborative processes can be established, there is a wide range of human dynamics that need to be developed within a team.”

As Weller *et al.* (2014) comment, insufficient attention has been paid to the “new challenges the modern healthcare environment poses to the effective sharing of information between providers.” The increasing complexity and specialisation within healthcare means effective collaboration and communication, between teams and within teams, is necessary to deliver the safest and most efficient patient care. The literature, in large part, advocates teamwork as the method to provide more efficient healthcare (Reeves *et al.*, 2010). It reflects a discourse that teamwork enables healthcare professionals to overcome the traditionally strong divisions between professions and specialisations to be able to work efficiently together.

D'Amour *et al.* (2005:116) highlight the importance of collaboration in healthcare due to the “growing complexity of health problems [which] necessarily makes professionals interdependent”. Yet the literature provides a limited insight on cross-professional collaboration and relationships in healthcare (Schofield and Amodeo, 1999; Drinka and Clark, 2000; Zwarenstein, Reeves and Perrier, 2004; D'Amour *et al.*, 2005; Jabr, 2007). As Weller *et al.* (2004) noted above, collaboration cannot be taken for granted especially as each professional is educated and professionally socialised initially within a discipline-based environment rather than within a cross- or inter-disciplinary milieu. Considering teamwork and knowledge sharing as socially situated activities, they are contested, negotiated and inherently political practices, as will be discussed in the Literature Review.

This thesis, therefore, will add to the current research by focusing on exploring how healthcare professionals negotiate, experience and practice KS within healthcare teams, specifically tacit-KS amongst cross-professional teams (for example, doctors, nurses and other healthcare specialities). Healthcare is knowledge rich and knowledge is rapidly increasing within specialities, which needs to be brought together for safe and effective treatment and to avoid medical errors (Hamornik and Juhasz, 2010) This includes sharing skills, know-how, know-who, and clinical



experiences, all of which are explored in the literature in relation to their impact on the quality of medical diagnoses, decisions and patient safety (Paavola *et al.*, 2005; Abidi *et al.*, 2005; Henry, 2006; Steininger *et al.*, 2010). Thus, this research explores how healthcare team members understand their shared work experience, how they work together, and how they share (if they share) their knowledge.

1.2. The Research Setting and Context

This section discusses the context in which this research is situated, framing the research statement by outlining the Omani context, and discussing the social, economic and political context. This enables an understanding of the Omani healthcare context, and its implications for the challenge of KS in healthcare teams in Oman. This section will also explain why the Omani healthcare system, and specifically Royal Hospital, were selected as a case study for this research. Further information on how culture is likely to impact the phenomena of study is given in the Literature Review.

1.2.1. Oman

The Sultanate of Oman is an Arab state on the coast of the Arabian Peninsula, bordered by the UAE, Saudi Arabia and Yemen. Oman's estimated population around 5 million and over 40% of these are expatriates, many coming from Egypt, Pakistan, India, Bangladesh and the Philippines. It has historic links with Britain from the eighteenth century, and the two countries remain close. According to Budhwar and Mellahi (2006a), Oman is ethnically diverse, reflecting its colonial history, with at least 12 spoken languages.¹ While most Omanis are Arab, (74%), a proportion are Baluchi or Zanzibari. The tribe and family remain important with tribal and patriarchal traditions and values strongly influencing society and interpersonal relations (Robertson, Al-Khatib, AlHabib and Lanoue, 2001; Budhwar and Mellahi, 2006a). Religion is important in Oman, with most Omanis identifying as Muslim (only around 5% of Omanis identify as non-Muslim, although this proportion is higher among the immigrant population). Oman is unusual in that it has Ibadi Islam as the national religion, and around three-quarters of the Muslim population follow

¹ These include endangered indigenous languages such as Bathari, Harsusi, Hobyot, Jibbali, Kumzari, and Mehri.



the Ibadi school. Ibadism is conservative, yet tolerant, and Oman's law originated from the law of Islamic Sharia. In Oman Islam is foundational for the operation of the community, the government and culture. Several studies have highlighted the influence of Islam, not only on daily life, but in the workplace, on organizational management and human resources (Ali, 1992; Robertson *et al.*, 2002).

Administratively, Oman is divided into eleven governorates, which are subdivided into smaller districts, called wilayats. Oman's economy is primarily based on oil, agriculture, fisheries, and overseas trade, with an increasing promotion of tourism. Petroleum income has accounted for about 40 percent of Oman's GDP since the discovery of oil in 1964. More recently, in anticipation of oil reserves being exhausted, Oman has promoted non-oil alternatives, in particular, natural gas. Omanis thus enjoy low taxation, free social services and public sector jobs. However, Forstenlechner and Rutledge, (2010) link these to political obedience as Oman is an absolute monarchy, meaning the sultan is head of both state and government, and political parties are banned. Whilst there is a legislature is made up of an upper chamber, the State Council (Majlis ad-Dawlah) and a lower chamber, the Advisory Council (Majlis ash-Shura), these have only consultative powers, and all criticism of the Sultan or government is illegal (*Cf.* Swailes, Said and Fahdi, 2012; Thomas, *et al.*, 2010).

1.2.1.1 Omanisation

From 1988, the Oman government introduced a skills and employment localisation programme called Omanisation. It is intended to replace expatriate workers with Omanis in key sectors including industry, logistics, finance, and tourism. This is discussed further below.

1.2.2. Omani Healthcare Development

In 1970, when Said bin Taimur was overthrown as the Sultan of Oman by his son, Qaboos bin Said, the main priorities for the new ruler were education and healthcare. A report of the time (Chris Kutschera, writing in the Washington Post, December 27, 1970) described the health situation as “nearly catastrophic”, with Oman having one of the highest rates of infant mortality in the world, and an estimated 90% of the



population suffering from Malaria.² Oman's healthcare system developed rapidly and in 1976, first Five Year Plan was initiated to support ongoing healthcare development (Times of Oman, 2014). Early development initiatives emphasised the creation of a strong infrastructure for healthcare services through inviting international workforces to aid the new Omani healthcare system. Yet, as highlighted in a 'Strategic Health Workforce Development Plan (1991), to create sustainable healthcare, there was a need to build a national health workforce to achieve self-reliance, and the process of Omanisation has been implemented to replace expatriate workers with Omani personnel. Oman has moved rapidly toward achieving this strategic health plan (Ghosh, 2009; Times of Oman, 2014).

The Omani government has continued with five-year development plans and the eighth Five Year Plan (2011 – 2015) included planning strategies that incorporated local, regional and international directions. In 2015, the Omani healthcare system underwent another transitional phase, with the introduction of the long-term plan "The Future Outlook of Health Systems 2050" (Shehadeh, 2012).

The Omani healthcare system is built on three integrated layers to sustain effective and high quality health services to all the Wilayats (states) of the Sultanate: primary healthcare is delivered by medical centres, polyclinics and local hospitals; secondary healthcare is provided through tertiary referral hospitals and specialized hospitals (both primary and secondary healthcare is provided throughout the Sultanate), high-tech specialized healthcare is offered by large hospitals in the Muscat Governorate, including the Royal Hospital, Sultan Qaboos University Hospital, Khoula Hospital, Al-Nahda Hospital and Al Masarah Hospital.

According to the 2014 Statistical Year Book produced by the Ministry of National Economy (MoNE) in Oman, Oman's health services registered a substantial jump in services provided by the Ministry of Health (MoH), for example by the end of 2013, the total MoH primary healthcare institutions in Oman reached 226 health centres, complexes and local hospitals. One result from the jump in healthcare services is that remarkable drop in new-born and child mortality rates with the reduction of mortality rates before the first year of age dropping from 118/1000 cases in 1970 to 45/1000 cases by 1985 and 9.5/1000 cases in 2012. Similarly, mortality of

² Oman: The Death of the Last Feudal Arab State, taken from <https://www.chris-kutschera.com/A/Oman%201970.htm> (retrieved 1/12/2018)



children before their fifth year of age was reduced significantly from 181/1000 cases in 1970, to 52/1000 cases by 1985, and 11.5/1000 cases in 2012.

According to one newspaper report, (Times of Oman, 2014):

“The Ministry of Health continuously focuses great attention and care in developing policies and strategies for health management in order to promote the management process so it is able to respond to the challenges resulting from the nature of the health system and the successive changes that characterize such systems”,

Shehadeh (2012) quotes the Undersecretary for Planning Affairs at Oman’s MoH as saying that the, “country’s Health Strategy aims at international standards that are both realistic [and] imaginative”. Although Oman has a relatively small population distributed over a relatively large area of sparsely populated settlements, the Omani government has created easy access to health services for about 98% of the population, while provided mobile health teams covering the remaining 2% (MoH, 2009a; 2009b; WHO, 2009; Alshishtawy, 2010).

1.2.3. The Case Context: Royal Hospital

The Royal Hospital, Muscat, was commissioned in 1987. It is a large, tertiary, acute care hospital, owned and administered by the Ministry of Health, Sultanate of Oman. It provides state-of-the-art services in the specialties and sub-specialties of Adult Emergency, Anaesthesiology and Adult ICU, Child Health Medicine, Surgery Obstetrics and Gynaecology, Medical Laboratories Pharmacy and Medical Stores, Infection Control, Central Sterile Supply, Physiotherapy Oncology, Radiology, and Nursing. It also provides Dental Surgery, Clinical Dietetics, a Genetic Centre, and a Diabetic and Endocrine Centre. It houses the National Oncology Centre for adults and children, and a 139-bed Cardiac Centre is being built. Daily it supports around 700 outpatients in specialist clinics, and a separate Day-Care Ward is being built, but various clinical procedures are currently carried out on a day-care basis. These include chemotherapy, lithotripsy, haemodialysis, upper and lower GI endoscopy, coronary and peripheral angiography, bone marrow biopsy, therapeutic phlebotomy, transfusion, chelation, etc. The Emergency Departments deal with about 200 ambulatory emergency walk-ins every day, adults and children.



The Hospital's Intensive Care Units admit adult and paediatric patients, and there is a special care Baby Unit. The Hospital has an emergency alert system and adult/paediatric Cardiac Resuscitation Teams and a Trauma Resuscitation Team. There is also a Disaster Management Plan when more than 5 seriously wounded surgical patients or 10 critically ill medical cases are simultaneously brought to the Accident and Emergency Department.

The Hospital has 9 well-equipped operation theatres,³ and operations include open heart surgery, separation of conjoined twins, kidney transplantation, and laparoscopic gastric bypass surgery for morbid obesity.

The Royal Hospital is a major teaching hospital for the Sultan Qaboos University MD course and serves as a training facility for the post-graduate Residency Programme of the Oman Medical Specialty Board in Medicine, Surgery, Obstetrics and Gynaecology, Child Health and Laboratory Medicine. It is recognized by the Royal Colleges of UK and Ireland as an official centre for the membership examinations in Medicine, Paediatrics and Surgery. It also provides clinical training for nursing and paramedical students of the Nursing Institutes in the capital area, the Institute of Health Sciences, and Sultan Qaboos University.

Code	Category	Total			Non-Omani			Omani		
		Total	F	M	Total	F	/M	Total	F	M
1	Doctors	524	219	305	347	131	216	177	88	89
2	Pharmacists	101	64	37	32	13	19	69	51	18
3	Nurses	2208	1991	217	1288	1240	48	920	751	169
4	Technician	481	296	185	212	99	113	269	197	72
Total		3314	2570	744	1532	1483	396	1258	1087	348

Table 1.1. Total number of staff in RH based on 2016 statistics

Nationalities within the RH workforce include Algerian, American, British, Bangladeshi, Bulgarian, Canadian, Danish, Egyptian, Eritrean, French, Hungarian, Indian, Iraqi, Omani, Pakistani, Filipino, Polish, Saudi, Serbian, Sri Lankan, Sudanese, Syrian, Ukrainian.⁴

³ Although at the time of this research only 7 were being used.

⁴ Taken from the Royal Hospital Intranet.



1.2.4. Teamwork and Knowledge Sharing in Omani Healthcare

Most studies on teamwork and/or KS in Oman have concentrated on industry, or IT. (Al Shamsi, 2010; Al Shamsi and Sen, 2011). Al-Busaidi *et al.* (2010) studied KS in a private petroleum company in Oman, and concluded that KS was challenging for Omani culture because “knowledge is generally perceived as power and private”, hence individuals “will most likely feel reluctant to share their knowledge (power) with others, because they might loose[sic] their value and competitive advantage” (2010:2). In contrast, Alhousary and Underwood (2016) argue that Omani culture, in valuing trust and reciprocity, encourages teamwork and KS.

However, there is little research on teamwork and KS in healthcare either specifically in Oman or in the wider Gulf region. WHO (2005), in their *Regional Strategy for Enhancing Patient Safety*, notes that approximately 10% of inpatients in Middle East hospitals are likely to have sustained ‘unintended harm’, hence understanding how to improve patient safety is important. Over the past few years a small number of studies have been undertaken, showing there is increasing interest in the topic.

Al-Mandhari, *et al.* (2014:265), researching Oman’s Patient Safety Culture, note that among the most positively rated areas “ (84%) and ‘teamwork within units’ (83%). The most problematic area was ‘hand-offs and transitions (44%), an activity in which information and KS are vitally important. Al-Mandhari, *et al.*, (2014:268) define ‘organizational learning - continuous improvement’ as, “a learning culture in which mistakes lead to positive changes and changes are evaluated for effectiveness”, and consider this integral to Omani health development plans. In their discussion of ‘teamwork within units’ the relate positive comments of support and respect within teams, and the team’s facilitation of working together and efficiently. This implies a supportive and reciprocal perception of teamwork. However, Al-Mandhari, *et al.* (2014:268) qualify their findings with the need to consider the Omani culture:

“Because of its tribal origin and its recent onset, organizational culture in Oman is known to be characterized by ‘directive and paternalistic’ management styles. Such management styles indicate the hierarchical nature where ‘loyalty to the leader’ is a common prescription.



Conceptually, paternalistic organizational culture is likely to be incompatible to team spirit”.

Thus, they argue that teamwork in Oman is “relegated” due to “socio-cultural patterning”. (Al-Mandhari, *et al.*, 2014:268; Common, 2008).

Abdel Rahim (2003) comments that “access to information” is one of the main attributes of the transitions in the Omani health system. Similarly, Alshishtawy (2010:20) states that, “Oman laid great emphasis, right from the start, on sound planning supported by an efficient health information system”. However, Al Shamsi (2010) found that in Royal Hospital, when seeking knowledge, clinicians were most likely to ask colleagues and use their peer network. In contrast Jabr (2007) looked at KS behaviour by clinicians in Royal Hospital and Sultan Qaboos University Hospital, finding that junior physicians were likely to cite workload as hindering KS, and that senior physicians “had negative attitudes and were unwilling to share knowledge” (2007:258). Jabr links the negative attitudes primarily to expatriate workers who consider it “more useful to engage in work rather than actively participating in social events” and fear replacement through Omanisation. A recent study by Shamsudin *et al.* (2016) considers how to support teamwork and KS in an environment of Omanisation, suggesting that if job security cannot be a motivating factor, organisations can ensure improved employability through supporting training and opportunities for expatriate workers.

Furthermore, Mickan *et al.*, (2010:497) describe the barriers and facilitators for collaboration she discovered in Omani healthcare. She reports that “Managing difficult personalities” and “staff turnover” were the main barriers, while collaboration facilitators included “Commitment from high-level policymakers”, “ongoing staff training” involving “communication skills training”, “clear guidelines”, “meetings between health workers and system planners”, and a “spirit of teamwork”.

The Omani government has inaugurated communication skills training and teamwork workshops as a compulsory part of the professional development plans for healthcare workers at all levels. In 2010 these reached around 30% of healthcare workers, with the goal of 60% by 2015 (Alshishtawy, 2010). Whilst Omani government has promoted teamwork and communication, there remains a lack of research on how this is implemented, and on the creation and promotion of policies



and guidelines to support these phenomena in healthcare environments. This research is intended to be a step toward remedying this. From this brief review, it is evident that teamwork and KS practices and motivations provide a fertile ground for study. Thus, an initial document analysis was conducted by obtaining data from the MoH website, and from the case study, Royal Hospital, (RH). More details about the initial document analysis findings can be seen in Chapter Six.

1.3. Problem Statement and Motivation

The paucity of explicit coverage of KS and teamwork in Omani healthcare literature and in the initial document analysis contrasts with Western studies (Shamsudin *et al.*, 2016). This research examines the practice and evidence of these phenomena to provide a clear picture of current practices of teamwork and KS within the Omani healthcare system and to compare it with similar practices around the world.

Firstly, as noted, KS, cross-professional teams, and KS among cross-professional teams is under-researched in Oman. In 2000, the World Health Organization (WHO) lauded Oman's healthcare system as being in the top ten effective healthcare systems in the world (*World Health Report*, 2000). Yet, little is known about whether this efficiency and effectiveness is supported by the way in which healthcare professionals within Omani healthcare function or how healthcare teams share their knowledge, or the extent to which there is organisational support to provide efficient health services and avoid communication errors. The WHO Report (2000) described Oman as efficient in financial resources utilisation in health services. Hence whilst seeming to have spent a relatively small amount it was acknowledged as the "first in healthcare delivery efficiency and use of financial resources among 191 national systems" (Regional Profile–Oman, 2005)⁵. Nevertheless, there has been no follow up report since 2000. Al Khamisi *et al.* (2018) note that healthcare provision in Oman faces considerable challenges, citing the *Health Vision 2050* report (2016). These include funding shortfalls, research neither being prioritised

⁵ The WHO used five performance indicators to measure healthcare systems in 191 member states. It rated France first for best overall healthcare with Italy, Spain, Oman, Austria and Japan in the top 10 (See discussion in Al Salmi, and Hannawi, 2016).



nor disseminated, poor co-ordination between MoH and other healthcare organisations, and an ‘immature’ research culture within healthcare providers (Al Khamisi *et al.*, 2018).

Secondly, the Omani healthcare system comprises both indigenous people and expatriate workers. This creates an interesting case study with healthcare workers from different backgrounds and with different experiences put together in teams. The literature search was unable to identify any study of how these groups work together to deliver the efficient and high standard healthcare reported internationally. Lastly, there is an ongoing debate among researchers regarding the viability of teamwork (*Cf.* Procter and Mueller, 2000; Finn *et al.*, 2010). Although teamwork has been suggested as the best way for the increasingly complex healthcare settings, there is a lack of empirical studies supporting this argument, and how tacit-KS among these teams may facilitate their efficiency. If activities such as teamwork and KS are socially situated and the result of micro-negotiations and contestation, they must be studied within the wider nexus of social constructionism and discourse.

The healthcare environment is adopting more cross-professional teamwork and KM practices to achieve the best healthcare quality and outcomes (Gallois (2015). The literature highlights that a considerable amount of medical errors occur as a result of communication gaps between team members and the lack of KS among them (Awad *et al.*, 2005). It is a challenge for healthcare professionals to work effectively within healthcare teams to achieve the expected patient safety and healthcare quality and outcomes. The overall objective of this study is to deepen our understanding of the factors that increase or lessen the tendencies of healthcare professionals to engage in KS behaviours in teams. There is a need to study and understand these issues within their local settings in order to promote best practice, hence this research in a step toward greater understanding of KS behaviour in cross-professional healthcare teams in the Middle East.

Thus, the current research aims to bridge this gap by investigating current practices of teamwork and KS through the experiences of healthcare professionals in RH. It aims to identify the dominating team types as perceived by healthcare professionals in Omani healthcare settings. Following that, it explores the level of KS within these teams, and considers the impact of cross-professional teamwork on KS and vice



versa. More exploration and a deeper understanding are needed when knowledge sharing, particularly tacit knowledge sharing, is used for supporting the efficiency of health teams. This study therefore considers KS and teamwork practices in Omani healthcare settings by exploring the experiences of clinicians and nurses of these phenomena.

It will provide a context and understanding of an important area of health care (knowledge sharing in teams) in a novel, socio-cultural and economic context where research is currently lacking (Oman). It reports on how individual healthcare professionals understand and experience complexities and negotiation of teamwork and knowledge sharing practices.

1.4. Research Questions, Objectives and Scope

The area of interest in this study is KS among healthcare cross-professional teams, specifically, tacit KS, that which can be described as personal and embodied knowledge that can be revealed through activity, action, or practice (Polanyi, 1962, 1966; Brown and Duguid, 1998; Spender 1996b; Nonaka, 2002; Leonard and Sensiper, 2002) Knowledge as a concept is discussed in detail in the Literature Review, however this research seeks to expand our understanding of the relationship between cross-professional teamwork and the level of KS among team members in the Omani healthcare settings by answering the overarching research questions:

- What team types dominate the experience of healthcare professionals within the Omani healthcare system?
- How is knowledge shared in these teams?
- What factors or combination of factors can influence, directly and indirectly, the knowledge sharing process in cross-professional teamwork?

Figure 1.1 presents the development of the research problem and questions.

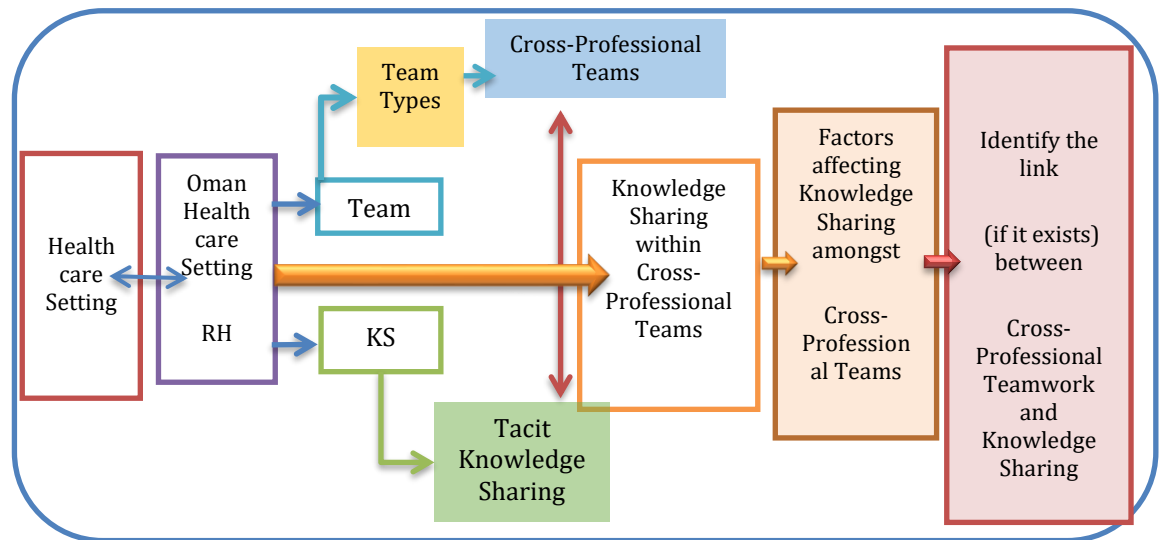


Figure 1.1 Development of the research (*Source: Developed for this thesis.*)

Research Objectives

1. To understand the extent of research on KS amongst cross-professionals in healthcare settings.
2. To understand professionals experience, practices and understanding of teamwork in Omani healthcare cross-professional collaboration.
3. To identify the types of KS practices within these teams.
4. To understand the impact of cross-professional teamwork on KS and vice versa.
5. To characterise factors or combinations of factors that can influence, directly and indirectly, the KS process in cross-professional teamwork.
6. To highlight the link - if indeed it exists - between cross-professional teamwork and the level of KS among the team members in healthcare settings.

The first objective is to assess the current literature and to understand the extent of research on KS amongst cross-professionals in healthcare settings, as well as examining any shortfalls. This also includes relevant research carried out in Oman, as well as providing a critique of these areas. The second and third objectives are the first steps in identifying the implementation of teamwork in Omani healthcare, the types of teams and the level of KS within these teams.

The fourth objective uses the data gathered to explain the impact of cross-professional teamwork on KS and vice versa. This provides the base for objectives



five and six to build on. The fifth objective uses the data collected throughout the research to map existing best practices that promote knowledge sharing among cross-professional teams in healthcare. Finally, the sixth draws from the data corpus the link, if it exists, between successful cross-professional teamwork and the level of KS among the team members in healthcare settings.

1.5. Significance of the Study and Justification of the Research Problem

Effective teamwork in healthcare relies on each team member's ability to communicate and share their knowledge. Teamwork has substantial implications for patient safety and medical errors, which are often the result of collaboration and communication gaps between healthcare team members. The results of this research can help not only the Omani healthcare system but the whole Gulf region, given the little research previously carried out in this field. In theoretical terms, the present study contributes to earlier research on KS and/or teamwork in healthcare settings by building a conceptual framework that includes the most significant factors found to influence or inhibit KS behaviour and/or teamwork in previous empirical studies. This study extends previous research by investigating the influence of these factors on knowledge sharing amongst cross-professional healthcare teams within the Middle East. It also provides the first holistic review of knowledge sharing and teamwork in RH, adding to an increasingly important field (Finn and Waring, 2010). In practical terms, this research is intended to help healthcare professionals and management understand the factors that facilitate effective teamwork and KS and, more importantly, generate methods to foster, promote, and improve efficiency. Implementing strategies that promote teamwork and KS are expensive and time consuming, hence the results of this study will provide Omani healthcare managers with guidance and direction with respect to KS in cross-professional teams, including which factors are most significant for a healthcare organization to focus resources on. So, this study will conclude with some suggestions for promoting and nurturing KS and teamwork in healthcare.

1.6. An Overview of the Research Design and Methodology

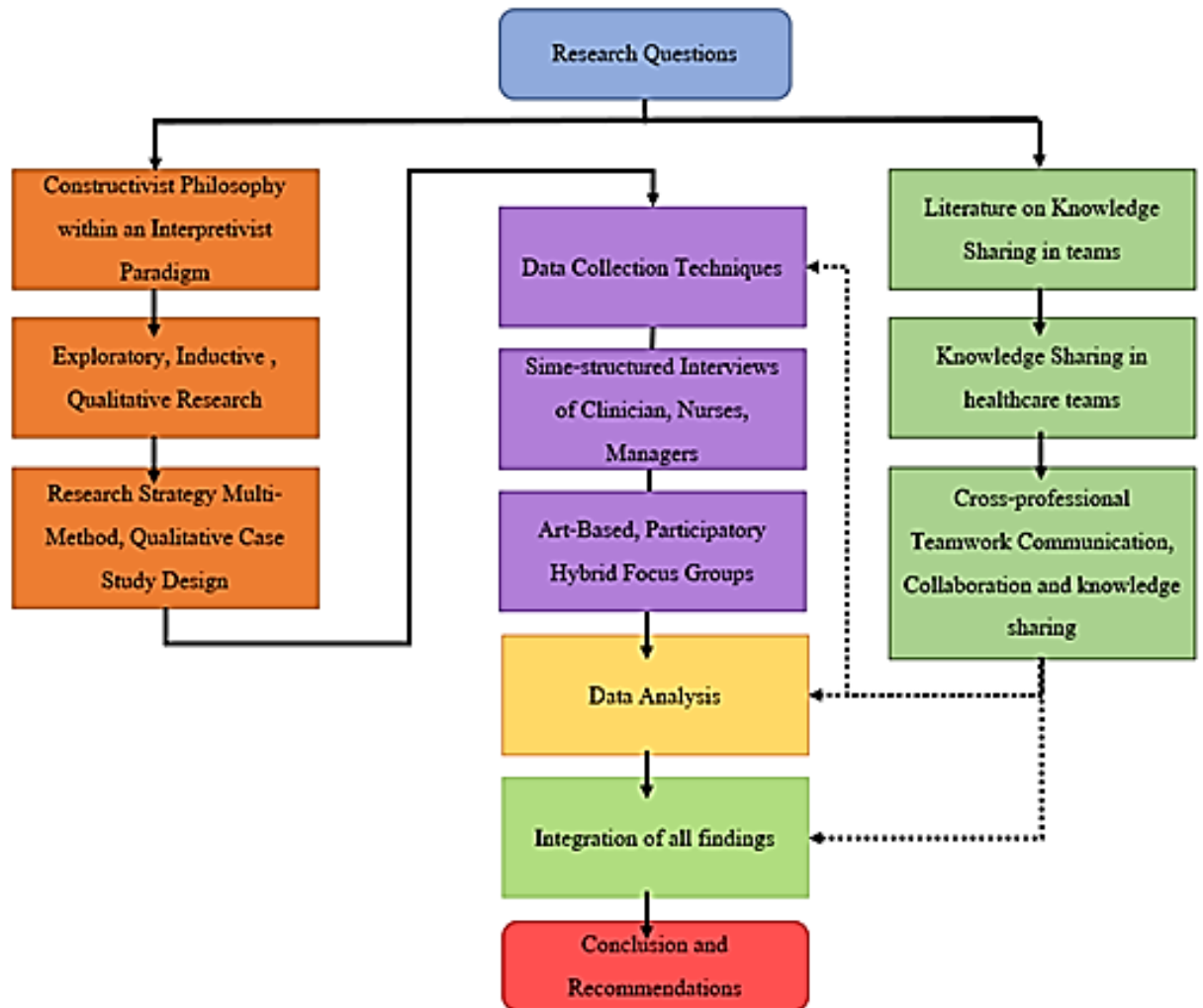


Figure 1.2. Research design (Source: Adapted from Koo (2004, p. 68), modified to suit this research project).

This research uses an exploratory and innovative approach to conduct empirical research on healthcare professionals (clinicians and nurses), at a large tertiary teaching hospital (The Royal Hospital in Oman). This required the collection of qualitative data using face-to-face semi-structured interviews as a primary research instrument. The second primary instrument is a non-traditional methodological approach to eliciting rich qualitative data through two sets of Hybrid Focus Groups (HFGs). The first series of 3 interactive HFGs collected the views, experiences and understandings of participants associated with cross-professional teamwork. A second series of 4 interactive HFGs explored cross-professional teamwork, team types and communication behaviour through an art and craft project as a data collection method. Alongside these two approaches documents were collected and



further analysed to provide a comparison between practices and documentation. The integration of these different and rich data sources provided a rich insight into the phenomena under study. These were placed within the context of a review of official documentation relating teamwork and KS that offered an organisational lens onto the phenomena,

1.6.1. Justification of the Research Methodology and Design

As noted earlier in this chapter, there is little research on KS in healthcare teams in Oman. Thus, the choice to undertake an exploratory research was made, to gather information and insight. The methodology and reasoning are discussed further in the Methodology Chapter, but here I offer a justification for the selection of the research methodology.

The particular economic and social contextual factors of Oman and RH have the potential to influence the phenomena under study, so it was important to look into the phenomena in their social, cultural and organisational setting, and consider how individuals and teams interacted and engaged in KS and teamworking, for which a qualitative approach is suitable (Creswell, 1994; Denzin and Lincoln, 2008). At the same time, qualitative research with inductive reasoning, allowed more depth of understanding and flexibility. Denzin and Lincoln (2000) as cited by Esch and Esch (2013) asserts that qualitative research can be used to address research questions on how experiences can be made visible, making the social construction of actions evident. Schultz (1973) describes how qualitative research employs the meanings inscribed by participants as social actors to explain how they experience everyday life. Hence this research will use the words and experiences described by healthcare professionals within RH, as described by Denzin and Lincoln (1994). Thus, this is a multi-method research that employs a social constructionist approach towards exploring its subject matter. Similarly, the choice of case study enabled the exploration of complex issue within a contained context, offering multidimensional and in-depth understandings of the phenomena (Crowe *et al.*, 2011; Yin, 2011).

Constructivism is the epistemology framing this study as it focuses on how individuals understand, create and negotiate KS and teamwork. The aim of the research was to understand subjective meanings formed by participants within their social and organisational contexts about the phenomena. Thus, the data



collection process included semi-structured interviews with open ended questions about the phenomena of interest that enabled me to collate participants' understandings and experience (Blatter, 2008). The use of hybrid focus groups (HFGs) allowed participants to construct their own visual expression of meanings and concepts through the production of visual artefacts. The richness of this process, creating not only the visual data but also observation, discussion and verbal explanation, is a particularly valuable method. Participants interacted, aggregating their collective knowledge to produce the final artefact. Participants also gave meaning to the artefacts in their descriptions. (Blatter, 2008).

Considering the challenge of studying tacit knowledge, without longitude observation, I felt the integration of data from the HFGs and interviews offered data on certain forms of tacit knowledge exchange between the participants. For example, role negotiation during the HFGs allowed the observation of how such negotiation took place, including non-verbal cues such as taking the lead, or suggesting a plan and direction for tackling the problem, also how participants communicated and engaged with the task. As participants were engaged in conceptualising and reconstructing their views, I was able to observe understanding and practices as they emerged from individuals and within the group. The interviews also allowed for a greater understanding of the daily practices, experiences and attitudes of participants as they described teamwork and KS interactions (Myers, 2009).

1.7. Perspective of the Author / Limitations and Key Assumptions

My interest in this topic comes from my experiences in healthcare, working at the Royal Hospital and Oman's Ministry of Health. Also from seeing the impact of poor communication on my sister's treatment when she was admitted to a hospital in Oman with aplastic anaemia. The lack of communication and KS between healthcare professionals led to a near fatal delay in her diagnosis and treatment, which profoundly affected my family. Therefore, I have developed and delivered a course at the University of Sheffield, "*Communication and Collaboration among Cross Professional Teams: MBChB Masterclass*". I hope my research is a step toward bringing research closer to the practice.



I have experience in healthcare as the library manager at Royal Hospital Central Medical Library (RHCML) between 2005 and 2013. Later I worked with Planning Affairs at the MoH, being part of various cross-professional teams. Thus, I was in direct contact with the phenomena I am investigating and have personal experience of cross-professional teamwork and KS practices in Oman, and have real-life as well as scholarly knowledge of the topic. My previous roles within RH and the MoH mean that I can contact many of the hospital healthcare professionals and management staff.

However, several concerns also appear, such as whether a personal relationship between me and some of the participants could influence their answers? Also, there is the possibility that I could distort my interpretation of the results based on pre-conceived ideas on the phenomena of study. Chapter Three, on the methodology of this study, provides suggestions for overcoming these issues.

1.8. Thesis Layout

Chapter One - Introduction

This chapter provides a background and justification to the topic and the case study of RH, whilst highlighting the research problem and questions and stating the purpose of the research. It comments on existing research in teamwork and KS in Oman and the Omani healthcare system, and how this research intends to build on that. Finally, it justifies the methodological choices in preparation for a full discussion in Chapter Three.

Chapter Two - Literature Review

This chapter identifies and discusses existing literature relating to KS and cross-professional team practices in healthcare especially knowledge sharing within teams. It considers the definitions of the terms used and suggests definitions that suit the philosophical and epistemological choices made to frame this research. It evaluates perceived associated benefits with KS and cross-professional teamwork, and the factors that have been indicated as barriers or facilitators to KS and cross-professional teamwork, including applying and implementing KS and cross-professional teamwork as a best practice in healthcare.



Chapter Three- Methodology

This chapter describes the methodological approach taken in this research and reasoning behind it, and behind the selected data collection instruments. I discuss why I have chosen to undertake a constructivist multi-method case study design, an innovative qualitative study. In addition, the chapter offers visual and written representations of the procedures applied in this research.

Chapter Four - Findings: The macro perspective of the phenomena (Organisational Level)

This chapter reviews the documents related to the case study with particular reference to teams, teamwork and KS, such as policies, procedures, and so forth. These were sourced from the RH website and intranet, and include documents identified or suggested by participants. It provides the framing and organisational context for the rest of the findings.

Chapter Five -Findings: The micro perspective of the phenomena (Individuals Level)

This chapter introduces briefly the participants and outlines the research findings. It explains and presents the integration process for the findings, enabling a comparison of the data and the construction of a comprehensive picture of the research findings from the data corpus.

Chapter Six - Discussion and Conclusion

This chapter discusses the research findings in line with the existing literature, including previous research, theories and practices. It summarises the findings and analysis, providing a conclusion that addresses the research questions and objectives. Finally, it offers suggestions, based on the results of the study, for supporting KS and teamwork in the Omani healthcare environment, and looks to further research.



1.9. Summary

This chapter has provided the research context, explained the importance of KS and teamwork, particularly cross-professional teamwork, in healthcare. The main aim and objectives of the study have been outlined, along with the research questions, and a brief discussion of the rationale for the study by pointing to its significance within the current research relating to Oman. The chapter concluded by describing the research design and reflecting upon my personal perspective on the thesis. The next chapter presents the literature review that underpins this research outline.



Chapter

2

Literature Review and Theoretical Framework

Chapter Overview

This Chapter provides an overview of the literature as it relates to the research questions and objectives. It briefly reviews the methodology of the literature review and offers an overview of the phenomena of interest.

The chapter provides context to the topic and discusses how teams, teamwork, knowledge and knowledge sharing have been conceptualised and studied from a review of the literature. I will suggest working definitions for this study and demonstrate the importance of considering teamwork and knowledge sharing together.

I will discuss some of the facilitators and barriers to knowledge sharing within teams, and finally, this chapter briefly discusses the literature as it related to Oman and Omani culture.



2.1. Literature Review Development

The literature review was carried out in two main stages:

1st stage: *searching to learn*, to facilitate exploring, familiarising and building an understanding of key theories, concepts, definitions and authors within this field. The literature review is the base on which the research problem, and furthermore the research question, are formulated (Bryman, 2012:98).

2nd stage: *searching to write*, a more focused, informed and systematic search targeting literature that offers insight into the thesis development, the phenomena of interest and to answer one of the research objectives (To understand the extent of research on knowledge sharing amongst cross-professionals in healthcare settings).

This latter stage has been ongoing throughout the research period. The literature review provided the information to design this research and identify where there are gaps. A preliminary review of literature related to Omani healthcare practices, with regard to KM, KS and teamwork was undertaken, followed by an extensive review of teamwork and KS practices in healthcare more generally.

2.2. Methodology of the Literature review

This literature review was the starting point to establish an understanding of the existing research on the phenomena of interest, which then narrowed to a more specific focus to identify gaps in the literature and position my research within the field (Hart, 1998; Jesson, *et al.*, 2011; Ridley, 2012; Fink, 2013).

A traditional or narrative literature review methodology was selected. This type of literature review summarises and critiques the literature on a subject area, offering conclusions. Such a review is necessarily selective in the material covered, although the criteria used for selection is not always clarified to the reader. The value of a narrative literature review lies in collating a broad volume of literature on a given topic, summarising and synthesizing it. It thus creates a broad framework for



understanding the current level of understanding on a topic, and highlight the gaps in a body of knowledge, inspiring further research. It is adaptable and helps to refine a broad research question, hence it is useful both for topic selection and topic refinement in that it aids in determining a hypothesis or research question (Beecroft *et al.*, 2006). It also aids the development of conceptual or theoretical frameworks (Coughlan *et al.*, 2007). In addition, narrative literature reviews can be undertaken independently of a research study, for example, to evaluate current practices or update guidelines and policies (Polit and Beck, 2006; Cronin *et al.*, 2008).

Both cross-professional teamwork and knowledge sharing behaviours in healthcare are receiving much interest as research topics, as KM and teamwork are key factors in health service effectiveness and improvement initiatives. It is important that any correlation between cross-professional collaboration and KS behaviours be well understood as the increasing specialisation of healthcare and the progressively complex health problems confronted by health professionals create pressures toward fragmentation and interdependency. We have limited knowledge of these processes and the complexity of cross-professional relationships and KS behaviours among these teams.

Thus, this literature review is intended to identify conceptual frameworks that could improve our understanding of these important aspects of health organizations. To this end, I identified and took into consideration the various definitions proposed in the literature for the phenomena under study, and the various concepts associated with collaboration, team types and knowledge sharing and B) the theoretical frameworks of collaboration and knowledge sharing. The literature review is presented through a thematic approach.

As a result of the preliminary literature review the research questions were formulated as demonstrated in table 2.1. below. These research questions provided me with the foundation for the methodological decisions as discussed below.

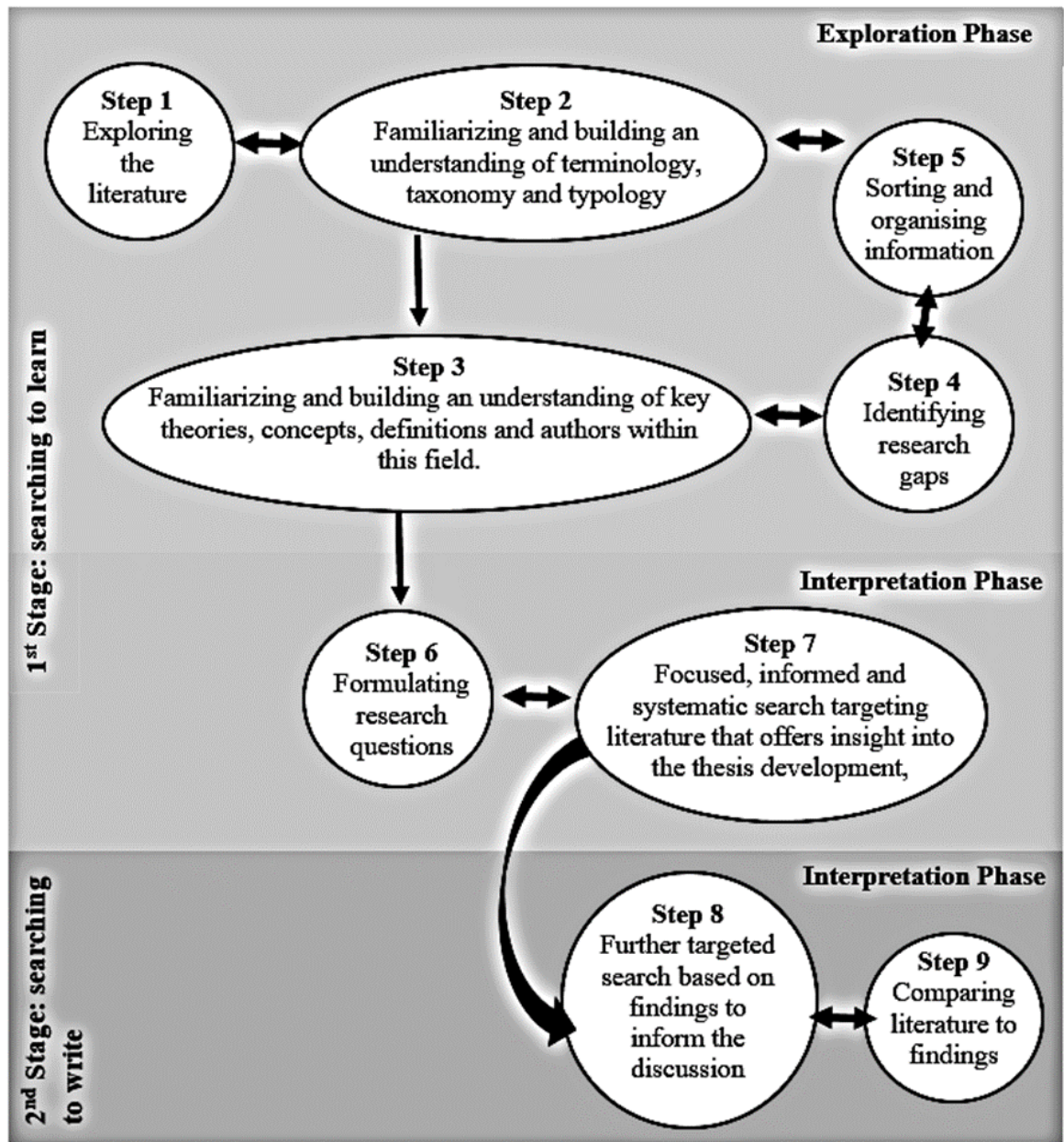


Figure 2.1. Literature Review Roadmap (*source: developed for the purpose of this research*)

As shown in figure (2.1.) the first step, exploring the literature, involved reading widely on the topics. Once an understanding was reached, more focused study was possible. Steps 1-5 were iterative, to narrow the topic and establish the research scope and subsequently the research questions. The literature could then be evaluated, and its significance determined. Finally, the interpretation stage involved comparing the literature to the research findings for the data collected during this project.

A variety of approaches were used: accessing library catalogues, online search engines and databases, online and print journals and books, websites, Mendeley and Endnote libraries and Internet resources. In addition, the search also incorporated



the Royal Hospital Electronic Library, The RH website, the Oman MoH Electronic Library and website, Omani medical publications such as Oman Medical Journal, The University of Sheffield online library as well as printed resources. I consulted several guidelines, for example, Aveyard's (2008) book and the document of NHS South Central Healthcare Librarians (2013) to ensure best practice in the literature search.

Another technique used is 'information encountering' or 'accidental discovery of information' (ADI), which is, as Erdelez (1999:26) describes it, "Information encountering occurs when one is looking for information relating to one topic and finds information relating to another one." Citation research, 'ancestry' searching, also known as 'backward' searches or 'treeing' through the references, created another source of original empirical studies (*Cf.* Erdelez, 2004).

This research adopted a systematic and rigorous research approach to identify and keep up-to-date with the key literature throughout the research period, employing main themes to construct the literature search, and arranging literature under these themes (Bryman, 2012). PICO (Richardson *et al.*, 1995), Eclipse (Wildridge and Bell, 2002) and SPICE (Booth, 2004) use question-formulating modules to identify and build the potential search terms. It was anticipated that new terms and keywords would keep emerging and the need to keep abreast of the topic required the use of relevant literature and 'thesaurus mapping' tools, thus I could capture any new published research during the period of the research. Following Aveyard (2008), the research questions were implemented during the second phase of this literature review as the best tool to select the relevant evidence for this research. Hence, examples of topics covered through the search were: knowledge management (KM), knowledge sharing (KS), information sharing, teamwork/team work, collaboration/cooperation, communication, healthcare/healthcare, medicine, physicians, nurses, healthcare workers, and healthcare professionals. Details about the search strategy used through diverse resources, list of used databases and search keywords used to identify the literature included in appendix 2.1.

To include the development of teamwork and knowledge management and knowledge sharing in healthcare, the initial search included literature from 1960 onward for these two sections, whilst for the rest of the literature review a scale of 15 years was used. This was selected because although KM, KS and teamwork are



established paradigms within industry, within a healthcare setting they can be counted as relatively new.

As this research is focused on the human aspect of KS rather than the technological aspects of it, the decision was made to eliminate literature related to technology unless it also included a discussion of the human factor. Hence, KM as a theme became less important vis-à-vis KS within and between teams.

<i>Research Questions</i>	<i>Research Objectives</i>	<i>LR</i>
<i>What team types dominate the experience of healthcare professionals within the Omani healthcare system?</i>	To understand the extent of research on knowledge sharing amongst cross-professionals in healthcare settings.	X
	To identify dominating team types in Omani cross-professional collaboration in healthcare settings.	x
<i>How is knowledge shared in these teams?</i>	To identify the types of knowledge sharing practices within these teams.	x
	To understand the impact of cross-professional teamwork on knowledge sharing and vice versa.	X
<i>What factors or combination of factors can influence, directly and indirectly, the knowledge sharing process in cross-professional teamwork?</i>	To Characterise factors or combination of factors that can influence, directly or indirectly, the knowledge sharing process in cross-professional teamwork.	X
	To highlight the link - if indeed it exists - between cross-professional teamwork and the level of knowledge sharing among the team members in healthcare settings.	X
<i>X: Major contribution source, x: Minor contribution, -: No contribution</i>		

Table 2.1: Research question and research purpose and scope

The literature search was limited to the English and Arabic languages; however, English is the primary language within the healthcare sector. The literature review covered practices globally but focused where possible on the Middle East, the Gulf region, and Oman. However, as noted in the Introduction, there is scanty literature on KM, KS and teamwork in the Gulf region, particularly in Oman.

The contribution of the literature review in addressing the research objectives are demonstrated in table 2.1.



2.3. Introducing the Phenomena: Knowledge Sharing in Cross-Professional Teams

This investigation maps the intersections between cross-disciplinary teamwork and knowledge sharing within healthcare, aiming to reconcile practice and evidence. In the process, this research aims to establish an understanding of concepts, definitions and theories around team, teamwork, collaborative practices, communication, knowledge and knowledge sharing within the healthcare settings.

The healthcare environment is increasingly complex, due to the interdependency and interaction required between disciplines and specialities. The increased complexity of patient need, coupled with advances in medical procedures, technologies, specialities and scientific knowledge, have all influenced the intricacy of healthcare delivery (*Cf. Cadell et al., 2007; Reeves et al., 2010*). This increase in specialisation and care delivery complexity can cause division between professions and fragmentation of care, including avoidable errors derived from communication failure, incomplete collaboration or fragmented teams/teamwork (*Fletcher et al., 2002; Bleakley et al., 2004; Bleakley et al., 2009; Finn, Currie and Martin, 2010*).

Healthcare professionals bring with them the norms, rules, behaviour, values, language and vocabulary of their specialisation. These individuals are then expected to function effectively as a team, work collaboratively, and share both their explicit and tacit knowledge to achieve outcomes. (*Paul, 2006; Tagliaventi and Mattarelli, 2006; Nicolini et al., 2008; Reeves et al., 2010; Meleis, 2012; Prantik and Islam, 2012*). Research on cross-professional teams and teamwork has rapidly expanded but has often assumed that teams are a 'good thing' in healthcare or ignored the complexities of teams and team context (*Reeves and Lewin, 2004; Reeves et al., 2010; Finn et al., 2010*). Thus, such research is in danger of discussing the ideal team misses the constructed, messy and negotiated nature of teamwork and knowledge sharing (KS).

Whilst the study of teams, including composition, skills, leadership and so forth, remains important in understanding how healthcare professionals work together, there is also a need to make explicit the role of KS as vital to effective teamwork, particularly through communication. In Cott's study (1998) KS was an integral part



of the teamwork as described by participants. As Reeves *et al.* (2011:39) note of the need for cross-professional healthcare teams, “the increasing complexity of organising, coordinating and delivering care demands that professionals regularly come together, *share information* and reach agreement in their work [italics mine].” Hence the team is not only intended to fulfil a task but is also involved in information and KS, the consolidation and creation of shared knowledge, including knowledge about how the team should work together. Finn and Waring (2006) highlight ‘team knowledge’ or a ‘collective mind’ that can shape group sense-making, interaction and learning (*Cf. Weick and Roberts, 1993; Cooke et al., 2000; Penciu et al., 2010*). The combining and integrating of individual knowledge(s) through processes of learning and sharing is essential for both team performance and knowledge management (Finn and Waring, 2006).

There is a convergence between theories of ‘knowledge’ and ‘teamwork’ (Nonaka and Takeuchi, 1995; Sapsed *et al.*, 2002) and my research is positioned at this convergence. Both teamworking and KS in healthcare settings have attracted great interest and generated research as separate topics, and in recent years increasingly have been studied together, and this research will build on this by studying the phenomena in the Middle East.

Effective collaboration, communication and KS sharing between and within teams of highly specialized healthcare professionals is critical for patient safety and the best outcomes, as Gallois (2015:71) noted, “health care providers are required to cooperate and collaborate for patient care”. Yet, there are challenges in KS within teams: motivations, organisational issues, differences in priorities between members, power differentials, the use of specialist language, issues around integration and autonomy (Procter and Currie, 2004; Finn, 2008, Scott, 2008; Finn, Currie and Martin, 2010).

Through the following sections I will consider the concepts of teams, teamwork, collaboration, communication and knowledge, to create a suggested working definition of these concepts for this research.

2.3.1. Concepts and Definitions

Terms such as team, teamwork, knowledge, tacit knowledge and so forth are contested through the literature. Studies such as Cott (1998), have demonstrated



that definitions can depend on context and differ between individuals on the same team. Thus, the concepts and definitions discussed below are important for understanding the phenomena from a social constructionist stance, and allow space to incorporate the ideas and conceptions that arise from participant views in the data corpus.

Throughout this research, it must be stressed that all the concepts discussed are slippery, and contested, existing within the social and linguistic spheres, in the language and lived experiences of individuals. Language does more than represent reality, it is how we construct it, Discourse is performative, it is language in social interaction (Austin, 1962; Potter and Wetherall, 1987). Through language we construct reality, including the language used around the phenomena of interest (Berger and Luckman, 1967; Hardy et al., 2000). Ruiz (2009:2), notes “verbal discourse is a privileged means of producing and transmitting meaning”. Healthcare professionals as social actors use language as a resource, invoking a dialogue that incorporates their interests within the structure of the organisation in which they work. Thus, language is ideologically charged; being a ‘team player’ can be used as a normative frame, an identity promoted by management to support collaboration, or to isolate and silence those in marginalised subject positions. Hence, these terms, the definitions of them, the social actors engaging in them and the organisations in which action occurs are all characterised by ambiguity, contestation and negotiation, as individuals and organisations construct, legitimate and subvert knowledge sharing and teamwork (Potter and Wetherall, 1987; Hardy *et al.*, 2000; Finn, 2009, Finn, Currie and Martin, 2010).

2.3.1.1. Profession/professional

Concepts such as ‘profession’ and the boundaries between professions also require discussion in order to clarify how these terms are understood and used within this research. Whilst on the one hand, ‘professional’ in the sense of a cross-professional team stands for the different discipline and specialisation backgrounds of individual team members, the terms ‘profession’ and ‘professional’ include their own discourse. Professions relate to a division of labour, and incorporate authority and identity, formal and informal. Friedson defines a profession as a “special status in the division of labour that is supported by an official and sometimes public belief that it is worthy of that status” (Nancarrow and Borthwick, 2005:904). Abbott (1988) makes explicit



the link between this status and the knowledge required, describing ‘profession’ as an occupation that controls the abstract knowledge on which their skills are based.

The dominance of medicine within healthcare has been related to the hierarchy of occupations which has developed and ensured medicine had the influence to control the evolution of other healthcare professional roles (Larkin 1983; Freidson, 1988; Cf. Cott, 1998; Finn, 2008). Dent and Whitehead (2002:2) consider that professions such as medicine no longer enjoy “exclusivity, protection and autonomy”, through “apparently objective systems of accountability and measurement, rather than the subjective judgement and specialised knowledge of an individual”. This is a somewhat generalised supposition, and studies such as Finn (2008) demonstrate the power relations still evident within healthcare. Further, as individuals negotiate different identities within the workplace, professional and organisational identity can clash, creating tension, especially where the values of an organisation and profession do not easily mesh.

Alongside this, Fournier (1999) discussed the discourse of ‘professionalism’, after all, who wants to be labelled ‘unprofessional’? To be professional is to be a hard and conscientious worker, valued by the organisation for which one works, but also following the institutional values, which vary between organisations. Within this Watson states, the “discourse of professionalism, with its promise of a prestigious and comforting ‘professional’ identity is exceedingly attractive” (Dent and Whitehead, 2002:112). And as team members, individuals occupy multiple subject positions, negotiate multiple allegiances and loyalties, power structures and discourses, hence they must “shift, manoeuvre, and negotiate within and across these” (Dent and Whitehead, 2002:11). As institutional agents, healthcare professionals negotiate what Finn, Currie and Martin (2010:1071) term, a “dialectical relationship between structure and agency”. Thus, how individuals engage with teamwork, and the discourses they employ can reproduce, subvert or transform professional constructs (Finn, Currie and Martin, 2010:1071).

2.3.1.2. Boundaries, hierarchy and power

As noted, healthcare is hierarchical. Both the healthcare institution and more general healthcare hierarchy create boundaries. These may be, for example, professional, legal, structural, or organisational, and occur vertically and



horizontally. Hoeman (1996) emphasises that team members, as professionals from separate disciplines, retain their professional boundaries. However, as Abbott states, these boundaries, are under constant pressure as different groups compete for 'jurisdiction' (Abbott, 1988). Gallois (2015:71) notes that whilst healthcare providers must collaborate, "they belong to different subgroups, such as departments and specialities, with which they identify more strongly than their profession." Thus, silos can be created and maintained, creating an environment in which information and knowledge is not shared. As D'mour *et al.* (2009) note, "Each discipline develops strong theoretical and discipline-based frameworks that give access to professional jurisdictions that are often rigidly circumscribed.", and they note, "we have limited understanding of the complexity of relationships between [such] professionals". Indeed, Reeves *et al.* (2010) argue that greater specialisation may be necessary to manage more complex interventions and technologies, which could, in turn, create greater divisions between different specialities and professions. Hoeman, like others, stresses the value of using cross-training and flexibility to eliminate boundaries between disciplines.

Whilst boundaries have developed historically, and are therefore deeply entrenched, how the different professions enact their roles can recreate or subvert boundaries. Gieryn (1983) describes this as 'boundary work', as different disciplines seek to protect their jurisdictions against the encroachment of others. The increasing specialisation of healthcare and the discourse of teamwork and integration ensure these boundaries are constantly contested and under negotiation whilst also being constrained by agency and structure (Freidson 1988; Nancarrow and Borthwick, 2005; Lawrence and Suddaby 2006; Sanders and Harrison, 2008; Finn, Curie and Martin, 2010). Fournier (2000) and others have described the 'boundary work' necessary to construct and maintain professional boundaries (Davina, 2000; Nancarrow and Borthwick, 2005), which includes control of knowledge and information. Thus, whilst the traditional hierarchy of healthcare, with doctors in a position of privilege and nurses in a subordinate role, has been challenged by new fields and technological advancements, discourses around teamwork and integration face challenges from the need of professions to retain boundaries and power differentials. (Leonard, Graham, and Bonacum, 2004; Martin *et al.*, 2009b; Currie *et al.*, 2009c; Finn, Currie and Martin, 2010).



Thus, boundaries are inscribed, recreated and challenged, by professional identity, regulatory and legislative structure and financial capital. They are also recreated and reworked through discourse, including teamwork and its coercive, normative properties.

The hierarchies within healthcare reflect power differentials. Power includes control of capital and the ability to dominate discourse. However, power does not operate in a linear fashion, as it is the result of interaction, and those in marginalised subject positions may use their enactment of teamwork to subvert the demands of others (Freidson, 1976; Cott, 1998; Davina, 2000; Knights and McCabe, 2000). Thus, power also allows for the creation, reproduction or transformation of boundaries and hierarchy. (Finn, Currie and Martin, 2019). Cott highlights the use of discourse in maintaining power differentials, noting that whilst the division of labour in healthcare is discursively linked to function and efficiency, “it perpetuates a structure which produces alienation in those lower level staff, resulting in potentially fragmented and less than optimal patient care” (1998:870). Donnellon (1996) argued that all the concepts discussed, such as individual and professional identity, power differentials, organisational culture and so forth, interact with the discourse of teamwork, resulting in a predisposition differentiation within teams. As with team and teamwork, these concepts are multivalent and contested, nevertheless, they remain associated with privilege, specialism, autonomy, and trust (Dent and Whitehead, 2002).

2.3.2. Team

It is necessary to consider the lexicon and discourse of teams, teamwork and KS. On beginning the literature review, it quickly became apparent that there was no universal agreement between researchers on these concepts and how these terms were interpreted and used. Hence these key constructs require an in-depth discussion of definitions, and a justification for the definitions used throughout the research.

Whilst a definition of ‘team’ may appear self-evident, a review of the literature highlights multiple and competing terminologies applied to teams within organisations. Reeves *et al.*, (2011) note that terms such as ‘group’ and ‘team’ have been used interchangeably in the literature (*e.g.*, Douglas, 1983; Adair, 1986). For example, one broad definition is that a team is a co-operative group to perform a



task that cannot be performed by an individual (Douglas, 1983:1). Reeves *et al.* (2011) note that whilst groups are often perceived as ‘looser’ than a team, there is a great deal of overlap in the way collaboration, groups and teams are described, making a specific definition elusive. Donnellon (1996) offers team as an interdependent group of more than two people working towards a common goal.

Sundstrom *et al.* (1990) outline three elements to define a ‘team’, that team members hold a shared identity of themselves as a team, have an individual role within the team, and share a collective agreement about how to work together as a team. Pritchard (1995) has four elements: that members should understand the roles and functions of other members of the team, share a common purpose for the team, pool their skills and knowledge within the team, and work interdependently with each other. Likewise, Mohrman *et al.* (1995) state that team members should share team goals, are interdependent, work in integrated manner, and are both mutually and collectively accountable for team goals and outputs. Thus, there is an overlap and differences between these definitions. Dyer (1984) cited in Salas *et al.* (2008) offers a general definition of teams as

“social entities composed of members with high task interdependency and shared and valued common goals”.

Viewing team members as social actors who create a team (and teamwork) through micro-negotiations will be discussed further below, under teamwork. However, more recent studies have allowed for greater complexity in defining teams and teamwork, when considering, for example, the context in which the team must operate or the theoretical framework conceptualising the team. Another example of the complexity of the concept of team is the virtual team; with increased use of IT and internet-based communication, some teams may consist of individuals who not operate in same space or communicate synchronously (Reeves *et al.*, 2010; Reeves and Freeth, 2003). What effect does this have on KS, specifically the creation and exchange of tacit knowledge?

Salas *et al.* (2008) expand the definition to include how the team works, that is a ‘performance episode’, which can consist of several activities. For example, to complete a task they may shift between “incorporating, combining, synthesizing, coordinating and cooperating” in an organised manner. This allows for team being,



Team	The Common Concepts	Literature
Consists of	Two or more individuals	Dyer, (1984); Hackman, (1987); Mohrman <i>et al.</i> , (1995); Pritchard (1995); Sundstrom <i>et al.</i> , (1990); Guzzo and Shea, (1992); Salas <i>et al.</i> , (1992); Orasanu and Salas, (1993); Cannon-Bowers, (1995); Brannick and Prince, (1997); Cohen and Bailey (1997); Kozlowski and Bell, (2003); Thylefors et al., (2005)
Individuals have	Specific role or task to perform Interact and/or coordinate with other members to achieve a common goal or outcome	
Outcome	Decisions/actions	
Represents	Specialised knowledge and skills, often functioning with a high workload	
Exhibits	Interdependency with regards to workflow, collective action and goals	
Part of	A larger organisational system	

Table 2.2: Fundamental features of teams based on the literature and adopted for this research.

as Griffiths describes it, “a loose rubric for action” (cited in Finn, Currie and Martin, 2010:1070) and opening the way to new conceptualisations of teamwork that may be suited to the fast past and dynamic needs of modern healthcare.

The general features of a team as derived from this literature review can be summarised into six elements, as shown in table (2.2). This research will use a working definition of team as a combination of the two definitions from Dyer (1984) and Thylefors *et al.*, (2005) will be used, defining a team as

“an organizational work unit or social entity composed of ... different professions with high task interdependency and shared and valued common goals”.

This allows for a broad understanding of team, able to incorporate the experiences of study participants, and integrates the importance of individuals as social actors, representing a social constructionist conception of team.

2.3.3. Cross Professional Teams

Whilst the above section considers teams in a general sense, when specifically discussing cross-professional teams, there are multiple terms used in the literature to describe the team, its make-up and processes. Lo (2011) offers examples of different cross-professional teams within healthcare: intensive care unit teams, medical emergency teams, operating teams and labour and delivery teams.

Headrick *et al.* (1998) use the following characteristics to describe teamwork between professions:



- Team goals and objectives are stated, restated and reinforced
- Member roles and tasks are clear and known
- A respectful atmosphere in the team
- The responsibility for team success is shared
- Clarity regarding authority and accountability
- Team decision-making and communication processes are clear
- Information is regularly shared.

However, this description is idealised, and makes no reference to how we can define the 'professional' within the team.

Thylefors, *et al.* (2005), referring to reviews of cross-professional team collaboration (Schofield and Amodeo, 1999; McCallin, 2000), recognises the shortcomings in the terminology of cross-professional teams. As they note, the prefixes 'multi', 'inter', 'cross' and 'trans' are frequently used arbitrarily, for example 'interdisciplinary' and 'multidisciplinary' have often been used interchangeably by researchers. Similarly, some researchers have linked the terms through equivalent processes, for example, Batorowicz and Shepherd (2008) argue that in both interdisciplinary and transdisciplinary teams, decisions are made in collaboration.

Courtenay (2013) reports that much of the reviewed literature emphasises a 'multi-professional model' of teamwork and maintains a focus on "specialized roles and individual tasks and activities" rather than considering an 'inter-professional model'. From his review he concludes that viable 'inter-professional teamwork' should be viewed as a continuum, ranging from co-ordinated independent behaviour to co-ordinated interdependent behaviour. For this it requires team members to share a mental model, as a basis for knowledge sharing and activity, as is discussed below.

Mitchell (2005) states that the most frequently used term in literature based on his results was 'interdisciplinary', while 'multidisciplinary' was primarily used in research related to training, and 'transdisciplinary' was used the least. Mitchell noted that these terms were frequently used as equivalents, as if they are synonyms. Thylefors, *et al.*, (2005:110) studying Swedish healthcare, similarly found that 'inter-professional' was the most widely recognized team type, followed by 'trans-professional'. However, for other researchers, the meanings behind these prefixes is more distinct. Garner (1995) and Hoeman (1996) define an 'interdisciplinary' team



as integrating several disciplines and approaches and adopting more collaborative communication methods. Mitchell (2005:333) uses the terms to differentiate between teams that work autonomously (multi-disciplinary) or in concert (inter-disciplinary and trans-disciplinary).

D'Amour *et al.*, (2005) consider the processes by which the team acts as indicating whether the team is multidisciplinary, interdisciplinary or transdisciplinary. They add that healthcare teams are generally branded as 'interprofessional collaborative', and in this case 'interprofessional' refers to "an integration of two or more professional cultures operating transdisciplinarily", as noted in Vyt (2008).

Jessup (2007) defines a 'multidisciplinary team' as employing a shared skills and experience approach through several disciplines, but without integration. Lo (2011:3) comments that while 'interdisciplinary' and 'multidisciplinary' are sometimes used interchangeably, there are important differences:

"An interdisciplinary team integrates the approaches of different disciplines and relies on communication processes that are collaborative rather than a shared communication model. A multidisciplinary team utilises the skills and experience from different disciplines without integrating the approaches."

WHO use the term 'interprofessional', and IPCP to denote 'interprofessional care practice', which they define as (2011) care delivered by "intentionally created, usually smaller work groups in health care who are recognized by others as well as by themselves as having a collective identity and shared responsibility for a patient or group of patients".

As Reeves *et al.*, (2011:39) note of the need for cross-professional healthcare teams, "the increasing complexity of organising, coordinating and delivering care demands that professionals regularly come together, share information and reach agreement in their work." Thylefors, *et al.*, (2005) define a cross-professional team as "an organizational work unit made up of at least three different professions".

Mitchell (2005:332) uses the example of rehabilitation to analyse and describe and examine a cross-professional team:



“Each of the professions or disciplines has a specific area of expertise that interacts sequentially with a patient over the course of a day: a nurse might coach a person in regaining skills of self-care in personal hygiene, a physical therapist might supervise a series of exercises to strengthen specific muscle groups, and an orthotics specialist might fit the person with a functional artificial limb.”

This illustrates another complexity to assessing cross-professional teams in healthcare, the level to which they interact in the care of a patient. Thus, such a team may only be termed ‘cross-professional’ or multi-disciplinary when meeting the patient and his or her family in order to plan the patient’s release home. Batorowicz and Shepherd (2008) state that in interdisciplinary teams, treatment plans will be based on input from all team members, who will collaborate to make decisions but do not branch out of their specific team role on the team (*Cf.* Beukelman and Mirenda, 2005).

Considering the context of teams and teamwork and their multifaceted, multi-layered nature enables a more precise and informed understanding of team development and application. Healthcare teams are often dynamic and fluid, and as a report by NIH (2005) and a separate article by Mitchell (2005) acknowledges, the terminology used may not be as important as the potential for innovation and “new hybrid disciplines” (NIH, 2005). The very act of creating a team generates the potential for a coordinated effort that widens the scope of investigation, creating potential for new and innovative experiences, processes, ideas and knowledge. At the same time, the individuals comprising a team are in a dialectic relationship between structure and agency. As ‘institutional agents’ (Scott, 2008), their language and behaviour enact ‘power practices’ that create teamwork in ways that reproduce, transform or subvert existing professional structures (Finn, Currie and Martin, 2010:1070). These ‘practices’ contest and negotiate between team members, “mobilizing interest-based meanings within particular power relations and identities (Finn, Martin and Currie, 2010:1071; Finn 2008). That is, they enable specific varieties of teams and teamwork, to suit those members with more privileged subject positions, but open the space for more marginalised members to potentially subvert professional structures.



For the purposes of this research I am using the term ‘cross-professional’ to describe teams (and teamwork, see below) created by individuals from different disciplines, specialities and professional backgrounds. Thylefors, *et al.* (2005) define ‘cross-professional teamwork’ as “all situations where professionals from different disciplines are collaborating in a team”, noting, “the term says nothing about the organization of the team”. (2005:112) Hence ‘cross-professional’ is useful as a “generic term, indicating individuals from different disciplines working in a team toward a common goal” (2005:112).

In summary, this research is concerned with the methods of communication and knowledge sharing within and between teams, thus ‘cross professional’ works as a generic term to include all team types, whether, as above, they are multi, inter, or trans. The lack of research regarding teams and teamwork within the Omani healthcare system is one reason this research is exploratory in nature. My interest lies in how individuals at the Royal Hospital, Oman, perceive teams and teamwork, and the teams that they participate in, hence I have avoided the narrower definitions, instead letting the participants speak for themselves, and use the generic ‘cross-professional team’ term to describe any self-defined team including healthcare professionals from different professions, specialities and backgrounds, coming together to complete a task.

2.3.4. Teamwork

Teamwork has been widely studied across industry and the public sector, and as noted is generally perceived as positive, for employer and employee (Mueller, 1994; Procter & Mueller, 2000). However, over time a more nuanced view of teamwork has developed as research has incorporated different fields and interdisciplinary studies. As with the previous terms discussed, this study conceptualises teamwork as socially constructed and a discursive resource through which the social world is constituted. Thus, teamwork can be a coercive and normative ideology, creating division and tension between team members (Donnallon, 1996; Tsoukas, 1996). As with teams, and cross-professional teams, within the literature, there is no agreement on a standard definition for what constitutes teamwork (Bleakley, 2013).

In healthcare, the discourse around teamwork assumes it is both good and essential, and much of the literature proceeds from this assumption. For Manser *et al.* (2009) healthcare teamwork “employs the practices of collaboration and enhanced



communication to expand the traditional roles of health workers and to make decisions as a unit that works toward a common goal". As with the Headrick definition above, this an idealised view of teamwork, ignoring the potential for teamwork to be divisive and problematic. Teamwork is created and enacted as a social practice, and whilst it might be the result of individuals acting together, it is constrained by organisational and structural boundaries. It is constructed by the social actors who collaborate, whether defined as a team or not, and thus it is open to negotiation, ambiguous, political, and hard to pin down. As a socially constructed activity, "equilibrium is an exception and tensions, disturbances and local innovations are the rule" (Cole and Engeström, 1993). The ideal of teamwork, encompassing normative integration, is contested by individual identity and professional boundaries (Tsoukas, 1996; Finn 2008; Finn, Martin and Currie, 2010). Indeed, Finn comments, "Teamwork discourse can be viewed as promoting both collectivity and difference at one and the same time" (Finn, 2008:114).

Reeves *et al.* (2010) undertook a literature review and noted the following five elements that were considered to constitute teamwork:

- Shared identity
- Clear roles/tasks/goals
- Interdependence of team members
- Integration of work
- Shared responsibility

Other definitions include Salas *et al.* (1992), who define teamwork in healthcare as two or more individuals interacting interdependently, and with a common purpose (measurable goals) that "benefit from leadership that maintains stability while encouraging honest discussion and problem solving" (Gibbon, 1999; Molyneux, 2001; Reilly, 2001; Thylefors, Persson, and Hellstrom, 2005). Similarly, Xyrichis and Ream (2008:238) define healthcare teamwork as a:

"dynamic process involving two or more health professionals with complementary backgrounds and skills, sharing common health goals and exercising concerted physical and mental effort in assessing, planning, or evaluating patient care."



Lo (2011:3) referencing Salas *et al.*, (2008:541) succinctly describes teamwork as “the interdependent component of performance necessary to effectively coordinate the performance of multiple team members”.

Healthcare is increasingly fragmented, with professions constructed through, *inter alia*, institutional socialisation. The demands of different professions (and on different professions) can be radically different. Despite this, the literature often assumes teamwork is characterised by consensus and interdependence, bringing together disparate but complementary professional roles (Blau 1972). However, teamwork requires members to negotiate the paradox of integration and autonomy (Gieryn, 1983; Donnellon 1996). Thus, teamwork tends toward tension and discord, decreasing the likelihood of integration (Allen, 2000a) This tension creates the space for individuals to manipulate and subvert teamwork for their own ends (McCabe, 2000). Thus teamwork is context specific and results from these contestations and negotiations (Opie, 1997).

Considering the discussion and definitions reviewed, I suggest the following as a teamwork definition for this research –

- A combined working unit of healthcare professionals who complement each other’s skills and experiences and share common health goals.

This says nothing about how the performance is managed, allowing space for multiple conceptions of teamwork, and allows for acknowledging the wider forces that influence how individuals work together. As Finn, Currie and Martin note, activities such as teamwork emerge “at the micro-level in particular forms ... shaped by a complex interaction between the macro-professional institution and local organizational context” (Finn, Currie and Martin, 2010:1071). However, this definition is pragmatic in the sense that I am also drawing on my own perception of how many ‘teams’ in healthcare act and interact, based on the experience of working with teams from different healthcare departments, whose members have different skills, backgrounds and experiences, complementing each other’s knowledge and brought together to achieve a goal.

‘Teamwork’ continues to hold a rhetorical and normative function, which can be used by organisations to support the values espoused by management and those in



privileged subject positions. Sinclair (1992) refers to the ‘tyranny of teamwork’ through this potentially coercive ideology (Finn, Currie and Martin, 2010).

Teamwork has been widely studied in medical sociology (Allen and Pilnick, 2005). It has been endorsed by governments and organisations (Mayor 2002; 2003, DoH, 2000, 2002; GMC, 2006a, 2006b). The importance of good teamwork in healthcare is highlighted by Courtenay (2013), that team members need to acknowledge the skills, value and roles of each team member and the need for clear communication between team members, along with aggregate decision-making. Courtenay (2013:9) emphasises that the potential for change is necessary in teamwork practices, which, in turn, requires the study of teamwork practices,

“Although it is vital that team members have the knowledge and skills to perform the role tasks, it is also important that research should focus on the interactions and processes rooted within these tasks.”

My research is part of this, following the importance of studying human interactions within and between teams as they relate to communication, collaboration and KS.

2.3.4.1. Teamwork vs Collaboration

It is important to study collaboration in healthcare because the increasingly complex needs of patient care require interdependencies among health professionals. Some of these interactions may be termed teamwork or collaboration, and as with the other terms discussed in this chapter, there is no universal agreement on meaning and how to differentiate teamwork and collaboration.

Informal collaboration is often under reported. We have limited knowledge of the complexity of cross-professional relationships within healthcare, the factors determining the beliefs and behaviours of those who collaborate. These may be understood as aspects of group norms, but this connection should not be taken for granted. Nor can it be taken for granted that KS will occur through collaboration or within teams. Cross-professional collaboration is considered key in initiatives intended to improve the effectiveness of health services, and research has identified that errors in patient care occur when health professionals do not work cohesively as a team and have different ideas about collaboration.



Thus, while the literature agrees that not all groups of healthcare professionals who come together to collaborate work as teams, there is no clear dividing line between teamwork and collaboration, and the terms are often used together in the literature. (Malone and Koblewski, 1999; Lowe and O'Hara, 2000; Molyneux, 2001; Malone and McPherson, 2004; Batorowicz and Shepherd, 2008). Thylefors, *et al.*, (2005) favour 'cross-professional collaboration', which continues to obscure the diversity of team types and forms. The literature offers a variety of models for forming 'cross-professional collaboration' (Melvin, 1980; Katzenbach and Smith, 1983; Lind and Skärvad, 1997). For example, Kozlowski and Klein (2000) argue that team performance progresses as team members continue to undertake work and collaboration, creating 'a multi-level process'.

However, Reeves *et al.*, (2010) separate teamwork from collaboration, stating that collaboration is "a broad activity whereby two or more people interact to advance some form of endeavour", and teamwork is "a more focused activity". They argue for what they term, "a contingency approach to teamwork – one which values other forms of cross-professional work such as collaboration, coordination and networking".

Lewin and Reeves (2011) demonstrated that in a busy and dynamic hospital environment, cross-professional interaction was based more on the ad hoc and informal activities that took place away from patients and carers and that were less structured. However, the planned, intentional and formal 'front stage' activities, that is, formal interaction in front of patients and carers such as ward rounds, were important in creating and maintaining the appearance of collaborative cross-professional 'teamwork'. Hence those activities termed 'teamwork' were useful as a performance of teamwork but served little functional practice.

From the above review it is evident that the multiplicity of meanings behind the primary terms relating to teams, teamwork and collaboration open spaces for negotiation in how individuals interpret their teamwork and collaboration. The official discourse around teams and teamwork in healthcare is that it is both necessary and good practice. However, this discourse can impose restrictions on innovative collaborative processes, and leave teamwork a public performance of more fleeting collaborative interaction.



2.3.5. Communication

Both teamwork and KS require communication. (Malone and Koblewski, 1999; Lowe and O'Hara, 2000; Molyneux, 2001; Malone and McPherson 2004). Communication is a broad subject including verbal, written and non-verbal types, such as conversations, emails, body language, etc. Communication studies include semiotics, cross-cultural communication, and the influence of social status and identity on communication. As Berry (2007:1) notes, "Even saying or doing nothing is communication". Communication includes skills such as active listening without interrupting, the use of facial expressions and body language.

Communication can be mediated or face-to-face. The literature demonstrates that a willingness to share knowledge is correlated positively with face-to-face communication. Face-to-face correspondence is synchronous and encompasses nonverbal and multi-modal correspondence to a substantial degree. (Liu and Liu, 2011). Bailly et al., (2010:478) describe face-to-face communication,

"Speakers not only hear but also see each other producing sounds as well as facial and more generally body gestures. ... Moreover, speech communication involves not only linguistic but also psychological, affective and social aspects of interaction."

This indicates the level of intricacy with which individuals communicate face-to-face.

Online communications have become widespread through technologies and globalization. Online communication occurs through emails, video-conferences, internet calls, and online messaging services such as WhatsApp. It allows for asynchronous communication. Despite the ubiquity of such communication methods, there are caveats, particularly in relation to KS, for example Campbell and Greenfield (2006:268) referencing Wallace (1999) and Gallivan (2001) state,

"The Internet as an environment may allow a distortion of these normal interactions through the facelessness of its participants. In this environment, 'swift trust' is developed that is often fragile and may be easily destroyed."

Communication is often discussed in terms of the context in which it occurs. For example, Littlejohn (1989) lists,



Intra-personal	Within the individual
Inter-personal	Between two individuals
Small group	Between three or more individuals
Organisational	In large networks
Public	One individual addressing a group
Mass	Public and mediated

Table 2.3. *Communication types (Source: adopted from Littlejohn (1989))*

Littlejohn (1989) also lists the theoretical perspectives behind communication, as transmissional, behaviouristic, interactional or transactional.

2.3.5.1. Healthcare communication

In healthcare, Rice notes that communication includes (2001:19), “patients with healthcare providers, physicians with other healthcare providers and technicians and insurers, patients with patients and significant others”. For Naylor and Kurtzman (2010), the primary goal of communication in healthcare is creating a relationship among healthcare teams, and optimal outcomes in healthcare (*Cf.* Ong, De Haes, Hoos and Lammes, 1995; Manojlovich *et al.*, 2015). My research relates primarily to the communication between clinicians, nurses and other healthcare providers and technicians. I focus on issues related to healthcare communication in a multi-cultural healthcare environment. This includes, for example, group identity, language, culture (professional and personal), ethnicity, and issues around power differentials, political and economic factors. (Ray, 2005; Brown, Crawford and Carter, 2006; Pagano, 2010).

For effective communication, the message must be both clearly conveyed and clearly understood by giver and receiver, in whichever medium is used. Clear communication can be affected by many factors, some personal, some organisational, for example communication styles and policies (Robinson, Gorman, Slimmer and Yudkowsky, 2010; Tija *et al.*, 2010). Cross-professional communication has its own challenges. For example, a study by Rothberg *et al.* (2011) showed that non-verbal communication was most common between nurses and physicians in hospital settings due to the time constraints of a heavy workload. For example, one study conducted on the perceptions of nurses and physicians on their communication reported that nurses perceived less communication, and less effective communication. In contrast, physicians felt that the time spent with nurses



risked delaying their work with patients (Manojlovich and Antonakos, 2008). However, it was also shown that communication between nurses and physicians encouraged sharing suggestions and opinions about patients. (Manojlovich *et al.*, 2009).

Communication about teamwork is also important, as, without a shared understanding of the concepts and desired outcomes, teamwork can be a divisive experience. Finn (2008) discusses the different repertoires used by operating theatre nurses and doctors. Whilst surgeons and anaesthetists used what she terms a “technical-instrumental interpretive repertoire” privileging efficiency, nurses used a relational repertoire emphasising the “need” for respect, support and an egalitarian work environment (2008;104). One result of these differing repertoires was a difference in what each group would consider a ‘team player’, which has the potential to disrupt teamwork.

A review of the literature demonstrates the importance of communication/knowledge sharing and teamwork, in particular cross-professional teamwork, and the Joint Commission: Accreditation of Healthcare Organisations (JCAHO) (2004 - 2Q 2014) reported that failure in communication and cross-professional teamwork was a factor in 61% of sentinel events factors. (See also, Reason, 1990; Webb, *et al.*, 1993; Bognor, 1994; Leape, 1994; Helmreich, 2000; Pronovost, *et al.*, 2003; Lingard *et al.*, 2004; Sutcliffe, Lewton and Rosenthal, 2004; Alvarez and Coiera, 2006; Reader, Flin and Cuthbertson, 2007; St Pierre, Hofinger, and Buerschaper, 2008; Manser, *et al.*, 2009). Thus, teamwork may improve or expose the need for soft skills such as communication and Kreps and Thornton (1992:2) argue that “health care professionals depend on their abilities to communicate effectively” to be effective (Delbridge *et al.*, 2000a; Findlay *et al.*, 2000). Kreps and Thornton (1992) have shown that communication within groups is influenced by the level of respect for the capabilities and skillsets of others within the group. Other studies have shown, for example, that interventions or activities, such as regular team meetings, have a positive impact on team communication (Batorowicz and Shepherd, 2008; Lowe and O’Hara, 2000). Nevertheless, organisations may not accept the costs of training, and teamwork could suffer (Dunphy and Bryant, 1996; Currie and Procter, 2003).



2.3.6. Knowledge

Knowledge, as a topic, has been studied since ancient Greece, and yet remains contested. Winter (1987) described knowledge as a ‘slippery object’, for which a single definition is problematic. Lundvall (2006) distinguishes between four kinds of knowledge:

Data	Raw facts
Information	Data structured and put into context, so carries some meaning
Knowledge	Information which activates the human mind
Wisdom	A deeper understanding and ethical grounds for action

Table 2.4 Knowledge types from Lundvall (2006)

Often the literature does not differentiate between the terms ‘information’ and ‘knowledge’ using them interchangeably (Earl, 2001), possibly reflecting a computer science or systems background. Alavi and Leidner (2001) argue that information and knowledge may include the same content, but knowledge is that which is found in the mind of individuals. Various taxonomies of knowledge have been proposed, for example, Dretske (1981) linked and defined information and knowledge, Ackoff (1989) proposed a five-level classification of data, information, knowledge, understanding and wisdom. (Cf. Huber, 1991; Nonaka and Takeuchi, 1995; Davenport and Prusak, 1998; Choo 1998; Mayer, 2000; Nonaka, 2002; Leonard and Sensiper, 2002; Boissot 1998, 2002; Brelade *et al.*, 2003; Thompson and Walsham, 2004; Tsoukas, 2005a; Lundvall, 2006). This research is concerned with the human interaction in sharing knowledge therefore I will concentrate on the literature that specifically relates to knowledge as something that ‘activates the human mind’ (Lundvall, 2006). This conceptualises knowledge as “the being that situates us in the world” (Winograd and Flores, 1987:74).

McDermott (1999:103) quotes Albert Einstein, that knowledge is: “experience. Everything else is just information”. Michael Polanyi (1966) famously declared, “I shall reconsider human knowledge by starting from the fact that we can know more than we can tell”. Likewise, Lundvall (2006:5) describes knowledge, “Standing alone it is intangible and difficult to grasp. The very meaning of knowledge differs depending on context”.

Davenport *et al.* (1999:89) identify knowledge as a “high value form of information that is ready to apply to decisions and actions”. This active element of knowledge is



also emphasised by Demarest (1997:374), Sveiby (1997:37), Leonard-Barton and Sensiper (1998:113), Fathey and Prusak (1998:269), and Nooteboom (2001:3). Knowledge is also often framed in terms of individual experience, thus Brooking (1999:5) describes knowledge as “Organized information together with an understanding of what it means” and Hislop (2013:41) considers knowledge embedded in people’s minds and practices, and thus hard to codify. This is further discussed below in tacit knowledge.

Conceptualising knowledge as, *inter alia*, embedded and context specific, again allows for a social constructionist discussion that acknowledges how knowledge, like team and teamwork, is understood through the discourse of the individuals framing it, and their structural power and agency. Knowledge as a discourse is used to justify and support boundaries between individuals and groups, for example, by controlling how knowledge flows (Rosenthal *et al.*, 1980; Cott, 1998; Davina, 2000). Knowledge sharing, as a socially situated activity, is affected by issues such as homophily, for example in age, gender, ethnicity, education, and level of experience. Also, as knowledge is highly contextual (Goman, 2002). Creating shared mental/conceptual frameworks can overcome such challenges, (Hendricks, 1999; Nonaka and Takeuchi, 1995; Nahapiet and Ghoshal, 1998; Brown and Duguid, 2000; Mäkelä and Brewster, 2009). Discourse can be used for this, but this includes the danger of discourse silencing the voices (and knowledge) of marginalised groups. Thus, not only through conflicting ideologies around definition, but also in and around the use of knowledge, is its political, contested and potentially divisive nature evident.

For Stewart (1997), although knowledge exists in many forms, its value and definition relate to the ways it is applied and used in specific contexts. Smith and Bollinger (2001) define knowledge as the individual’s ability to interpret information according to one’s own experience, expertise and skills, a view supported by Liebeskind (1996), Gero (2000) and Hajos and Bittner (2006). Call (2005:20) defines it as “the fact or condition of knowing something with familiarity gained through experience or association”. Armstrong (2009:220) defines knowledge as “what people understand about things, concepts, ideas, theories, procedures, practices and the way things are done”. The relative importance of knowledge categories has changed as ‘know-how’ has become progressively more



important, driving developing team-based methodologies and cooperation between disciplines, professions and organisations. This in turn created the requirement for organisations to have the ability to combine and share elements of ‘know-how’, and have access to different knowledge sources (Lundvall, 2006:7).

From reviewing the literature, various themes emerged for understanding knowledge:

- Knowledge is embedded in people’s minds and practices: concepts, ideas, theories, procedures, practices and the way things are done (where knowledge is found)
- Individual action is an essential aspect of knowledge
- Knowledge is hard to codify; as a concept it is intangible and difficult to grasp
- Knowledge exists in many forms thus definitions (and value) relate to the ways it is applied and used in specific contexts
- Knowledge as a concept is contested, slippery and multivalent

My research considers knowledge and KS within a social context, as human interaction. Woolcock (1998) comments that “social capital” and trust are firmly linked with what is termed ‘know-who’ knowledge, and motivators for KS, and as Arrow (1971) argued, trust cannot be purchased and if it could then it is worth nothing. More recently Lundvall (2006) discusses the importance of the “social dimension of economic processes” resulting from the increased importance of ‘know-who’ within modern day knowledge management. For example, Quinn, Anderson and Finkelstein (1996) emphasise the benefit of disseminating and accepting ideas through “system understanding and trained intuition”. This can be considered through Lundvall’s taxonomy, discussed above as ‘know-why’, replacing ‘know-what’ (cognitive information) and ‘know-how’ (progressive aptitudes).

This research is primarily concerned with exploring and investigating the human aspects of knowledge sharing among cross-professional teams in healthcare settings with an emphasis on the tacit knowledge represented in individual minds, experiences, skills, acts, and so forth. Knowledge also exists within shared work practices and procedures, which includes, not only the knowledge that relates to



healthcare, but knowledge relating to the team, and how the team functions. Such team knowledge includes shared mental models of tasks and procedures, and ‘team situation’, that is, knowing how to work with other team members (Cooke *et al.*, 2000; Hislop 2009).

For a social activity such as teamwork, cognitive understanding may be distributed across all members of the team, department or organisation (collective mind), and awareness can be continually updated as previous experiences influence interactions and understanding. This is an emergent quality, as Tsoukas notes, (1996:15) “the individual mind is constituted as individual contributions become more heedfully interrelated”. This can be termed ‘distributed cognition’ (Salomon, 1993). Sapsed *et al.* (2002:74) describe this as arising from a “familiarity with solving problems and thinking collectively” whereby, “the team constructs a system of interpretation and sense-making that increasingly ‘thinks’ on behalf of the individuals in it”. Salomon highlights the importance of recognising that the distribution of cognition depends on “situational, and other local conditions and affordances”. However, *pace* much Organisational Behaviour (OB) theories, developing a collective mind does not necessarily require a strong team or group identity, and can occur through ad hoc project based teams, with Sapsed *et al.* (2002) offering the example of jamming musicians.

We must consider the different kinds of knowledges available within the constraints discussed in this chapter, within a healthcare institution, socially situated and within the tensions created through normative discourse. Collective mind and distributed cognition are created through interaction. As teamwork is widespread, and individuals engage with the concept, the knowledge, practices and skills associated with it also become more widespread and can be transferred to other activities (Mandinach, 1989; Salomon, 1993; Finn and Waring, 2010; Spraggon and Bodolica, 2017). Gordon (1981) and Littlewood (1988) similarly argue that raining activities including multi-discipline participants, enables learning through the process as they are encouraged to impart abilities.

Hence, as stated in Chapter One, for the purpose of this research I chose to define knowledge as, the fact or condition of knowing something with familiarity gained through experience or association” (Call, 2005:20) with the proviso that “Standing



alone it is intangible and difficult to grasp. The very meaning of knowledge differs depending on context” (Lundvall, 2006:5). I also adopt Lundvall and Johnson’s (2002) knowledge classification into ‘know-what’, ‘know-how’, ‘know-why’, ‘know-who’. As this research is concerned with sharing knowledge within and between teams, conceptualising knowledge as socially embedded will be most useful. Appendix (2.2) provide knowledge classification knowledge and definitions within the literature.

2.3.6.1 Explicit and tacit knowledge

Explicit knowledge is that which can be articulated and codified, and thus readily transmitted through different media, such as textbooks, or verbal explanation. Tacit, or implicit knowledge is that which cannot be codified, for example, how to ride a bicycle. Niels-Ingvar (2005:36) explains, “it is rather impossible to know how to ride a bike without ever having tried it and while doing it, one hardly knows what one is doing exactly.” Abidi, *et al.* (2005:194) explain that tacit knowledge is “what really works and how to make it work” rather than “how things should work”, the latter being explicit knowledge.

The term ‘tacit knowledge’ was coined in 1958 by Polanyi, who later wrote ‘The Tacit Dimension’ (1966). For Polanyi, all human explicit knowledge originates from tacit knowledge, thus tacit knowledge is important in the creation of new knowledge and in problem solving. Dreyfus and Dreyfus (1986) discussed tacit knowledge in the context of experiential knowledge allowing experts to think holistically and perform intuitively, drawing on experience that could not be verbalised.

Haldin-Herrgard (2000) likened knowledge to an iceberg, with the smaller, visible area of explicit knowledge dwarfed by the hidden, tacit knowledge below. Likewise, Hicks, Dattero, and Galup use the phrase, “explicit islands in a tacit sea” as a comparison (2007:5). Researchers disagree over whether tacit knowledge can be converted to explicit. For Polanyi (1966) sharing tacit requires tacit forms, such as imitation, apprenticeships, shadowing, observations. However, Nonaka argues that tacit knowledge can be converted to explicit knowledge externalisation and conversion during social interaction, storytelling, and dialogue (Nonaka, 1994; Nonaka and Takeuchi, 1995; Nonaka and Konno, 1998; Nonaka, Toyama, and Konno, 2000; Nonaka, Toyama and Nagata, 2000; Gourlay, 2006; McAdam, et al., 2007).



Nonaka and Takeuchi (1995) argued that the interaction between tacit and explicit knowledge and individuals can create new knowledge. Thus, one leads from the other as ‘explicit knowledge’ is produced from ‘tacit’ through documentation, reports, and research, creating the potential for further knowledge development. They created the diagram below, demonstrating the ‘four models of knowledge conversion’ as shown in (Figure 2.3):

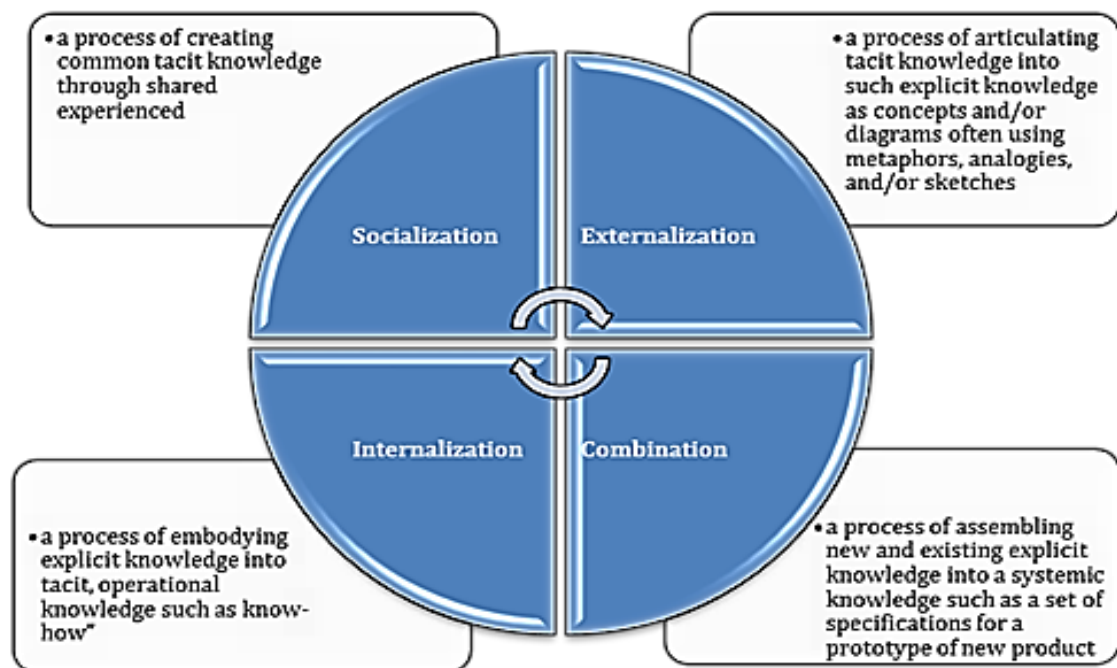


Figure 2.3: The four models of knowledge conversion (*Source: adopted from Nonaka et al., (1996)*)

Nonaka and Takeuchi (1995), Chiang, Chuang and Han (2011) and Lin *et al.* (2012) describe tacit or implicit knowledge as ‘know-how’ or “instance referential expertise”, rooted in the thought, conduct and awareness of individuals. Ravn (2004) notes the challenge of imparting tacit knowledge as it only exists within an individual or a community, which is, in his definition the main characteristic of tacit knowledge. Hence tacit knowledge can be individual or collective (CTK), embedded in the organisational structure and processes and collective activity (*Cf.* Chau, 2014). This collective tacit knowledge is particularly associated with innovation in much of the literature (Arrow, 1994; Leonard and Sensiper (1998); Erden, von Krogh and Nonaka, 2002; Spraggon and Bodolica, 2017).



A review of the literature underlines how significant it is for an organisation to utilize individuals' knowledge and boost sharing to help the growth of individuals and ultimately the organisation (Spender, 1996a, 1996b; Teece, 1998; Keams et al., 2003; Chou et al., 2007). According to Bhatt (2002) the only time individual knowledge affects organisational knowledge is when it is shared. Thus, organisations should encourage interaction between their staff, and the extent to which this is happening in Royal Hospital is an important strand of this research. The importance of considering tacit knowledge in its social context is evident in studies such as Holste (2003), which indicated that greater trust between individuals led to a greater willingness to share tacit knowledge.

Hence, while this research considers all types of knowledge and knowledge sharing, it will concentrate, where possible, on instances of tacit knowledge sharing among cross-professional healthcare teams, the sharing of that which cannot be codified or easily transmitted. I will adopt Polanyi's (1966) widely used definition of 'tacit knowledge' as "tradition, inherited practices, implied values, and prejudices", and follow Lundvall (2006) by considering the blend of 'know-how' and 'know-why' that drives the developing team-based methodologies and cooperation between disciplines, professions and organisations. Table (2.5) reviews knowledge in a teamwork context.

Knowledge	Explicit Knowledge	Tacit Knowledge
Individual Knowledge	Conscious	Automatic
	Individual basic or complicated academic knowledge	
Team/group Knowledge	Objective: represents explicit group knowledge	Collective: represents knowledge possessed by a group that is not codified
	Shared work practices and procedures, the common or mutual hypothesis and perspective. (in small-scale)	
Social Knowledge	Objective: represents explicit group knowledge	Collective: represents knowledge possessed by a group that is not codified
	Shared work practices and procedures, the common or mutual hypothesis and perspective. (in large-scale)	

Table 2.5: *Generic Knowledge Types (Source: combined for this research from Smith (2001:315) and Hislop (2009:23))*



2.3.6.2 Tacit knowledge in healthcare

Healthcare environments are considered 'highly tacit knowledge environments' (Fox, 1997; Bate and Robert, 2002; Jean, *et al.*, 2003; Abidi, 2005; Henry, 2006; Friedman and Bernell, 2006; Greenhalgh, *et al.*, 2008; Engel, 2008; Saeed Mirza, 2009; Kontos and Naglie, 2009; Steininger, *et al.*, 2010). Lin and Chang, (2008) note that healthcare organisations face significant challenges facilitating access to the knowledge possessed by their clinicians. Again, there is also the issue of whose tacit knowledge is privileged within the hierarchical healthcare environment. Within healthcare organisations Steininger, *et al.* (2010) explain that considering the complexity and challenging aspects of patient care services, there is a need for 'tacit decisions', that is, the specific incorporation and sharing of embedded knowledge and experience in addition to the capability to utilize explicit knowledge (Cf. Quintas, 2002). Steininger, *et al.*, (2010) stress that within a complex environment such as healthcare, the value of a practitioner's tacit knowledge can be much greater than that of their explicit knowledge (Abidi, *et al.*, 2005). Numerous studies indicate that the quality of clinician decisions and diagnoses is substantially improved through tacit knowledge sharing (Paavola, *et al.*, 2005; Henry, 2006; Lin and Chang, 2008; Greenhalgh, *et al.*, 2008; Engel, 2008; Steininger, *et al.*, 2010). For Lin and Chang (2008) decision making abilities can be improved through implementing tacit knowledge sharing such as know-how, know-whom, skills, physician-patient experiences, and clinical experience.

The very invisibility of tacit knowledge creates issues for studying how it is shared. As Niels-Ingvar (2005) comments, there are no observable signs to tacit KS, hence, analysing the way in which individuals speak of sharing tacit knowledge may be the most useful way of exploring the phenomenon in an exploratory study such as this. This is discussed further in the methodology.

2.3.7. Knowledge Sharing

Knowledge sharing at a subject grew out of the field of knowledge management. With the evolving idea of 'knowledge' as capital, knowledge became the primary resource for individuals' and organisations' competence and development (Drucker, 1992:95; Burton-Jones, 1999). According to Nonaka (1998) KM is the development and cultivation of systems allowing organisations to find, use, disseminate and develop knowledge assets. The competitive advantage of knowledge as a resource



for organisations was recognised, indeed knowledge has been promoted for decades as the most valuable asset for innovation in any organisation (Grant, 1996; Davenport and Laurence Prusak, 2000; G. von Krogh and Grand, 2002; Helms, 2010). Davenport and Prusak (1998) and Niels-Ingvar (2005) argue that it is the knowledge of an organisation that differentiates it from others and should therefore be managed. KS is considered the most important facet of KM (Kalling and Styhre, 2003).

KS has been defined in a variety of ways. For Dyer and Nobeoka (2000) KS incorporates the activities that aid people working together in communities, through the facilitation of knowledge exchange, and which increases the learning capacity of an organisation. Similarly, Wang and Noe (2010) define KS as the delivery of the task information and know-how required to aid others and collaborate in solving problems and developing ideas.

Definitions of knowledge sharing vary from the broad to the specific. Conceptualising KS is problematic as the relevant models and theories are drawn from different disciplines, such as management theory, organisational theory and social science. For Gumus (2007) and Halonen and Thomander (2008), KS occurs during the interaction of individuals and groups, through behaviour, through the manner of undertaking tasks, through processes, and from the memories of individuals and groups. KS is also perceived as a matrix of underlying forces containing dynamic interaction between, for example, motivation, incentives, culture, context, ubiquity, facilitation, needs, community, outreach, medium, facilitation, and trust (Steinheider and Al-Hawamdeh, 2004; Abidi, 2007). In conceptualising KS as socially situated, I agree with Niels-Ingvar, in that I focus on KS “rather than notions like distributing, transferring or transmitting, in order to stress the social, interactive and situated nature of the process” (Niels-Ingvar, 2005:17). Abidi (2007:67) highlights KS as “a *systematically planned and managed* activity involving a group of like-minded individuals engaged in sharing their knowledge resources, insights, and experiences for a defined objective” [italics mine]. This highlights that as with the other terms discussed, KS can be used as a normative force, and expectations of KS create pressures that can divide as well as unite a team, and can be used by organisations and management to influence how team members work together (Knights and McCabe, 2000).



KS approaches can be categorised also as either formal or informal (Paradise 2008). Formal approaches are top down, instituted by management, and include mentorship programmes and formal meetings (Taminiau *et al.*, 2009; Fontaine and Lesser 2002). Informal approaches arise from social networks and include impromptu discussions and informal chats (Wenger *et al.*, 2002; Gluch and Raisanen 2009). Both approaches can elicit tacit and explicit knowledge.

Holtshouse (1998) highlights three facets of KS: social, cultural and technical. Cohen and Prusak (2001) discuss the social and cultural attributes, noting that the former includes trust relationships, common frames of reference, and shared goals, whilst the latter influences behaviour and can be developed to improve KS behaviours, for example by creating an environment in which staff do not feel inhibited from sharing knowledge (*Cf.* McKenzie *et al.*, 2001; Gupta 2008; Bishop *et al.*, 2008). Technical attributes include tools and technologies, such as the internet or WhatsApp, which allow for the mobilisation of information without creating information overload (Zhao *et al.*, 2008).

The goal of KS is to exploit existing knowledge in the most useful manner or combine existing knowledge to create new knowledge (Christensen 2007). For both elements, communication is vital, enabling individuals to explore and generate knowledge of the ‘problem domain’ enabling knowledge flow, potentially leading to “collaborative problem solving” and “organisational learning”. (Bakker *et al.*, 2006; Spraggon and Bodolica, 2017).

Barth (2003) and Gumus (2007) state that KS occurs through a variety of channels, for example offline/online meetings, databases, conversations, networking, conferences, or messaging. El Sawy and Raven (2012) view different methods as ‘formal’ and ‘informal’, as explained in the table below:

Knowledge Sharing	Formal	Informal
Meeting	planned	unplanned (e.g. during lunch)
Participants	two or more employees	between two or more people
Initiated by	a manager or a team leader	called by anyone
Settings	participants know more-or-less what topics will be discussed and what is required from them	employees are not prepared beforehand because nothing is planned

Table 2.6: Knowledge sharing as viewed by El Sawy and Raven (2012).



Moreover, it is noted that the frequency of knowledge sharing within a healthcare team handling a case can make a significant difference on final outcomes and the level of risk and complications (Mazzocco, *et al.*, 2009). Similar results are reported by Schwilk, *et al.*, (1994) and Nagpal, *et al.*, (2010) observing the amount of uncommunicated critical information and knowledge during post-operative handovers between doctors and nurses.

Knowledge sharing within teams cannot be assumed. As Bailly *et al.* (2010) indicate, the effect of roles and positions of team members, and the environment can influence KS as it is context specific. Other research has highlighted the effects of personal motivation may vary, management and organisational structure, leadership, organisational morale, and IT requirements. (Davenport and Prusak 1998; Bhirud *et al.*, 2005; Finn and Waring, 2006; Sveiby 2007; Gupta 2008; Meese *et al.*, 2010). The roles of professional boundaries, as discussed above, and the 'silo mentality' of healthcare also hinder KS (McCartney, 2016). Knowledge sharing can be used to attack or protect professional boundaries as discussed above (Currie, Waring and Finn, 2008; Sanders and Harrison, 2008).

2.4. Knowledge Sharing in Teams

The commonly discussed benefits of teamwork and KS are outlined in table (2.7)

Associated Benefits	
Cross-Professional Teamwork	Competitive advantage
	Better organisational performance
	High quality services and outcomes
	Efficiency
	Flexibility, co-operation and Learning
	Efficient customer service
Knowledge Sharing	Time saving for individuals and organisations
	Cost saving
	Problem solving and decision making
	Mutual professional respect
	Enhanced communication
	Professional diversity

Table 2.7: Associated benefits linked to both cross-professional teamwork and knowledge sharing (**Source:** compiled for the purpose of this research)



Having acknowledged the difficulties in conceptualising teams, teamwork, knowledge, and knowledge sharing, this section will consider some of the challenges from the literature of knowledge sharing within teams. Nonaka and Takeuchi (1995) stress the importance of teamwork in the conversion of personal tacit knowledge into organisational knowledge, highlighting the importance of dynamic interaction for knowledge creation, as discussed above. Cross-professional teams are assumed to comprise individuals with heterogenous knowledge and competencies working together (Finn, Currie, Martin, 2010) However, Hutchins' (1993, 1994) demonstrates that when teams include members with shared knowledge bases there is an overlap of knowledge, creating redundancies. Whilst this may appear detrimental, it is this redundancy that assists communication within teams, as it draws on shared information, knowledge and mental models, saving the need for explicit articulation of knowledge. Hence, Sapsed *et al*, (2002:75) note that in these circumstances tacit knowledge is truly shared "because team members have learned the task-related knowledge individually" and they link this to efficient communication within teams.

The socially situated nature of teamwork creating a variety of teamwork practices and understandings is a primary reason my research includes mapping the types of teams, teamwork, collaboration and communication practices in RH. This gives a basis for considering ways in which teams can improve their effectiveness in patient care. Indeed, Courtenay (2013:9) emphasises the need for the potential of changes in teamwork, for which the study of teamwork practices is required. He adds,

"Although it is vital that team members have the knowledge and skills to perform the role tasks, it is also important that research should focus on the interactions and processes rooted within these tasks".

My research will be part of this, following the importance of studying the human interactions of teams as they relate to knowledge sharing.

From Courtenay's (2013) literature review, there are a variety of elements that promote effective cross-professional teams. Nancarrow *et al*, (2013) argues that such teamwork requires good communication, respect and understanding of every member's role, as well as "an intuitive exertion" between the experts in a team. Mitchell (2005) argues there is an obligation for every team member to respect,



acknowledge and appreciate the contribution from the other disciplines within the team, although they do not need to understand the conceptual frameworks and methods of the other disciplines. Likewise, Thylefors (2005) emphasises the importance of acknowledging the input of every member within a team.

A study by WHO (2009) suggests that ‘group structure’ (“the size and psychological composition of the group”), ‘group processes or dynamics’ (“what happens when the team cooperate”), and ‘group leadership’ (whether by a “team leader or supervisor”) are all factors that impact on the actions of cross-professional team. WHO (2009), along with Schaefer *et al.*, (1994) point out the high relevancy of ‘non-technical skills’ to ‘patient safety’. Indeed, many researchers argue that training and education in the relevant soft skills are important for effective teamwork, as teamwork requires skills that are not necessarily linked to professional competence (Barr *et al.*, 2005; Reeves *et al.*, 2010; Reeves *et al.*, 2010).

Sapsed *et al.*, (2002) review how Organisational Behaviour theories stress group cohesion and interpersonal dynamics in facilitating knowledge sharing. Thylefors, Persson and Hellstrom (2005) found that teams that work together closely self-reported better efficacy. Mullen and Copper (1994) argue that group cohesiveness and performance was correlated with a shared history of information and experience built up from interaction, however this was also linked to team ‘commitment to task’. (See discussion in Sapsed *et al.*, (2002)). It is this latter aspect that has become increasingly important when considering theories around knowledge sharing in teams, and for the socially constructed conceptualisation of teamwork and knowledge sharing.

Batorowicz and Shepherd (2008) argue that teams that share information and work closely together, which they term ‘transdisciplinary’, diminish disciplinary boundaries, which enables members to gain skills in other practice areas (Locke and Mirenda, 1992; Reilly, 2001; Beukelman and Mirenda, 2005; Thylefors *et al.*, 2005). Mitchell (2005:332) argues that such teamwork requires more than “simply drawing together concepts from the disciplines” to create the new framework. However, to function in this way it requires the team to agree about what the problem is and how it can be solved before resources can be utilised. Interestingly, other studies have indicated that for team tasks requiring the utilisation of complex knowledge, rather than KS within the team is of less benefit than access to the



knowledge possessed by external communities/individuals. This is because new information is required to complete the task (Allen, 1984; Sapsed *et al.*, 2002). Thus, this opens space for a conceptualisation of teamworking in looser forms, and more ad hoc conjunctions. This could be through, for example ‘communities of practice’ (Lave and Wenger, 1991), or cross-functional teamwork (Sapsed *et al.*, 2002).

The importance of KS, communication and teamwork in healthcare is highlighted by Courtenay (2013:9) referring to Cassera *et al.*, (2009), that

“Medical errors occur primarily as a result of system failure rather than the action of an individual. Such errors are grounded in shared activities, involving teamwork and communication, as opposed to profession-specific technical expertise”.

The following sections outline some of the barriers and facilitators discussed in the literature.

2.4.1 Barriers and Facilitators to Teamwork and Knowledge Sharing

As noted, hierarchy and power differentials influence the way knowledge is shared. For Huber (1991) these facilitated KS, but Lee (1997) and Weiss (1999) argued they were barriers. Similarly, rewarding KS has contradictory effects in different studies. In the studies of Huber (1991) and Osterloh and Frey (2000), rewarding KS acts as a facilitator, but Constant, *et al.* (1996) and Brown and Duguid (1998) argued that reward could function as a barrier to KS behaviours. Wang and Noe (2010) consider a wide range of factors influencing KS, including environmental factors (organisational context, culture and climate, interpersonal and team characteristics, diversity, cultural characteristics); motivational factors (trust, individual attitude, perceived benefits, and so forth). (Senge, 1990; Spender, 1996; O’Dell and Grayson, 1998; Ives, *et al.*, 2003).

Whereas education and training for teamwork are often suggested as facilitators for teamwork and KS, communication training is more often linked to professional-patient communication rather than inter-team communication. For example, Makoul and Schofield (1999), Van Dulment and Van Weert (2001), Fallowfield and Jenkins (2004), Thompson and Gillotti (2005), Ulene (2009) and Jensen *et al.*, (2011) all discuss the importance of communication skills in the context of patient care.



Lewis (1999) more broadly highlights the importance of communication opportunities, the desire to communicate, and the ability to communicate meaningfully for KS among team members. Often where communication skills training is studied as a factor in teamwork and KS, it is linked to cross-cultural training (Holliday, 2009; Boroditsky, 2010; Emma, 2010; Gasiorek and Van de Poel, 2012).

Diversity in healthcare settings can cause barriers to KS and teamwork, that is diversity in religions, races, nationalities, and languages, and gender (Kossek and Lobel, cited in Bassett-Jones, 2005:169; *Cf.* Cooper-Patrick, 1999). Both teamwork and KS require a shared language on many levels. Similarly, culture can facilitate or become a barrier to both phenomena, whether professional culture, personal culture, or ethnicity, it covers the norms, values, and attitudes of the healthcare professionals and patients. Gasiorek and Van de Poel argue that language and cultural awareness training can aid communication. For example, Tschan, *et al.* (2009) suggest ‘thinking aloud’ thus creating and sharing mental models between team members, verbalising decision-making processes and observations to the rest of the team. This feeds into the collective mind of the team.

With the increase in international and multilingual healthcare workforces, and the adoption of common, corporate languages, such as the use of English, KS increasingly occurs in non-native language settings. Tange and Lauring (2009) in a Danish study, demonstrated that a corporate language policy led to less information transfer between employees as non-Danish speakers were excluded from social interactions within the workplace, leading to “language clustering and thin communication” between multilingual colleagues. This highlights the role social interaction plays in the development and sharing of group knowledge (Spraggon and Bodolica, 2017). Gasiorek and Van de Poel (2012) describe ‘language-discordant mobile medical professionals’, that is, doctors who work in foreign countries, cultures and languages. Ahmad (2018) shows that using a non-native language can make KS an ambiguous and costly process, which diminishes the benefits to the individual, the team and the organisation. He suggests adjustments in discourse, language and media, to overcome these challenges.

KS and teamwork are political and embedded within the norms, preferences, culture and power relations discussed through this review. Currie, Waring and Finn, (2007)



discuss how, within this matrix, issues such as boundary protection and mistrust can create challenges for teams, and lead individuals to avoid ‘managerially determined” methods of KS, for networks of their own creating (2007:383). Other studies have looked at creating a ‘knowledge sharing culture’, building trust among employees and providing them with the required motivation. Thus, not only can individual and group norms and culture affect teamwork and KS, organisational culture also has a large effect (Chatman and Cha, 2003). Baker *et al.* (2004) describes challenges such as education and culture, professional/discipline hierarchies in healthcare and an ad hoc approach to the formation of teams or constantly changing membership (see also Manser, *et al.*, 2009), although as noted above, a looser construction of teamwork can be an advantage to complex KS.

2.5. Teamwork and Knowledge Sharing in Oman

The phenomena of interest, as socially situated activities, occurs within a cultural environment. Culture is another multivalent term, encompassing tangible and intangible elements. Culture shapes behaviour at all levels. In a multinational healthcare environment, culture must be understood in its broadest sense. Whether national, organisational, professional or individual, it is a dynamic interaction between environment and identity

2.5.1. National Culture – Oman

As noted in the introduction, Oman is situated on the Arabian Gulf Peninsula, bordering the UAE, Saudi Arabia and Yemen. A UN Development Report of 2010 identified Oman as the most improved country in long term development relative to a starting point of 1970, which was the year Sultan Qaboos came to power in a British-backed coup against his father, Said bin Taimur.⁶ Qaboos used the oil revenue to develop the infrastructure, improving health, education and income over the past fifty years. Hence, Oman’s healthcare system has undergone rapid changes over the past fifty years, linked to the Omani government’s efforts to establish a state-of-the-art healthcare infrastructure (Alshishtawy, 2010).

⁶ In a report originally published by the United Nations on November 4, 2010, <http://hdr.undp.org/en/mediacentre/news/announcements/title.21573.en.html> (retrieved December 15th, 2019)



Oman has been classified as a 'high-context' culture (Hall, 1976; Gulick, 2010; Mellahi and Budhwar 2010). That is, in communication, context – cultural and otherwise – and non-verbal cues are important. Littrell and Salas (2005) described communication in high-context culture as frequently indirect, ambiguous, and understated. In contrast, low-context communication, associated with, for example, the USA and Germany, is direct, precise, and open. Similarly, Thomas and Peterson (2014) contend that Arabic cultures such as Oman, are holistic, relational, in contrast to Western cultures which can be considered analytical.

Hofstede (1994) studied national cultural differences over across four key dimensions in the workplace (1980, 2001): power-distance, individualism/collectivism, uncertainty avoidance and masculinity/femininity. It should be noted that whilst Hofstede studied Arab cultures, Oman was not included, rather he looked at Egypt, Iraq, Kuwait, Lebanon, Saudi Arabia and the United Arab Emirates. Nevertheless, his findings can be seen in literature more directly related to Omani culture (Al-Mandhari et al., 2014).

Power-distance describes interpersonal power, the power differential between a superior and subordinate. Hofstede found Arab culture had a high score, indicating not only an unequal distribution of power (and wealth), but the acceptance of such inequality (Al-Azri, 2013). For Al-Azri (2013) this indicates Omanis are influenced through formal authority, which could also imply that Omani culture increases the likelihood that individuals are increasingly susceptible to the coercive power of the discourse of teamwork.

Arab culture also rated highly for uncertainty avoidance, indicative of an intolerance towards uncertainty, and co-related to lower levels of employee empowerment, higher levels of formalised management and regulations (Hofstede, 2001; Obeidat *et al.*, 2012). Parnell and Hatem (1999) linked this element to the influence of religion, as for Muslims, nothing happens without God's will, He is in control and the ultimate arbiter (Herbig and Dunphy, 1998; Cavusgil et al., 2008). The Arab cultures also scored low for individualism, indicative of collectivism that manifests itself in strong kin relationships (Tlaiss and Kauser, 2011). This dimension reflects the extent to which self-interest is prioritised over group interest (McCoy et al., 2005). As Obeidat *et al.*, 2012:515 note, this indicates the loyalty of employees is more likely to be to managers and personal relationships than organisational goals and personal



relationships are perceived as more important than tasks or and organisations Hofstede's designation about the masculinity or femininity of a culture does not relate to gender relations. Rather he assigned 'masculine' to cultural preferences for output and performance, feminine for process and aesthetics. The Arab culture scored around the middle, implying a balance in the 'work to live, live to work' continuum (Obeidat *et al.*, 2012).

WHO (2005) in their Regional Strategy for Enhancing Patient Safety noted that approximately 10% of inpatients in Middle East hospitals are likely to have sustained 'unintended harm'. In an Omani study by Al-Mandhari, et al. (2014:265) healthcare workers linked patient safety to "organizational learning–continuous improvement" (84%) and "teamwork within units", with "hand-offs and transitions" seen as a problem area, a time when communication is of paramount importance. Al-Mandhari, et al. (2014:268) relate participant comments around teamwork, indicating the importance of concepts such as 'support', 'help', 'respect', however, they also point to the culturally specific nature of teamwork in Oman. Because of its tribal origin and the relatively recent adoption of organisational culture, they describe Omani organisational culture and management style as 'directive and paternalistic', very hierarchical where 'loyalty to the leader' is a common prescription. Oman is a country with an absolute ruler (the Sultan is head of state and head of government). Al-Mandhari et al. concludes, "Conceptually, paternalistic organizational culture is likely to be incompatible to team spirit. It appears that the relegation of teamwork in Oman owes its origin to socio-cultural patterning" (Al-Mandhari, et al., 2014:268; Common, 2008). Furthermore, Micken et al. (2010:497) reviewed barriers to and facilitators of collaboration in the Omani health system, reporting "Managing difficult personalities" and "staff turnover" as the main barriers, while collaboration facilitators included "Commitment from high-level policymakers", "ongoing staff training" involving "communication skills training", "clear guidelines", "meetings between health workers and system planners", and a "spirit of teamwork". Thus, whilst Al-Mandari et al. see teamwork as relegated, for Micken *et al.* disagree. Kuehn and Al-Busaidi's (2000) study on Omani and Asian workers in Oman found that Omani employees preferred to work with other Omanis, which has implications for teamwork and KS in multinational healthcare environment. This is related to the high level of collectivity in Omani culture, and a



desire to work within a known social network. Al-Esia and Skok (2014), in a study of UAE workers, link this to the importance of social networks in Arab culture, indicating the importance of organisations supporting such networks.

Nevertheless, as with healthcare around the world, teamwork is becoming an increasingly important aspect in the Omani healthcare system and the government signalled a section for teamwork and communication skills development through the MoH Eighth Five Year Plan for Health Development. The plan annual, compulsory communication skills training and teamwork workshops as part of professional development plans for healthcare workers at all levels and professions throughout the healthcare system (MoH, 2006; 2011). In 2010 the number of workshops conducted reached 174 with 5733 attendees, representing about 30% attendance from the total of healthcare workers in Oman; the targeted aim for 2015 is conducting about 10 workshops as minimum per region/hospital, to achieve, by the end of 2015, more than 60% attendance of healthcare workers in Oman (MoH, 2011:27). Such initiatives are likely to impact on teamwork and teamwork practices in Oman's healthcare environment. Evidently then, recent official Omani literature has placed great importance on teamwork and collaboration, creating a broad official discourse in which teamwork is envisioned as good and necessary for modern healthcare.

Much of the research on knowledge sharing in Oman again relates to industry and/or IT developments. For example, Abdel Rahim (2003) comments that technology enabling access to information is one of the main attributes of the transitions in the Omani health system. Similarly, Alshishtawy (2010:20) states that, "Oman laid great emphasis, right from the start, on sound planning supported by an efficient health information system". This includes, for example, the introduction by the MoH of the first tailored Health Information System (HIS) (named AL-SHIFA) in Oman, a progressive step for healthcare needs, as discussed in the Introduction (Al-Gharbi, et al., 2014).

2.6. Chapter Summary

This chapter has reviewed the literature on the phenomena of interest. It has considered teams, teamwork, communication, collaboration, knowledge and



knowledge sharing, and provided a snapshot of the research on these topics as a basis from which to consider the results of the data collection from Royal Hospital.

To aid understanding suggestions for definitions and terms have been offered. These are intended to reflect the philosophical and methodological stance taken within this research and allow space within this exploratory research to encompass participant views, as outlined in the findings and discussion. In viewing teamwork and KS as socially constructed, I have taken a social constructionist approach, incorporating an awareness of the role of discourse in constructing reality. Thus, this chapter discussed some of the issues around the phenomena of interest with a particular focus on how teamwork and KS are constructed and interlinked.

This chapter reviewed factors than can facilitate or inhibit teamwork and knowledge sharing and provided a brief discussion of literature relating to Oman. This provides a foundation for the discussion and analysis of the data corpus. The next chapter will provide an overview and justification for the methodology used in this research.



Chapter

3

Methodology Chapter

Chapter Overview

This chapter reviews the methodological and theoretical issues in research and data analysis as they relate to my research. Beginning with an overview of the research process, it considers methodological debates and reflects on how these have influenced my choices. The research approach is explained and justified, as is the choice of a multi-method, qualitative case study design, then the issues around data collection, sampling, and ethics are discussed.

This chapter therefore outlines the philosophy, methodology, methods and design employed to investigate teamwork and knowledge sharing among cross-professional healthcare teams. It also discusses the significance of identifying the research questions and their relationship to the research strategy of an exploratory a multi-method, qualitative case study design.

I consider the rationale behind the selected data sources to address the research questions and explain the methods applied in conducting the data collection and analysis. Relevant terms and concepts relating to research methodologies are also identified and defined.



Introduction

“Methods are tools; a researcher’s methodology determines the way in which a tool will be utilized” (Hesse-Biber, 2010)

The first chapter established that the key focus of this research is knowledge sharing (KS) among healthcare cross-professional teams. The second chapter highlighted that whilst there has been much research on KS and teamwork, there has been little bringing the two together and this thesis will be a step towards integrating these two topics within the field of healthcare. Once the topic, research questions and objectives were identified, the tools to investigate the phenomena of interest needed to be selected.

To answer the research questions, I chose to undertake a multi-method, qualitative case study design (where RH is the chosen organisational case study within the Omani context and multiple qualitative methods are utilised). This is a study of two complex phenomena (cross-professional teamwork and knowledge sharing) within a dynamic and evolving setting. The methodology reflects my constructivism within an interpretivist position and belief that to understand the interactions within such an environment, a researcher requires flexibility, to change strategies to best fit the research objectives.

Thus, this chapter explores the research methods and methodology, the epistemological and ontological positions underpinning this research, the selected research design, data collection and analysis approaches. I also consider issues around validity and reliability, particularly when considering qualitative research, the confounding factors and limitations of the study.

Research Overview

Kumar (2015:2) noted that research “is not only a set of skills, but also a way of thinking” allowing the researcher to “explore, understand and explain” their observations, drawing conclusions and inferences, all of which add to our knowledge. Hence, in addition to the exploratory aim of this research into KS among healthcare cross-professional teams, it also offers a step toward integrating KS and teamwork. Developing good practice, as Denscombe (2002:27) outlines, is a driver for research, and this research aims to attain good practice not only in and of itself, but also to enhance the performance of healthcare organisations and practitioners. In line with this



Figure (3.1.) describes the stages in this research process, which will be discussed through this chapter:

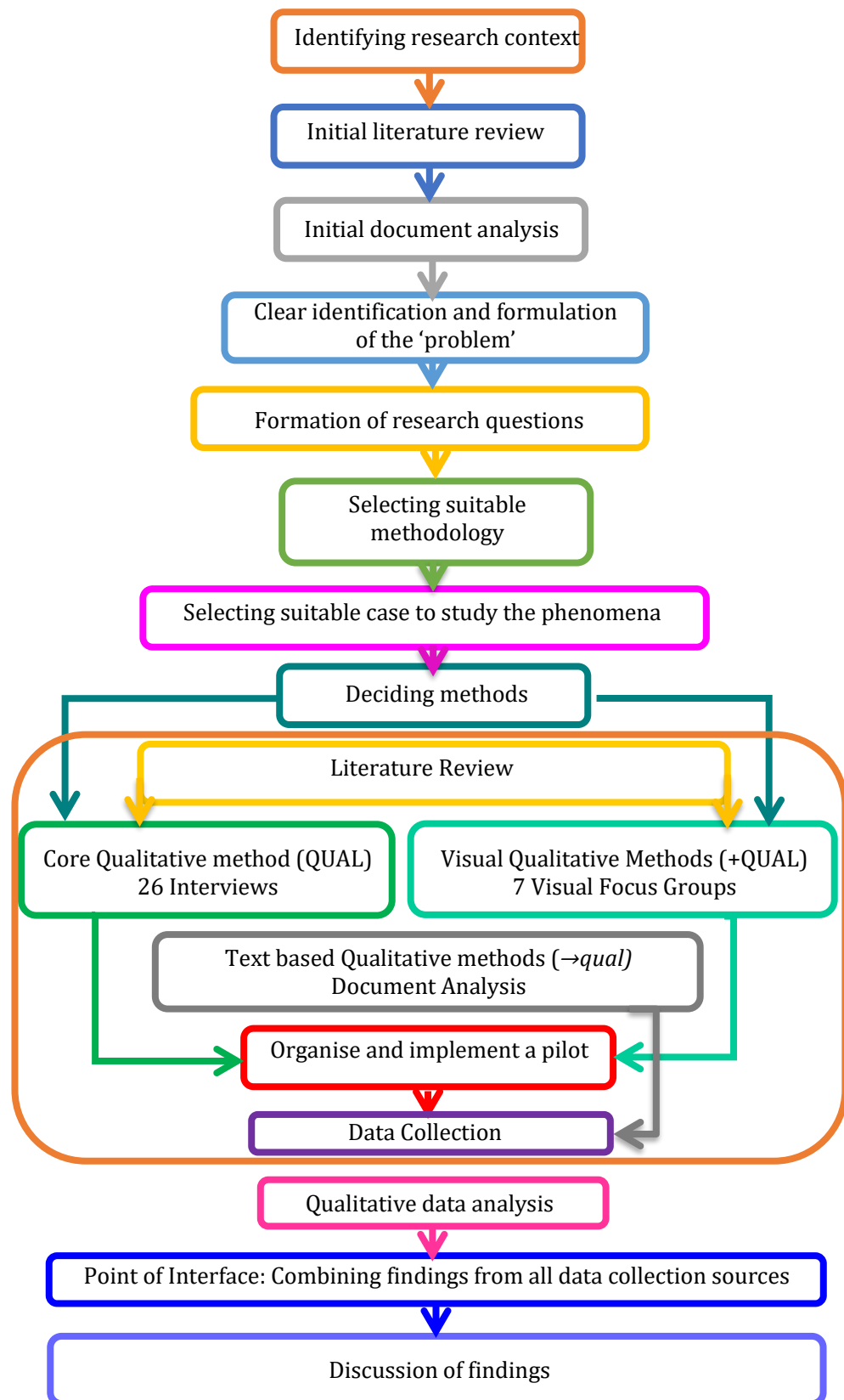


Figure 3.1. The research process stages (Source: developed for this research)



A literature review initiated this investigation, including the literature of teamwork and collaboration in healthcare. I reviewed case-related literature in both knowledge management and teamwork in Omani healthcare, however due to the lack of published literature relating to Omani practices, I undertook a document analysis as an anchor to the literature review. The lack of existing research led to new questions based on this initial finding:

- Are teamwork, knowledge management and knowledge sharing practiced in the Omani healthcare setting but not documented?
- Or do the practices not exist in Oman, which is the reason behind their absence in the literature?

This helped in specifying the clear ‘research problem’, and the identification and formulation of the research questions, aims and objectives. These initial steps were the base for deciding on the most suitable methodology/methodologies for this research.

Muijs (2004:3) suggests that when starting a project, it is important to identify and select a suitable research design, which underlies the philosophy and means of data collection, and data-analysis tools. This research adopts more than one method because of the value of each to investigation of the research question. The use of more than one method in a study is increasingly common practice (Greene, Caracelli, and Graham, 1989; Plano-Clark et al., 2008; Benz, and Newman, 2008; Bryman, 2012; Yin, 2013; Creswell, 2014). Factors influencing the choices I have made for this research are outlined in figure (3.2.)

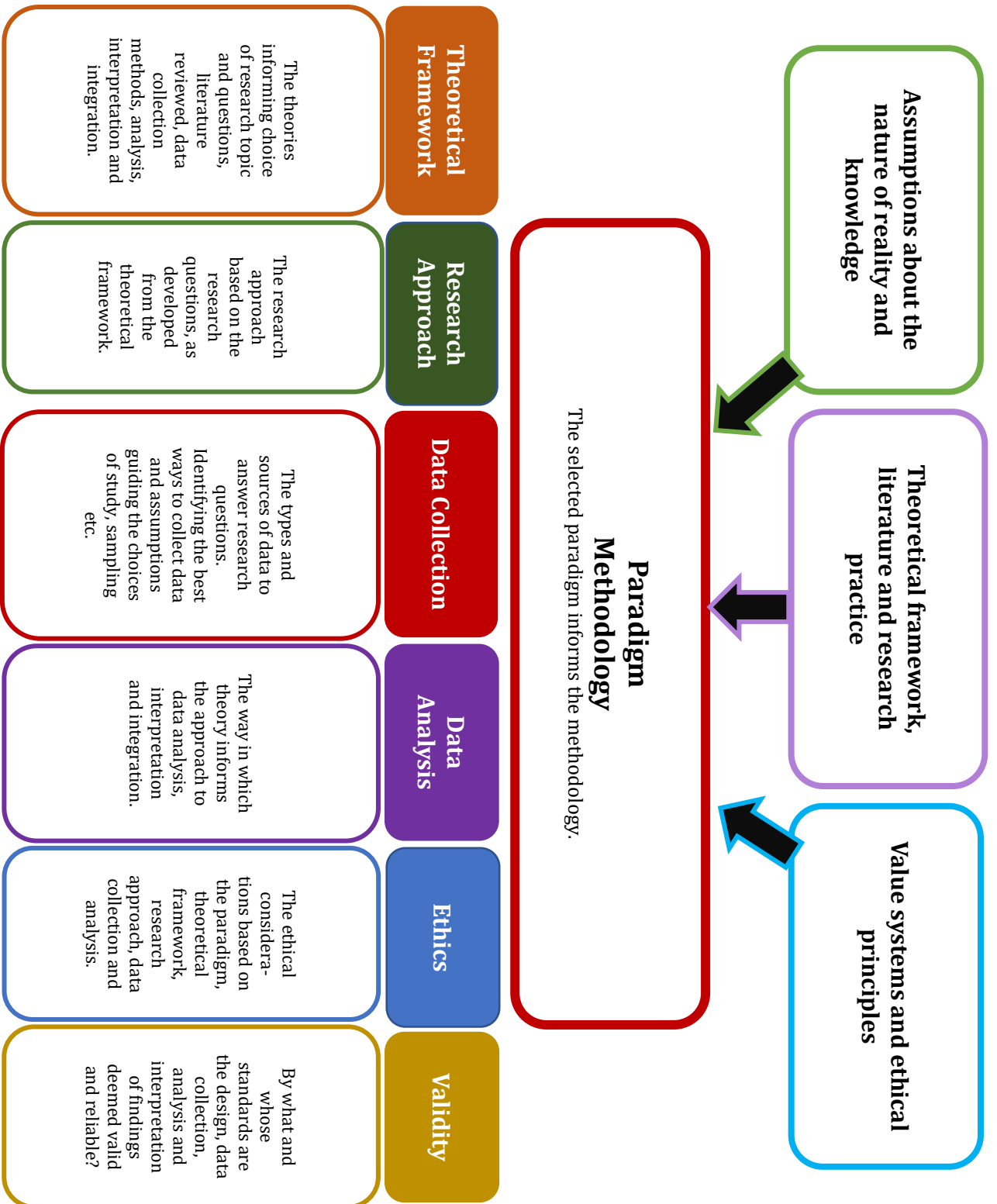


Figure 3.2. Factors influencing the choices underpinning this research (Source: developed for this research)



3.1. Research Philosophy and Approach

This section discusses the methodological philosophy grounding this research and reflects my theoretical stance and choices of methodology, methods, and analytic approaches. Slife and Williams (1995) and Creswell and Creswell (2018) note that philosophical bases greatly influence research practices, even when apparently concealed within the research, hence it is important to explicitly identify them.



Figure 3.3. Research philosophy (*Source: adopted from Research Onion, compiled from Saunders et al., (2007) and modified to reflect this research*)

This research applies a constructivist philosophy within an interpretivist paradigm using a qualitatively driven multi-methods data collection and analysis. It was important for me as a researcher to create my own research philosophy to identify research objectives and build my research design around these objectives (Easterby-Smith et al., 2002; Hamlyn, 2005; Gray, 2009; Bryman, 2012; Creswell, 2014).

Morgan (2007:50) describes a research paradigm as, “A way to summarize researchers’ beliefs about their efforts to create knowledge” (*Cf.*, Riazi and Candlin, 2014:136). The interpretivist paradigm (or worldview) assumes that reality is both socially constructed and dynamic (Angen, 2000; Mertens, 2005). Hence, individuals are ‘social actors’ who interact with a social sphere of their own creation and interpretation (Cantrell, 1993; Saunders *et al.*, 2009; Hesse-Biber, 2010). Outhwaite



(1975), Fay (1996) and Schwandt (2003) stress the importance of understanding the meanings that make up an action to understand human experience (Cohen and Manion, 1994:36). Thus, interpretivism allowed me to consider the understanding that participants allocated to their experiences, and which is mediated through social context(s). As Willis notes, the context in which data is gathered is critical to its interpretation (2007:4).

I used a constructionist philosophy, within an interpretivist paradigm, as both allow the exploration and understanding of the complexity of lived experience, through the perspectives of the individuals who live it, from the social, historical and cultural norms operating in their lives (Schwandt, 1994; Crotty, 1998; Lincoln and Guba, 2000; Schwandt, 2001; Neuman, 2000). Creswell (2003:8) describes the constructivism as using participants' views to inductively develop "a theory or pattern of meanings" (2003:9). Researchers are not necessarily tied to one concept but can move between philosophical ideologies, and a variety of views on the nature of social reality, truth, and so on (Hoshmand, 2003; Morgan, 2007; Morse 2016). I consider this a benefit of an interpretivist/constructivist research stance - as this research is qualitatively driven and exploratory, it benefits from a combination of ideologies and qualitative data to provide a rich, holistic view of the phenomena under study (Cherryholmes, 1992; Johnson et al., 2007, Morgan, 2007; Creswell, 2014).

Thus, I consider meanings and behaviour as constructed and mediated within social interactions and through discourse. This discourse includes official documentation around teamwork and KS within healthcare, and RH more specifically, as well as the discourse of day-to-day interactions (see figure (3.4)).

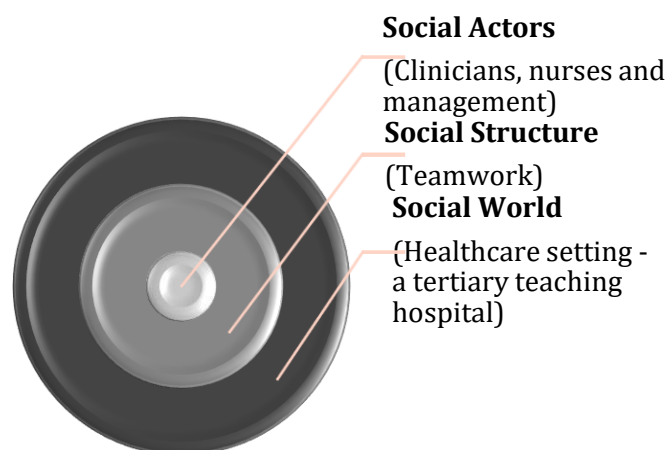


Figure 3.4. Research Ontology Position (*Source: developed for this research*)



Thus, the individual perception of the world is based on individual (subjective) experience, beliefs, knowledge and understanding, and this shapes individual realities (Jonassen, 1991). Hence social interaction(s) not only form social phenomena but allow for that phenomena to change (Bryman, 2008). Social constructivists argue that knowledge is generated through social interaction (Brown, *et al.*, 1989), and social interaction therefore is crucial for learning and understanding, for exchanging knowledge (Dewey, 1938; Vygotsky, 1978; Powell & Kalina, 2009). As, Piaget (1953) suggests, learners cannot simply understand information, but need to construct their own knowledge, therefore learn "through the use of one's own mind" (Bruner, 1961:22). Importantly, constructivism does not deny a 'real' world, rather it understands that the world is seen differently by everyone, and can be seen in different ways by the same person as they construct and negotiate their understanding of the world through social interaction (Vrasidas, 2000).

Social constructivism and interpretivism are often combined (Mertens, 1998). Individuals develop subjective meanings for their experiences, subjective interpretations, which can be diverse and multivalent, allowing the researcher to search for nuance and complexity (Creswell, 2007). Researchers often concentrate on the contexts in which individuals live and work to understand the historical and cultural background to participant experience. Researchers must also understand that as participants cannot stand outside of their social world, neither can researchers, who can, instead, explicitly recognize how their own subjective, cultural, and historical experiences and background influence their interpretation (Creswell, 2007). Thus, researchers interpret their data through the lens of their experiences and background, attempting to make sense of the subjective experiences of others (Creswell, 2007).

In this research, interpretivism and social constructionism are used to understand how participant accounts of a phenomenon are mediated and interpreted by those directly affected, to discern 'invariant' aspects or patterns, specific elements of experience, sequences, discrepancies between subgroups; and reflects on the relationship between research findings and literature hypotheses and constructs.



3.2. Research approach and strategy

3.2.1. Research Approach: Inductive

Theoretical drive is, “the manner in which the project is being steered” (Morse, 2016:5). As a qualitative and exploratory study, the theoretical drive for this research is inductive, (Bryman, 2012:24-25). That is, it begins with an open perspective; I am not testing a theory but generating one. As Pathirage, Amaratunga, & Haigh note, “the theory would follow the data rather than vice versa as with deduction” (2008:4). This allows for the creation of a nuanced and comprehensive study of the experiences of participants relating to the phenomena of study.

3.2.2. Research Strategy: *Qualitative*

Qualitative research is wideranging and inductive, relying on the researcher’s subjective interpretation of data. (Denzin and Lincoln, 2000; Curry *et al.*, 2009; Creswell, 2014). Building on interpretivism and constructivism, qualitative research explores how individuals and groups interpret the social world (Bryman, 2012:623-624). Mackenzie and Knipe (2006) note the importance of either qualitative data collection or a combination of qualitative and quantitative, when adopting a constructivist position (Glesne and Peshkin, 1992; Silverman, 2000; McQueen, 2002; Thomas, 2003; Willis, 2007; Nind and Todd, 2011; Thanh and Thanh, 2015). The former was the chosen method for this research due to the complex nature of the phenomena under investigation as qualitative data offers 'insight' and 'in-depth' information (Punch, 2009). Thanh and Thanh (2015:26) consider there to be a “tight connection” between interpretivism and qualitative methods, because, as McQueen (2002:17) notes, “Interpretivist researchers seek methods that enable them to understand *in depth* the relationship of human beings to their environment and the part those people play in creating the social fabric of which they are a part [italics mine].” This is how I have approached my research, following Creswell (2009:4), “qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem”.

Qualitative methods are the best to identify ‘unknown’ phenomena (in this case the practices of teamwork and KS in the Omani healthcare setting), consider the factors influencing the phenomena and understand “complex social processes” (Malterud, 2001 and Curry *et al.*, 2009: 1442; Glaser and Strauss, 1967; Pope and Mays, 1995;



Crabtree and Miller, 1999; Patton, 2002; Curry et al., 2009). This research, then, applies a constructionist philosophy within an interpretivist paradigm along with qualitatively-driven multi-methods, combining different qualitative methods to achieve a holistic understanding of the phenomena under study. Combining several qualitative methods adds critical value to this study.

Thus, this research aims to develop an understanding of the phenomena of interest based on the participants' behaviours, beliefs, experiences, incentives, values and perspectives (Inui, 1996; Berkwits and Inui, 1998; Crabtree and Miller, 1999; Curry *et al.*, 2009). As this research was situated in a healthcare organisation it can provide insight into factors that influence care delivery, quality and organisational performance (Sofaer, 1999; Sofaer and Firminger, 2005; Curry *et al.*, 2009).

3.3. Research Design

As noted, this is a multi-method research. As Mason (2006:10) notes, "social experience and lived realities are multi-dimensional ... our understandings are impoverished and may be inadequate if we view these phenomena along only a single dimension."

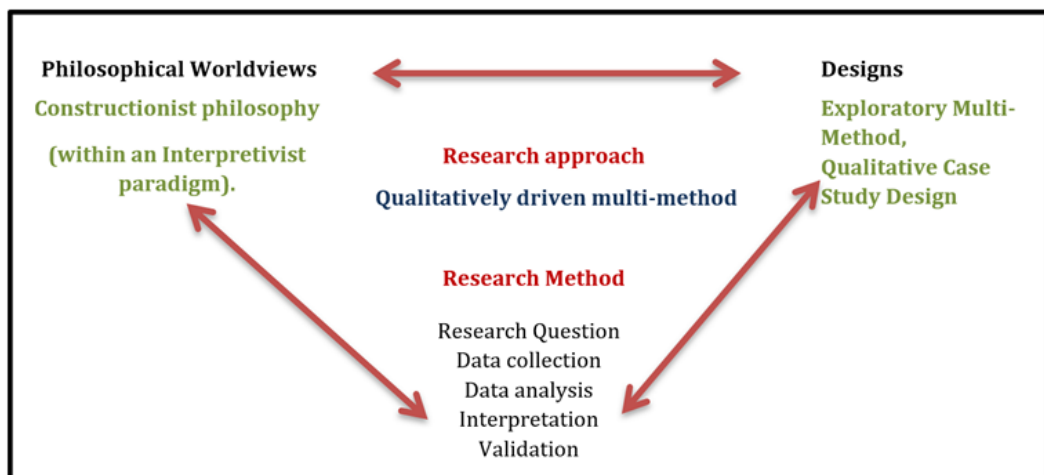


Figure 3.5. Framework for research (Source: adopted and modified from Creswell and Creswell, 2018:5)

3.3.1. Multi-Method Research Designs

Fetters & Molina-Azorin (2017:5) state, "Multiple methods research refers to *all* the various combinations of methods that include in a substantive way more than one



data collection procedure [italics mine].”⁷ The decision to use multi-methods in this research was intended to achieve a more nuanced understanding of complex phenomena (knowledge sharing and teamwork) within a multifaceted system (Healthcare).

Multi-method research allows the researcher to study complex phenomena in a holistic and meaningful way. Qualitative research adds a “multi-layered view of the nuances of social reality” when considering understand how individuals make meaning of their social world (Hesse-Biber, 2010:455).

3.3.2. Qualitatively driven Multi-method design

There are several benefits of multi-methods research and qualitatively-driven multi-methods. As Morse notes, (2016:138-139), “qualitative methods provide different types of results, with different levels of analysis and different structures for different purposes” allowing for more than one perspective”. Different methods may be suitable for different questions within one project, again enabling a nuanced and holistic understanding of complex social phenomena (Morse, 2016:144). Indeed, two qualitative components can complement each other offering a holistic view of the research problem and questions (Johnson and Onwuegbuzie, 2004:10; Bryman, 2012:635-649). Qualitatively-driven multi-methods can also address potentially inconsistent findings, for example, in this research the interview results can be compared with the FGs and document analysis. Triangulation brings the findings together in a structured manner, though does not necessarily require them to match, as discussed below. Multi-methods have been used in a variety of fields, including health services research (O’Cathain *et al*, 2007; O’Cathain *et al*, 2008; O’Cathain *et al.*, 2009; Curry *et al.*, 2011; Östlund *et al.*, 2011; Tariq and Woodman, 2013; Morden *et al.*, 2015).

This investigation explores teamwork and knowledge sharing in cross-professional healthcare teams, aiming to reconcile practice and evidence. It links teamwork and knowledge sharing, to map the intersections between them, including that of the healthcare context. The literature supports applying qualitatively driven multi-methods when examining complex social phenomena (Greene *et al.*, 1989;

⁷Fetters & Molina-Azorin (2017:5) go on to describe multiple methods as “two or more exclusively qualitative approaches, Qual plus Qual, two or more quantitative approaches, Quan plus Quan, or a combination of qualitative and quantitative approaches, Qual plus Quan.... In our view, mixed methods is one category of multi-methods or multiple methods research.”



Tashakkori and Teddlie, 1998, 2003; Creswell, 2003; Gorard and Taylor 2004; Johnson and Onwuegbuzie, 2004; Creswell and Plano Clark, 2007; Morse, 2016). Figure (3.6.) provides a Venn diagram representation of my research context.

My research focuses on the human factor in knowledge sharing (communication, perceived ideas, practices, resistance, behaviour etc.,) on an individual and group

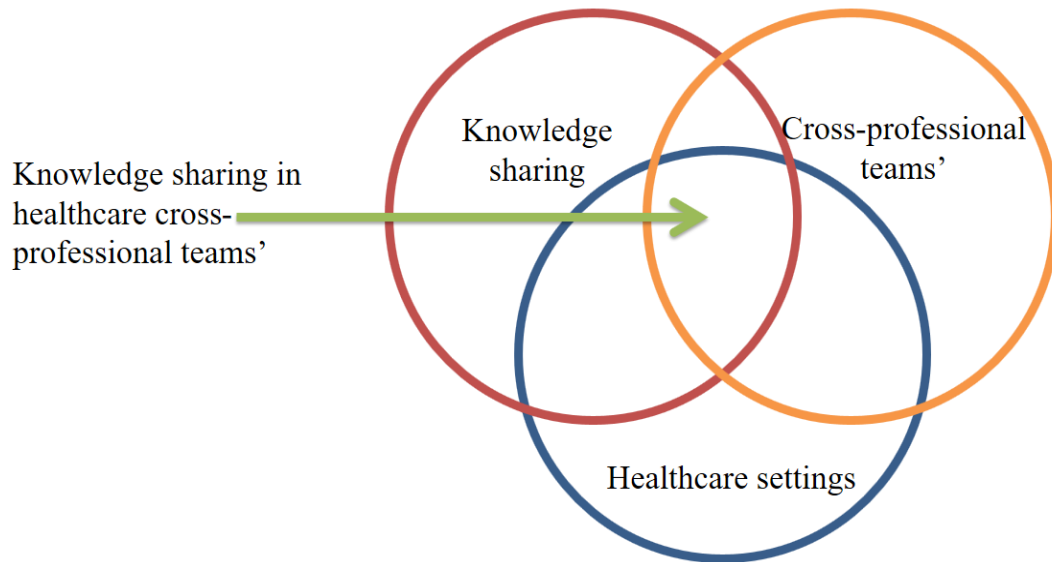


Figure 3.6. *The research context (Source: developed for this research)*

level within healthcare teams. The added complexity of the healthcare environment creates a multifaceted setting for this study. Fetters, Curry, and Creswell (2013: 2135) state, “Qualitative methodologies are applied to research questions to explore why or how a phenomenon occurs, to develop a theory, or to describe the nature of an individual’s experience”.

3.3.3. The Current Research Design

The research design is an exploratory qualitatively driven multi-method design with a dual major QUAL core component (QUAL1: interviews, QUAL2: focus groups), undertaken simultaneously with a supplemental *qual* document analysis, as shown in table (3.1.) and figure (3.7.).

A multi-layered qualitative study allows an in-depth and comprehensive understanding of teamwork and KS, covering the behaviours, practices, experiences, and attitudes within the selected healthcare environment. This research seeks to address questions that go beyond explaining facts and causes, ‘what works’, for a



deeper understanding of social phenomena by asking ‘what works – for whom – and under what circumstances?’ (Kavanagh *et al.*, 2012). Likewise, Mason (2006:16) argues “qualitative research has the explanatory edge precisely because it is concerned with *explanation* in a wider sense than measurement or causation.”

Research Questions)	Core	Core Method	Supplement component	Supplement strategy(ies)
Q #1 What team types dominate the experience of healthcare professionals within the Omani healthcare system? Results QUAL + QUAL QUAL → qual	QUAL1 + QUAL2	Semi-structured Interviews Coproduction Participatory driven Focus Groups	→ <i>qual</i>	Document Analysis
Q#2 How is knowledge shared in these teams? Results QUAL + QUAL QUAL → qual	QUAL1 + QUAL2	Semi-structured Interviews Participatory driven Focus Groups	→ <i>qual</i>	Document Analysis
Q#3 What factors or combination of factors can influence, directly and indirectly, the knowledge sharing process in cross-professional teamwork? Results QUAL + QUAL QUAL → qual	QUAL1 + QUAL2	Semi-structured Interviews Participatory driven Focus Groups	→ <i>qual</i>	Document Analysis

Table 3.1. Methods applied to answer the research questions (**Source:** compiled from Morse, 2016)

For this research, I planned and conducted all interviews and focus groups in a four-week period, whilst I identified and collected the documents for analysis during the same period. Regarding the breadth of research skills necessary, I have experience in conducting interviews and focus groups and was able to attend courses to update my skills within the University of Sheffield Doctoral Development Programme (DDP). I also ran pilots for both interviews and HFGs to test them. Finally, my multi-method design has triangulation and integration across the multiple phases of the research process.

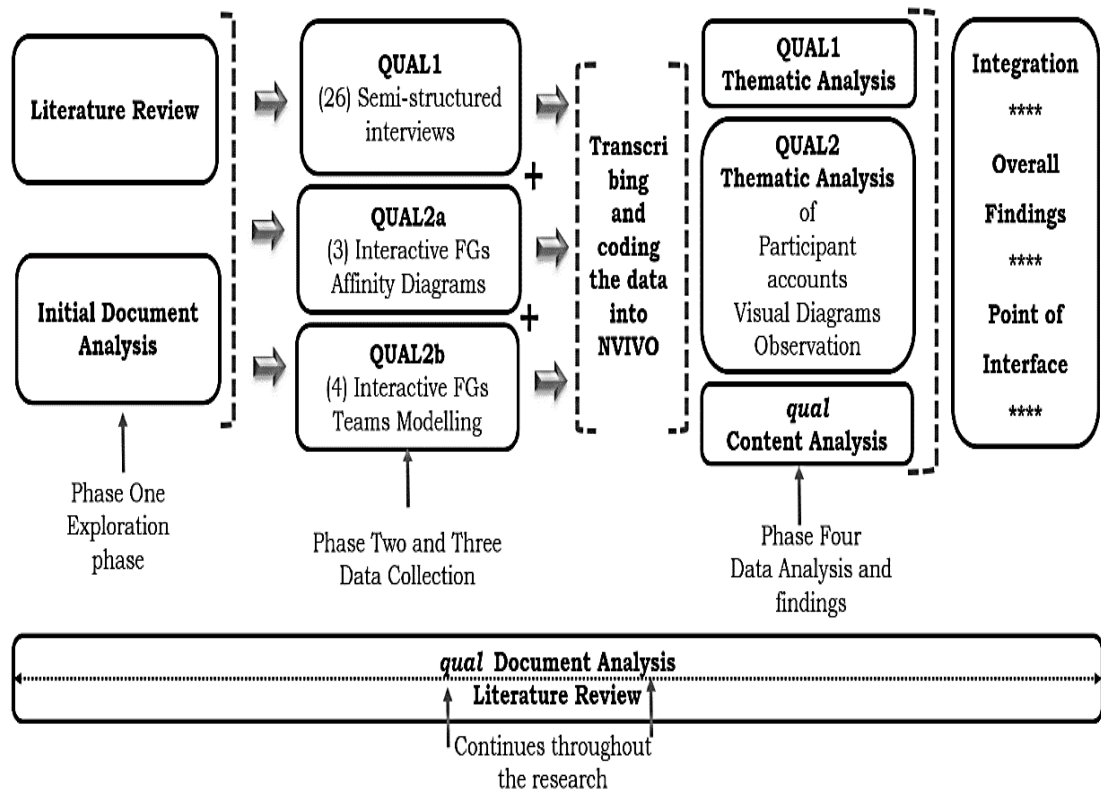


Figure 3.7. Visual diagram of this research design (Source: developed for this research, based on Aldridge et al., (1999) in Creswell and Plano Clark, 2007:51)

3.4. Case Study Approach

3.4.1. Case Study vs Ethnographic Study as a Research Approach

Case studies and ethnography are two of the most popular and well-established research approaches in qualitative research (Robson, 2005:178; Suryani, 2013:117). As this research investigates and explores human interaction and behaviour within a specific environment, either case study or ethnography could be used. A review of the literature relating to case studies and ethnographic studies is summarised in appendix 3.3.

Robson (2005:178) notes that case study has its focus on a single ‘case’, considering the context of the case, which allows for flexibility in applying “multiple methods of data collection”. Ethnographic study focuses on “the description and interpretation of the culture and social structure of a social group”, involving observation over an extended period (2005:178). A comparison between case study and ethnography is included in appendix 3.4.



There are similarities between the two approaches as they both aim to provide in-depth understanding of the phenomenon/a under study, however, there are also important differences, for example ethnographic study necessitates the provision of “certain periods of time in the field”. A case study has no time constraints, and with the development of technology and communication methods, much case study research can be conducted via the internet or telephone. Ethnographic study stresses the importance of detailed observation and whilst case study primarily uses interviews and does not depend on participant-observer data, it can incorporate ethnographic methods through implementing detailed observations (Yin, 2003; Robson, 2005; Suryani, 2013).

3.4.2. Case Study Approach in this Research

I selected case study as it was not possible to conduct observations in RH. Observation would require a higher level of ethical approval, which from personal experience as a non-medical staff researcher, is almost impossible. Also, as this is exploratory research, it needs the flexibility offered by case study in applying multi-methods to collect data, hence, a case study approach is the best way to respond to the research questions (Bryman, 2012; Yin, 2013). Figure (3.8.) visualises the six steps in conducting a qualitative case study.

However, this raises the difficulty of how to study tacit knowledge and its exchange. Tacit knowledge is embedded within personal or group experience and context dependent (Tsoukas, 2003; Hecker, 2012; Spraggon and Bodolica, 2016). Thus, to mitigate difficulties, I used the experiences of participants as they described their tacit knowledge experiences, and developed the hybrid focus groups (HFGs), discussed below. The HFGs allowed me to access what Spraggon and Bodolica (2016) term ‘social ludic activity’ (SLA), “a form of play where tacit knowledge resides”. This is further discussed in the section on HFGs (3.6.6).

The main population for this research was the Omani healthcare professional community, but due to cost, time and access limitations, the focus shifted to the professional community of Royal Hospital in Oman (RH) as a research sample. I chose to investigate a single case (RH) as a manageable way to answer the research questions, considering the conditions and situation of teamwork and knowledge sharing among healthcare cross-professional teams. An embedded case study



allows for studying the phenomena of interest and is feasible with multi-methods research and allows for flexibility in research methods (Yin, 2013).

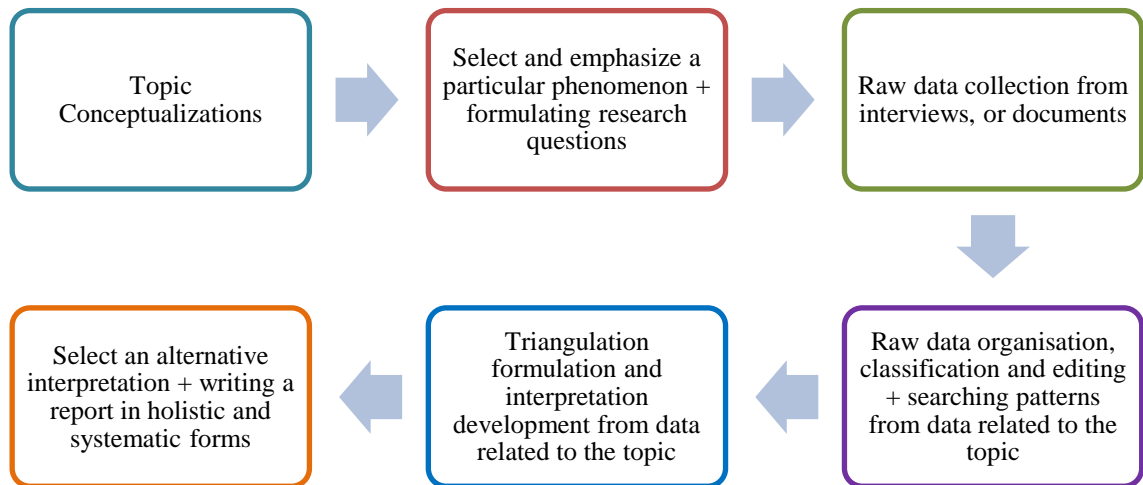


Figure 3.8. The six stages in conducting qualitative case study as applied in this research (Source: adapted from Yin, 2009:1)

Case study design was selected for its flexibility, as it can incorporate different data-gathering strategies, including document analysis, surveys, questionnaires, observation, and participatory or action research. It also serves a variety of functions; case study is exploratory and allows researchers to ‘get a sense’ of potentially important elements and variables, and it enables them to describe the phenomena of study within its context. All of these were valuable reasons to select case study as a research design.

Whilst the generalising from case studies is possible, it is more difficult with a small number of cases. One way to overcome this is to choose cases with the greatest variety of characteristics, covering a range of “extremes.” This is the case with Royal Hospital as the largest tertiary teaching hospital in Oman. It is a multicultural environment and plays an important role in developing and supporting change across Omani MoH organisations across the country. (Yin, 2012; Hakim, 2012).

3.5. Multi-Methods Case Study and Triangulation

As this research employs three different qualitative components to explore knowledge sharing among healthcare teams in RH, these three strands need to be brought together.



3.5.1. Triangulation

Denzin (1970) presented the notion of ‘triangulation’ as a technique to validate the findings from the combination of different methods. Similarly, Bryman (2004:1) defines triangulation as the “use of more than one approach to the investigation of a research question in order to enhance confidence in the ensuing findings”. While Stake (2005:444) defined it as, “a process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation” (Cf., Grix, 2001; Mason, 2006). Similarly, for Merriam (1998:216) triangulation means comparing and cross-checking data across methods of data collection. In contrast, Flick (2002:227) states triangulation is “less a strategy for validating results and procedures than an alternative to validation which increases scope, depth and consistency in methodological proceedings”.

Hence, triangulation is important to avoid misinterpretation. Denzin (1978) and Patton (1987) argued that whilst different data types can show triangulation, if incompatible methodological and analytic strategies are used, there is a risk that the results will not fit together. As Morse notes (2016), this is a danger to the validity of the study, Hence the researcher needs to be systematic transparent in their methodology, and sensitive to nuances in the data rather than ‘cherry-picking’. To increase the validity of this research and diminish potential weaknesses of the quantitative components, triangulation will be used. Denzin, referenced in Bryman (2004:2), lists four types of triangulation:

- Data triangulation: the use of various sampling strategies in data collection
- Investigator triangulation: the use of several researchers to compile and analyse the data
- Theoretical triangulation: data is interpreted using various theoretical positions
- Methodological triangulation: the use of several data collection methods
- Environmental triangulation: the use of key factors linked to the study environment such as time, day, season, settings or locations.

I used a three-phase triangulation:

1. Methodological triangulation: as I used several data collection methods including interviews, hybrid focus groups and the artefacts they created, observation notes, and document analysis.



2. Data triangulation: I collected data using more than one type of participant sampling strategy, and collected data from different methods

- Parallel - document analysis and literature review running throughout the research process.
- Parallel/sequential - interviews and focus groups, followed by the document analysis second stage.

3. Theoretical triangulation: The use of several theoretical positions in the data analysis was necessary to work through the different data sets of documents, interviews, focus groups, textual data, observations and participant artifacts.

Figure (3.9) explains how and where triangulation was applied across multiple phases of the research process, using these three phases. The collected data from the initial document analysis and literature review was used to construct and format the interviews and FGs. Another level of data triangulation was applied through a sampling triangulation between several purposive approaches and the theoretical saturation approach, further discussed below.

Using methods triangulation, different textual analysis strategies such as coding and thematic analysis of the different data sets offered complementary insights, creating a nuanced whole. The cross-validation of data was not the sole purpose of triangulation because capturing the same phenomena from diverse dimensions allows a more holistic view of the phenomena as reflected through the differing data strands. A common misconception, described by Patton (2002), is that triangulating will create consistency across different sources and techniques of data, whereas inconsistencies can be the real comparative strength of the different sources, and which Patton notes are, “an opportunity to uncover deeper meaning in the data”. Triangulation thus strengthens validity, providing insight on the phenomena of interest from different perspectives and approaches.

Thus, each method adds to the picture, for example, the interviews covered a cluster of views from individuals within the case, representing three groups of interest (clinicians, nurses and management) drawn from different teams, departments and specialities. This provided a helicopter view of the topic. The focus groups brought a more focused understanding of issues raised within the interviews, tapping into group understandings of team, teamwork and knowledge sharing. The document



analysis generated an impression of the phenomena from a different angle again, that of the bureaucratic structure of RH. This enabled a comparison between what participants considered was the practice of the phenomena and what existed in terms of documentation and official guidance.

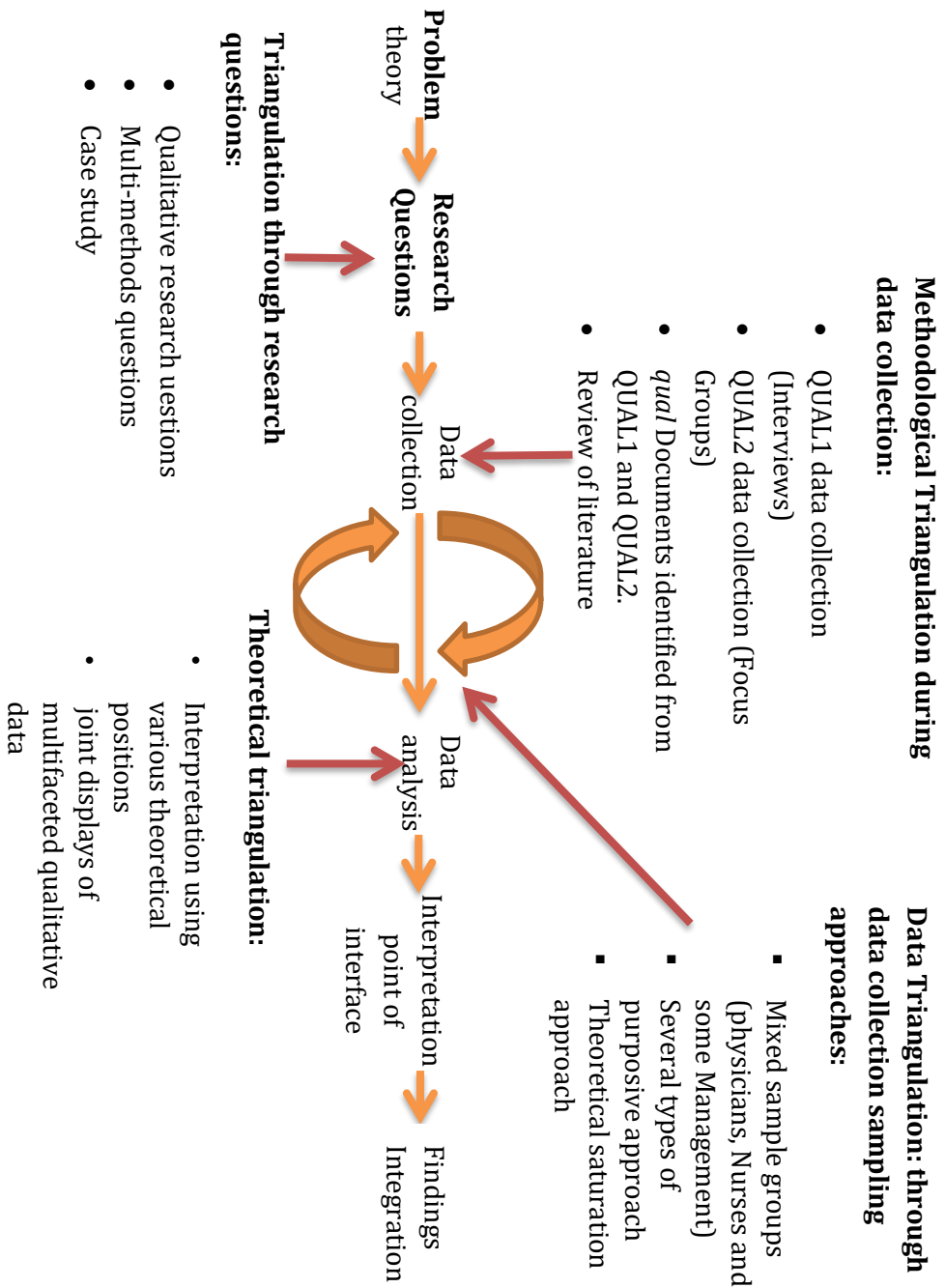


Figure 3.9. Triangulation across the multiple phases of the research process (Source: developed for this research)



3.5.2. Integration

Integrating data successfully is one of the most challenging aspects of multi-method research (Bryman 2006; Lewin, Glenton, and Oxman 2009; Fetters, Curry and Creswell, 2013). However, the value of multi-methods research is improved through the careful integration of data (Bryman 2006; Creswell and Plano Clark 2011; Fetters, Curry and Creswell, 2013). O’Cathain, Murphy, and Nicholl (2010) and Creswell and Plano Clark (2011) outlined approaches to integrating different types of data at various stages of the research (*Cf.*, Fetters, Curry and Creswell, 2013).

Yin, (2012) and Hakim, (2012) argue that using multiple sources of evidence, to see if they “converge”, creates a “chain of evidence”, increasing validity. However, Mason (2006:19-22), building on work by the Leeds Social Sciences Institute, suggests ways of opening out integrative ideas to hold “different ... dimensions of social experience” in creative tension, allowing innovative ways to “reconcile different epistemologies and ontologies, which may result in vastly differing world views and may depend upon contrasting explanatory logics”. She argues that as lived reality is multi-dimensional, so our understandings and explanations must be. Thus, integration can be ‘dialogic’ and ‘multi-nodal’, creating intersections, and where questions and explanations differ, we can learn from such difference. As she notes, this requires a flexible, creative and reflexive approach, acknowledging a range of methodologies, which opens multi-methods research to more innovative methods, allowing for complexity and nuance in our understandings and explanations. Mason therefore argues for “theoretically driven empirical research” that pushes beyond “paradigm wars and theoretical stalemates to find effective ways of proceeding and facilitating creative and innovatory research.”

Even if one does not go as far as Mason, research findings that are inconsistent, contradictory or conflicting may still be of benefit. Investigators may handle discordant results in different ways, such as gathering additional data, re-analysing existing data, seeking explanations from theory, or challenging the validity of the constructs. They may seek not to integrate differences but acknowledge the disparity arising from different strands of enquiry.

As different data types were collected in this research, careful integration is required to ensure they fit within the research, enabling a coherent result. This does not mean that all data must give the same answers, for example during this research



whilst interviewees spoke of protocols related to teamwork, none could be found within RH intranet. This indicated a divergence between the discourse of participants and the administrative framework of the hospital.

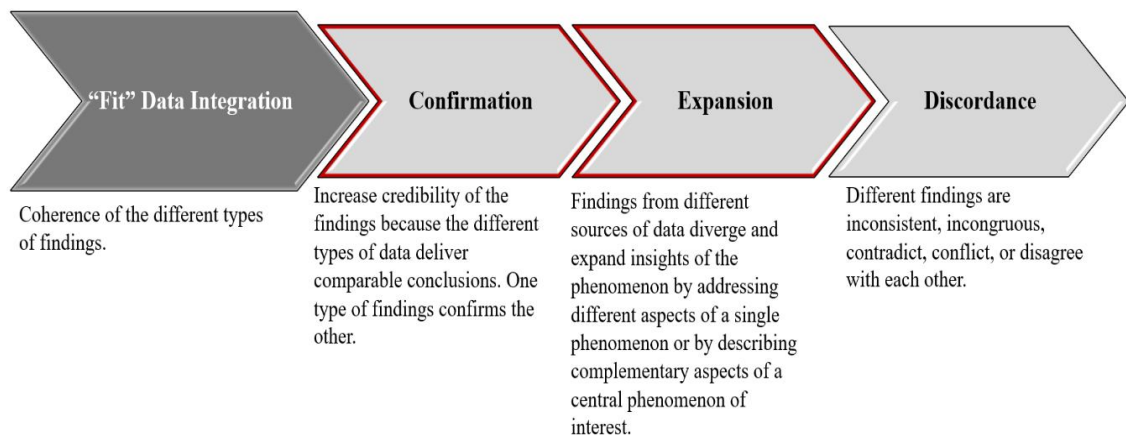


Figure 3.10. Aspects of data integration in multi methods research (*Source: compiled from O’Cathain, Murphy, and Nicholl 2010; Creswell and Plano Clark 2011; Fetters, Curry and Creswell, 2013*).

Creswell and Plano Clark (2011) suggest three approaches for integration: connecting, merging, and embedding data. Integration of the different data sets provides maximum strength to the research methods and minimises weakness while collecting different types of data. (*Cf., Braun and Clarke, 2006*).⁸

This research used systematic integrative procedures. It used a multi-stage framework for case study, integrating data through narrative and joint display (O’Cathain, Murphy, and Nicholl 2010; Creswell and Plano Clark, 2011; Fetters, Curry and Creswell, 2013). For example, integration through connecting occurs when data types are linked through through the sampling framework, as my document selection drew on suggestions from interview and focus group participant suggestion. The data was analysed separately and then merged during analysis in NVivo, bringing together the themes. I also used joint display at this stage, creating a matrix as “Matrices streamline the process of noting simultaneously and

⁸ In Thematic Analysis, the ‘data corpus’ is all data collected during the research, and ‘data set’ indicates which elements of the data corpus utilised for a specific analysis. For this research the data arising from the literature review, interviews, FGs and document analysis are the data corpus, whilst the data sets may differ. The ‘data item’ indicates individual parts of data that together make up the data set or corpus, such as an individual interview or HFG, and ‘data extract’ indicates a coded data extract.



systematically similarities, differences, and trends in responses across groups of informants” (Averill, 2002; Marsh, 1990; Miles and Huberman, 1994; LeCompte and Schensul, 1999. Finally the data was integrated through the narrative, as the written report brings the data sets together in the findings and discussion. Figures (3.10.) and (3.11.) make clear where integration occurred through the research problem and questions, sample composition, the clarity of analysis units, gathered data, and the schemes of analysis (Bazeley, 2009; Yin, 2013) for more details on the data integration in this research available in the finding at the beginning of chapter 5 .

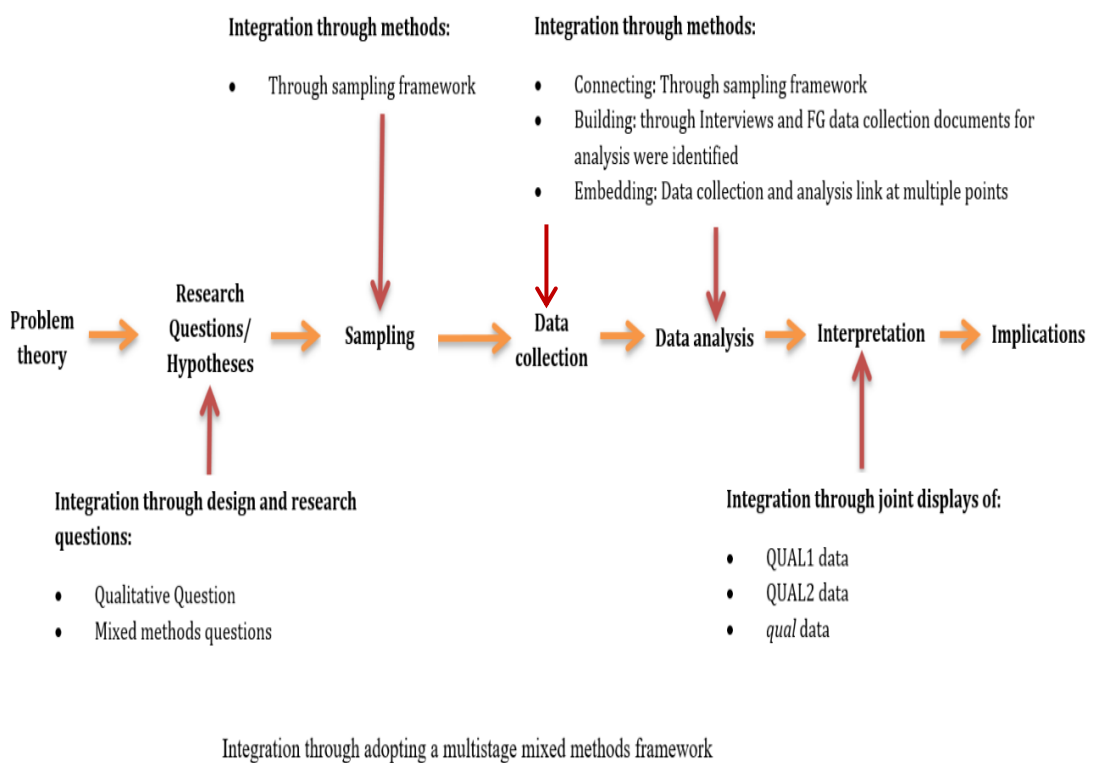


Figure 3.11: Integration across the multiple phases of the research process (Source: developed for this research)

3.6. Research Design and Data Collection Methods

Having outlined the philosophy underpinning this research, and the methodological choices behind the selection of qualitatively-driven multi-methods case study, this section discusses the research design tools used for data collection, as shown in figures (3.12.).

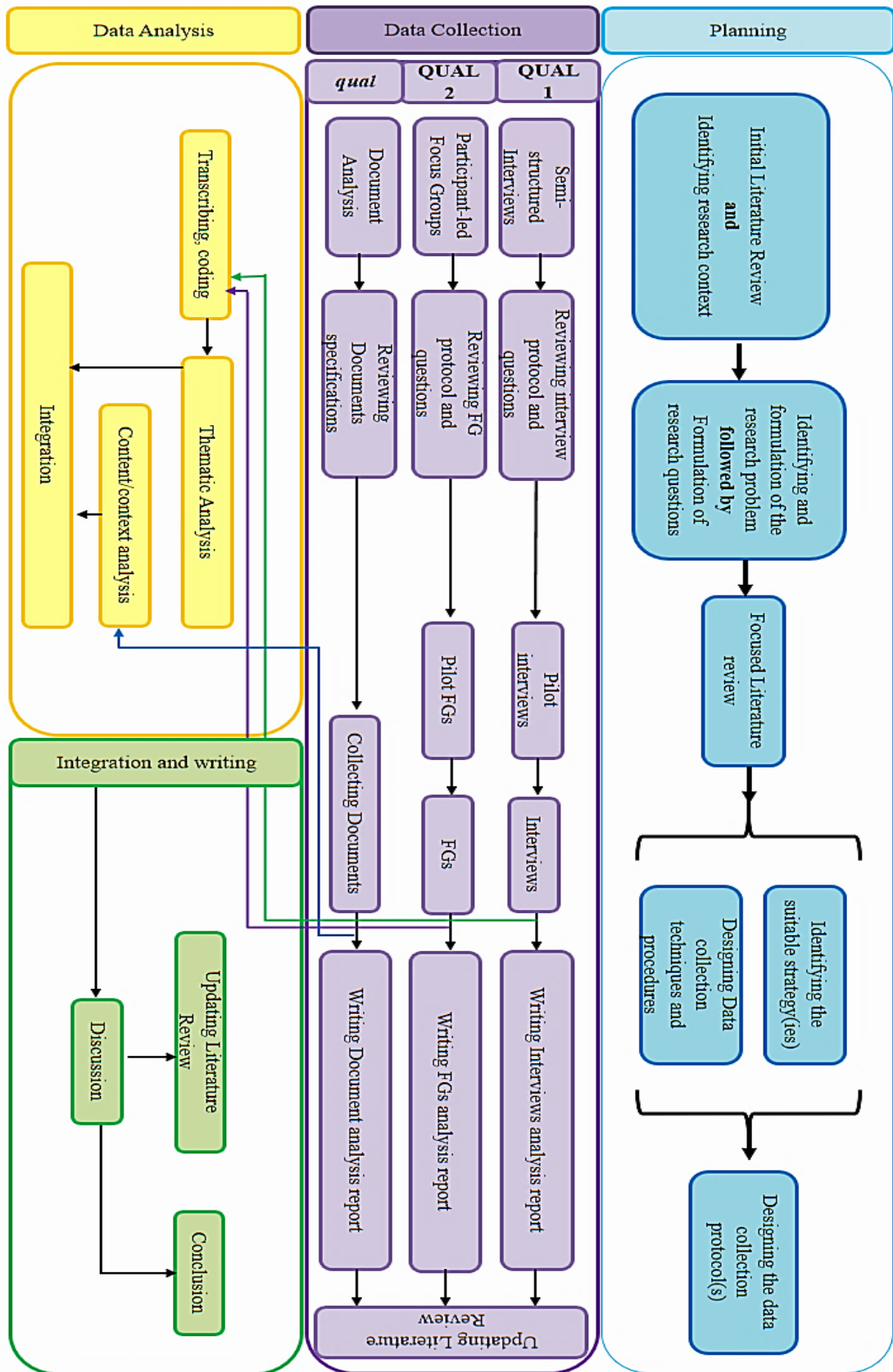


Figure 3.12. Research design (Source: developed for this research)



3.6.1. Language and Data Collection

Conducting research in a second language can lead to a loss of richness in narrative, for example the use of metaphors that are language or culture specific (Lakoff and Johnson, 1980; Polkinghorne, 2005; Chapman 2006; Van Nes *et al.*, 2010). Caretta and Vacchelli (2015) advise conducting FGs in the mother tongue of participants, to minimize the risks of misunderstanding and errors (Morgan 1997; Barbour and Flick, 2007; Hennink, 2008; Krueger and Casey, 2008). Van Nes, *et al.* (2010:313-314) state, “The relation between subjective experience and language is a two-way process; language is used to express meaning, but the other way round, language influences how meaning is constructed”. Similarly, “findings should be communicated in such a way that the reader ... understands the meaning as it was expressed in the findings, originating from data in the source language” (Van Nes *et al.*, 2010:314).

Nevertheless, I chose to conduct the interviews and HFGs in English, not Arabic. English is a second language for many Omanis but the main language used in medical settings between professionals; medical staff at RH come from around the world and use English to communicate. As this research investigates KS behaviours among cross-professional teams, it was important to understand how participants communicated. Consequently, I elected to design and conduct the interviews and FGs in English language.

3.6.2. Semi-Structured Interviews

Qualitative interviews offer an insight and knowledge of the experiences, beliefs and practices of others. Interviews are intentional conversations highlighting significant qualities. Rubin and Rubin (2011:5), describe interviews as gently guided extended discussions, as the researcher “elicits depth and detail about the research topic by following up on answers given by the interviewee” (*Cf.*, DeMarrais, 2003:54). Saunders *et al.*, (2009) and Robson (2011) suggest a spectrum of interviews as presented in figure (3.13.) and Rubin and Rubin (2011:6-8) described qualitative interviews based on their purpose, which is outlined in appendix 3.5. I chose semi-structured interviews with open ended questions as this method generates in-depth data (Cohen *et al.*, 2007).

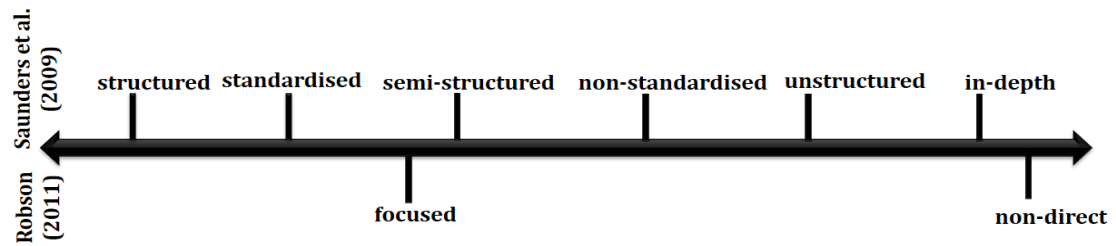


Figure 3.13. Interviews type spectrum (*Source: compiled from Saunders et al., 2009, and Robson, 2011*)

Wengraf (2001:3) described semi-structured interviews, as “a deliberate half-scripted or quarter-scripted interview: its questions are only partially prepared in advance”, thus the interview will be “largely improvised... a joint production, a co-production, by you and your interviewee”. The purpose of such an approach is to understand the participant’s perspectives, and “bring the interviewer into his or her world” (Patton, 2002:341).

3.6.3. Interviews in this Research

Due to the complexity of the phenomena under study in this research, qualitative interviews helped in “eliciting understandings or meanings”, for example, how participants understand concepts such as ‘team’, ‘cross-professional team’, ‘KS’. At the same time interviews aimed to “describe and portray specific events or processes”, thus there were questions around practices of teamwork, KS, communication and collaboration, and the factors that participants thought influenced their practices (Cf., Wengraf, 2001). Despite these advantages, semi-structured interviews are time intensive to conduct, transcribe and analyse, which means it is only possible for a limited number of interviews (Bryman, 2012).

3.6.4 Rationale for Interviews

The choice of semi-structured interviews as a main data collection method accumulated a rich source of data on the phenomena of interest and the RH environment. The literature review and document analysis were used to design the pilot interviews, as they highlighted potential themes and topics for discussion, and building on the pilot interviews, I developed the final interview design for RH participants (clinicians, nurses and managers).

As exploratory research, it was important to allow the interviewee freedom to talk. I may not anticipate what issues participants viewed as important, hence it was helpful to select a flexible interview design (semi-structured). The interview



included a basic topic outline, so each participant was asked the same basic question set, but with additional flexible questions within a prepared interview protocol (see appendix 3.6), allowing for adaptation based on the interviewees' responses. Thus, each interview was unique. Nevertheless, I had to moderate at times if the discussion was going too far off track, which is what distinguishes these interviews from being unstructured.

3.6.5. Interview Protocol

3.6.5.1. Pre-test/Pilot study:

As stated, the literature review and document analysis were used to design the interview protocol. A good qualitative interview question is clear, neutral, open-ended, and sensitive (Patton, 2015). Best practice in qualitative (semi-structured) interviews, as recognised by the methodological literature, requires a flexible agenda and core question list covering the investigated area. I followed a common method in semi-structured interviews, the use of the protocol/topic guide with a progressive refining of the lines of inquiry as each interview is completed (Bryman, 2012).

Piloting and pre-testing the interview allowed me to assess the flow of questions, the presence of sensitive questions, the appropriateness of categorisation of variables, the clarity of the questions, and provide a formal rehearsal of the interview process. Three pilot interviews were conducted face-to-face and via the internet, with one participant from RH staff, unconnected with the study (Library Manager) and two colleagues with English as their second language, to reflect the fact that the research would take place in an environment where English was the second language for the majority of staff.

3.7.5.2. The interviews:

Once consent had been received from the participants, face-to-face interviews took place in one of the RH meeting rooms or the participant's office, based on their preference (the latter was mainly for the convenience of management and clinical management participants).

There were two sets of protocols prepared (see appendices 3.6 and 3.7), one for managerial staff and one for nurses and clinicians. For nurses and clinicians, I was interested in their interactions and experiences of the phenomena under



investigation. Management staff also offered insight into the hospital policies and documentation in relation to the phenomena. Each protocol contained a basic outline of topics, as discussed above, with additional questions within a prepared topic guide, allowing for adaptation based on interviewee responses. Each interview lasted an average time of 50 minutes, during which I took notes when appropriate in addition to the audio recording of the full interviews, which were then transcribed verbatim.

The interviews allowed the identification of existing team types through participant descriptions, and teamwork and KS practices. They also provided an account of any barriers or facilitators that participants considered influenced teamwork and KS.

3.6.6. Focus Groups/Workshops as Research Methods

FGs have become increasingly popular as a research method across diverse fields such as health research, social sciences and marketing. Morgan (1988), referenced in both Madriz (2000) and Colucci (2008), describes FGs as a distinguished qualitative method incorporating components of interviews and observations. Whilst they are a valuable qualitative method to collect in-depth data, employing appropriate techniques to attain 'good-quality data' is a challenge.

FGs were introduced into social science research as an alternative to interviews, and the first FG guidelines were developed in 1941. (Delli, Carpini and Williams, 1994; Krueger and Casey, 2000). FG discussion helps generate ideas among a group to create a rich data picture, enabling the researcher to learn about, for example, conscious, semi-conscious, and unconscious psychological and socio-cultural characteristics and processes (Bryman, 2012; Patton, 2015). Grønkjær, *et al.* (2011:16) explain the rationale for FGs, "knowledge is created through the diverse experiences and forms of knowledge of, and interaction between, participants" (*Cf.*, Kitzinger, 1995).

FGs offer the opportunity for participants to interact and observe each other, thus the variety in conversation and communication is greater than in interviews. Lunt and Livingstone (1996:85) describe FGs as "a simulation of these routine but relatively inaccessible communicative contexts that can help us discover the processes by which meaning is socially constructed". Caillaud and Flick (2007:157) suggest that FGs "permit us to study how meanings, interpretations, and narratives



are socially constructed during group interactions”. It is the social interaction and the social construction of concepts such as KS and teamwork that I particularly wish to study.

Colucci (2008:1425) argues that FGs have not been used to their full potential, as often the group discussion and opinions are dropped from the analysis and researchers tend to report on FGs as “a sequence of individuals’ contributions”. The observational data from the FGs enabled me to capture the “live” and dynamic nature of interactions between individuals from different professions both within and across boundaries of profession, department and hierarchy, and study patterns of interactions. It also captured their communication, and ways that hierarchy, gender, nationality, could impact their interactions.

Colucci (2008:1425) further notes that while FGs offer the perfect setting for involving participants in a group activity, this is rarely considered: “Groups also offer the ideal setting to make participants “do” something and answer questions in a more active way, taking the discussion more in-depth and in a potentially more enjoyable way”. This is the aspect of FGs that I wished to expand during this research, hence my FGs were task related. Although tasks were not related to their work in healthcare, they required the co-operation of participants, hence observation was important. Such FGs also provided the opportunity to learn views and attitudes that participants could be unwilling to discuss in an interview. Also, for me as researcher and the participants to notice ideas arising in a different context. Several participants commented that the innovative process of the FGs made them think of teams, teamwork and KS in different ways.

3.6.6.1. Focus groups or workshops

In this section I problematize and redefine the boundaries concerning FGs and workshops (WS) with an emphasis on activities-based, art-led, and participatory or participant-led FGs (Colucci 2007; Cooper and Yarbrough 2010; Silverman 2013; Caretta and Vacchelli, 2015). Participant-led data visualisation limits the researcher’s influence on data collection and interpretation. The major elements of both FGs and WS are outlined in table (3.2.).

As Caretta and Vacchelli (2015) and Hennink (2008) suggest that despite overlap between FG and WS methods, the lack of representation of workshops within



academic research and literature has led researchers to adhere to FG taxonomies, typologies, definition, and concepts. Thus, I present a hybrid of features derived from FGs and workshops, blurring the boundaries between these methods with innovative art-based, activity-based and participant-led research. Caretta and Vacchelli (2015:1) note that the increased use of art- and activity-based techniques within FGs (defined as such through the absence of academic language around WS, as noted above), has shifted focus from the discussion element in traditional FGs to include the processes of generating data, the interaction during those processes, and the different types of data generated within what they called “the increasing *hybridization* of the FGD throughout the social sciences”, italics mine. Hence, I term FGs, Hybrid Focus Groups, HFGs.

Thus, my HFGs took a non-traditional methodological approach to eliciting rich qualitative data, blurring boundaries between FG and WS approaches to explore KS and teamwork practices, experiences and understanding in healthcare. I created an interactive-driven investigation, using activity-oriented creative exercises to create visual data (artefacts) which was then used to inform organised discussion.

Workshop (WS)	Focus Group Discussion (FGD)
<p>Cambridge Dictionary, 2015 - a meeting of people to discuss and/or perform practical work in a subject or activity.</p> <p>Merriam Webster Dictionary, 2015 - a class or series of classes in which a small group of people learn the methods and skills used in doing something.</p> <p>In Sociology this method has been employed as an "organization workshop": a large-scale community empowerment approach. Hence, the WS is a learning instance (see also Moschitz and Home, 2014).</p>	<p>FG as defined by Morgan (1997):</p> <ul style="list-style-type: none"> • a group of people who discuss a given topic within a limited period of time; • participants may be either known to each other or strangers; • as far as possible, conversations should be free flowing and have limited input by the moderator
<p>WS is a tool used in PAR (Participatory Action Research) for democratizing access to research by involving participants in shaping the research aim and taking stock of results to improve local conditions (Reid and Frisby, 2008).</p>	<p>In literature FGD:</p> <p>The goal of the preparatory exercises during a FGD is to elicit the discussion that follows. When organising a FGD, increasingly researchers use some sort of elicitation material such as pictures, newspaper articles, video clips or other cultural artefacts.</p>

Table 3.2. Comparative definition of FGD and WS (*Source: compiled from Caretta and Vacchelli, 2015*)



Colucci (2008) suggests that employing activity-oriented or exercise-based questions in FGs opens the door for an enjoyable, productive, more reflective and focused data. Krueger (1998:63), referenced in Colucci (2008:1426), described 'exercises' or 'activities' that offer participants space to 'do' rather than just discuss, provide a comfortable environment to express themselves through non-verbal responses. As noted in the literature review, knowledge can be seen as object or process, (Hildreth and Kimble, 2002; Shamsie and Mannor, 2013; Vissers and Dankbaar, 2013). Using activities, a form of 'social ludic activity' (Spraggon and Bodolica) engages with 'knowledge-as-activity' (Cook and Brown, 1999). HFGs also engage with the concept of collective tacit knowledge (CTK), as it is a group of individuals coming together to complete an activity.⁹

Data can also be augmented through discussion. Colucci (2008:1430) explains that activities "accomplish their role at best if the moderator ... invites participants to describe their answers more in depth, provide more detail, apply them to a real situation and express agreement/disagreement with other participants' answers". I built upon this technique in my creation of HFG for this research. There are a wide variety of activity-based techniques possible, and a selection of these are presented in appendix 3.8.

3.6.7. Hybrid Focus Groups in this Research

Participants were interested in the idea of activity based HFGs, reflecting, for example, that activities were 'fun' and discussion was 'boring'. HFGs were perceived as a less threatening environment in which to express their opinions. (Cf. Colucci, 2008). Similarly, participants described feeling relaxed and not under pressure, allowing them to be relaxed and engage with activities. Even when they were out of their comfort zone, participants were curious to give it a go (Colucci, 2008). The activity-based questions allowed participants to focus and engage with the topic of interest. The variety of data collected, i.e. observations, verbal discussion and descriptions accompanied by visual production, provided a wealth of data (Cf., Bloor et al., 2001; Colucci, 2008).

⁹ CTK is considered as embedded within 'social collectivity' and is not only accessed but can be created through activity and experiences. (Lam, 2000; Collins, 2007; Vissers and Dankbaar, 2013; Spraggon and Bodolica, 2016;).



3.6.8. Rationale for Hybrid Focus Groups

I conducted seven HFGs, outlined below. Four HFGs created ‘affinity diagrams’ and three created ‘conceptual landscapes’, the methods of both are discussed below. There were 33 participants involved overall. These also provided a validation of the interview data set through group discussion, building on themes generated through the interviews and document analysis. HFGs collected further details on the experience of KS among healthcare teams. The HFG discussions helped generate ideas among a group of professional to create a rich picture of their practices.

The methodology comprised two types of data collection, applying activity-oriented questions. The first series of 3 HFGs used ‘affinity diagrams’ to collect the views, experiences and understandings associated with cross-professional teamwork. Participants produced visual diagrams mapping the factors they considered important in their cross-professional teamwork. During the process they worked first together as a group then as individuals.

A second series of 4 HFGs explored cross-professional teamwork, team types and communication behaviour through an art and craft project as participants created a conceptual landscape, that is, a visual map of team structure, teamwork, and communication flow in their healthcare teams. As Reiger (2011:145) notes, “pictures alone ... are hazardous to interpret without the reinforcement of other information gathered”, so participants were asked to explain their maps to minimise misinterpretation, which was recorded and transcribed as part of the research and integration process. Participant explanation is recognised practice in the collection of visual data (Rose, 2001, 2016; Newman, Woodcock and Dunham, 2006; Winddance, 2006; Woodward, 2008).

Exploring views and experiences of teamwork through these methods creates rich data as data gains meaning not only from the finished creation, but also from the process whereby it is shaped, accompanied by participant interpretation. Such HFGs offer, therefore, the participants’ visual accounts, together with their narratives describing their visual accounts, including individual and collective accounts. They also allow for researcher observation into the creative process, interpersonal dynamics, and culture (Grønkjær *et al.*, 2011:16). For example, I was able to observe negotiations around the presence or role of a doctor within the healthcare team by observing the interaction between a doctor subgroup and a nurse subgroup.



3.6.8.1. Focus Group Design in this Research

Eames, cited by Moggridge and Atkinson (2007:648), defines design as “a plan for arranging elements in such a way as to best accomplish a particular purpose”. In the HFG design I adopted a multi-modal view accompanied by a design interaction approach, along with a game theory perspective. Participant-visualised data allowed individuals and groups control of the way they developed and constructed their visualisations of KS and teamwork practices in RH. Moggridge and Atkinson (2007:650), state, “design thinking harnesses tacit knowledge rather than the explicit knowledge of logically expressed thoughts”, and “it is more effective to learn by doing, allowing the subconscious mind to inform intuitions that guided actions”. As the case study is in Oman, Omani culture is likely to influence how participants engage with the research. Omani culture is hierarchical and patriarchal, and oriented around the family.

A common matter of concern in activity based FGs is how many activities or task should be included. Bloor *et al.*, (2001) recommend a minimum of two tasks, suggesting that such dual tasks or activities allow exploration of two purposes such as positive/negative, exploratory/structured. I used complementary multi-task exercises, as discussed below.

3.6.8.2. HFG Protocols

Affinity Diagrams: Participants create terms and ideas that they group into “intuitive relationships, such as similarity, dependence, proximity, and so forth”. (Moggridge and Atkinson, 2007). In doing so they identify and create connections between issues. Affinity diagrams were built around themes that emerged from the literature review, interviews and document analysis: teamwork, knowledge sharing, communication and collaboration structure, type and processes. As noted, they provided confirmation of the interview findings and realistic representations of how healthcare professionals within Royal Hospital (RH) perceived the phenomena of interest.

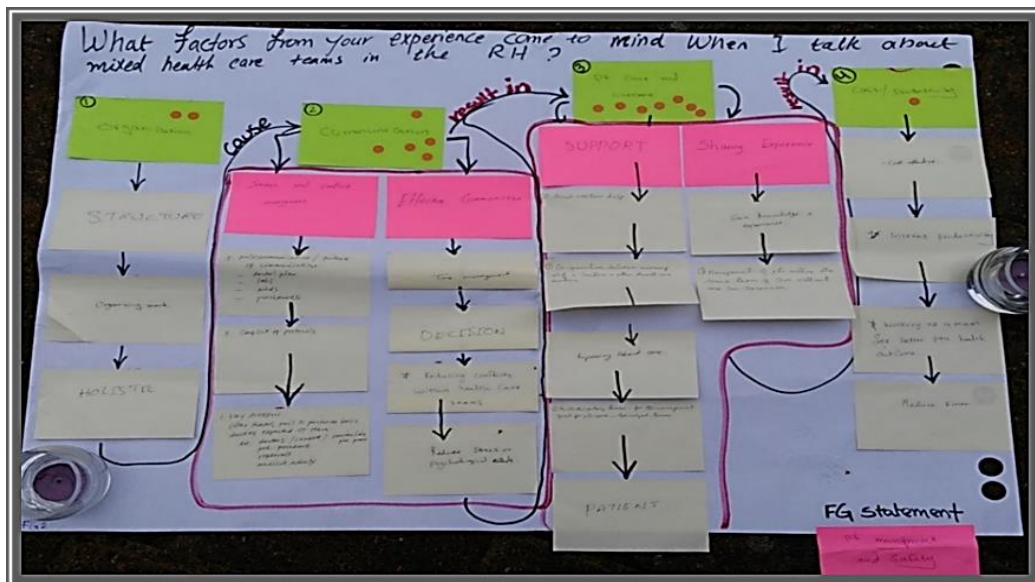


Figure 3.14. An example of an affinity diagram (Source: HFGs-AD)

In the affinity diagram HFGs, participants moved between the tasks, working individually and together and agreeing on the decisions made in each stage:

1. Write on post-it notes beliefs or correlated factors to a raised question. (What factors from your experience, come to mind when I talk about mixed health care teams in the RH?)
2. Share these ideas by sticking them randomly on the white board.
3. Read all the notes, and add any further comments.
4. Sort notes into categories and develop labels for each group.
5. As individuals indicate which of the headings they felt were most important, using three stickers to indicate one, two or three different post-its.
6. As a group rank each list under the headings, based on which they felt were the most important.
7. As a group create a shared statement in response to the question raised initially by the moderator.

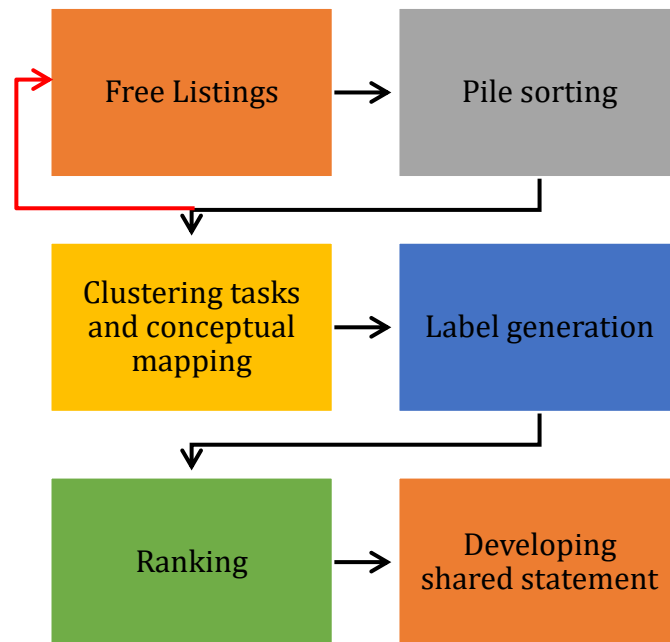


Figure 3.15. Affinity Diagram techniques used and their order (*Source: developed for this research*)

The four HFGs, each of 3-6 participants, took an hour for this exercise: developing the diagram (35-45 min), discussion and reflection, including the final group statement (15-20 min). (See appendix 3.9 for the full protocol).

Conceptual Landscape and Flow Analysis: Participants created two collage ‘maps’, one as a group and, one as individuals of their team and the communication/collaboration/teamwork processes involved in day-to-day work. As a method, Moggridge and Atkinson, (2007) describe this method as helpful in understanding mental models of the issue under study, through the creation of visual artefact representing abstract social and behavioural phenomena. Again, these HFGs supported data collected from the document analysis and interviews. The map represented information and activity flow through all phases of a system or process, as participants mapped activities and information flow. As an exercise, it provided a realistic representation of how healthcare professionals within RH perceived these elements and interactions.

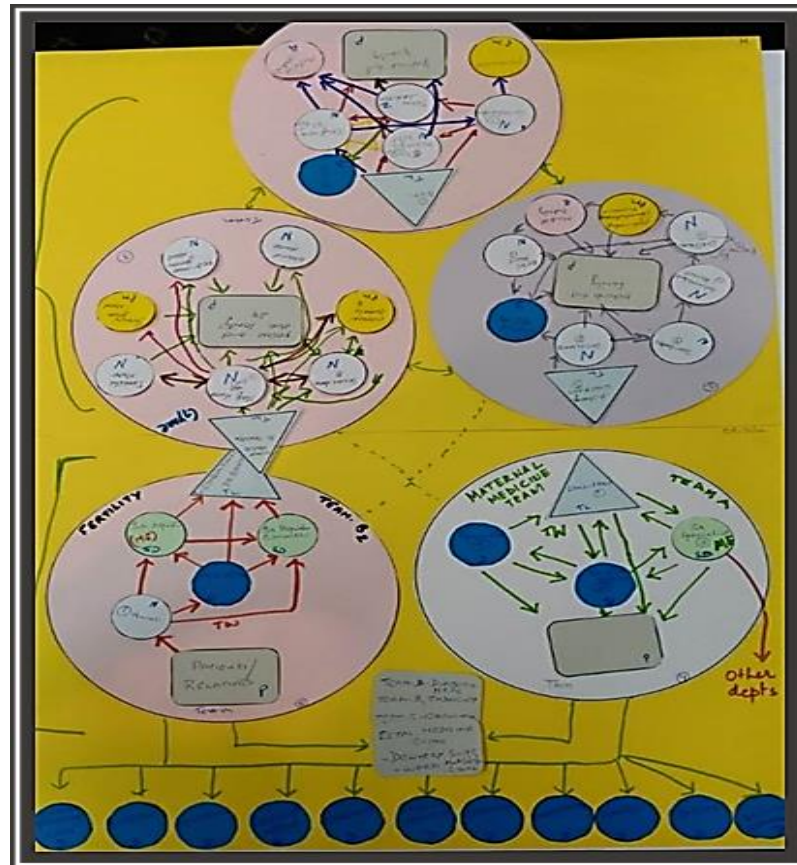


Figure 3.16. An example of a Conceptual Landscape map

(Source: HFGs-TM)

The process was as follows:

1. Using the materials provided, as a group create a map of the team within the department and RH.
2. Add teamwork, collaboration and KS processes.
3. Map is explained to the moderator.
4. Group discussion.
5. Using the materials provided, individuals create a map of their teams positioned within the department.
6. Explain the map to the group.
7. Group discussion of maps.

This task triggered rich discussion among the participants, especially around who should be included or excluded from the team, and identification of the relationships between teamwork and collaboration.

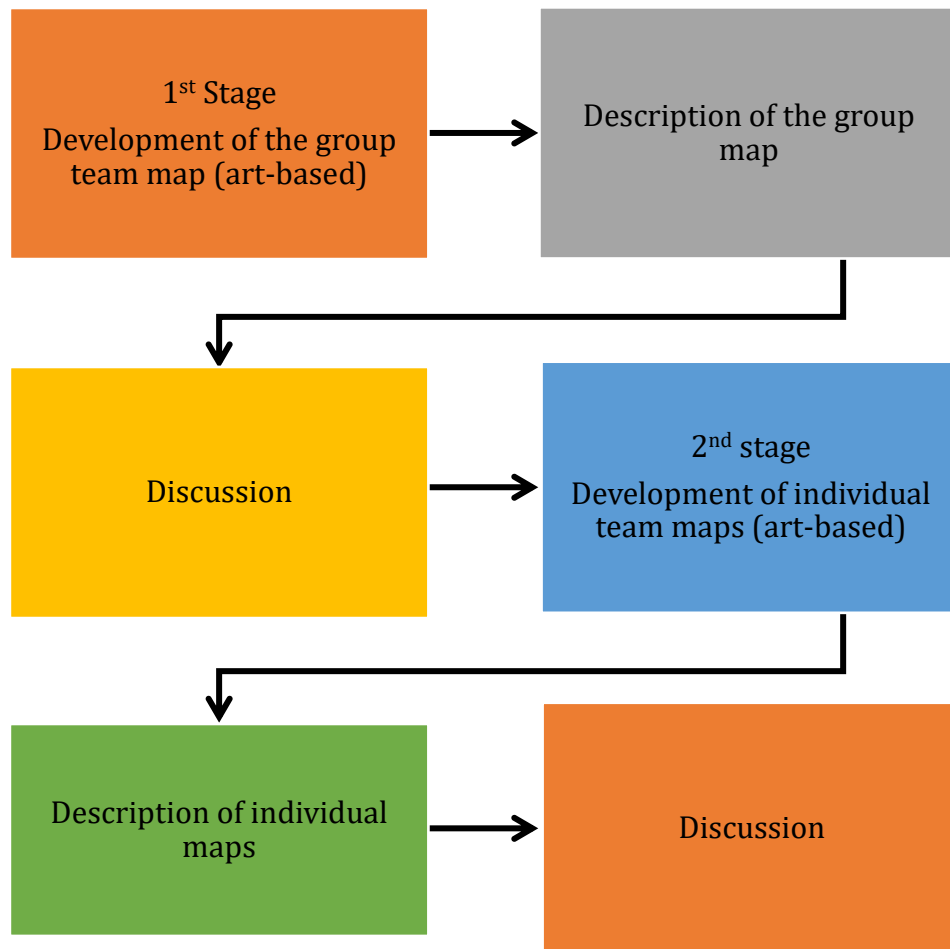


Figure 3.17. Conceptual Landscape and flow analysis techniques used and their order
(Source: developed for this research)

A theme guide was developed from the literature review, interviews and document analysis and each group was asked:

How would you represent your daily work within the overall hospital environment (e.g., Who do you work with? How do you communicate? Where do you fit within the whole hospital? Etc.,)?

Each HFG consisted of 3-6 participants, all drawn from the same department, and sessions took approximately 1 hour: 20 min for creating a group representation of the team and 10 min discussing and reflecting on the group map, 15 min for developing individual representations of their daily interactions, 15 min discussing and reflecting on their individual maps. (See appendix 3.10 for the full protocol).



3.6.8.3. Role of the researcher

As with the interviews informed consent was received from participants and I conducted both HFGs as a moderator, explaining the tasks to participants, offering further explanation as necessary, and acting as timekeeper. Kamberelis and Dimitriadis (2013), referenced in Caretta and Vacchelli (2015), note the importance of the researcher as moderator for a diversity of opinions. The HFGs were audio recorded and observational notes taken. (See appendices 3.11 and 3.12 for the information sheet and consent form).

Activity-based participatory HFGs created an explicitly participatory environment, which was implicitly non-hierarchical, however one intention of the HFGs was to observe how individuals interacted, discussed and shared task roles. In some cases, existing group hierarchy was unchanged, in others, due to the unorthodox nature of the tasks the group re-developed a hierarchy for the HFG. For example, the Gynaecology and Obstetrics HFG were all were from India, which has a hierarchical culture, and the power relations between specialist clinicians and nurses was evident throughout, with the clinicians controlling the way the nurses expressed membership of their team. In contrast the ICU HFG re-established hierarchy as the group discussed and shaped their maps on a more equal basis (*Cf.*, Baker and Hinton, 1999; Merryweather, 2010; Caretta and Vacchelli, 2015).

3.6.8.4. Pilot/pre-testing:

The initial HFG designs were supported by the literature review, taking into account the initial document analysis. The final protocol was the accumulation of the previous stages. As these focus groups were innovative, I tested them rigorously. Both FGs were piloted in the UK before I began field data collection in Oman, to ensure that instructions were clear and understandable and that the timings were feasible.

3.6.8.5. Limits of activity-oriented questions

In this section I reflect on my research and the limits of 'activity-oriented questions', as highlighted by Colucci (2008) and Caretta and Vacchelli (2015):

- There can be difficulties around comparing and interpreting answers, However I encouraged participants to explain and discuss their work, and recorded and transcribed the discussion.



- The amount of time required can increase, so I carefully timed the exercises and made the restricted time limit part of the challenge. This kept the activities on track, albeit with some exceptions that will be considered in the discussion chapter.
- Art and craft material can be expensive. I was able to source cheaper papers and prepared everything myself.
- Participants could struggle with ‘doing’ rather than ‘saying’ if an activity takes them out of their comfort zone. When I explained the activities, some participants were initially uncomfortable, but all appeared to enjoy the HFGs as the processes were not complicated.
- Less confident participants could feel embarrassed and not want to take part. Similarly, gender, social status and other aspects of identity could affect the extent to which participants engage. However, with activity-based techniques there is no right/wrong answer. As participants began both HFGs working separately before coming together, this helped to break down hierarchy within the session. Likewise, some participants were more comfortable discussing their art than answering direct questions about their views on the phenomena of interest.

As noted above, Krueger and Casey (2008), Hennink (2008), Barbour and Flick (2007) discuss carrying out FGs in the mother tongue of the participants. However, Oman is tri-lingual (Arabic, English, Swahili) and the official language in healthcare is English. Interestingly, despite participants stating that language was never a problem in their daily work, they would switch to their mother tongue in discussions if they shared it with others in the group.

3.6.9. HFG Conclusion

In this section I explored and described a non-traditional HFG design that created a richness and depth of data. The HFGs provided a space for participants to express their, feelings, thoughts, practices and experiences. As exploratory research understanding and acknowledging these experiences and practices was a priority. I incorporated effective methods to elicit engagement, interest and trust from a very busy and hard to research group (healthcare professionals). Participants described the HFGs as fun and enjoyable, which eased recruitment.



I agree with Colucci (2008:1431) that whilst research is a serious matter, requiring a scientific and robust methodological approach, it does not have to be 'boring'. The HFGs enriched the data collected, reduced drops in attention, and were recommended by participants, improving recruitment (snowball sampling).

3.6.10. Document Analysis Rationale

Document analysis involves systematic data gathering in relation to the phenomena of interest, to provide an understanding of it (Mogalakwe, 2006). Mogalakwe (2006:221) describes document analysis "as good as and sometimes even more cost effective than social surveys, in-depth interviews or participant observation". This may seem like damning with faint praise, but document analysis is a useful research strategy to complement the major qualitative components of this study.

3.6.11. Document Analysis in this Research

The main reason for adopting this method was the lack of literature relating to KM, KS, teamwork, team types and other related aspects in the Omani health system. The document analysis, following Mogalakwe (2006) and Bryman (2012) was undertaken to understand the phenomena of interest, and it applied a systematic data gathering aiming to provide an understanding of patterns and regularities. As such it was a complementary research method. A document analysis requires (Prior, 2004:4), a) creating and following document-selection strategies; b) considering the "social exchange" of documents.; c) considering the "socially produced nature" of a document.

Documents can take many forms, and do not have to be 'texts', for example they can be visual or exist virtually, on the internet or intranet of an organisation (Prior, 2003, 2004) and sources can vary from organizational or governmental documents, not available to the public (Smith, 1984; Miller, 1997), to fully accessible public documents (Altheide, 1996). I analysed documents related to the case of study, including policies, statistics, reports and guidelines, which offered insight into the current state of knowledge sharing and teamwork practices in RH, including documents from RH and the MoH as they pertained to RH, which I was then able to compare with the data from the interviews and HFGs. Approval to access this information was granted from the hospital management as discussed below (see appendix 3.13). The document analysis covered official documentation, no personal



or patient related documents were accessed, and none of the documents contained sensitive content.

Documents are distinct from other data sources in that they exist before the researcher approaches them for data. In contrast, interviews, FGs and observations are generated through the act of their undertaking (Hakim, 1987:41, referenced in Miller and Alvarado. 2005:349). Types of documents used in the document analysis:

- any document relating to the institutional structure
- any document relating to existing teams
- any document relating to procedures related to teamwork or KS from any department, institution policies, statistics, reports
- the intranet/internet presence of RH and Oman's MoH
- MoH or RH strategic plans

I considered any references in documents about KM, KS, teamwork or team types. A systematic approach allowed me to interpret the documents with confidence to provide a voice and meaning to the phenomena under study (Bryman, 2012). As discussed above in the sections on integration and triangulation, there must be a consistency of methodology and philosophy in order to ensure consistency of the research data, though not necessarily the results. How the documents were sampled, coded and analysed is discussed in full in sections 3.7.5., 3.8.3. and 3.8.8.

3.7. Case Selection and Sampling Strategies

3.7.1. Case Selection

Considering the complexity of the phenomena of interest, the use of multi-layers of sampling was necessary to ensure comprehensive coverage. This is described by Palys (2008:697) as “series of strategic choices about with whom, where and how to do your research”. Palys explains the significance of tying sampling to the research objectives, as the most suitable sampling strategies are built on the research nature, context and objectives. Therefore, the first sampling layer was to select the case.

Different sampling strategies are outlined in appendix 3.14. Palys (2008) suggests the researcher should consider the person, place or situation with the largest potential for understanding the phenomena of interest. For that reason, purposive sampling is “virtually synonymous” with qualitative research (Palys, 2008:697),



with a wide variety of “purposive” strategies, as they reflect on the range of situations, the context of the research and its objectives.

I selected the case study for this research based on several strategies: local knowledge, key case and maximum variation sampling.

Local knowledge - based on my experience with the case, working at RH (2005-2013) gave me a familiarity with and comprehensive knowledge of the hospital. This knowledge aided in identifying details and nuances. Participants trusted me as I was considered to be one of them, whilst removed enough to not represent ‘officialdom’ within the hospital. This meant I was considered an ‘insider’ and participants were willing to take part in my research and ‘chat’ freely as they knew me or knew of me. This enriched the research, and the participation and data collected was far greater than I had expected.

Key case - RH is the largest tertiary teaching hospital in Oman. It has been used to establish policies, guidelines and training that are then adopted by other hospitals. The possibility for documentation on teamwork and KS was most likely due to its connections with the MoH and that it was moving toward Canadian Accreditation.

Maximum variation/heterogeneous purposeful sampling – RH was selected to facilitate the collection of different perspectives, experiences and diverse data. As the largest hospital, a teaching and tertiary hospital, it offered the widest range of specialities, with international, and internationally experienced staff. Thus, I was able to compare teamwork and KS practices across specialities, departments and professions.

The diversities between the different participants created an opportunity to understand the perceptions of nurses and clinicians, their beliefs, practices, experiences, KS, cross-professional teamwork.

3.7.2. Participant selection

Once the case had been selected, the choice of participants was also made using purposive sampling, and from the sampling strategies in appendix 3.14. Several sampling techniques triangulated for the purpose of this study.

Maximum variation/heterogeneous purposeful sampling – this ensured a broad view of the phenomena



Expert sampling – to highlight potential new areas of interest and intersect, in particular this related to the more senior members of staff who had more experience in other countries, hospitals, departments, and so could reflect on differences, and the managerial staff.

Criterion sampling - As exploratory research, I aimed to identify teams and individuals within teams who fit the needs of this research:

1. Participants were to be part of a cross-professional team
2. Participants should have experience working across departmental, specialities and professional boundaries.
3. Participants should have a range of experiences, such as senior staff (long experience (5-10 years), junior (2-4years), and new staff within their first year.

3.7.2.1. Interview sampling – size and saturation

The interviews were designed to uncover answers to the following research questions:

- What team types dominate the experience of healthcare professionals within the Omani healthcare system?
- How is knowledge shared within these teams?
- What factors or combination of factors can influence, directly and indirectly, knowledge sharing processes in cross-professional teamwork?

These multi-layered questions require in-depth and detailed answers to provide a clear and holistic picture of teamwork and KS behaviours in Omani healthcare teams, and this needed the most apt sampling strategies. Interview sampling followed a mix of purposive sampling strategies, with stakeholder sampling as the umbrella with an embedded maximum variation. The first strategy guided the choice of participant categories (clinicians, nurses and management) and the latter to recruit individuals within these categories from across the disciplines, as shown in figure (3.18.).

The Case Study: Royal Hospital

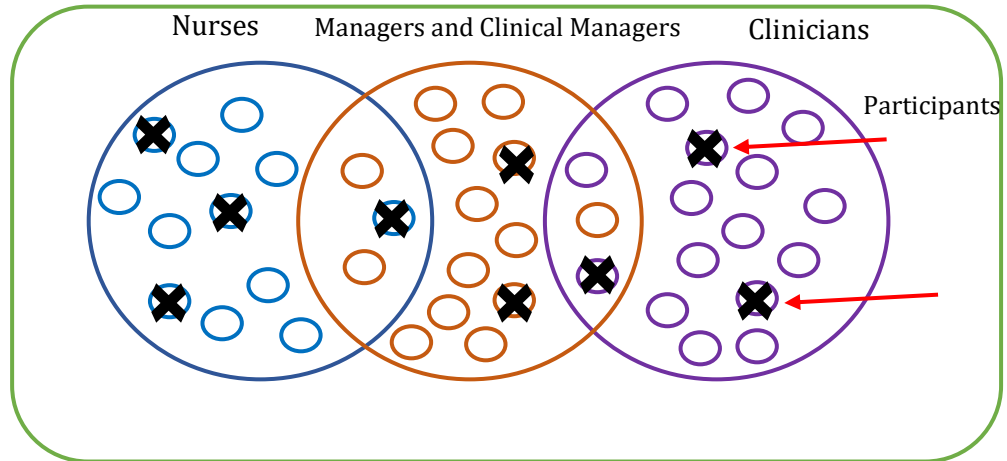


Figure 3.18. Interview Sampling (Source: developed for this research)

In qualitative research, a valid number of participants depends on the research aim, objectives and questions, and thus varies (Joffe, 2011). The interviews used theoretical saturation, applying continuous sampling and data collection until no new data appeared. As Morse (2015:587) explains, saturation refers to “characteristics within [significant] categories” rather than when the researcher has “heard it all” as it were (Cf., Morse 1995, 2004). It therefore encompasses ‘data adequacy’. Thus, I continued interviewing until I was confident that saturation had been reached, considering not the amount of data but the links to factors and concepts related to the phenomena of interest. As part of this process, I kept a clear record of emerging themes and concepts to provide evidence of saturation achievement and conducted an initial analysis at the end of each day (Seale, 1999; Bowen, 2008).

3.7.2.2. Interview participant recruitment

Upon arrival to the case study, I found that the gatekeeper had not contacted the departments to recruit participants according to the criteria and as agreed via email. My main gatekeeper (the professional development department at RH) had not sent any of the recruitment letters or emails but requested I take over recruitment as I was on site. Thus, first week of data collection was spent contacting every department, speaking to department heads and recruiting participants. The recruitment document is included in appendix 3.15. I printed and made copies of all letters, permissions and information sheets, and sent invites to all department heads via the second gatekeeper (the medical library).



Some departments requested that I approach potential participants directly, either by giving me a short list of potential participants, or providing a full list for the department, others gave my details to potential participants and asked them to contact me. Whilst this was a time-consuming process, it allowed me to explain my research in person, and explain the participant information if they wished to know more. If a member of staff agreed to take part, we could schedule the time and place. Upon agreement, all participants were required to sign a consent form before proceeding. The recruitment process is outlined in figure (3.19.).

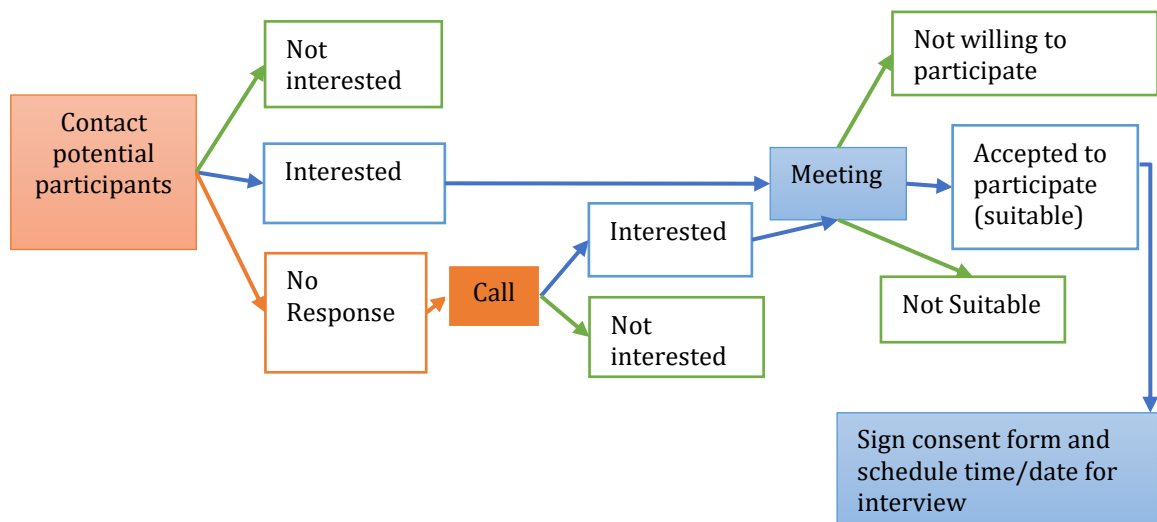


Figure 3.19. Recruiting strategy for interviews (Source: developed for this research)

Interviews had to run during working hours (7am-2pm, although no interviews took place before 9am as this was the busiest time for all departments) and managers had to sanction the time off for the interview. This proved useful as participants were reluctant to participate after working hours, when taking part would affect their free time. Each interviewee was allocated one hour although some interviews were much shorter, and a couple longer than the hour.

3.7.2.3. Interview participant profile

Interview participants comprised clinicians and nurses and managers, a total of 26 interviewees (8 clinicians, 10 nurses, 6 clinical managers (clinicians involved in administrative work), 2 administrative managers). They represented 15 different department and specialities. The gender ratio was equal, 46% were above 40 years, 69% were Omani, while 23% were Indian, and 8% Filipino. Participants' years of



experience in healthcare, though not necessarily at RH, ranged from a few months to over 25 years, and their educational background varied.

Most interview participants had experience working/studying in more than one country. Some Omani participants had completed their education solely in Oman, whilst others had also studied abroad, either in one country or across several. Foreign nationals likewise had either completed their education in their home country or migrated to study in different countries. Among participants, education and training had been received in Europe, the United States and Canada. This variety of backgrounds was key to achieving a wide variety of views. Please see appendix 3.16 for details on demographics.

3.7.3. Focus Group Sampling

As noted, a FG is intended to facilitate in-depth discussion through interaction. Parker and Tritter (2006:26) therefore, argue against ad hoc or random recruitment of participants. In this research, HFGs represented the second major component (QUAL2) and with two types of HFGs, two types of sampling were used.

3.7.3.1. Focus Group sampling in this research

Conducting workshops in healthcare setting is challenging due to recruitment issues. Flynn, Albercht and Scott (2018:2) referencing Hysong *et al.*, (2013) and Roxburgh (2006) state:

“The busyness of the clinical environment affects the availability of the staff, the rapport between researchers and staff, and rapport among the staff themselves. The reality of busy clinical environments can result in a lack of time or ability to participate in research”.

For this research I found participants were more willing to participate the HFGs were interactive, fun and unusual. Many participants showed interest only after I described the FGs, as one stated, “How could focus groups be fun? It would be interesting to see that”. Elsewhere the HFG was described as a chance to de-stress in their busy day, and participants volunteered to attend during their break time. A few of the senior staff were initially uncomfortable when the FG began, for example, one complained this was the type of activity they did with their child. However, all participants engaged with the activities and reported enjoying them, with some asking if they could take photos of their ‘art’.



The two types of FGs required different types of participants based on the HFG aim, objectives and the questions they are trying to answer. Even though participants were selected through clear sampling strategies as discussed below, two other factors were considered, that of country of origin and length of work experience. As suggested by Krueger *et al.*, (2000) and Morgan (1997), such variables allow for a diversity of opinions if the researcher can balance homogeneity and heterogeneity in group construction. This was achieved through the selection of participants with diverse characteristics to ensure variation in gender, social and professional backgrounds.

3.7.3.2. Affinity Diagram HFG sampling

For the Affinity Diagram HFGs a purposive stakeholder sampling used as an umbrella, with maximum variation and criterion sampling. The use of the first strategy maintained the focus on the same groups as in interviews (i.e. nurses, clinicians and clinical managers), while the other strategies allowed the recruitment of diverse yet relevant participants. These participants were identified and recruited via the following process, as shown in figure (3.20.).

1. Identified during interviews and invited to join the FG.
2. Recruited based on their membership of cross-professional teams through their management.
3. Randomly selected from lists of potential participants provided by departments.
4. Willing to participate in an unusual FG for an hour.

Three HFGs were formed from the individuals willing to participate and further information on their demographics is given below.

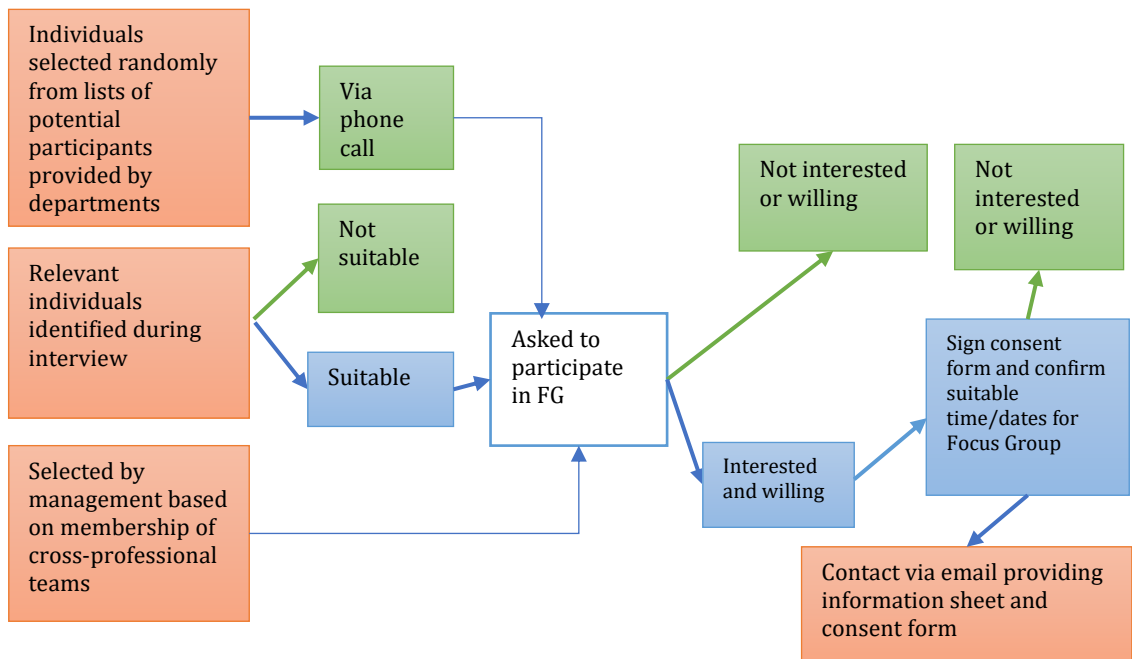


Figure 3.20. Recruiting strategy for Affinity Diagram HFGs (**Source:** developed for this

3.7.3.3. Conceptual Landscape FG sampling

On the other hand, the Conceptual Landscape HFG participants were recruited using a purposive stakeholder sampling alongside a combination of paradigmatic and criterion sampling. Participants were identified and recruited via the following process, as shown in figure (3.21.).

1. Individuals who belonged to the same cross-professional team.
2. Teams should include nurses and clinicians from the same team.
3. The selection of the teams based on which teams were willing to volunteer to participate in an unusual FG for an hour.

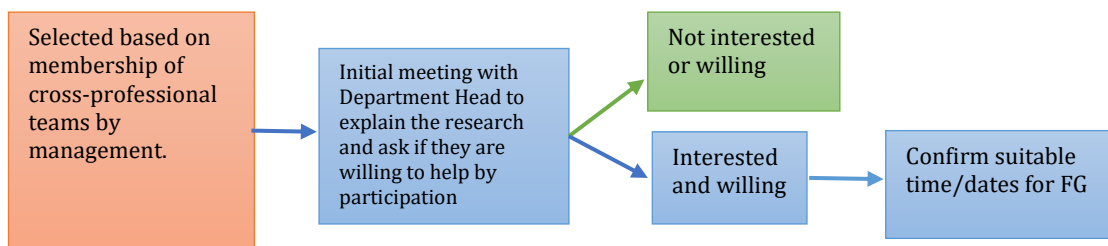


Figure 3.21. Recruiting strategy for Conceptual Landscape HFGs (**Source:** developed for this research)

Four teams, who fitted the above criteria were willing to participate. These participants were recruited as a team or group through their management. On arriving at the hospital, I had asked department heads to select potential groups for these HFGs, however even though clinicians and nurses worked “in the same teams”



I needed to contact two different management teams for recruiting because whilst clinicians came under their departmental management, nurses came under the nursing management no matter where they were posted. This proved challenging as will be further discussed in the data analysis and research findings.

3.7.3.4. Focus Groups Sample Size

The HFGs were initially intended to be a minor supplementary component (*qual*) to validate and confirm the interview findings. However, when potential participants learned of the creative nature of these HFGs more participants than anticipated asked to take part. In total, there were 7 HFGs, with a total of 33 participant (21 nurses, 9 clinicians and 3 clinical managers) from 4 nationalities and is further discussed below. 16 participants took part in the three Affinity Diagram HFGs, from across professions and disciplines. 17 participants took part in the four Conceptual Landscape HFGs, from four healthcare teams. Further information on the demographics of these groups is included in appendix 3.17.

3.7.4. Focus Group Participant Profile

3.7.4.1. Affinity Diagram HFG participants

The first group (HFG2) consisted of five participants, four were female, one male. There were two senior staff nurses, one staff nurse and one nurse supervisor, and one senior specialist, from five departments. There were three Omanis, one Filipino and one Indian.

The second group (HFG4) consisted of four participants, two were female, two male. There was a senior specialist, unit nurse, staff nurse and a consultant. They came four different departments and were all Omani.

The third group (HFG7) consisted of seven participants, five were female, two males. They were a unit nurse, four senior staff nurses, and two senior specialists. They came from six departments. Four were Omani, two Indian and one Filipino.

3.7.4.2. Conceptual Landscape HFG participants

The first team (HFG1) consisted of four participants from the Intensive Care Unit (ICU), however participants came from different parts of ICU (adult, paediatric and high dependency). Three were female and one male, two were Omani, and two Indian. They were a staff nurse, a nurse supervisor, and two consultants.



The second team (HFG3) team consisted of four participants from Infection Control (IC), all females. Three were Omani, and one Indian. They were two staff nurses, a senior consultant and an epidemiologist.

The third team (HFG5) consisted of four participants from the Emergency Department (A and E). Two were female, two male, one was Omani, one was Jordanian, one Iranian and one Filipino. They were two staff nurses, a nurse supervisor and a senior consultant.

The fourth team (HFG6) consisted of five participants drawn from the Gynaecology and Obstetrics Team, all female and all Indian. They were three staff nurses and two senior consultants.

3.7.5. Document sampling

A letter of request to access the Royal Hospital intranet and documentation was approved by RH management, through their research committee (See appendix 3.13). This approval included the types of documents I could access, and confidentiality level required. I was granted access to any and all-

- Documents/publications relating to institution structure and existing teams
- Procedures related to teamwork or knowledge sharing
- Department or institutional policies related to teamwork and/or KS
- RH intranet/internet

A sampling strategy is important, especially where the number of documents available cannot feasibly be analysed within one study; yet sampling can be dropped if the source is naturally limited (Miller and Alvarado 2005:351). For this research, I did not know the extent of documentation available and which I could access until receiving the approval and getting onsite at RH. At that point I was able to decide about sampling.

I used the recruitment meetings with department heads and management staff to ask for recommendations and signposting to existing documentation in relation to teams, teamwork, communication, collaboration and knowledge sharing. Only the Director of Nursing was able to identify or suggest specific documents, provided me with printed documentation on the protocols and procedures of the nursing department. All department heads, and many participants, stated any documentation, policies or guidelines for their department would be available



through the RH intranet portal. The intranet was in the process of being updated, and whilst participants spoke of relevant documents in support of teamwork and KS, few could specify documents. Hence once on site, I searched the intranet. I was unable to do a word search within the intranet, and so looked at all documents, selecting those that appeared relevant from their title or content. This included

- any document relating to the institutional structure
- any document relating to existing teams
- any document relating to procedures related to teamwork or KS from any department, institution policies, statistics, reports
- the intranet/internet presence of RH and Oman's MoH
- MoH or RH strategic plans

I considered any references in documents about:

- KM in RH
- Teamwork in RH
- Team types in RH
- KS among the healthcare teams in RH
- Processes, rules, policies, and so on in RH regarding KS, teams or teamwork.

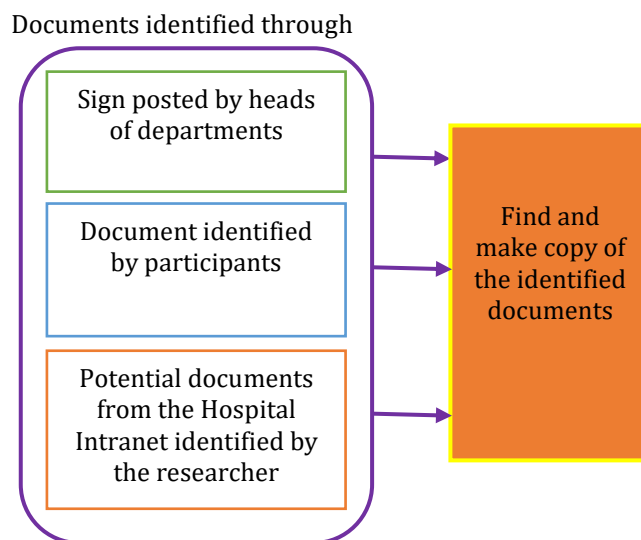


Figure 3.22. Document sampling (Source: developed for this research)

3.8. Data Analysis

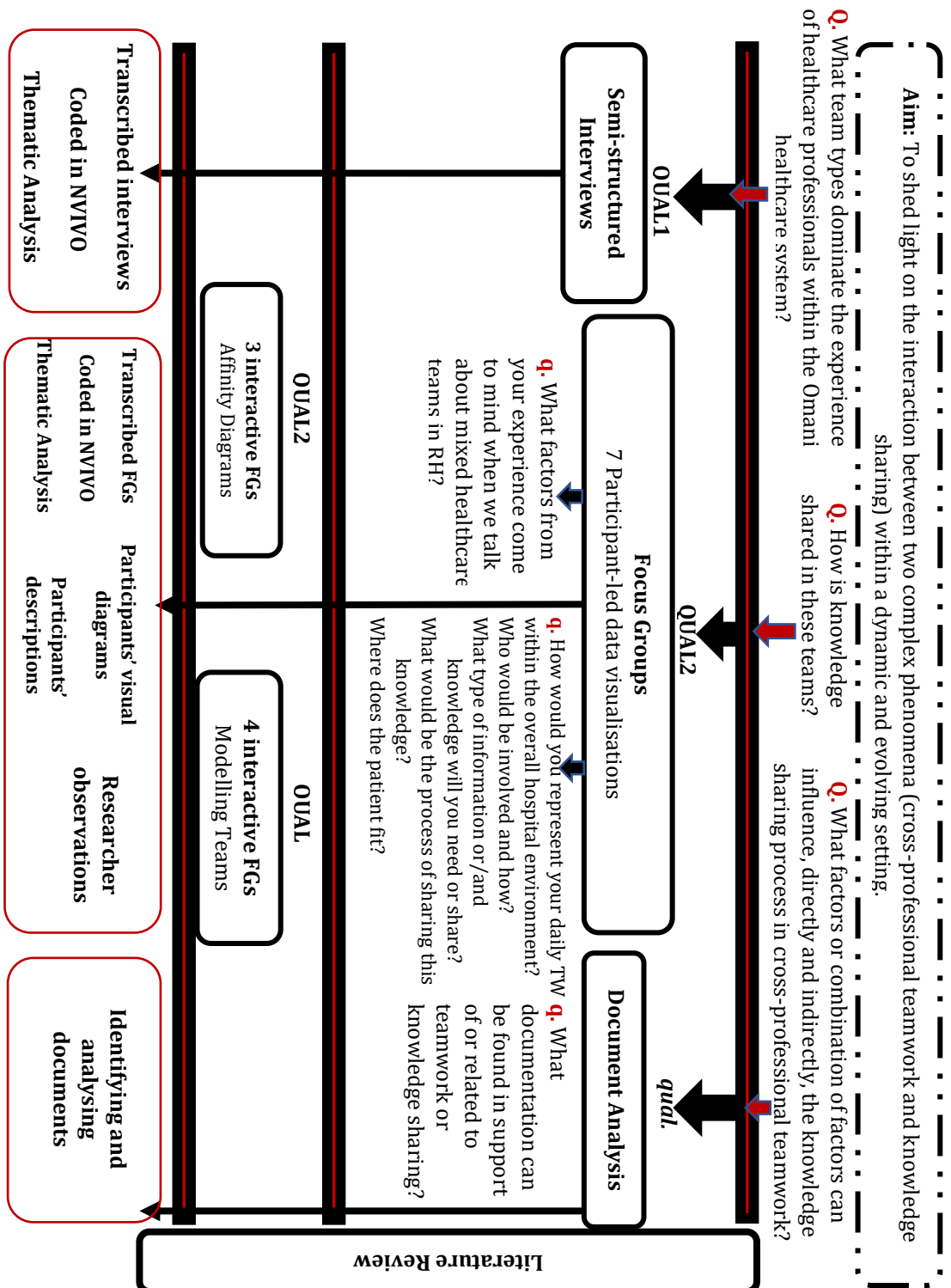


Figure 3.23. Positioning the data collected within the research (Source: developed for this research)



I situate myself as multi-method researcher using constructionist philosophy within an interpretivist paradigm as best suited to my research scope (Schwandt, 1994). Knowledge is seen as mediated and constructed within social interactions and through language. Drawing from Clandinin and Rosiek, (2007) and Kerwin-Boudreau and Butler-Kisber (2016), who view knowledge as experience, this inquiry develops an understanding of the phenomena under study through participatory approaches, as it is present in the processes, relations, interactions and experiences of healthcare professionals (Creswell, 2003, Butler-Kisber and Poldma, 2010; Kerwin-Boudreau and Butler-Kisber, 2016).

The data analysis is presented in a manner that moves between spatial and linear fashion, demonstrating where data analysis of different data sources interconnects and diverges, creating a vivid image of my analysis process. In qualitative research, data analysis usually occurs in an iterative and interconnected process, and I follow Kerwin-Boudreau's and Butler-Kisber's (2016:957) view that "there are multiple ways of seeing, doing, and understanding". The linear manner allows for details about each implemented method, the spatial allows me to show relations, integration and divergence throughout the process. This helps the reader to understand the data analysis strategy, decisions and process, enabling anyone to retrace my steps.

As suggested by Kerwin-Boudreau and Butler-Kisber (2016:958) "In addition to integrating multiple sources of data collection, evidence suggests that data analysis can also be enhanced through the use of more than one analytic procedure". Kagan (1990:459), cited in Boudreau and Butler-Kisber (2016:959) argues that the use of several strategies "makes it more likely to capture the complex, multifaceted aspects of [the phenomena]".

Freeman (2016) states, that all research involves identifying, organising, selecting, creating and recognising data, with a transformation of that data into findings, and that "it is always a "doing" with the intent of acting on a set of data in some way".¹⁰ This requires the researcher to develop a range of critical thinking skills (which Freeman discusses in detail) and Prasad (2005:9), as cited in Freeman (2016), notes that this requires approaching,

¹⁰ *Modes of Thinking for Qualitative Data Analysis*, accessed online, no page given.



“questions of social reality and knowledge production from a more problematized vantage point, emphasizing the construct nature of social reality, the constitutive role of language, and the value of research as critique”.

Eisner, (2008:5) comments that “not only does knowledge come in different forms, the forms of its creation differ.” Activity and participatory-based modes of investigation and analysis aid researcher to step away from traditional linear thinking into a reflexive process of enquiry. This offers accessible and embodied findings that allow for diverse realities, and the dialogic and multi-nodal findings referred to by Mason (2006). Nevertheless, possibilities remain grounded in the understanding of lived experiences and anchored in a constructivist epistemology (Eisner,1991; Richardson, 1995; Butler-Kisber, 2002; Creswell, 2003; Vaikla-Poldma, 2003; Butler-Kisber 2007; Butler-Kisber, 2008; Butler-Kisber and Poldma, 2009).

I began with the data analysis of the interviews, followed by HFGs, positioning them within the research questions and where they intersect and feed into the interview data. This demonstrates how observation and participants’ production helped in understanding the composition of healthcare teams and interactions among and between individuals and teams, also highlighting factors affecting cross-professional teamwork.

Finally, I discuss the document analysis process, positioning it within the overall research process (see figure 3.23.). Although the research started with an initial document analysis that provided an outline of the case under study, the full document analysis took place after the data collection process was completed, as documents were identified primarily through interviews and HFGs.

As methods triangulation strategy was employed in this research, the analysis process incorporated issues of significance to each method. The use of different textual analysis strategies such as coding and thematic analysis offered different insights based on the unique analytical lens of each. Together they offer a deeper understanding than would have been achieved using only one strategy. Adding to that, the triangulation of different strategies adds to the trustworthiness of the analysis.



Table 3.3. Qualitative data analysis strategies used in this research

Visual approaches	Similarity-based Categorizing Strategies	Contiguity-based Connecting strategies, Contextualizing strategies
Rose (2001); Butler-Kisber and Poldma (2009)	Jakobson (1956); Lyons (1968); Saussure (1916/1986); Maxwell and Miller (2008)	
	Variance theory and process theory (Mohr, 1982) Variable-oriented and case-oriented approaches (Ragin, 1987) Structural and functional analysis of discourse (Linde, 1993; Sociological and historical analysis (Wieviorka, 1992)	
A way to understand a phenomenon through the reconstruction of data, yielding insights.	Relationship based on similarities (paradigmatic). Built on finding resemblances or common features to allow grouping or comparing based on categories.	Relationships based on contiguity (syntagmatic). Built on the actual identification of connections between things.
Example		
Concept maps Art-informed Collages Affinity Diagrams	Coding Thematic Analysis Case study	Some types of narrative analysis: Discourse analysis Functional analysis Narrative Contextual analysis

3.8.1. Data Transcription

The transcribing process began during the data collection period and continued until all interviews and HFGs were transcribed. As I undertook the data collection and transcribing, I could immerse myself in the data from the initial stages (Riessman, 1993). Transcribing is a slow and iterative process that requires full attention and observation of the data emerging through active listening, this creates a familiarity and understanding of the actual data (Adler, 1964). All recordings were transcribed verbatim to capture any emotional signs or expressions (hesitation, sighs, laughing, etc.), and potential thought processes (uh, um, hmmm, em, you



know,¹¹ etc.). To ensure the accuracy of the transcribing process, I reviewed the transcriptions by listening to the recordings on NVivo alongside the transcription data. A colleague also checked the transcripts for accuracy.

3.8.2. Concept maps

In the initial stages of analysis I used a visual inquiry approach, in this case concept maps (Butler-Kisber and Poldma, 2010; Kerwin-Boudreau and Butler-Kisber, 2016) alongside categorising and connecting approaches (Maxwell and Miller, 2008; Kerwin-Boudreau and Butler-Kisber, 2016). The use of concept maps offered a footprint of the emerging themes and concepts from the data. I developed the concept maps as I listened to the interviews and HFGs, to uncover the thoughts of participants. This approach, accompanied by a constant comparison approach while categorising, yielded comprehensive themes that were used to support the coding and theme development. Figures (3.24.) and (3.25.) show examples of early concept maps. These maps allowed a holistic understanding of themes and ideas as they developed through interviews and HFGs, clarifying theoretical saturation, when no more ideas emerged from the data. Concept maps in this research were used to expose the unconscious or underlying perspectives of participants, to link and connect concepts, and support the data analysis process (Saroyan *et al.*, 2004)

¹¹ This was one of the few occasions when I left the Arabic in, as many of the participants used 'yanni', which is Arabic for 'you know'.

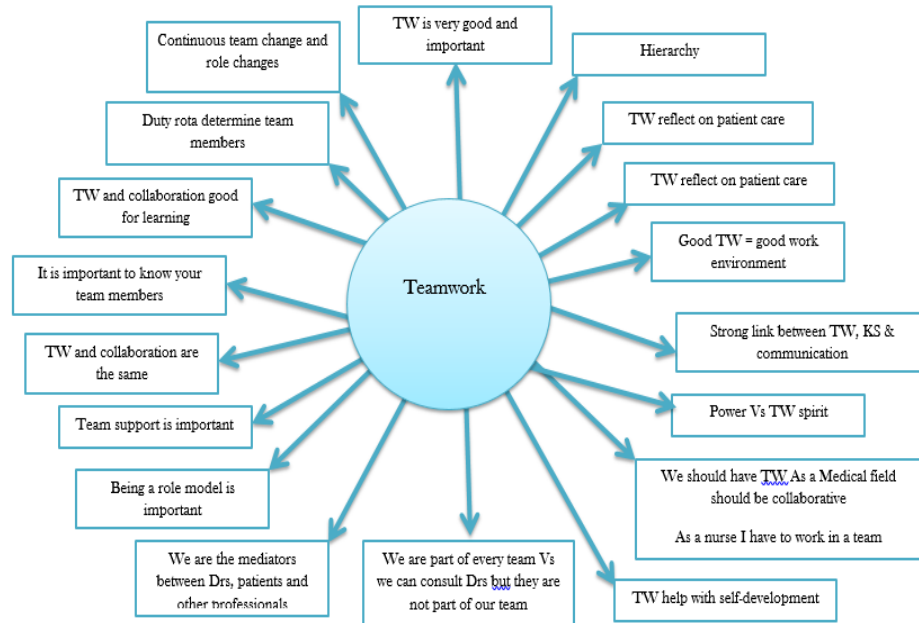


Figure 3.24. Initial concept map of the perception of nurses regarding teamwork from the initial analysis of interviews (**Source:** derived from data)

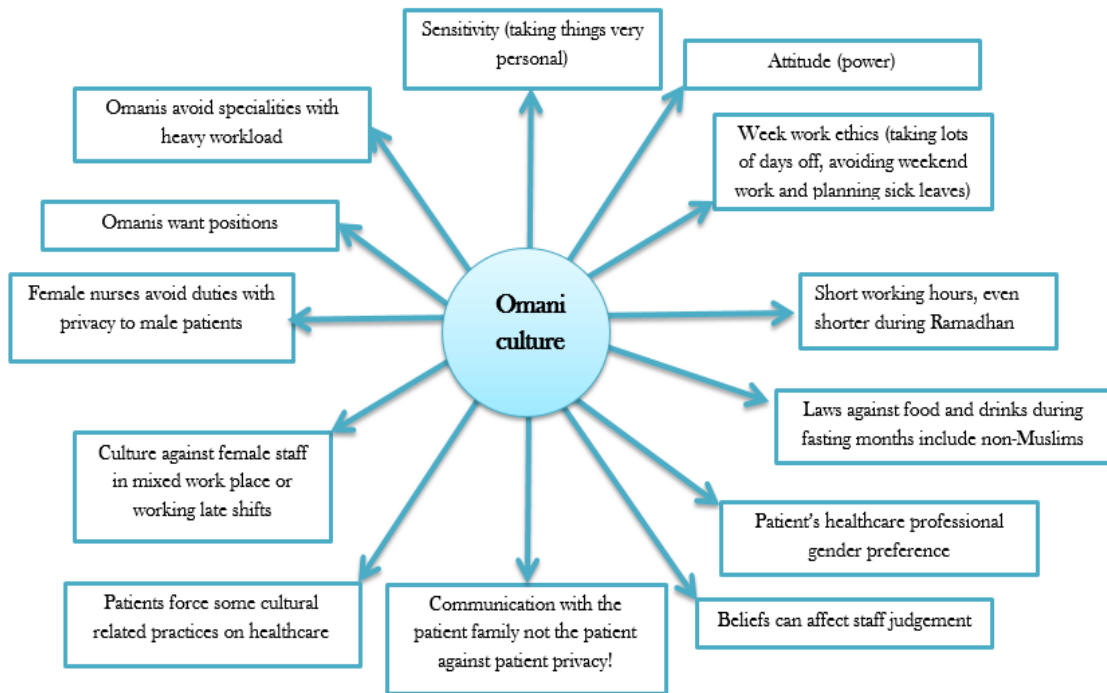


Figure 3.25. Initial concept map of Oman-specific cultural aspects arising from the initial analysis of interviews (**Source:** derived from data)

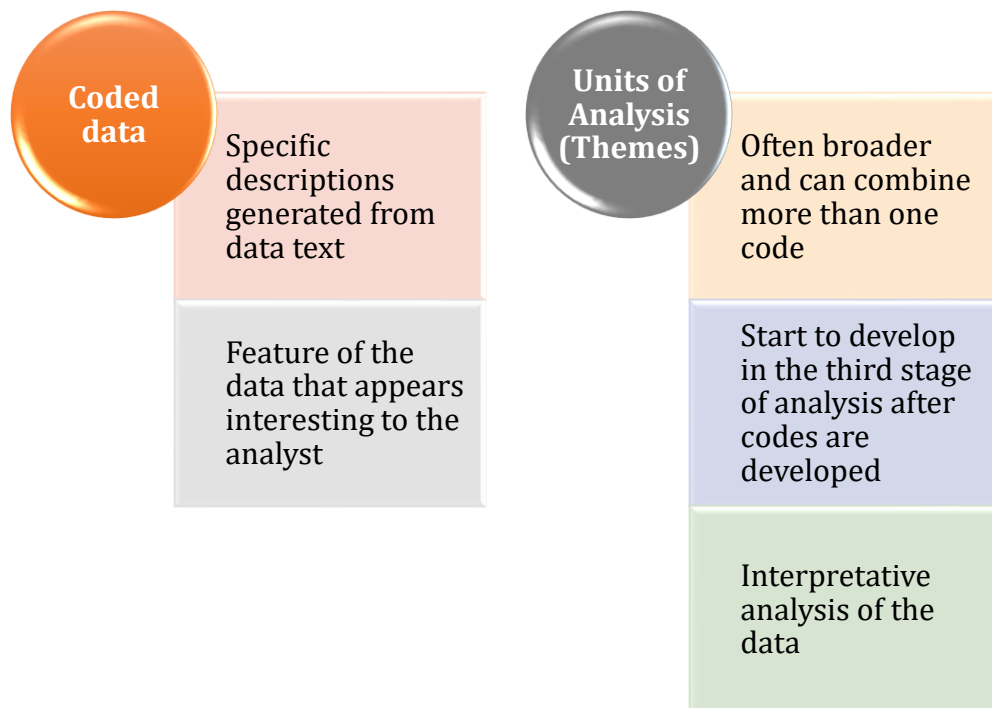
3.8.3. Coding of Data (Interviews, HFGs and Documentary analysis)

Coding was the second stage of data analysis and was carried on the transcribed interviews and HFGs and the documents selected for analysis (Miles and Huberman, 1994; Braun and Clarke, 2006). Nevertheless, it remains important to distinguish



between coded data and units of analysis (themes), see figure (3.26.) As suggested by the literature, coding data under ‘codes’ and concepts simplifies data searching and makes it easier to conduct further comparisons and identify patterns, which may need further examination (Gibbs and Taylor, 2005; Patton, 2015). Boyatzis, (1998:63) define codes as “the most basic segment, or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon”. Cross-sectional indexing was also used for the interviews and HFGs, enabling ‘across-case analysis’ to group participants around themes (Patton, 2015).

Figure 3.26. *The difference between codes and themes (Source: developed for this research)*



3.9.3.1 Familiarizing stage

As I collected and transcribed the data, I was immersed in the data from the beginning, and some initial thoughts developed while transcribing, developing concept maps and listening to the recordings. Through listening to and reading the data, and creating initial concept maps, I became familiar with the breadth and depth of the content. This stage initiated the coding process as I developed an understanding of meanings and patterns within the data, which fed into the development of codes.



3.8.3.2 Generating initial codes

Coding, as explained earlier, followed a rigorous and systematic approach and as this is an inductive exploratory research, it was important to allow the data to lead the analysis. Therefore, the coding stage covered the data corpus (interviews, HFGs and document analysis) and when extracting relevant passages, I made sure to maintain the context (Bryman, 2001).

For the interviews and HFGs, coding was carried out in two stages:

1st stage: Coding manually, by generating a list of initial interesting ideas within the data, producing the initial codes on the paper transcription and colour coding passages that resonate with each code. This was done by adding notes next to the text and using highlighter pens to signpost potential patterns. I used 'post-it' notes initially to record codes and stick them adjacent to the segment of data related to the code. Using the notes allowed a visual representation of the initial codes and helped in later stages of analysis to group or combine codes.

2nd stage: Using a software programme, I reviewed the initial codes and recoded the data sets using NVivo11. Codes were further developed by matching them to data extracts. By tagging and naming segments of selected text, the programme automatically collates coded data segments. Figure (3.27.) is an example of the coding process from Nvivo11.

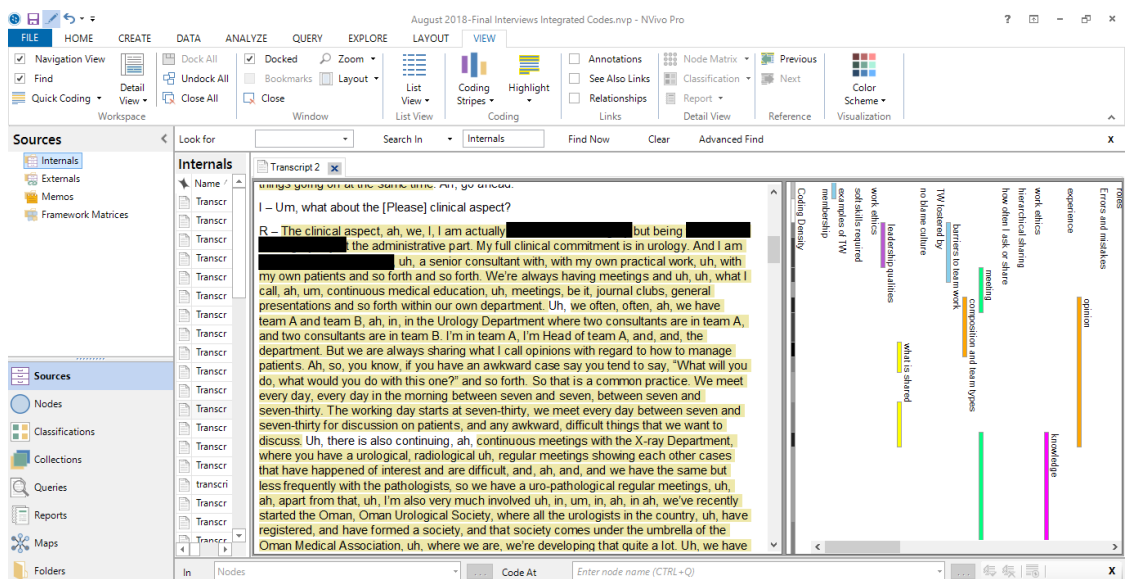


Figure 3.27. Example of analysis in Nvivo11 (Source: Nvivo11 data analysis)



Nvivo eased the move between codes, selected segments and the main text. Codes were assigned to relevant texts, which meant some data was coded more than once, I followed Braun and Clarke (2006:98), coding for as many potential themes/patterns as possible, coding extracts of data inclusively and coding individual extracts of data in as many different ‘themes’ as they fitted.

As part of this I used the ‘analytical strategies’ suggested by Corbin & Strauss (2008), ‘asking questions’ to explore the data set and understand the data on a different level, and ‘making comparisons’, by identifying similarities and differences in the data to ease grouping and labelling. There are two types of comparisons: ‘constant comparisons’, whereby data items and sets are compared, and ‘theoretical comparison’, which uses previous knowledge and literature to make sense of data. In this research I used ‘theoretical comparison’ only in the last stage of the thematic analysis, to avoid imposing my personal knowledge or the literature on my data. Corbin and Strauss’ last suggested technique of ‘drawing upon experience’ required balance on my parts as I was aware of my previous knowledge and experiences but did not want to impose them onto the data. I used reflexive practices to avoid this. Again, this deepens the level of understanding and enables identifying ambiguous sets of data, and locating patterns, preserving nuance. It offers the researcher a chance to challenge their own assumptions, perceptions.

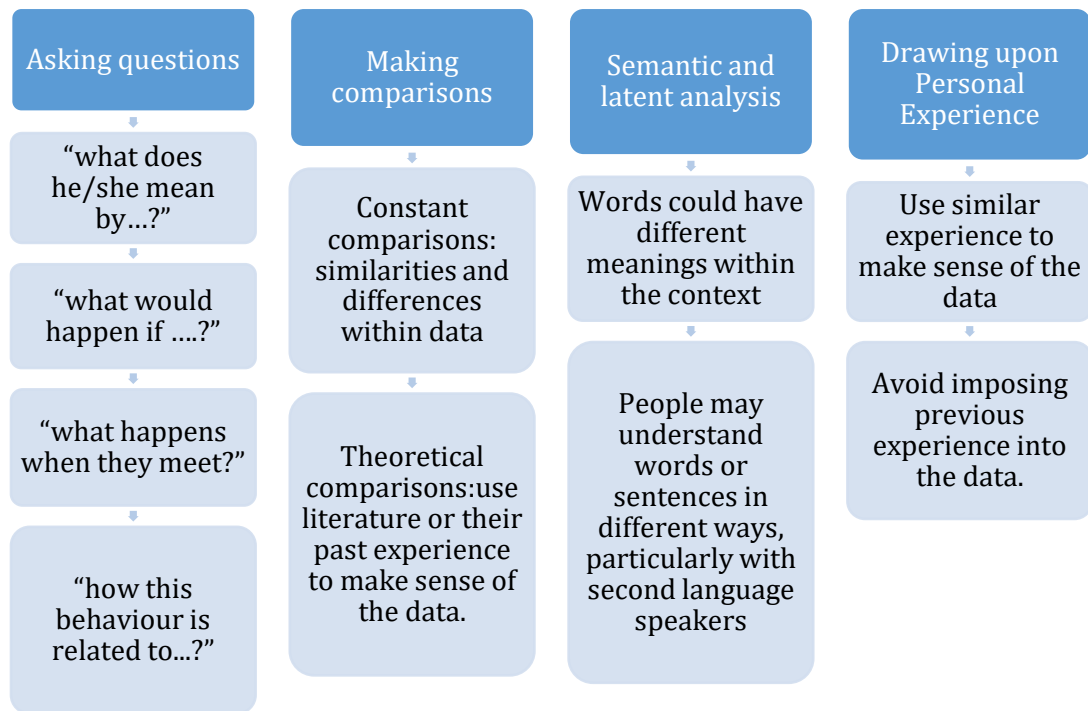


Figure 3.28. Summary of analytical strategies (*Source: developed for this research*)

Understanding the semantics and contexts of language allowed me to be aware of potentially hidden meanings and subtext. For example, some transcripts needed careful and repeated study to fully understand the meaning of participants. During interviews I was able to clarify meanings with participants, but this was not always possible in HFGs. See the example at figure (3.29).

Figure 3.29. Semantics and context: an example of individual’s use of language (*Source: transcription of HFGs*)

Memo: whenever asked about teamwork they talk about communication

Interviewer: What is the importance of teamwork in healthcare management you think?

R15: It’s very important to tell you the truth, because without it, without communications, it will be really hard, yanni, the job will not be done yanni.

Interviewer: How teamwork, or lack of teamwork among healthcare professionals impact your work?

R15: If there is no communication there will be a gap in patients management, and be disaster, you know. Like if the nurse is managing by herself and the doctor by themselves, the patient will be, you know, there will be a loss or a disaster. And you can, you know, easily you can go in troubles. And most of the time the communication is the, the, the issue. Is improve the communications, the things will move smoothly.



3.8.3.3. Data coding and identifying themes

I chose not to use 'pre-existing frame' or a 'codes manual' (Joffe, 2011) to ensure that the codes emerged from the data. I adopted a 'flexible coding' approach, which allowed me to strengthen my codes through reviewing and revising them every time a new code emerged, this ensured consistency (Braun & Clarke, 2006). All codes were consistently reviewed for similarities, and then merged where possible. I also nested codes where possible, for example, the code 'personal qualities' was created and to encompass emerging codes like 'arrogant', or 'immature' or 'laziness'. Other relations were built based on cause and effect connections, for example 'personal qualities' and 'communication' or 'collaboration' or 'sharing' or 'seeking'.

Although data saturation was achieved, coding continued till the data corpus was coded fully. The codes were then sorted into potential themes, which could include grouping some codes under one overarching theme. It was helpful to revisit the concept maps in this stage to provide a visual representation of codes arising from the data.

Themes that emerged in this stage and while revising and reviewing helped to refine the candidate themes, as weaker themes were excluded or some themes were collapsed into each other or split (Braun & Clarke, 2006). By the end of this stage, I understood the different themes and sub-themes, and how they fitted together and connected through the data corpus.

3.8.3.4 Defining and reviewing themes

Following Braun & Clarke, (2006:87) this stage of the analysis consisted of two levels:

- Level 1: Checking the themes fitted the coded extracts and data corpus
- Level 2: Generating a thematic 'map' of the analysis

Each theme was revisited to ensure coherence and these two stages were undertaken in an iterative and reflexive manner for coherence.

Using Nvivo provided the flexibility and capacity to define, review, and refine each theme and organise them into consistent and coherent accounts (Braun & Clarke, 2006). Again, this was iterative, as I wanted to ensure that while organising and combining themes and developing subthemes, I avoided overcrowding or complicating each theme. This continued the process of collapsing and splitting



themes as necessary (*Cf.*, Braun and Clarke, 2006:87). The selection of appropriate quotes was an important step to minimize overlap and to highlight interesting aspects under each theme. This was a challenge where themes overlapped or differed across data sets, for example participant comments about available documentation on teamwork was not reflected in the document analysis.

3.8.4. Thematic Analysis (TA)

Thematic analysis is recursive, moving between searching for patterns, coding the data and defining themes, analysing and writing up. (Braun and Clarke, 2006; Robson, 2011; Hübner, 2007; Finch and Fafinski, 2012). Boyatzis (1998), Attride-Stirling, (2001) and Braun and Clarke (2006) consider thematic analysis (TA) as a method, process or tool for recognising patterns or themes within data and analysing and reporting these patterns. Boyatzis (1998) describe it as tool that can function across methodological differences. Similarly, Bryman (2008) argues that while TA is one of the most common qualitative data analysis methods, it is not 'identifiable' as such but incorporates approaches such as grounded theory and content analysis. Thus TA "provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex account of data" (Braun and Clarke, 2006:83).

Robson (2011) suggested TA can be realist or constructionist, that is, it can reflect the reality of participants, or identify how the experiences related by participants reflect the discourses operating in society. Taylor and Bogdan (1984:131) list theme types such as topics of conversation, activities, meanings, feelings, vocabulary, even proverbs. Identifying themes from the data therefore enables the capture of meanings and patterns in relation to the research scope. TA can also be semantic or latent, as discussed by Braun and Clarke (2006:84). Semantic analysis of themes considers only the semantic content of the participants' words. Latent analysis interprets potential meanings behind the ideas expressed, hence it is more reliant on a theoretical underpinning.

Bernauer, *et al.* (2013:1) argue that "qualitative data analysis and interpretation is essentially a variant of critical thinking". They suggest using Adler's description of reading for meaning (Adler, 1964), that is looking beyond a cursory analysis and "reading between the lines" to capture the complexity of experience. As they note, this requires researchers "embrace an empathetic and reflexive understanding of



participants and reality that is consistent with Polanyi's (1958) conception of 'tacit knowledge.' That is, being aware and sensitive to context and intuition.

There are various suggestions for conducting a TA, for example Braun and Clarke (2006) suggest six phases (*Cf.*, Robson, 2011), three phases by Finch and Fafinski (2012) (coding, identifying themes, and reviewing and refining themes), and four phases described by Weiss (1993) (coding, sorting, inclusive integration, visual display). My analysis used Braun and Clarke (2006:95), as the most comprehensive and detailed guideline, and my process is explained in figure (3.32.). Braun and Clarke, (2006:91) describe inductive analysis as "a process of coding the data without trying to fit it into a pre-existing coding frame, or the researcher's analytic preconceptions". For my TA, as described throughout these two sections (3.8.3 and 3.8.4) I followed an inductive approach: the analysis is data-driven, therefore the themes arose from the data, and whilst they relate to the research questions, are closely linked to the data corpus and sets.

Throughout the data analysis I discussed issues arising and choices with my supervisors. The initial results, concept maps, matrix, codes, analysis, and themes were all discussed in order to ensure I was confident with the results and ready to proceed to the next stage.

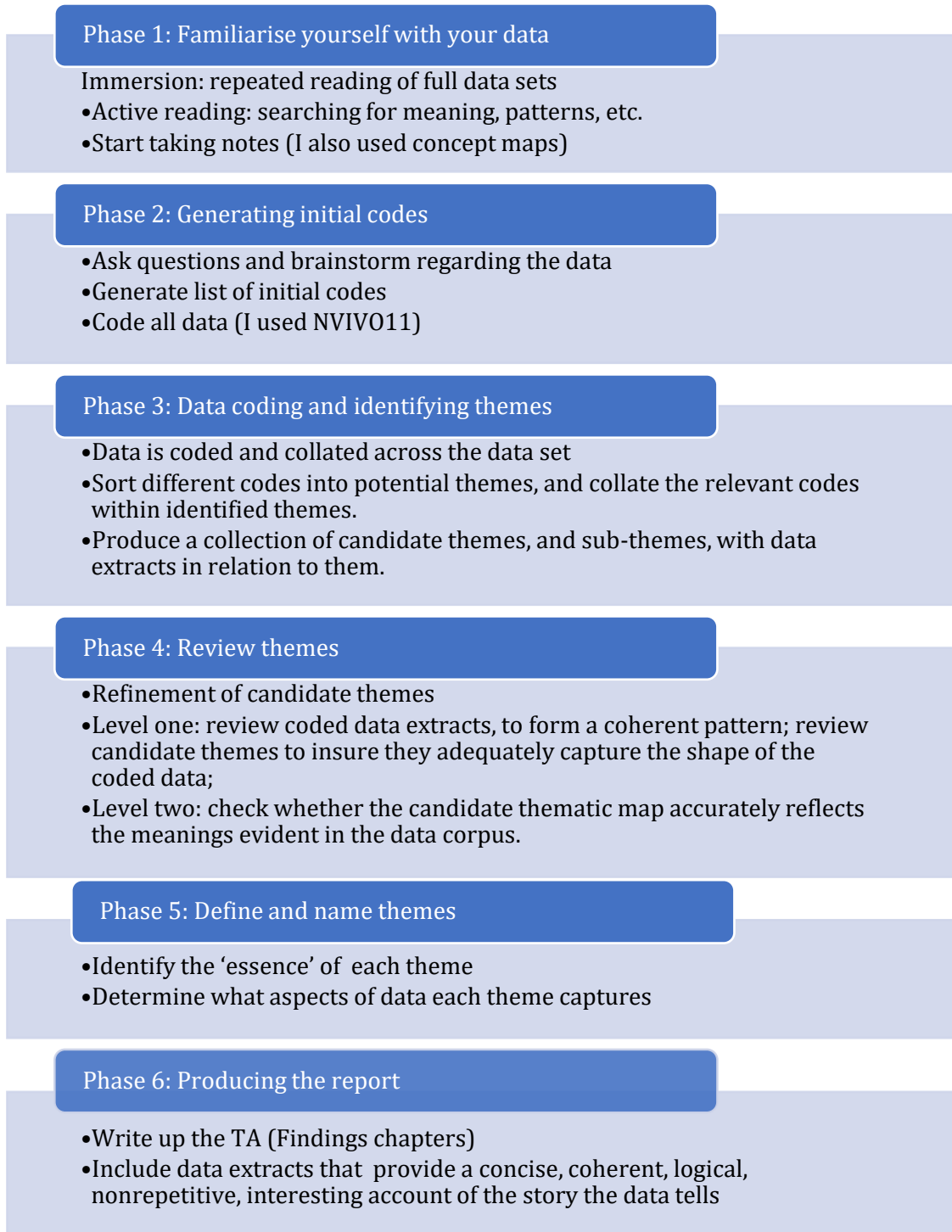


Figure 3.30: Thematic Analysis as it applied in this thesis (**Source:** Adopted and modified from Braun & Clarke, 2006)

3.8.4.1. Producing the report

Writing up the TA was again iterative as I revisited data during the writing process. While developing these chapters the process of analysis continued and the selected quotes were revised to ensure they highlighted the themes from the data. The finished report covers the Findings Chapters (Chapters 4 and 5), and Discussion



Chapter (Chapter 6). The data was integrated throughout the report, creating a nuanced and holistic account that brings together the data sets.

This structure of these chapters is influenced by the data under an implicit umbrella of the research questions to guide the writing and for consistency in presenting the data and maintaining my focus on the research scope. With the wealth of data gathered, keeping focused was challenging so having a strict framework aided in staying close to my research scope. Having outlines the analysis process for the data corpus, the next section offers a more specific breakdown of the analysis of the different data sets.

3.8.5. Analysis of Interviews

As suggested by Bryman (2008), data analysis began with the first interview and was sustained throughout the data collection period. In analysing the interviews, the following steps were followed, as shown in table (3.5.). The codes arising were mapped using Nvivo into a 'tree map', as demonstrated in figure (3.31.). This clarified patterns and showed 'coding density' (the number of times a code was used). The themes are colour coded on the map and size of each colour block demonstrates the coding density. For example, the orange block on the lower left side shows how often 'communication' was coded in relation to the phenomena of interest.

1st stage: Initial data extraction:	2nd stage: Transcribing data	3rd stage: Data analysis
Familiarised myself with the data through listening to the audio and noting down ideas	All interviews transcribed verbatim	Initial data analysis conducted to begin interpreting and making sense of the data, and iteratively compared and matched.
Developing initial codes	Transcriptions checked against the audio before finalising	Made sure to keep a balance between narrative and illustrative quotations.
Searching for themes, defining and naming themes	Transcriptions searched for codes and initial codes updated	All this was checked and updated once all transcriptions are completed.
Producing concept maps	Inclusive and comprehensive coding process to select and collate relevant quotations	Generating initial themes and sub-themes
Producing the initial analysis report.	Themes iteratively compare to make sure they are coherent, consistent, and distinctive	Developing initial thematic map, showing main themes.

Table 3.4. Steps of interviews analysis (source: developed for this research)

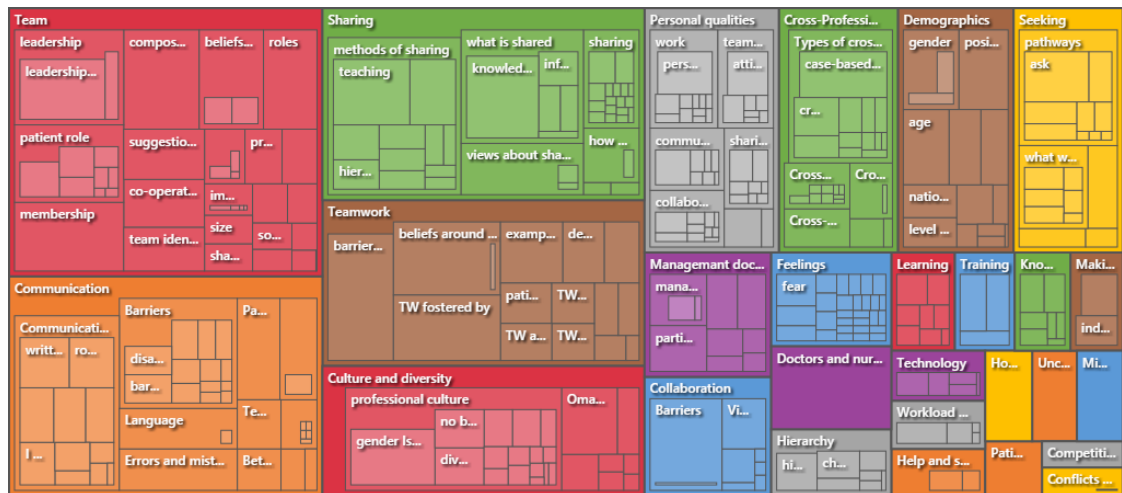


Figure 3.31. Interview analysis from Nvivo – code and sub-code tree map (Source: Nvivo11 data analysis)

3.8.6 Analysis of HFGs

As noted, the use of participant-visualised data empowered participants (Race *et al.*, 1994), allowing participants to control the way they shaped, developed and constructed their artefacts. This enabled me to observe the creative process, interpersonal dynamics, and culture. HFG data was split into three types of data:

- Transcribed audio recordings
- Participants' artefacts (visual data)
- Observation notes (field notes).

3.8.6.1. Analysis of the audio recording (the group discussion)

The audio from HFGs was transcribed and analysed in the same manner as the interviews (*Cf.*, Barbour and Kitzinger, 1999). However, it was a different data set and it was crucial to maintain the sense of the full group while proceeding with the analysis (McLafferty, 2004). Furthermore, during the TA as outlined above, the transcripts were studied thoroughly to distinguish between expressed views, opinions, agreement and disagreement both on individual and group level. For example, audio data arising from HFGs was in part narrative, as participants described their artwork, and in part discursive, as two or more participants were in discussion.

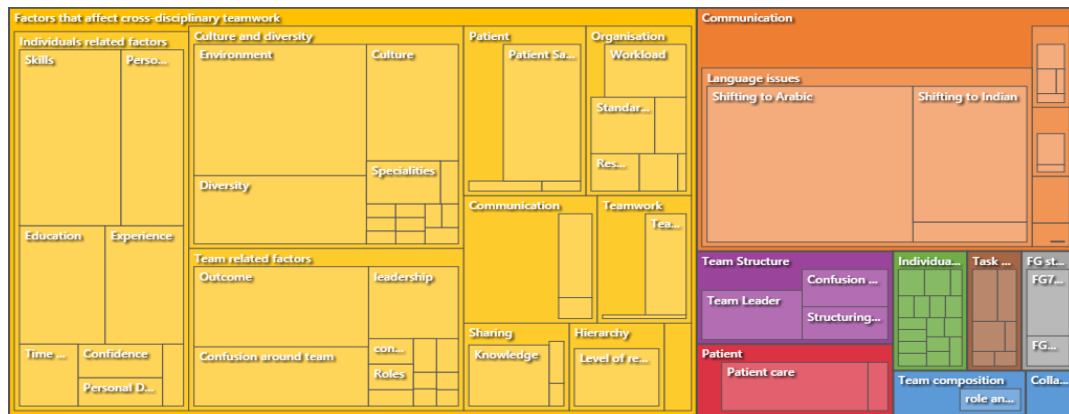


Figure 3.32. HFGs analysis from Nvivo - code and sub-code tree map (Source: Nvivo11 data analysis)

The discussion was transcribed, coded and analysed using TA as discussed above, and an example of the tree map arising from Nvivo is included as figure (3.32.) The largest block is for themes related to the factors affecting cross-professional teamwork, as this was a primary focus in affinity diagram HFGs. However, communication, again in the orange block, represents a heavy coding density.

A further level of analysis was the content and context analysis of transcriptions. The process of this analysis is explained below in the document analysis section. However, I used 'word frequency' in Nvivo and manually to sift through the data and target concepts and words related to the phenomena of interest. This underlined the frequency of these concepts, the alternatives that participants used for them, and the context in which they were used. One example is the words used around teamwork and collaboration, such as 'work with', 'work together'. This was accompanied with context analysis to understand the way these concepts were used within the overall context.

See appendix 3.18, for an example of the word frequency analysis across HFGs.

3.8.6.2. Analysis of the Visual Data

There were two visual artifacts resulting from the HFGs, the conceptual landscape and the affinity diagrams. As they considered different aspects of the phenomena of study, I have described them separately.

1. Conceptual landscape and flow analysis:

As noted above, the conceptual landscapes were a form of collage forming a map of interaction, and participants were asked to describe their maps (*Cf.*, Reiger, 2011:145). When considering the visual data as a data set, I



concentrated on how participants structured their maps, including the membership and hierarchy of their teams. I also considered how participants linked different elements of the maps, as they were asked to demonstrate where teamwork, collaboration, KS and communication occurred, and where these processes were one way and two ways. Finally, descriptions of the visual productions were collated with the corresponding map.

2. Affinity diagrams (AD)

Participants produced visual diagrams that mapped the factors they considered important in their cross-professional teamwork. They were asked to link factors they considered to be connected, and I paid attention to how participants grouped, labelled and linked factors. Again, this was collated with the transcribed discussions. A model developed from the affinity diagrams reflected participant views of the factors that influence cross-professional work, see figure (3.33).

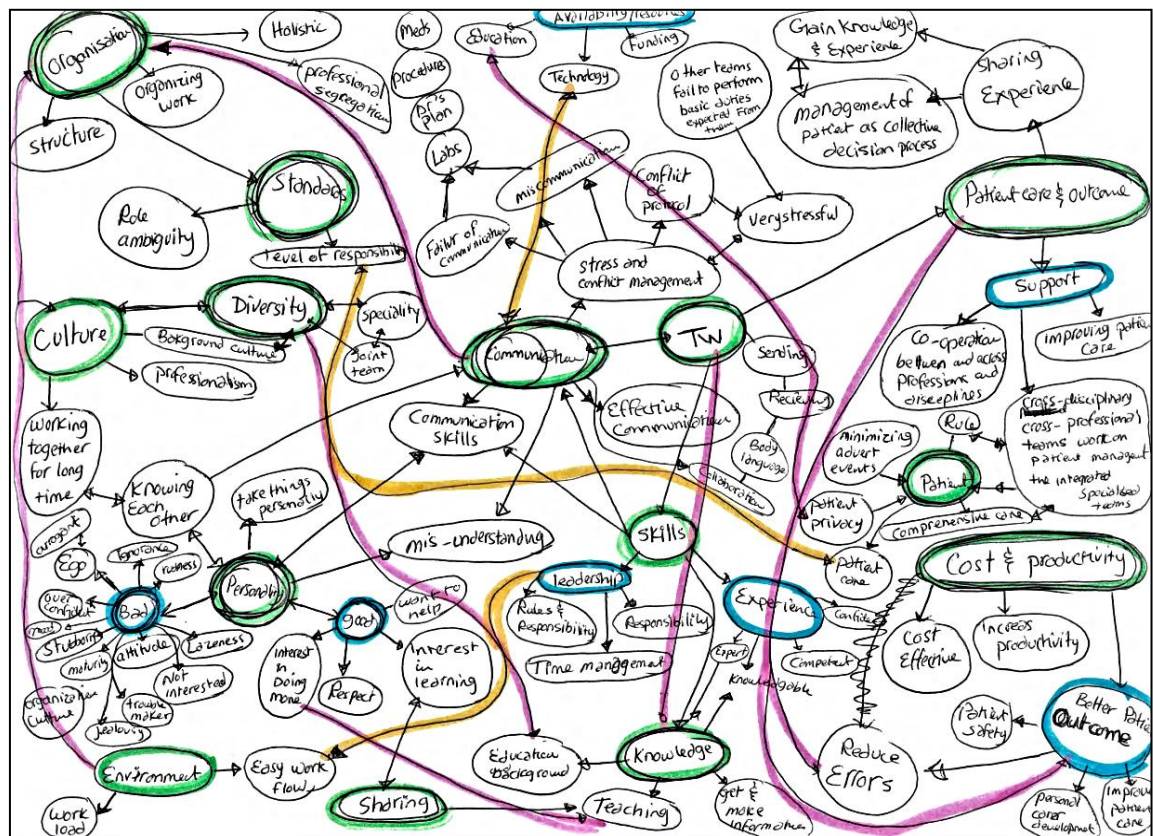


Figure 3.33. Model of factors affecting cross-professional work as demonstrated by the affinity diagrams (Source: data analysis)



3.8.6.3. Analysis of the field notes /observational data

Bryman (2008), among others, emphasised the value of field notes. As my interest was understanding teamwork, KS and collaboration among cross-professionals, the HFGs allowed insights into their interactions during the task. The data arising from the HFGs enabled me to compare whether what participants claimed in the interviews about their communication, teams, KS, gender, nationality and so forth, were reflected in group interactions, or in the mapped flow of teamwork and knowledge sharing. Observations were therefore a complementary data set to the data obtained from the other methods.

The Indian female nurse [x] is distancing herself and only interacts when required. When she had a suggestion she whispers.
The female nurses [x] are giggling and making jokes while working on the task
The Indian and Filipino female nurses [x] are gathered in the corner and discussing separately from the group
The male Filipino nurse[x] seems political and forward with his opinions and views
The senior consultant[x] following the lead of the senior nurse[x], discussing and listening to decide how to proceed.
The three Indian female nurses [x] seem frustrated about the continuous interference of the Indian female senior specialist [x], the other female Indian specialist is focused on developing her map and ignoring that interaction.

Table 3.5. Example of the field notes (source: field notes)

Field note: Observation 1

FG1: Concept Maps-Intensive care unit, 4 participants

1: F/N/I, 2: F/N/O, 3: F/SC/I, 4: M/SC/O

When I observed this group, they seemed relaxed and making jokes about the task. Once I explained the task, a female Omani nurse (2) took the lead, while two Sr. consultant were present and one of them is a director of department (male). They moved to come closer to her and started suggesting and asking questions and planning how they will proceed with the task. Another female nurse from the Philippine shared opinion or suggestions few times while a female Indian nurse maintains distance and only spoke when asked or to the Pilipino nurse.

Field note: Observation 7

FG7: Affinity Diagrams, 7 Participants:

1: F/N/O, 2: F/N/O, 3: F/N/I, 4:M/S/O, 5:M/S/I, 6:F/N/O, 7: F/N/F

I noticed during this FG that Omanis tend to shift continuously to Arabic whenever they are in a rush or need to explain something. Without considering, noticing or repeating for the rest.

Figure 3.34. Example of Field Notes based on the team task analysis (Source: field notes)



I took the role of passive observer to minimise any influence. This, along with using participant-led activity and art minimises the 'Hawthorne Effect' (Payne and Payne, 2004). As a time-bound but fun and engaging activity, participants were less conscious of being observed. I recorded notes using a voice recorder with a small mic attached to my collar for instant recording of any observations. Table (3.5.) and figure (3.34.) show examples of my field notes.

I also used a simplified version of a team task analysis, considering, for example, team task design, team composition, team training, and compensation (Brenner *et al.*, 1998:4). Morgan *et al.*, discussed "critical incident technique" to identify common team behaviours such as "communication, cooperation, team spirit, giving suggestions, accepting suggestions, coordination, and adaptability" (referenced in Brenner, *et al.*, 1998:4). However, how can such behaviours be measured (Bowers, Baker, & Salas, 1994)? A combination of measures is necessary, and the observational data was an important part of this process. My field notes were therefore guided by considerations such as context, what activity participants were undertaking, issues between participants, hierarchy and dominance. Again, observations were coded using Nvivo11 to consider interactions, power dynamics and communication during the HFGs.

3.8.7. Document Analysis

I used the document analysis as complementary data set to the other applied research methods, considering different types of documents related to the case of study, such as policies, reports and guidelines to reveal any disparities between the literary evidence and practice whilst minimising researcher intrusion (Jordanova, 2000; Yanow, 2000; Prior, 2003; Yin, 2003).

Atkinson *et al.*, (2001) and Prior (2004) describe two kinds of document analysis strategies: Content analytic strategies that consider the source as fixed social evidence in an independent container, analysing documents for their content. In contrast, Context analytic strategies embed the source in the social contexts of their production and use, analysing documents as commentary or actors. Appendix 3.19 presents a comparison of content analysis and context analysis (compiled from Smith, 1984; Latour and Woolgar, 1986; Altheide, 1996; Jordanova, 2000; Atkinson *et al.*, 2001; Howell and Prevenier, 2001; Patton, 2002; Prior, 2004; Miller and Alvarado, 2005).



Weber (1990:9) defined content analysis as “a research method that uses a set of procedures to make valid inferences from text”. This is done through “a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding” (Stemler, 2001:8). I followed Kulatunga, Amaratunga, and Haigh (2007) in my analysis, as shown in table (3.6).

Word count	Counting word frequency of selected words
Conceptual content analysis	Identifying themes and concepts within the text
Relational analysis	Analysing relations between themes and concepts within the text
Referential content analysis	The researcher’s interpretation of meanings within the text, its themes and concepts

Table 3.6. *Stages of content analysis according to Kulatunga, Amaratunga, and Haigh (2007)*

I used context analysis as I was studying organisational and institutional realistic positions, their structure and processes (Yin, 2003). As Yin (2003) explains, this approach helps in answering the ‘how’ and ‘why’ questions often raised by such research. The analysis began with word frequency, looking at ‘team’, ‘teamwork’, ‘knowledge’, ‘knowledge sharing’, ‘cross-professional’. I also considered cognate terms as I came across them in the texts, for example ‘liaising’. I then coded and analysed these themes in the same manner as the interviews and HFGs, considering both content and context. However, there was very little material relating to the phenomena of study.

3.8.8. Data Management

This research consists of written text (i.e. documents, field notes and documented observations), audio data (i.e., interviews and HFGs recordings), and visual data (i.e., artefacts from affinity diagrams and maps). Data management steps were undertaken to handle and process data according to ethical requirements and best practice throughout the study:

1. **Data storage:** All electronic data (documents, recordings, transcripts, photos of the artefacts) were stored in an external, password-protected hard drive. Data were sorted, organised, and stored in labelled secured computer folders



to allow quick access. Physical documents (original artefacts, printed documents) were stored in a locked drawer in my office.

2. **Confidentiality and anonymity:** All information collected during the investigative stage was considered strictly confidential. Names and any identifying data were removed from the interviews and HFGs at the transcription stage ensuring all transcriptions were anonymous.
3. All documents and transcriptions were imported into 'qualitative data management software'. I used NVivo11 to improve data retrieval, reviewing, and coding. This software allows flexibility in coding, categorising transcripts and documents, and to create diagrams from the data.

3.9. Research Reliability and Validity

Golafshani (2003) links validity and reliability in measuring research quality, and I kept this in mind while designing my research (Patton, 2001). Reliability and validity can be difficult to demonstrate due to conflicting epistemological presuppositions and the complexity of qualitative case-based studies that include multiple data sources (Hancock and Algozzine, 2006; Baxter and Jack, 2008; Creswell, 2013; Bas˘karada, 2014)

Reliability and validity require demonstrating credibility, dependability, confirmability and transferability (Lincoln and Guba, 1985). This required consistency in the research measurements and the way the study was carried out, so that it could yield similar results if conducted by other researchers (Blaxter *et al.*, 2006). My research questions, and later my interview questions were built on the initial literature review, and the systematic document analysis was refined throughout the data collection phases. This provided my research with the reliability required for it to be re-conducted by other researchers.

The application of validity to qualitative research methodology has been debated, although its value is not in doubt for the quality of research. Hence researchers relate it to different aspects, such as the thoroughness of the research, its credibility and quality (Golafshani, 2003). This research applies multi-methods along with a multi-layered triangulation (as shown in figure (3.35)) to increase its validity



(Denscombe, 2007). These methods help to diminish the potential weakness of applied methods as explained earlier in this chapter. A visual presentation of the research process is in appendix 3.22.

This study also builds a strong theoretical base accompanied by considered and comprehensive methodology, methods and tools which I then apply to the research question.

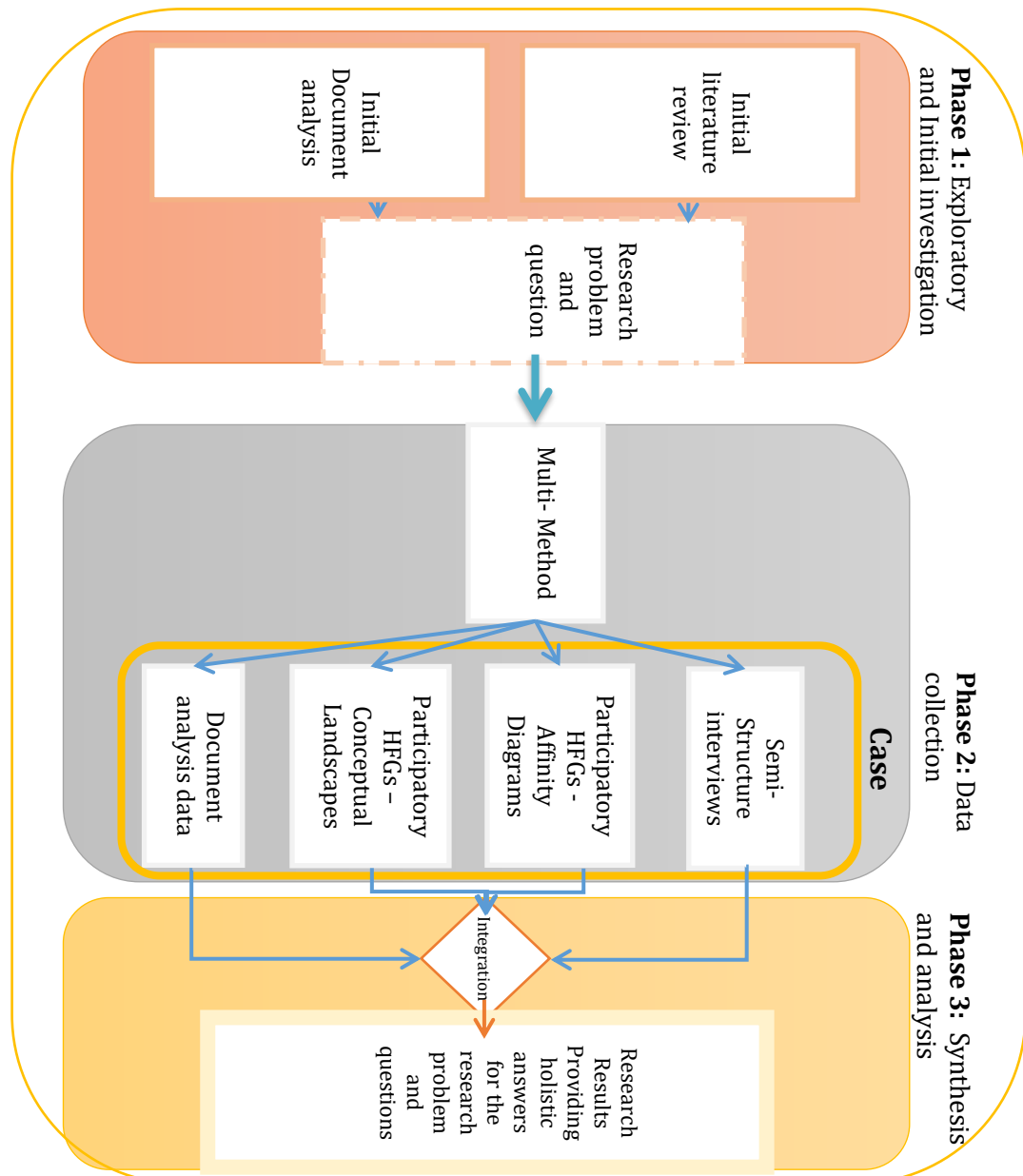


Figure 3.35. Outline of research method validation (Source: developed for this research)



3.10. Research ethics

The ethical aspects of any research require full attention. Ethical permission was sought and approved The University of Sheffield and Oman's MoH. The latter was submitted through the RH. (See appendices 3.20 and 3.21, with approval letters from RH in appendix 3.13.). The approval covered all ethical requirements related to data collection methods, including access to hospital documents, permission to interview teams and HFGs.

Case study ethics

As the case study is qualitative, based on collecting data from human subjects, in this case healthcare professionals, the rights and wellbeing of participants were foremost. Therefore, as well as seeking ethical approval, I ensured anonymity and confidentiality for participants. It was made clear to all participants that participation was voluntary, and they had the right to decline to answer any questions and withdraw from the research. I was cautious of the possibility of participant's being offended by the views or opinions of others, particularly in the HFGs but also when reporting interview comments (*Cf.*, Suryani, 2008).

Document Analysis Ethics

As noted above, ethical approval for access to Royal Hospital documents included any and all documentation relating to RH administrative and organisational structure, procedures, policies or guidelines relating to teamwork or KS, and available either in hard copy or via RH's intranet/internet presence.

Interview and HFG Ethics

As noted above, as the gatekeeper had not sent introductory emails, I was able to explain the research to department heads in person. However, all participants were voluntary, fully informed and signed a consent form in line with the ethical approval and best practice. All audio recordings were anonymised during the transcription process, and all data was kept securely, as per the ethical approval. Finally, as the interviews are semi-structured there was the possibility a participant would reveal sensitive information, hence I informed all participants that I may choose to intervene if I felt that the discussion might be breaching any ethical concerns. However, this scenario did not arise.



3.11. Chapter Summary

This chapter has given a detailed summary of the research process, It began by reviewing the research questions and why this study is important. I outlined and justified my choices of interpretivism and constructionism and explained the nature of this research as exploratory, and inductive. I justified my decision to make this a multi-method, qualitative case study design, considering the benefits and disadvantages of this approach. I noted the challenges and choices made to ensure triangulation and integration of the data, then I outlined the research design (Figure 3.35.). I discussed the sampling methodology, data collection and analysis methods for the different data sets.

Finally, I discussed the issues around validity and reliability, particularly when considering qualitative research, and the ethical approval that was followed. The next chapters will offer the findings from the data corpus.



Chapter

4

Findings: The Macro Perspective of the Phenomena (Organisational Level)

Chapter Overview

This chapter situates the phenomena at an organisational level through a discussion of the relevant documentation. Beginning with an overview from the early document analysis before my field work, I move on to consider the documents directly accessed from the Royal Hospital.

The documents are considered through the lens of the research questions and related themes, hence will inform the interview and HFG findings.

I will note some difficulties and issues with the document analysis. Finally, I will include the appendix of documents used.



Introduction

In order to frame the comments of participants, the document analysis will consider the organisational-level values espoused by RH. It begins with the initial document analysis of documents from the Ministry of Health, which allowed me to consider the national policies relating to healthcare in Oman and how they referred to the phenomena under study. Whilst documents indicate the official policies of RH, the HFGs and interviews will show how this is negotiated and accomplished by the healthcare staff at the front-line

4.1. The Phenomena as Conceptualised within the Oman Ministry of Health

An initial document review was undertaken in the early stages of this research and was of three documents available from the Oman Ministry of Health (MoH). This review examined the use of phrases related to 'team', 'teamwork' 'knowledge', 'knowledge sharing', and 'communication'. This was to create an overview of national policy that would impact on the policies and procedures of Royal Hospital. These documents were, the MoH's *Eighth Five-Year Plan for Health Development (2011 – 2015)*, the *Health Vision 2050 Sultanate of Oman (2014)*, and *Guidelines for Committees in Autonomous Hospitals (2003)*. Details are given in Table (4.1.).

In the MoH documents, although terms relating to teamwork and communication were used, there was no emphasis on them. The initial review led to me to ask, is there merely a lack of documentation around teamwork and knowledge sharing, with no impact on the practise of these elements, or are the practices themselves lacking in day-to-day healthcare work at Royal Hospital?

These documents provided a preliminary and helicopter view of the MoH position of the phenomena under study. They shed some light on the knowledge sharing/management and teamwork practices within Omani healthcare settings. There were three primary observations about how these documents described the phenomena under study.



Ref #	Document Title	Type	Source	Date of Issuing	Source
1	The MoH's Eighth Five-Year Plan for Health Development (2011 – 2015)	Health Development Plan	Ministry of Health Website	2011	Ministry of Health, Directorate of Planning Affairs, Undersecretary of planning Affair
2	Health Vision 2050 Sultanate of Oman (2014)	Vision and Policy	Ministry of Health Website	2014	Ministry of Health, Minister of Health
4	Guidelines for Committees in Autonomous Hospitals	Guideline	Policy document (part of the Autonomous Hospital Initiative)	2003	Director General of Health Affairs

Table 4.1. Ministry of Health Documents

Observation 1: When searching for terms relating to teamwork, teamwork or collaboration, the following facts were apparent:

1. A new term potentially emerged through this analysis: 'partnership'.
2. The three appearances of the word 'teamwork' throughout the two documents show a lack of emphasis on this topic but does indicate its existence.
3. In the three cases of the word 'teamwork' appearing, it was linked to 'communication skills' and was in the context of training and promotion of teamwork.
4. The word 'collaboration' was used frequently throughout both documents, mainly linked to 'intersectoral collaboration (ISC)', which refers specifically to joint actions among the health sector and one or more other sectors to improve health. As these documents came from the MoH, it is not surprising therefore that the emphasis was on collaboration between institutions, sectors, organisations, and so on, with limited focus on healthcare teams or collaboration within any specific institution.
5. Nevertheless, an understanding of collaboration is provided in the following quote from *Health Vision 2050 Sultanate of Oman* (2014:168):
 "Build trust and strong working relationships among all sectors related to health. Understanding of the contribution of individual sectors to health will allow identification of gaps and overlaps and will help to define the type of collaboration for each sector and what collaboration would look like".



Observation 2: With regard to knowledge, knowledge management, and/or knowledge sharing, the initial analysis demonstrates the following facts:

1. There is a clear gap in knowledge management/sharing documentation within the two examined documents.
2. In the rare case where knowledge management was highlighted, it was in the context of information technology.
3. There is one occurrence of clearly stating ‘knowledge translation’ but there were few details or follow-up to that individual occurrence.
4. Knowledge sharing did not appear at all in any of the documents.
5. Knowledge was used as a synonym for ‘information’ in most of the cases.

Observation 3: The *Autonomous Hospital Initiative* was a collection of documents and provided a different insight that was more directly relevant for background information. Its importance was for the administrative development of RH as an autonomous hospital. It was divided into different documents, covering for example, the development of committees and job roles within the hospital. The section

1. The document highlighted terms such as ‘team spirit’, ‘team approach’. It also referred to ‘develop a team’.
2. ‘Collaboration’ was mentioned throughout the document
3. One section of the document directly addressed communication and correspondence in the hospital. It briefly discusses what is meant by ‘communication’:

“transference of a message, the interpretation of its content and the understanding of the underlying meaning and its intent”.

4. The document outlines types of communication and the specific routes for communication on different issues, for example, operational issues.
5. Throughout the document ‘communication through the proper channels’ is stressed.

Having considered these background documents briefly to provide an overview of the environment in which RH operates, I am going to move on to documents directly sourced from RH.



4.2. Royal Hospital Documents and Rationale for Selection and Analysis

4.2.1. Characteristics of the Documents

As far as known, this documentary survey of knowledge management, knowledge sharing and teamwork practices in Oman is the first of its kind. Whilst I tried to make the survey as inclusive as possible, due to the scale of potential documents available, it could only be a selective review of RH documentation. I considered all documents available to me during my period of research in Royal Hospital, either from the intranet portal or directly given to me by participants, and then selected for analysis the documents that appeared, by their titles or content, to be related to the phenomena under study. One document, *Code of Professional Conduct for Nurses and Midwifery Council*, is a national document, but included to reflect its direct use in RH, and that it was given to me by the Head of the Nursing Department as an example of their policies. This selective analysis serves to frame the later discussion of participant views on teams, teamwork, knowledge sharing and communication.

Documents and sources examined include:

- RH intranet portal
- Institutional and departmental policies or protocols
- Strategic plans and documents.

4.3. Concepts around Team and Teamwork

The following section describes an analysis of the documents available to me and relevant to the phenomena of study during the period of research at RH.¹²

4.3.1. Related Themes Arising from the Documents

4.3.1.1. Team

Team was used 17 times in the documents analysed, and mostly in documents arising from the Nursing department. It was used in a variety of ways. As with teamwork, it was mentioned as worthy of recognition, (D16),

¹² Appendix 4.1. provides a sample of the documents and the analysis



“Celebration in the auditorium twice a year is made to recognize teams or individuals who had achieved excellent performance”.

During the interviews, the only participant to discuss such validation belonged to the Quality Control Department and admitted that the celebration was now annual. No other participant mentioned this recognition, other than the individual who helped to organise it.

Another example is the ‘caring team’ (D22) referred to when dealing with a patient who does not understand English or Arabic. The phrase presumably just refers to whoever is caring for that patient at the moment they require language help. Similarly, (D10) speaks of *“interactions with the health care team”*.

A broad reference to teams is included in D11,

“We are committed to fostering an environment that promotes respect, positive communication and collaboration among all members of patient/family/health care team”.

Again, this is a generic reference, but interestingly implies that the team includes patients and families. The nursing department used the Code of Professional Conduct for Nurses and Midwives in Oman, an umbrella document for the entire country but clearly applied by the nursing staff in RH. This also emphasised patients as part of the team, (D13),

“The team includes the patient or client, his/her family, informed care takers and healthcare professionals”.

Another nursing document stated, D10,

“We believe that the patient plays a major role in the... interactions with the health care team”.

Finally, there are references to specific teams, such as for SBAR (D12) or to creating teams (D34, D15). One reference to team crosses over with teamwork, as working with the team is intended to create a safe and ethical working environment, and demonstrates how generically the term is used, (D13),



"You must work with other members of the team to promote healthcare environments..."

Staff members are expected (D13), *"to work co-operatively within teams"*.

4.3.1.2. Teamwork

As a term, 'teamwork' was only used once (D16), in a reference to reward and recognition from Quality Management. An individual could be nominated for recognition for a *"contribution in improving team work"*.

4.3.1.3. Creating a team

In the *Adverse Event Reporting Guidelines*, a discussion on root cause analysis describes one way a team could be created in direct relation to its role (D15),

"The lead will assemble a team for the analysis to be initiated. All those who are directly or indirectly involved might be contacted and their input will be obtained, but the virtual decision on whom to involve in the analysis relied on the discretion and judgement of the leader of the team."

Thus, the team leader is ultimately responsible for selecting the other members.

"The analysis and action plan developed by the team will be reported, within 2 weeks of the event occurrence, to the Quality Management department, and the Departmental Quality Committee for execution at the level of the service."

This is a team for a specific purpose and with a time-bound existence. As will be noted below there were several documents covering the Adverse Event Team, but with conflicting information.

4.3.1.4. Cross-disciplinary

Cross-disciplinary work was referred to in these documents as inter- and multi-disciplinary. It was rarely described, and many of the document in which it occurred related to policies within the departments or units. However, the *Nursing Department Philosophy*, (D10), describes the requirements for comprehensive health care,

"Recognising the need for interdisciplinary approaches... facilitating... mutual trust, open communication and sharing".



The complexity of healthcare requires a multidisciplinary focus, as described in D13,

“The delivery of healthcare is a complex process that requires a multidisciplinary... to meet the health needs of society”.

Committees were a common cross-disciplinary unit, frequently referred to in the documents, often by name, for example (D15) mentions the Departmental Quality Committee. A typical example of the use of committee is from D21, *“Participating as per the director instructions or committee request”*. In the *Guidelines for Autonomous Hospitals*, a document outlined the composition of committees, all of which were cross-disciplinary, however as discussed above this was a national document from the MoH, rather than a document originating with RH.

4.3.1.5. Cognate terms: task force, group members, partners

In the variety of documents reviewed, understandably an assortment of terms and phrases were used to describe people and groups working together. I have chosen to look at these separately given that they may describe the phenomena under study.

Task force is defined by Merriam-Webster, *“a temporary grouping under one leader for the purpose of accomplishing a definite objective”*. The term was used around 8 times in one document, *Developing and Updating the Vision Statement*. The choice of ‘task force’ in this document possibly reflects the very temporary groupings of individuals and may be intended to indicate a dynamic process of work. Examples of usage include, (D17),

“The task force is composed of members with immediate control over the hospital direction.”

The terms ‘group’, ‘members’ and ‘group members’ were used around eleven times in the same document, for *Developing and Updating the Vision Statement*, for example,

“Group members to review the hospital strategic plan”, “Members select from the strategic plan...”, and “Members evaluate, prioritize and filter list of values...”.

Patients as ‘partner’ is a term that could be passive or active, for example, D13, *“You must recognize and respect the role of patients and clients as partners”*. It does not



define them as team members *per se* but indicates some inclusivity in their role within healthcare.

4.3.1.6. Collaboration

Collaboration was also used, but rarely. It was depicted as part of promoting a positive environment and communication, including with the patient/family, D11,

“We are committed to fostering an environment that promotes respect, positive communication and collaboration among all members of patient/family/health care team. We work together for the achievement of outstanding results and take pride in our success”.

The *Nursing Department Objectives* include collaboration but whilst referring to internal and external individuals/organisations, thus again it is used broadly and generically, as for example, D11,

“To be the leaders for customer satisfaction, learning and improving through constructive engagement and collaboration with key stakeholders”.

‘Key stakeholders’ here could include those with whom they collaborate within the hospital as well as outside, as ‘learning and improving’ could indicate either.

Collaboration is also used to describe the way nurses should approach working with individuals and groups in the *Code of Professional Conduct for Nurses and Midwifery Council*, D13,

“You should consult and collaborate with others to meet the health needs of society. You should actively promote collaborative planning”.

4.3.1.7. Cognate terms: cooperation, liaising

Cooperation was also used twice, both times in the *Code of Professional Conduct for Nurses and Midwifery Council*, (D13),

“You must develop and maintain a cooperative relationship with co-workers and others”, “You are expected to work co-operatively within teams”.

This is one of the few times such a clear description of teamwork is offered within the documents and it is interesting that it comes from a national document rather than one created within RH.



Liaising was used as following, (D19),

“Management/service leadership shall ensure (by liaising with Quality Management Department) that each employee or volunteer is educated and familiarized with the process for completing electronic event report, this event reporting policy, and the reporting guideline.”

There are fewer references to communication with employees or volunteers, as most of the documents reviewed discussed communication in the upper administrative levels. For an example of the document analysis, please refer to Appendices 4.2 and 4.3.

4.4. Communication

Communication was the most common term in these documents, used around 26 times. This was in large part because one of the documents was directly about communication, the *Communication Plan* (D22). This document opens with a comment on why it was written,

“The Royal Hospital communication policy has been developed to enable two-ways communication with our internal and external stakeholders. The policy aims to ensure that information is shared in an open, transparent, organized, effective, efficient and respectful manner.”

In line with this, the document outlines communication types and routes through RH, for example that the agenda for the Medical Committee Meeting is to be *“communicated to all the members via Email”*. Elsewhere the document states that announcements for training and workshops,

“are communicated via the hospital online portal, website, message board, memos board and emails”.

This offers an account of the communication types and routes available in the hospital, and can be expanded by references to Facebook, meeting minutes, posters, banners, notice boards, Hospital Internal Newsletter, *“electronic intranet system via ‘data link system’ software”*, and also that screen savers can display *“statistical graphs and charts of e.g. handwashing compliance rate”*, surveys and written information. There is no mention of WhatsApp in these documents, and this was



supported by participant comments from the interviews and HFGs, that whilst it was widely used to disseminate information and communicate, it was not an official method of communication.

Another method of communication, referred to briefly above is,

“For patients who are unable to understand English or Arabic language, the caring team will seek interpretation support from other hospital medical professionals who could speak the patient’s language”.

This is the only reference to verbal communication in the document and is specifically related to patients rather than healthcare workers. Largely this is because the document is about communication routes, as outlined above, but is important because all the other methods of communication mentioned are documentation and therefore traceable. This is important for patient safety and was stressed by participants in the interviews as an important factor in communication. This will be discussed further in the next chapter.

Other documents used communication, primarily as, (D15, D19), *“Any improvement plans will be communicated to other authorities...”*, and (D21),

“They [Directors] communicate the new documents of changes in procedures, instructions or documents”.

This is top-down administrative communication.

Finally, in the *Clinical Handover Policy (SBAR)*, (D12), SBAR is described as a *“communication tool”*, and SBAR is intended

“To facilitate effective communication between healthcare professionals and reduces the chance of missed communication”.

SBAR is therefore, *“the structured framework to be used when communicating Clinical handover”*. The importance of SBAR was mentioned by participants, as will be discussed in the next chapter.



4.5. Knowledge Sharing Behaviours

4.5.1. Knowledge Management and Knowledge Sharing

'Knowledge management' as a term was not used in the documents. Both times the word 'knowledge' was used, it was linked with sharing, (D13),

"To be effective, there must be mutual understanding, shared knowledge, trust and respect", "You must share your knowledge... This includes providing mentorship and guidance".

Both of these occurrences were in the *Code of Professional Conduct for Nurses and Midwifery Council*, the national document in use at RH, so not originating with RH staff.

4.5.1.1 Cognate terms: dissemination, sharing, forwarding

Dissemination was also used in several documents. It is used specifically in terms of learning, (D15), *"the concerned department... has a responsibility for the dissemination of learning"*. Likewise, from the same document,

"Develop communication networking and regular meetings to keep service management informed and updated on objectives, achievements and statistics that pertain to their operation and disseminate lessons learned".

This is one of the few references in the documentation which implies a 'bottom up' route of communication.

In D20, covering the roles and responsibilities of the Ethics Committee,

"Produce a written document of ethics framework and disseminate it to all hospital staff", "Monitor ethical principles and disseminate feedback to all staff".

Again, this is linked to an educational purpose, to inform RH employees.

Sharing was used twice, in D17, *Developing and Updating the Vision Statement*, once as a title and

"Mission, vision and value statements are also shared with all staff and stakeholders through various communication tools e.g. Hospital [sic] portal,



printed next to logo on all formal stationary, hanged in visible areas around the hospital, used as an introduction to start any meeting”.

This is not teamwork communication but demonstrates that the hospital appreciates the need for communication to keep employees and stakeholders informed and has considered the methods of communication.

Forwarding was used around four times in different documents. For example, D15,

“Investigate and forward adverse event reports”, “Forwarding the report to the leader of the service, or an identified focal point or the Departmental Quality Committee if exists, for an electronic feedback that includes recommendations and action plan.”

This latter phrase was used almost identically in D19 and D34.

4.5.2. Informed Consent

One form of communication specifically referred to was Informed Consent, emphasising the importance of good communication with the patient. In D13, *Code of Professional Conduct for Nurses and Midwifery Council*, this is stressed,

“Informed Consent is a process of communication between a patient or client and a Nurse.... You must ensure that the information is accurate, truthful and presented in such a way that it is easily understood”.

This is a useful descriptor of good communication within healthcare though in a document that is national in origin, and that it is specifically related to communication with a patient rather than with another healthcare professional. For examples of the analysis (Please refer to Appendices 4.4., 4.5. and 4.6.)

4.6. Bringing the Document Findings Together

Considering these documents as an introduction to how teams, teamwork, knowledge and knowledge sharing are viewed by RH, it is evident that whilst as general concepts, teamwork and knowledge are considered positive and necessary. However, without specific details, it leaves the ways in which teams, teamwork and knowledge sharing are negotiated by RH staff open to a wide range of interpretations, depending on the needs of different departments.



There is a lacuna in this document analysis as some documents had been removed for updating. Several participants told me that documentation was removed and in the process of being re-written for the Canadian Accreditation, but they only referred to policies and protocols in general and could not tell me exactly which documents had been removed or were being written or re-written. Other documents were mentioned by participants but not listed on the intranet and hospital portal when I searched. Thus, it was not always clear where documents had been removed temporarily, and where documents that were mentioned as 'existing' even though participants had not seen them, were assumed to exist rather than actually existed.

I was only able to access Royal Hospital documents while I was in Oman, and due to time constraints could not look at all documents. These are unlikely to be the only references to the phenomena under study in RH documentation, however in the texts examined, a broad overview of the phenomena is found, forming a basis from which to examine the views of participants in interviews and focus groups. This analysis thus offers a foundation of RH administrative and official views around teams, teamwork, knowledge sharing and communication. Hence, this analysis represents a selective scrutiny of documents of RH and how they relate to the research questions.

The document analysis demonstrates little in the promotion of soft skills related to teamwork and communication. The emphasis was on the methods and routes of official information, and dissemination of information rather than knowledge sharing within teams. Teams were mentioned in terms of their roles and make-up, and the most common teams referred to were committees. All committees mentioned were cross-disciplinary.

Several participants in the interviews and FGs stated that the Nursing Department had the most structured documentation for teamwork and communication. We can see from this survey that this appears to be the case, but in large part because of the *Code of Professional Conduct for Nurses and Midwifery Council*, which does not originate in the RH but is a national document applying to all nurses in Oman.

One issue that arose from the document analysis was through the *Adverse Events Reporting Guideline*, *Adverse Event Reporting Policy* and *Adverse Event Response Team* documents (D15, D19, D34). These documents overlapped by covering the



same situation in the hospital and were all available on the portal. However, they were written on different dates, and listed different time frames for required meetings/reports for the same process. This creates a potential for confusion when dealing with adverse event reporting, as there is no clear final document. It is worth noting that no participant mentioned such confusion, even when discussing their experiences with adverse events.

4.7. Chapter Summary

This chapter has surveyed a selection of documentation available from RH, mostly taken from the hospital's intranet portal. It has demonstrated the lack of knowledge management/sharing documentation, and though teams are mentioned, the only reference to teamwork is for recognition of good teamwork, without any description of what that might be. The only discussion of what could constitute effective teamwork is in the *Code of Professional Conduct for Nurses and Midwifery Council*. The next chapter will provide the findings from the participant interviews.

This chapter serve as a frame for considering the other empirical findings in this research. It offered an insight into the organisational and structural process for teamwork and Knowledge Sharing. The next chapter will discuss how individuals within RH construct and experience teamwork and knowledge sharing.



Chapter

5

Findings:

The Micro Perspective of the Phenomena

(Individuals Level)

Chapter Overview

This chapter will integrate the findings across all data sources to present the themes emerging from the interviews and HFGs.

Beginning with the research questions, this chapter briefly reviews the methodology for integration and demographics of participants before describing participant views on the phenomena of interest: teams, teamwork, collaboration, communication, knowledge and knowledge sharing. Finally, this chapter lists the barriers and facilitators to each strand.



Introduction

As described in the Methodology Chapter, this multiple method research design utilizes triangulation and integration across the multiple phases of the research process. In this chapter I bring the data from the different data sets side-by-side for a holistic view of the phenomena of interest, following Morse (2016). The importance of integration and triangulation was discussed in the methodology. This chapter compares the different data sets to answer the research questions and objectives, presented on the opening page of the chapter. It aims to demonstrate how cross-professional teamwork and knowledge sharing are viewed and practiced within Royal Hospital, see figure (5.1.).

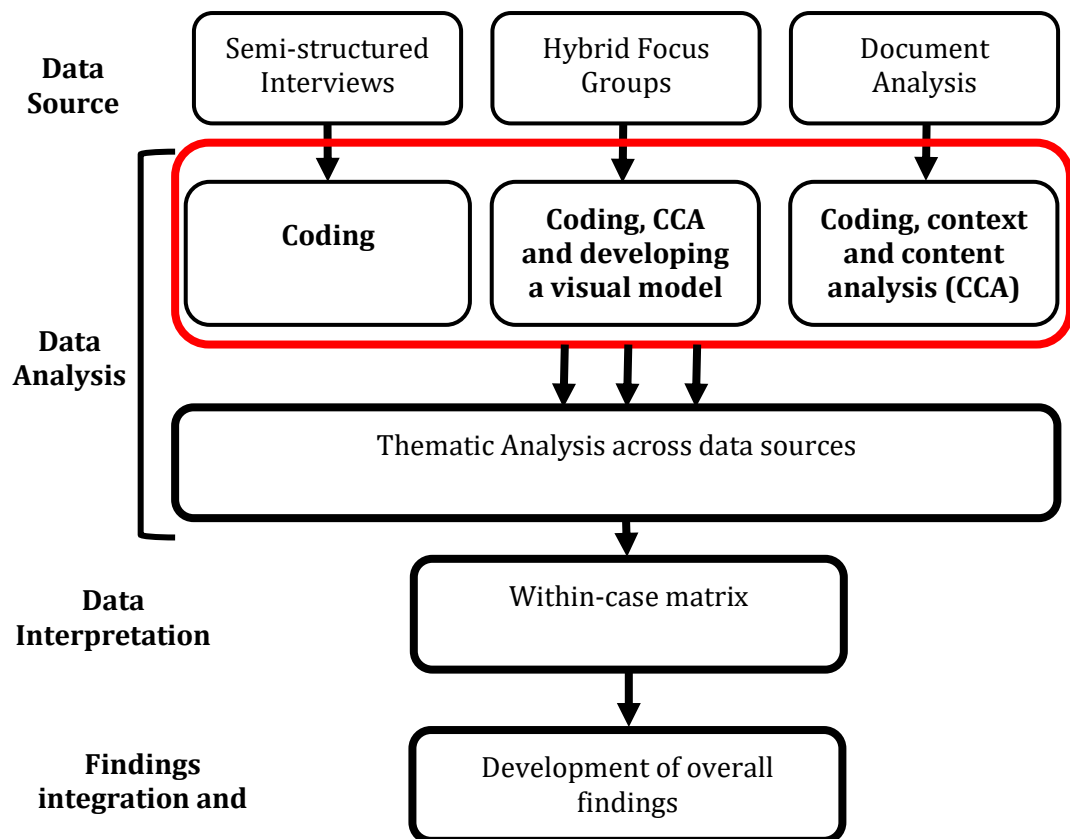


Figure 5.1. Model of integration of the different data sources (Source: Developed for this research)

Through the analysis, 7 themes were prominent, each with subthemes. Table 5.1. presents the first stage of analysing the data sources, presenting the themes that emerged and showing how each source of data enriched each theme.



Identified themes and sub-themes across data sources		I	HFG	DA
Themes and sub themes	Theme 1: Teams	✓	✓	✓
	<i>Subtheme 1a: Team Types/Models</i>	✓	✓	✗
	<i>Subtheme 1b: Team Structure and Leadership</i>	✓	✓	✗
	<i>Sub theme1c: Team Composition</i>	✓	✓	✗
	<i>Sub theme1d: Team Membership and Affiliation</i>	✓	✓	✗
	<i>Sub theme 1e: The Meaning and Concept of Team</i>	✓	✓	✗
	Theme 2: Teamwork	✓	✓	✓
	<i>Sub theme2a: Feelings around TW</i>	✓	✗	✗
	<i>Sub theme2b: Factors associated with TW</i>	✓	✓	✗
	<i>Sub theme2c: Behaviour towards working together</i>	✓	✗	✗
	Theme 3: Cross-professional work in context	✓	✓	✓
	<i>Sub theme 3a: Juxtaposition of teamwork and collaboration</i>	✓	✓	✗
	<i>Sub theme 3b: Cross-professional work views and assumptions</i>	✓	✓	✗
	<i>Sub theme 3c: Cross-professional Care and Patient-Centred Care</i>	✓	✓	✓
	<i>Sub theme 3d: Patients as Team Members</i>	✓	✓	✗
	<i>(3d) a: Patients Role</i>	✓	✓	✗
	<i>(3d) b: Patient safety</i>	✓	✓	✓
	Theme 4: Communication	✓	✓	✓
	<i>Sub theme 4a: Communication Skills</i>	✓	✓	✓
	<i>Sub theme 4b: Communication types</i>	✓	✓	✗
	<i>Sub theme 4c: Communication Tools</i>	✓	✓	✗
	Theme 5: Knowledge Seeking and Sharing	✓	✓	✗
	<i>Sub theme 5a: knowledge seeking/sharing pathways</i>	✓	✓	✗
	<i>Sub theme 5b: Types of knowledge shared</i>	✓	✓	✗
	Theme 6: Barriers and facilitators to cross-professional work and KS	✓	✓	✓
	<i>Sub theme 6a: Personal factors</i>	✓	✓	✗
	<i>Sub theme 6b: Communication</i>	✓	✓	✗
	<i>Sub theme 6c: Language</i>	✓	✓	✗
	<i>Sub the 6d: Training</i>	✓	✓	✗
	<i>Sub theme 6e: Help and support</i>	✓	✓	✗
	<i>Sub theme 6f: Technology</i>	✓	✓	✓
	<i>Sub theme 6g: Hierarchy and Leadership</i>	✓	✓	✗
	<i>Sub theme 6h: Task related aspects</i>	✗	✓	✗
<i>Sub theme 6i: Hospital Structure</i>	✓	✓	✓	
<i>Sub theme 6j: Outcomes</i>	✓	✓	✓	
Theme 7: Culture and Diversity	✓	✓	✓	
<i>Sub theme 7a: Organizational Context, Culture and Climate</i>	✓	✗	✗	
<i>Sub theme 7b: Professional culture</i>	✓	✓	✓	
<i>Sub theme 7c: Individuals culture</i>	✓	✓	✗	
<i>Sub theme 7d: Diversity</i>	✓	✓	✗	
<i>Sub theme 7e: Gender</i>	✓	✗	✗	
✓: Primary source, ✓: Secondary source, ✓: Made reference to ¹³ , ✗: No data				

Table 5.1. Integration of themes and sub-themes as they emerged from the different source of data (Source: Developed for this research)



As this is exploratory research, I opted to use several data sources as discussed in the methodology chapter, allowing an in-depth, holistic and richer understanding of complex phenomena. The section below provides a brief review of my qualitative research methodological stance including comparing different sources of data, interviews, focus groups and a document analysis.

Qualitative researchers posit the richness of individual interviews for uncovering unique data, including the views, feelings and attitudes of participants (Fern, 1982; Knodel, 1993; Griffin and Hauser, 1993; Morgan, 1998; Heary and Hennessy, 2006; Rat *et al.*, 2007). In this research, in addition to these elements, I noticed that participants were more comfortable disclosing how they felt about the phenomena of interest in the HFGs. This could be because they were less self-conscious and relaxed with their colleagues, whilst undertaking a creative activity. The use of interviews and HFGs provided this research with multi-faceted data, not only because it emerged from individuals and their group interaction, but also from art-based and participant-led activities that allowed participants to visualise the phenomena of interest in new ways.

Triangulation occurs through considering how different data sets match up, as suggested by Thomas (2010). This does not require them to agree, but together they add value and depth, scrutinising a topic from different angles. Also, this Chapter in itself is a hybrid integration method at the interpretation and reporting level, applying several integration techniques (Stange, Crabtree, and Miller 2006; Creswell and Tashakkori, 2007). I incorporate several approaches in this chapter, the initial frame for interpreting and presenting my data was 'integrating through narrative', where I present the three sources of data in a single report. I also used a 'weaving approach', weaving together the data - where applicable - on a theme-by-theme or concept-by-concept basis. I used a 'joint display', presenting the data through visual means such as figures, matrix, and tables, which allowed new insights, see figure (5.2.)

This integration displays how the different sets of data confirmed each other in some places, expanded on each other in others, and even showed discordance (Fetters,

¹³ Here the source referred to the theme but did not discuss it.



Curry, and Creswell, 2013). The diversity of data sources, participants and choices of data analysis, interpretation and presenting, together provide a holistic and rich picture of the phenomena of interest.

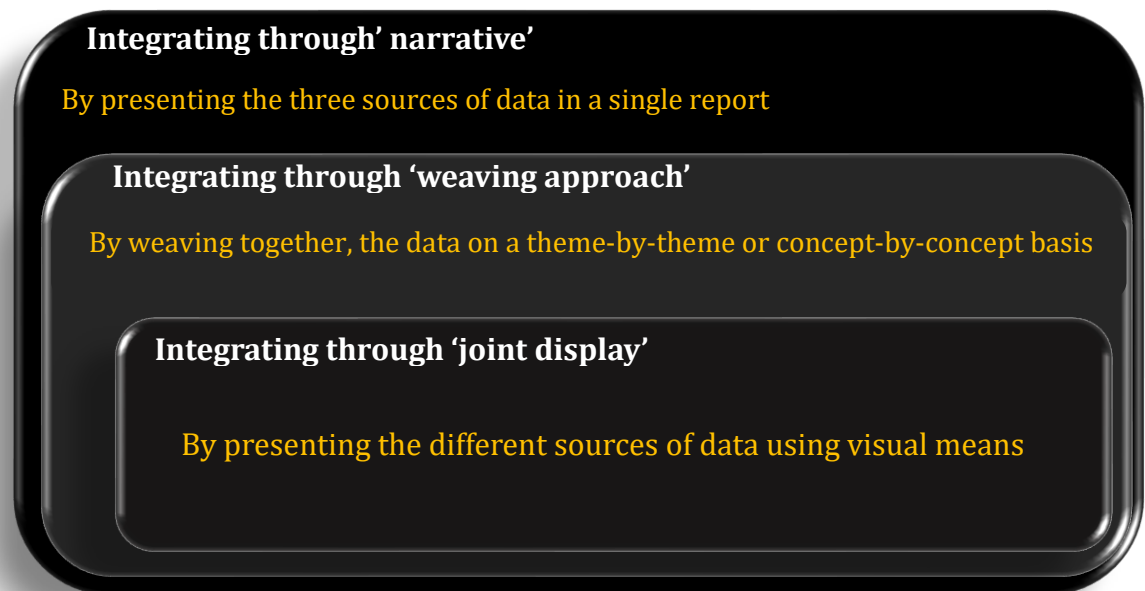


Figure 5.2. Integration methods applied at the data interpretation and reporting in this research (Source: Developed for this research)

5.1. Participant demographics and study overview

5.1.1. Interviews

As discussed in the methodology chapter, the demographics of interviewees was varied. Whilst there was a 50/50 split by gender, the 26 participants varied in age, experience, nationality and profession, allowing for the collection of views from different healthcare professional groups in RH. Participants' years of experience in healthcare ranged from months to over 25 years. Most participants had either worked or studied abroad, in India, the Philippines, European countries, the United States and Canada. This variety of backgrounds was key to achieving a wide variety of views. Please see Appendix 5.16. for full details.

The research scope of teams, teamwork, collaboration, knowledge and knowledge sharing (KS) were discussed through semi-structured interviews. The interview participants were interviewed about their daily practices, experiences, values and perceptions within RH. Their interviews revealed the complexity of understandings



behind concepts such as ‘team’, ‘teamwork’, and ‘knowledge sharing’. My intention was to explore the dominating team types in RH and examine the types of teamwork implementation and knowledge sharing within these teams. As this is the first research to tackle the Omani health care setting from such an angle, the interviews were designed to be flexible and pursue any new threads arising from the comments of participants.

5.1.2. Hybrid Focus Groups

In total, there were 7 HFGs, with a total of 33 participants. The three Affinity Diagram HFGs (HFG-ADs) comprised 16 participants from different departments. 11 were females, 10 of whom were nurses. 5 were male, 4 of whom were clinicians.

The four Team Map HFGs (HFG-TMs) consisted of 17 participants from four different healthcare teams. 14 were female, 3 male, 10 were nurses and 7 were clinicians. However, whilst the participants from each HFG-TM were identified by heads of departments as members of a team however, I also had to contact the nursing administration for these teams as all nurses came under the nursing department (for recruitment details please refer the methodology chapter). A further complication in the four HFG-TMs was that whilst participants from the same team were requested, due to rota and workload factors, participants in most cases worked under the same department, but did not belong to the same team. The exception was the Infection Control (HFG-3).

5.1.2.1 Overview of HFGs approaches

Full details of the HFGs are provided in the Methodology Chapter, but to briefly recap, I created an interactive investigation, using activity-oriented creative exercises. This collective activity provided an insight into participants’ experiences, understandings, and views of knowledge sharing and teamwork through their creation of visual data (artefacts), which is then used to inform organised discussion. This chapter demonstrates the richness of data collected through this approach, which also included the thematic analysis (TA) of group discussions and a word frequency analysis (see appendix 5.1), as well as researcher observation of the sessions. One advantage of participant-led data visualisation is limiting researcher influence on data collection and interpretation.



Both types of HFG applied activity-oriented questions.¹⁴ The three HFG-ADs collected views, experiences and understandings associated with cross-professional teamwork. Each group was drawn from different departments and produced artefacts collating and linking the factors they considered important in their cross-professional teamwork in response to the question:

What factors, from your experience, come to mind when we talk about mixed healthcare teams in RH?

An example is included as figure (5.3.)

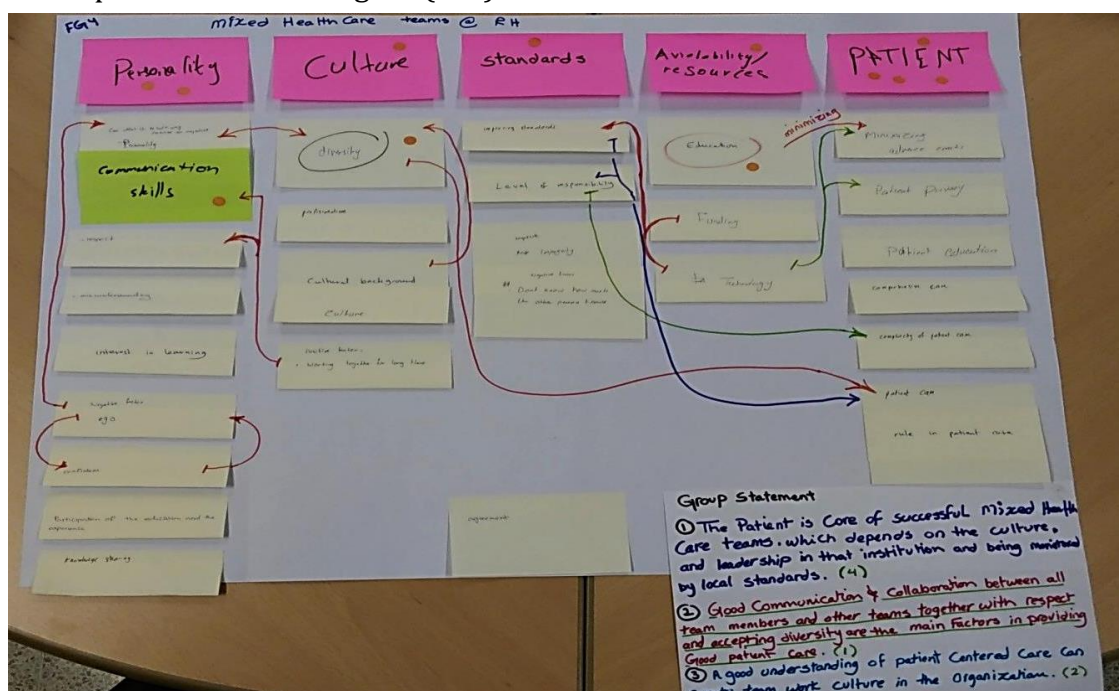


Figure 5.3. Example of Affinity Diagrams artefact (Source: HFG4)

The four HFG-TMs explored cross-professional teamwork, team types and KS behaviour through an art and craft ‘map’ Each group was drawn from the same department and created a visual model of team structure, teamwork, and communication flow within their healthcare teams, departments, and the wider hospital. Each HFG created two sets of maps, the first a diagram of the team as a whole, with communication (one- and two-way), teamwork and collaboration mapped, and the second, an individual ‘map’ annotated in the same way. The questions for participants to consider in their maps were,

¹⁴ Through this chapter, where I feel it is relevant to identify the department of a group or individual, I have done so.



How would you represent your daily work within the overall hospital environment? If you are dealing with a patient, who would be involved? How would they be involved? What type of information and knowledge will you share, need or exchange? With whom? What will be the process? Where does the patient fit within that?

An example is included as figure (5.4.).

Data was collected from the artefacts, the process of creation, narrative explanations of artefacts, and researcher observation hence the value is not only in outcomes but also includes insights from the process. My observations are woven through the narrative in this chapter.

As noted in the methodology chapter, this research is an exploratory case study with thematic analysis, to understand and explain the characteristics and implications of the complex phenomena under study. Therefore, units of analysis were chosen to highlight key elements relating to the phenomena and research problem (e.g., RH

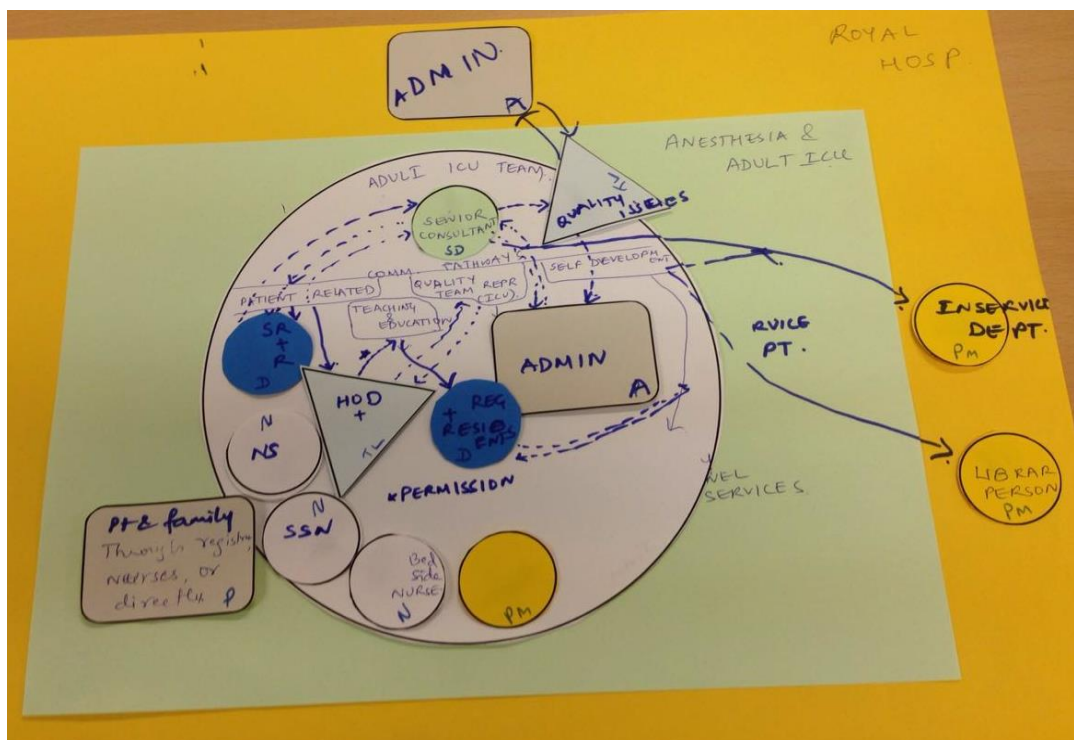


Figure 5.4. Team maps artefact (Source: HFG1-4)

structure, team types, and individual attitudes toward the phenomena). This approach allowed me to consider the phenomena of interest in its social setting, creating a rich picture of the professional, social, and cultural dynamics involved. It



also exposed individual attitudes, creating a vivid picture and understanding of the setting under study and the type of interactions occurring.

This exploratory focus allowed for multiple layers of context, which require careful selection and navigation. Hence, I will structure this chapter by considering the team-types in RH and then the views of participants about teams and teamwork. From there I will consider the other primary strand of study, knowledge sharing, and finally the facilitators and barriers participants suggested for teamwork and KS.

Whilst 'team' and 'teamwork' are not the same and represent different elements, at times they were spoken of by participants as cognate, so there is some overlap in the comments selected, and I have followed the context of their use in interviews. Likewise, the overlap between teamwork and collaboration, which will be increasingly important in this research. Finally, there is an overlap between 'knowledge' and 'information' in the comments of interviewees.

5.2. Team Types

The first research question related to understanding the team types that dominate healthcare professional experience in the Omani healthcare system, though looking at the team types in Royal Hospital as a case study, as discussed in the methodology chapter. This section summarises the research findings to answer this question as reflected across the different sources of data.

So that is why I am telling you this. There is no pure standard on teams (I22).

From the interview and HFG data, it is evident there is a wide variety of teams in RH, however, there was no clear common structure as teams were created from the needs of different departments and units. Hence, for example, in the HFGs, the teams described by Infection Control were very different from the teams in ICU. Nevertheless, patterns can be discerned as shown below and this section elucidates 'team' across these data sets.

When asked specifically about the term 'team' participants were not always clear where team boundaries were, a factor that came out more strongly in the HFG-TMs. Often participants described these teams in terms connected to their functionality.



The following sub-sections collate team types identified in this research, although there is some overlap between teams and the extent to which they are static or ephemeral. I begin with the team pathway, administrative or clinical.

5.2.1. Administrative Teams

Committees were mentioned in all three data sets although none of the HFGs dealt specifically with committees. In interviews committees were often given as examples of teams by participants, most often by managers and clinical managers. The DA highlighted a number of committees, as documentation dealt primarily with the bureaucratic and administrative running of RH. These committees were structured with a defined name, aim, objectives, clear roles, and leadership structure.

Team type: Administrative – Committees	
Interviews	Document Analysis
Committees were described as occurring across the hospital, including quality and performance control and hospital development, e.g., for the composition of policies and protocols (12) <i>“Admin includes committees as teams ... I’m part of many teams, committees”</i> . (14) <i>“There are... some teams which are based on hospital committees... there are framework for those, but each department have to find their own way on how to fulfil those teams.”</i> (12) Theatre Users Committee: <i>“It’s made up of, nurses, and doctors, ... we worked on having a day-care theatre and refurbishing a theatre.... That was a combination of what we should do between the anaesthetists, the theatre nurses, and, ourselves [surgeons], and the administration”</i> .	Committees were a common cross-disciplinary unit, frequently referred to in documents, often by name, e.g., Departmental Quality Committee, Ethics Committee, Medical Committee. All committees mentioned were cross-disciplinary D21: <i>“Participating as per the director instructions or committee request”</i> .

Table 5.2. Administrative Committees from different data sets (Interviews and DA)

In interviews, committees were described as governing administrative and clinical healthcare work across the hospital, including quality and performance control, and hospital development, such as cross-departmental collaboration and the composition of policies and protocols (for example, the Canadian Accreditation Policies and Protocols Committee). Hence there was variety in the make-up of committees. Project-based teams were generally administrative and described as committees in interviews., an example being the Theatre Users Committee for refurbishing an operating theatre (12). Project-based teams were only mentioned by managerial staff and related to management or service-based projects. An example



of how data from different sources was compared is table (5.2.), demonstrating views on committees gathered from interviews and DA.

5.2.2. Clinical Teams

In interviews and HFG-TMs these teams were hierarchical with the team leader as the senior member of staff with the most experience. Most participants described their 'home' team in terms of their unit, department or speciality. As noted in the methodology chapter, when recruiting participants, the nurses came under a different management. However, as these teams operated within departmental boundaries, they shared departmental protocols and policies, and tended to know each other by name, often working together regularly, often by rota. Thus, they shared the unit, department, or speciality name, vision and objectives. In interviews these teams were often described as comprising either nurses or clinicians, for example, the team of ward nurses. However, in the HFG-TMs this was not a clear division, particularly in the maps created by nurses. This was most evident in the disagreements arising in HFG6.

5.2.3. Department, Unit or Discipline-Based Teams

Participants described department, unit or discipline-based teams as healthcare professionals from the same profession and discipline, who share their daily practice and workload, within a home department or unit. They typically have well-defined, full-time and stable membership, and were created by rota.

Many participants described the teams that they worked with primarily in terms of their home department. These teams were encompassed within departmental boundaries, operating under a single management structure ¹⁵, sharing departmental protocols and policies, knowing each other by name, and often working together regularly although affected by rota. They also share the unit, department, or speciality vision and objectives. When clinicians described such teams, they tended to exclude nursing staff, and some HFG-TMs separated nursing

¹⁵ With the proviso that nurses came under the management of the nursing department.



and clinician teams. For others, these teams were depicted as cross-professional, and interacted, communicated and shared information and knowledge through a hierarchical structure:

- Senior Consultant(s)
- Consultant(s)
- Registrar(s)
- Specialist(s)
- Junior Specialist(s)
- Medical Officer(s)
- Trainee(s)/Intern(s)/Resident(s)

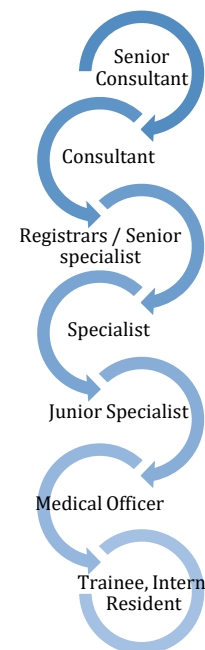


Figure 5.5. Clinician team example
(Source: developed for this research)

All the HFG-TMs concentrated on department or unit teams, but with indications of where they interacted with the wider hospital. The HFG-TMs began with all participants creating a group map. As can be seen, groups presented their teams in different ways. All teams were hierarchical and included a team leader, usually a senior clinician or the head of department. The Intensive Care department (ICU) created a highly ordered and hierarchical depiction of their department team (figure 5.6.). They depicted themselves within one team boundary with nurses and clinicians together and developed separate artefacts to present their communication and KS practices (see figures (5.12,) and (5.13.) under Communication). However, when describing their group map, they referred to “Nursing team” and “Doctors team”, thus separate but linked through communication, which was at odds with the visual data.

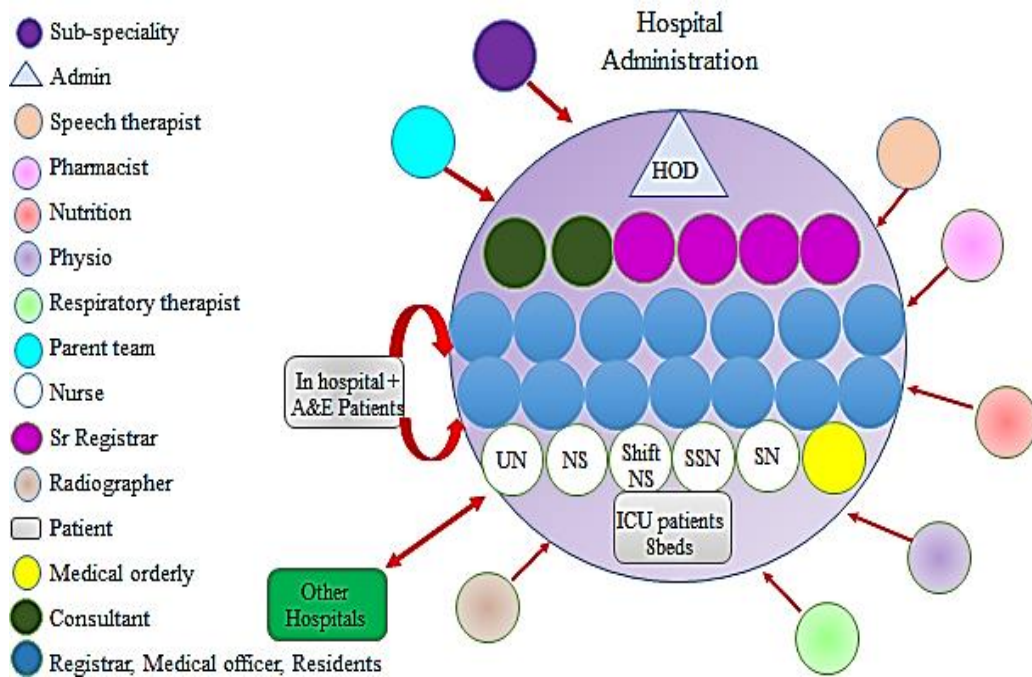


Figure 5.6. Intensive Care Unit (ICU) -Group team artefact (Source: HFG1)

All other specialities were placed outside the team boundary, and any interaction with them was described as ‘collaboration’ in their descriptions of teamwork.

The Emergency team (A&E), whilst drawn from the same division, came from two departments, adult and paediatric/child health. They described themselves, “*One team. ...each shift, different staff... One team, yes, individuals change.*” Thus, emphasising that the team was built by role rather than person.

The Obstetrics and Gynaecology (HFG6) team group presented a different view of their team(s) (figure 5.7.). During the HFG, clinicians and nurses rarely collaborated but developed separate teams, with their own hierarchy and structure. The participants stated that their department was so complicated, it could not be adequately presented. When describing the artefact, the teams within the department were described as working alongside each other. However, as with ICU (HFG1), any interaction with other specialities or departments was not depicted as teamwork.

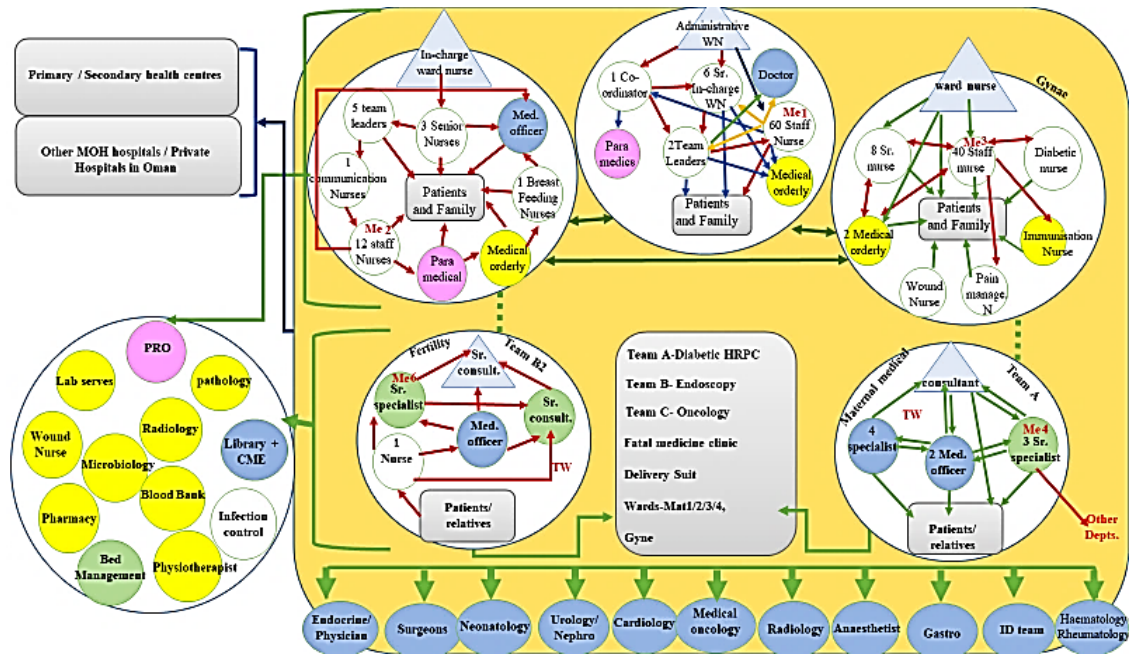


Figure 5.7. Obs-Gyne - Group team artefact (Source: HFG6)

Infection Control worked differently from any other department in that they worked across the hospital and were not necessarily co-located, with members frequently working alone. Their group artefact demonstrated a closer view of interaction with other specialities, incorporating teamwork. This can be linked to the nature of their work with every department. They described their work as impacting other departments, and vice versa, hence they struggled with team boundaries in creating the map and used the department boundary to demarcate the team, whilst allowing for teamwork with other groups.

Within the artefact (figure 5.8.), as with HFG6, (figure 5.7.) they created separate teams, but described them as interacting through teamwork and collaboration. In their discussion they were unusual in the breadth of their teamwork interactions.

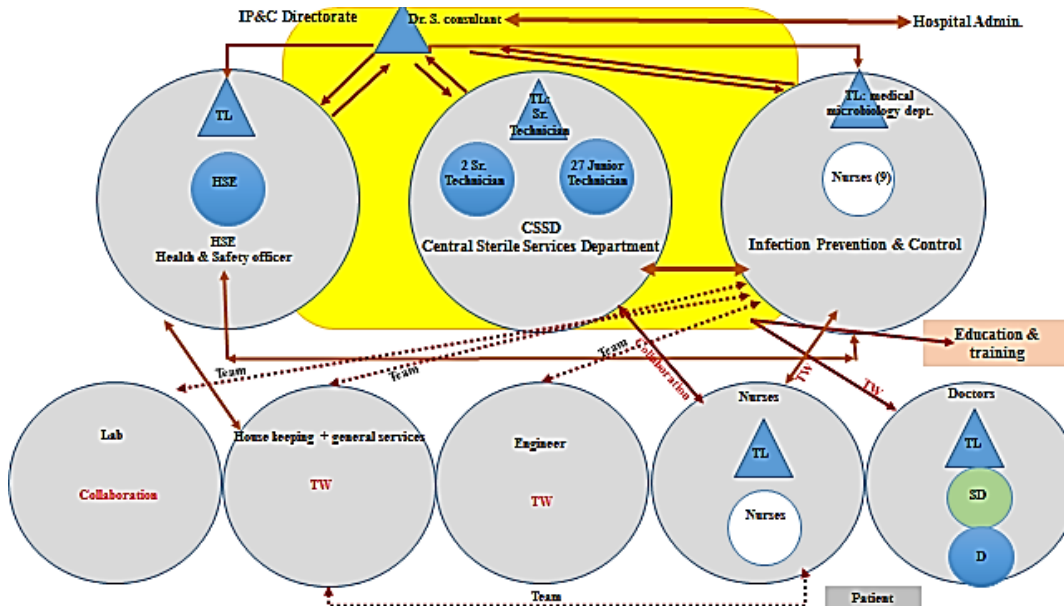


Figure 5.8. Infection Control (IC) team artefact (Source: HFG3)

Although departmental or unit/speciality teams may seem easy to identify as they fit RH structure, as is clear from the artefacts presented here that participants often identified with a smaller group within the department as their ‘team’.

5.2.4. Joint Clinics

Participants described joint clinics as cross-professional and tailored to out-patient services. They were usually described individually, so with reference to two specialities, for example, Obs/Gyne and Diabetes. The extent to which the two specialities worked together was unclear.

Several clinicians described ‘joint clinics’, ‘combined clinics’, or ‘multi-disciplinary clinics’ when discussing teams. Whilst participants referred to them when discussing teams in the HFGs, they were not included in the artefacts, and were generally identified as collaborative interactions with specialists outside the department. Joint clinics were assembled from clinicians coming from different specialities or sub-specialities, working together to assess the patient and decide on the best treatment path. One clinician described why they started a breast oncology clinic,



“between us, radiation oncology and medical oncology, where the patient doesn’t have to go around with, to see these doctors, the patient sees all the three doctors in the same city, so we are sitting together and seeing the patient” (I3).

Joint clinics were an important part of the Obstetrics and Gynaecology department as many of their patients were co-morbid with complex healthcare needs, (I15),

“We have a lot of joint clinics between our department and the other departments, between cardiology, ... there is diabetic ... rheumatology ... retroviral infection, ID and haematology....”.

In the HFG-TMs, Obs-Gyne (HFG6) discussed joint clinics to highlight the complexity of their patients rather than the teamwork it could involve.

5.2.5. Cross-Professional Teams

Participants described cross-professional teams as static and crossing disciplinary boundaries, often by sub-specialities. Members are selected to complete each other’s skills and knowledge based on experiences or training; hence they typically have defined roles, but individuals may change based on shift, rota and need. These could be static or recurring teams.

These teams are static and formalised but cross disciplinary boundaries. As with department and unit teams, members know each other and were brought together by rota, but they include different specialities. Recurring teams would come together for specific tasks then disband until needed again. Examples here are the Cardiac and Kidney Transplant Teams,

“two anaesthetists with anaesthesia staff nurse too, then the perfusionist, then the surgeon as well as the assistant surgeon, scrub nurse as the circulatory nurse. That’s the team of our cardiac group” (I9).

“transplant surgeons and have a urologist, but that team has got nurses, has got counsellors ... nephrologists ... theatre nurses, ... something like that



requires liaising with all aspects...the counsellors, ... the physiotherapy people” (I2).

These teams were most likely to be self-identified by participants as patient-centred care providers and were hierarchical based on experience and seniority.

Such teams could consist of,

Clinicians (with similar hierarchy as mentioned above)

Trainees: interns and residents

Nursing

Medical orderly

Pharmacist

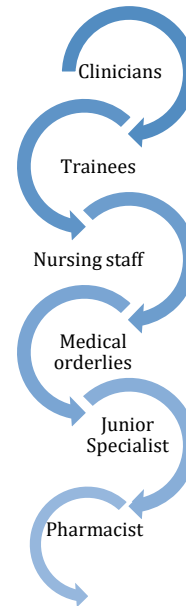


Figure 5.9. Cross-professional team example (Source: developed for this research)

5.2.6. Case-Based Teams

Participants described case-based teams as appointed for a specific goal, objective and function, and more transient than cross-professional teams. Members are selected to complete each other’s roles and support patient care based on their roles and expertise. They generally have well-defined roles, but individuals changed according to rota or selection.

Case-based teams were described by the participants as forming for specific cases from multiple professions, specialities and sub-specialities. These teams were created when a single speciality needed outside expertise in patient care, and the hosting department requested support from another speciality or sub-speciality. The team was to complete a procedure or a treatment plan,



“The main thing are nurses and doctors, then we have physiotherapy, we need them sometime, ... like infectious disease, ... the radiology consultant and the technician, of course. So, it’s multi, multi-teams. We invite them whenever we need them” (I5).

However as discussed below, there is some overlap between what participants viewed as ‘teamwork’ in such cases, and what they termed ‘collaboration’.

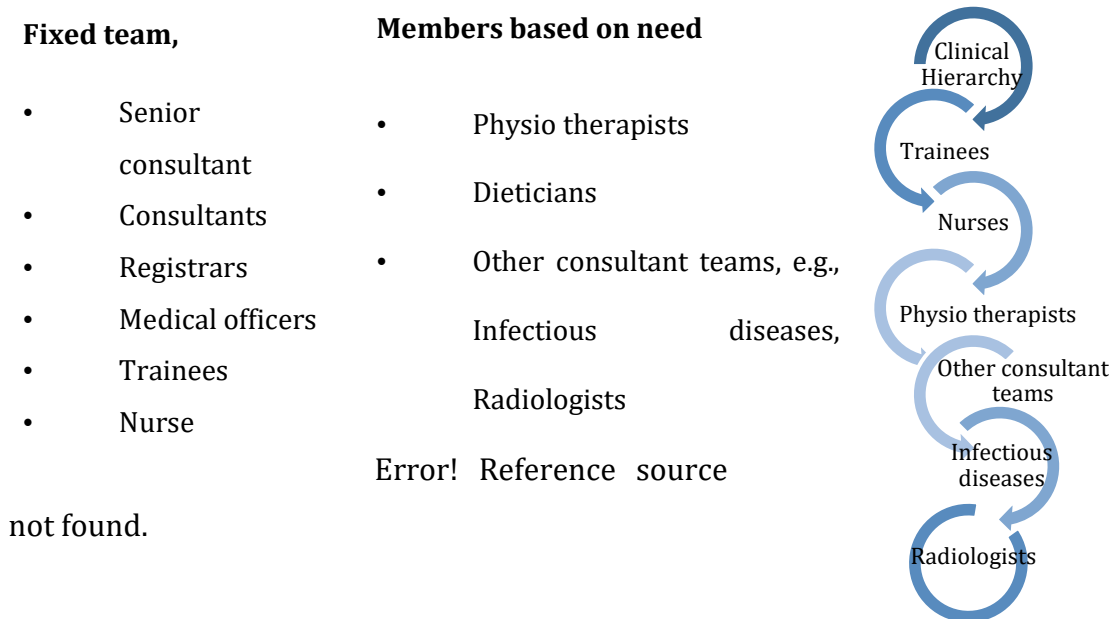


Figure 5.10. Case- based team example (Source: developed for this research)

5.2.7. Contingency or Purpose-Based Teams

Participants described teams that came together for a contingency or purpose, hence appointed for a specific goal, objective and function. Members are selected to complete each other’s skills and knowledge based on experiences or are trained for the team. They usually respond to specific events or contain and deal with emergencies. They typically have defined roles, but individuals may change based on shift, rota and need. These teams are recurring.

Several teams that require members to come together across departments are made up only of, or primarily of, nurses. For example, the Critical Care Outreach Team was



described as several participants as an example of a rapid response team. CCOT comprises nurses who have the training to respond to patient deterioration within the hospital.

Other teams that come together in this way are cross-professional, for example to investigate an adverse event to be investigated, one of the few teams mentioned in the analysis. The boundaries of these teams are flexible, and members have other roles, only becoming part of the team as and when needed. The membership was generally stable, although the team itself only came together intermittently.

5.2.8. Project-Based Teams

Participants described teams that came together for a specific project. They are transitory but the length of the team's existence depends on the needs of the project. Members are selected to complete each other's knowledge and skills either by appointment or volunteering. They are self-managed, autonomous or semi-autonomous, self-directed, and time bound.

These teams could often be committees. Members change based on the project and could be from a single profession or across multiple professions. Roles are allocated according to the needs of the project and the skillset and knowledge of potential members. A prime example was the Theatre Users Committee,

"it's made up of, nurses, and doctors, ... we worked on having a day-care theatre and refurbishing a theatre.... That was a combination of what we should do between the anaesthetists, the theatre nurses, and, ourselves [surgeons], and the administration" (I2).

Most project-based teams are not directly related to patient care but to a management or service-based projects.

5.2.9. Lack of Standardisation Across Team Types

The fluidity of team membership was mentioned by many participants. Individual membership was described as changing between teams based on role, rota, team need, workload or experiences. Whilst these dynamic teams have the potential for



disrupting efficient teamwork by, for example, constraining Royal Hospital staff from understanding fully their roles or committing to a team, they were nonetheless associated with a patient-centred focus for teams and teamwork.

Whilst participants' descriptions of team composition revealed commonalities, no single "standard" team composition pattern appeared. For example, a nurse commented,

"there is no standard ... As the team member change, the team concepts and definitions also change. Because all this multi-speciality, they are rotating seven-month, six month. Only the heads will be the same. But the rest, the junior under that, the registrar, are just keep rotating" (I22).

Similarly, a clinical manager and senior consultant explained that the RH structure leaves team development to departmental needs and workload,

"Royal hospital requires staff to work on team based. Those teams are not part of the RH structure. The RH structure is mainly Directorates and each subdivision, but it doesn't include day to day practice teams. So those working teams are established by the departments themselves to make things running smoothly" (I4).

This sketch of team types as described by participants demonstrates the variety of teams that occur in RH. A table of team composition is provided in appendix 4.1. Teams are required for different reasons at different times and in different departments. Despite this variability, patterns can be discerned, enabling the groupings above. As participants further discussed teams, further themes arose, which will be discussed through the rest of the chapter.

5.3. Team Selection, Membership and Affiliation

As discussed, team membership was at times contested, particularly in the HFG-TMs. For the majority of teams discussed, that is departmental teams, membership was based on affiliation of the department and was thus automatic and affected by rota



and/or rotation. For other teams, interview data demonstrated that members could be selected as individuals or through their expertise/role.

5.3.1. Joining a Team

Participants were asked how they became members of that team. From the interviews it was possible to chart a variety of entry routes into a team, which was frequently directly linked to the type of team described. Figure (5.11.) demonstrates the different routes described during interviews and HFG discussions for joining a team.

5.3.2 Departmental-Based Allocation

The most common route into a team occurred when a member was automatically assigned to a team by joining a department or speciality, *“just because I joined the department, I become part of the team”* (I26). A surgeon and senior consultant described joining RH, *“I was put into a team”* (I3).

There were also occurrences where a participant joined a department or speciality in order to be in a specific team, such as Infection Control. Departmental-based allocation to a team therefore represents one of the most common routes into a department, unit or speciality team. Such teams were generally under the same management structure.

5.3.3. Knowledge and Experience-Based Automatic Allocation

Another common route into teams was by role and rota., through knowledge and skills already possessed or with the intent of further training. A nurse explained,

“based on duty rota and depending on the cases. If I can do it, that particular case, then I will be assigned” (I9).

Such allocation is based on need, for example, staff shortage, individual speciality/experience, and individual involvement with a case. Such teams might be static, or case-based and transient. A clinical manager (I1) commented that the team leader can select the individuals they feel are best suited for a case or task, based on availability. Staff who are selected to join a team often described the team as welcoming.



Oman, as an Islamic society, places great value in family relationships. Echoing this, a senior consultant explained his investment in selecting individuals with interests in his field and mentoring them to complete their study and join his team,

“I choosed the people who wanted breast surgery and I ... tried to be there for them from beginning... now when they are back as consultants, they love me and they treat me as older brother” (I3).

Other participants explained that that they joined teams by invitation because they were known to either the team leader (I7) or the other members of the team (I5).

Being selected or allocated to a team can occur on a temporary basis, for example when a core team needs assistance. Such selection could be as an individual or through one’s role within a department, depending on shift or rota. This fluidity was seen to be an important aspect of patient-centred care, whether it was termed as teamwork or collaboration.

5.3.4 Self-Selected

As a route into a team, self-selection was more common among clinicians than nurses, for example, a junior consultant described joining his team,

“I joined because I specialised in this unit, and I choose that three years back” (I5).

Likewise, a senior consultant described studying in order to join her chosen department, (I15), and a nurse described transferring from a department in which she did not enjoy working, (I8), however this seemed to be very unusual and she was the only nursing participant to describe such a process. On the whole this route was less common and more likely for Omanis, often as career progression for clinicians and management.

5.3.5. Membership of Multiple Teams

Whilst many participants spoke of belonging to different teams, for example, an administrative committee and clinical team, or seconded to a specific case, this was not described as being ‘shared’. In contrast, when participants spoke in terms of ‘shared’ membership, the term was frequently linked to members lower in the



hierarchy, for example nurses, or within a clinical team it could be the junior clinicians.

“I managed to create a team... which was surgical breast team. It was me and I had an assistant who was helping me and helping the endocrine team, so he was shared assistant” (I3).

For others, a rota could mean moving between teams, for example, a nurse explained that being part of the OT department meant working in different teams,

“As a scrub nurse, circulatory as well as the scrub nurse, we had assigned as a staff nurse and assigned for both. If I am scrub nurse today... tomorrow I will be a circulatory nurse” (I9).

This was particularly common in Obstetrics and Gynaecology as they cared for patients with fertility problems, problems in pregnancy, in labour and post-natal care.

Where teams came together for a specific case or event, membership overlapped with more static teams, and participants were most likely to describe themselves as belonging to the static or departmental team in interviews and HFGs. In HFG-TMs, nurses were more likely to consider themselves part of wider and cross-disciplinary teams, whereas clinicians tended to exclude nurses when describing such teams.

Affiliation as a topic raised some interesting questions, for example, in interviews, clinicians often referred to their administrative committees and teams, but generally focussed on their rounding team and clinical teams, indeed one clinical manager was critical of those who preferred administrative work to clinical.

In HFG5, the participants created maps for how they would respond to a cardiac arrest and patient emergency. Interestingly this was described more in terms of teamwork: coming together for a specific emergency rather than as creating a temporary team. In HFGs and interviews there was not a clear correlation between team and teamwork, as discussed in section 5.3.



Departmental-based allocation to a team

- The most common route into a team
- Some participants joined a department or speciality in order to be in a specific team (self-selected)

Knowledge/skills-based allocation to a team

- Another common route into teams, either through knowledge and skills already possessed or with the intent of further training
- Such teams might be static, or case-based and transient

Shared members

- Membership of more than one team was common
- Frequently members who were shared between different static clinical teams occupied the lower ranks of the hierarchy, for example nurses, or junior clinicians.

Figure 5.11. Finding a team (Source: Developed for this research)

5.3.6 Team Affiliation

Participants were asked about their team affiliations. Some felt a strong affiliation to a team and others that they were members of different teams with no clear affiliation, however the former was more likely. Participants most often linked themselves to the team connected to their home unit or department, which was the team with which they spent the most time and generally the one they were registered with officially based on staffing records. The participant artefacts from HFG-TMs indicate that departmental boundaries often served as the division between who is in the team and who is not. Even when participants referred to an interaction with other individuals outside the team boundaries as teamwork, in most cases they did not include them within the team boundaries.

When asked to map their day-today-work and interaction in individual maps, participants struggled to articulate interactions with those outside the department, rarely including them within the signifier, team. The nurses of IC (HFG3) perceived their interaction with everyone as teamwork due to the nature of their work, but still identified their team based on departmental boundaries. Hence, they simultaneously presented themselves as part of every team, and considered themselves as a team within department boundaries.



In interviews and HFGs, team membership was contentious. Throughout the TM-HFGs participants argued to establish who to include or exclude from the group team. For example,

"HFG6-1: Paramedics are part of our department, no?"

HFG6-3: Yeah, they are belonging but we-

HFG6-5: Nurses like them, [Indian]

HFG6-1: Nurses are not" (HFG6),

Likewise, in ICU (HFG1), when a consultant asked whether nurses were included in the team, a nurse replied, that they were, and a consultant said, at the same time, *"they have their own team"*.

As noted, Obstetrics and Gynaecology (HFG6) had clear demarcations between clinician and nurse teams and mapped these teams separately. In other HFG's, teams were seen differently, for example in IC, *"Nurses it's a team, yeah, nurses and doctors are also teamwork"* (HFG3). These differences will be further considered in the Discussion Chapter.

There was also a checking and correcting when participants mapped their teams. For example, (HFG6) discussed whether someone should be within their team just because they belonged to their department. This illustrates another issue from the mapping process, conflating team with department, and is seen in the previous quotation from HFG6. For the group maps in particular (HGF-TMs), it was often the department that was depicted as the team, which may explain why for many participants, teamwork occurred inside the department and collaboration occurred with staff members outside the home department.

There was also disagreement about the final maps,

"They said we have too many outside, I said we had too many outside, you had too many inside!" (HFG6).

Thus, the maps demonstrate that whilst there are themes that arise from the data allowing the identification of general team types, and affiliations, tying these down



to specific membership was more difficult, as participants had no universal understanding of teamwork and collaboration.

Participants did not always initially consider themselves members of different teams, for example, a nurse explained, *“I only work with cardio-thoracic team.... I only work only with one team.”* (I26). However, when asked to describe her role, she said,

“sometimes I am working as a shift-in-charge, otherwise I am working as a staff nurse, then in between I work in the High Dependency also” (I26).

However, she did not describe herself as part of the High Dependency team.

The Infection Control team individual diagram (FG3-1) demonstrates how the divide of hierarchy and profession, even within the same speciality, can impact the way participants viewed team membership. The senior consultant did not position themselves within any team, and separated nurses from clinicians, into separate teams in terms of the groups with which they interacted, see figure (5.12.)

No participant used a committee as their home team, indicative of the smaller time commitment required by committee work, Committees did not form a major part of participants’ workload and were generally viewed as adjunct teams. Nevertheless, participants referred to committees when talking of teamwork in general, or to demonstrate the range of teams they belonged to

Participants were asked to describe their membership of teams and how they

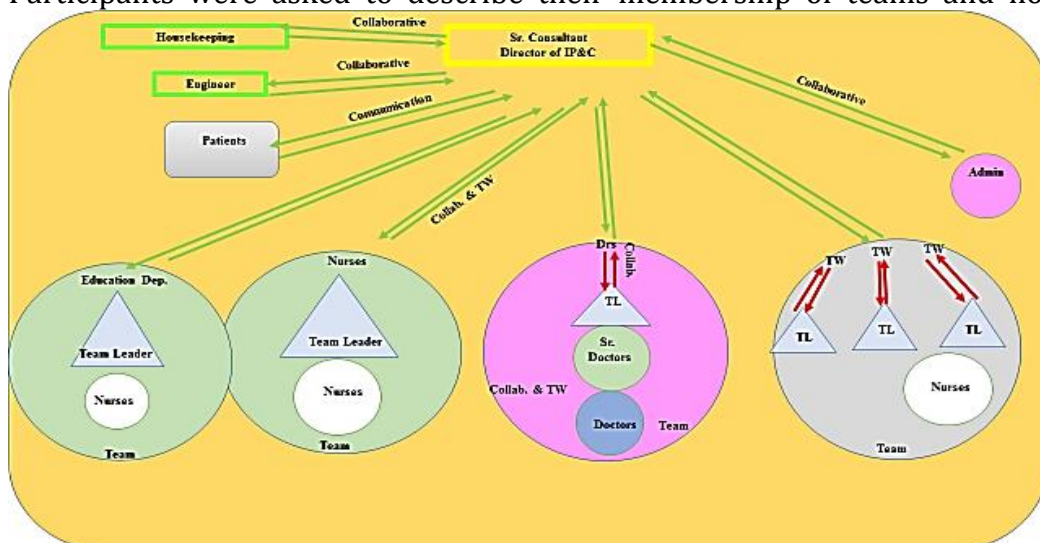


Figure 5.12. Infection Control - Individual Team Visualisation (FG3-1)

viewed this, for example whether membership changed. The following section



highlights the major themes arising from this element. It should be noted that these categories are not either/or and membership could change according to several factors affecting a team.

5.3.7. How Team Members Change

The membership of teams often changed, either because of the nature of the team or the structure of the hospital, through the methods shown in figure (5.13.).

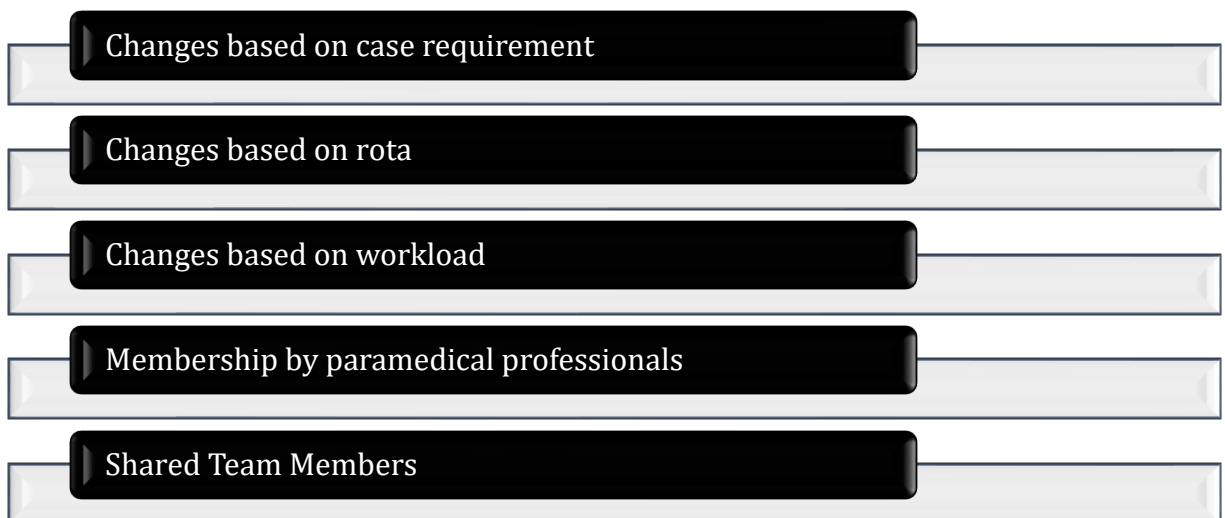


Figure 5.13. Changes in team membership (Source: Developed for this research)

5.3.7.1. Rotation and rota

The rotation system in hospitals creates a regular and regulated change in many teams, for interns and doctors and across departments and teams. RH is a teaching hospital thus there is a regular turnover of students,

“You know our teams keep changing monthly we’ve got three residents coming, three residents coming new, the OMSB residents” (I15).

However, the team type, as above, may be static in nature.

Changes due to rota and shift again tended to be regularised, as a nurse noted, *“daily we are changing the allocation of the staff” (I14)*. Participants viewed this in different ways. In HFG-TMs and some interviews, rotas were described as creating one extended team of everyone on the rota (I14), and for others it created a series of different but connected teams,



“A lot of teams don’t have a choice, rota – designated doctors and every week they change so we don’t work with one team for the whole month” (I5).

In some departments, doctors moved between different aspect of their specialty, each sub-department having its own team, for example clinics, or surgery. Again, this was particularly evident in Obstetrics and Gynaecology, rotating between the delivery suite, surgery, labour ward, and clinic/outpatients.

Evidently, teams varied greatly across the hospital as different departments created teams to suit the needs of that department and specialisation, which reflects the findings of the interviews. The level of work with other specialities appeared to correlate with how inclusive those individuals were in their depiction of teams, but this was not a clear correlation. Clinicians and nurses also differed over how inclusive their teams were. As noted above, participants did not, as originally planned, belong to single teams, rather they worked in the same environment and teams, and understood how the teams functioned within the department, and thus, teams were largely presented by role rather than individual. This is not surprising given the constant change in teams by rota.

5.3.7.2. Changes based on case requirements or workload

As noted above, some RH teams only came together for a specific case, for example,

“we have extra people outside from radiology, from nephro, but if we need them, only, they are not always with us” (I5).

In such cases, this grouping was not always considered a team, therefore this was a grey area for participants, and for some served as the divide between teamwork and collaboration, as discussed below. Some participants described moving between teams based on the workload of the department,

“We work in different teams, dealing with acute cases admitted under a speciality, chest, rheum, gastro, haem, nephro, oncology, and sometimes surgical due to bed shortage” (I19).

A clinical manager in Obstetrics and Gynaecology explained how the clinicians’ role is decided based on workload, alongside rotation and rota,



“[We] divide the doctors according to workload. Senior specialist stays 1 year in the team; registrars move every 6 months and medical officers every 2 months. A group will be in a pool to cover all the wards and rest of the work. The pool are allocated on a weekly basis” (I15).

5.3.7.3. Membership of paramedical professionals

Supportive service departments such as nursing, anaesthesia, laboratory, pharmacy, etc., could potentially form part of many medical teams, and were listed by participants, particularly in the HFG-TMs,

“my work ... entails interacting with all the other specialities because anaesthesia is a supportive service” (I23),

This could be either by automatic inclusion in the team structure or by invitation.

5.3.8. The Concept of Team

There was a variety of views about what constituted a team in the interviews and HFGs, and teams were not defined per se in the documents accessed. On the one hand, participants considered teams to be self-evidently created from people who worked together, but both interviews and HFGs demonstrated that the boundaries between a ‘team’ and people who worked together were dynamic, depending on individuals and situation. Where teams were designated as ‘team’, such as the CCOT, they were not questioned as teams, however in both the interviews and HFGs, where individuals came together short term to complete a task, it was more nebulous.

The Document Analysis (DA) showed that teams were referred to only generally, primarily in documents relating to the nursing department. The DA showed that documents used the word ‘team’ only 17 times across all the documents studied, and usually in a generic sense, e.g., *“interactions with the health care team”* (D10). Another document suggested that teams who had *“achieved excellent performance”* were to be officially celebrated, but there was no method of assessment or measurement included (D16).

In the interviews and HFGs there was disagreement over whether calling for outside help on a case, particularly in the consultation process, constituted a ‘team’.



However, consultation was seen both in terms of teamwork/collaboration and KS. Again 'team' and 'teamwork' were used in different ways, and not every 'teamwork' was the result of a 'team' as will be discussed below.

5.3.9. Patient Role

The position and role of a patient within a team was also contested through the interviews and HFGs, and was not clear through the DA. In the artefacts and discussions arising within HFGs, there were differing views of the patient, and whilst it was generally agreed the patient was 'core', whether the patient had, or should have, a role as a team member, active or passive, was not agreed upon. In interviews and HFGs patients were described in terms of recipients of a service, and as not educated or informed enough to play a more active role in determining their treatment. In the majority of HFG artefacts, patients were presented as passive, only receiving and not interacting with teams, hence communication, for example, was always depicted as one-way toward the patient. This resonates with the descriptions of patient role in interviews. Some HFGs did not include the patient in their initial artefact and did not discuss the patient until prompted. For Infection Control, (HFG3) this was because their interaction with individual patients was limited to education, for example teaching about infection, handwashing and hygiene, and could be little more than providing leaflets.

There was general agreement that patients should be engaged in their treatment for it to be successful, but the extent of this varied, for example because of education,

"Patients should be involved.... But some of our patients, they are not well educated, then we don't know how much they do understand" (I1).

This was complicated by the type of patient, for example in ICU or paediatric, staff may communicate more with the family of the patient.

Senior staff were more likely to consider an active and engaged patient role as part of patient-centred care, hence a senior consultant (I3) described the importance of patient involvement in understanding their condition and a concomitant need for clear communication for treatment to be successful. This participant also argued for greater involvement of patients in choices around treatment. Similarly,



“I believe in patient-centred care. So, nothing done to the patient without being involved. Nothing done without being communicated to patient. And I believe patient should always be involved in the, in the process of deciding different alternatives of care or options” (I6).

From interviews and the conversations within the HFGs, it was apparent that the background/experience of the nurse or clinician was an important factor, as participants who had worked in different countries were more aware of how patient role varied from country to country. However, this was not always seen positively, and another senior consultant expressed frustration,

“In India, like there are sometimes we, what shall I say? When we do force the patient even if they don’t want to do it. If it is for their good, we force the patients” (I24).

At times patient role could be tokenistic or superficial. One participant commented,

“In reality the patients here are very passive. We give them the information, but we don’t share and discuss with them, you know, about everything” (HFG4-2).

Another senior consultant explained that in his view, the patient *“has a role in seeing issues from a different angle ... and his angle is important”* (I2). However, when explaining further, this ‘important’ opinion was largely assessing housekeeping in the ward, for example, whether the toilets were clean. Likewise,

“they are also been involved in the decision making, sometimes we give them the option you want to stay for another day or you want to leave today?” (I4)

Again, this is not an important aspect of choice around medical treatment.

The artefact from HFG-AD2 positioned the patient at the bottom, which they explained was because they linked the patient with outcome and end result. The map created by ICU (HFG1) placed patients both within and outside the team, depending on whether they were dealing with a patient in the unit or a referral from outside. There was some disagreement about the position of patient in A&E,

“HFG5-1: Patients will be sharing between the team, they are not involved in the team...”



HFG5-4: They are part of the team.

HFG5-3: [Whispered] They are part of the team. [Normal volume] They are not involved but they are sometimes involved in the decision, right?

HFG5-1: Yeah, decision.

HFG5-2: They are a part of Royal Hospital" (HFG5).

A nurse in A&E (HFG5-4) suggested that the patient was part of the team because they were "*the aim*" of the team. However, this dissonance in views also reflects the experiences of different team members and their hierarchy, as consultants in the department did not regularly communicate with the patient, rather, "*the patient is seen by the Juniors and they discuss the case with us*" (HFG5).

In HFG-ADs, the role of the patient was considered 'core'. When asked directly if the patient was part of the team, (HFG4) agreed, "*Yes, of course*". However, there was an acknowledgement that this was sometimes more a theoretical understanding,

"HFG4-4: The patient is part of the team.

HFG4-1: Well it's the core of the whole.

HFG4-2: I don't think so... Not in reality" (HFG4).

Again, this reflects the official discourse around patient care and teamwork, evident in the DA, that patients were central to the process, but it encompassed the differing situations of patients in different departments. One of the departments where 'patients' were described as having a more active role was paediatrics because the permission of the parents was required for treatments (HFG4-4). Treatment options and potential side effects and advantages/disadvantages would be discussed with parents, "*we'll explain to the [parent]... And let them decide which one they want*" (HFG4-1).

Nevertheless, most participants thought the level of patient involvement could be improved in RH, and patients could be more involved in teamwork, although for some, the onus for improvement was on the patient (I24). Others felt that for the patient to be fully engaged in their treatment, a cultural change in RH was needed, for example,



“we need cultural transformation for this to happen and that will take time. But actually, I can say right now they are about 50% part of the team especially decision of the team” (I4).

Thus, the changing status of patients within RH and within teams was considered a gradual and time-consuming process.

5.3.9.1. Patient-centred care and patient safety

Patient care was rarely mentioned in the documents, and most often by nursing documents, for example, that patient information was needed for patient care (D12). In interviews and HFGs, patient safety was not mentioned as often as patient care, and often only when participants were specifically asked about it. When participants were prompted, patient safety was talked about as taken for granted as a factor,

“Maybe why it is not there, it is not a widely spoken term in our practice. We, maybe it’s practised but we don’t talk about it, you know, very often” (HFG4-1).

Nevertheless, this invisibility created the potential for it to lose importance in daily work, and in both interviews and HFGs, adverse events were a concern at times in cross-professional care. Still, it was clear that participants felt teams enable the aggregating of skills and thus supported patient safety. An administrator noted,

“I might be experienced but I don’t have skills in that particular field, so I should not feel ashamed to say that I’m not good in this. We are dealing with the human being and patient safety comes first” (I1).

Patient safety through good teamwork was considered to require humility and sharing skills, knowledge and experience, thus tacit and explicit KS. Likewise, a nurse linked teamwork with being comfortable asking questions, because *“this is for the patient’s sake”* (I8). As well as KS, teamwork itself considered important for patient care and safety, *“together only we can give excellent care of the patient”*. (HFG1). Likewise,

“Everybody can come and help then we can finish our work fast ... and patient is ok as we can reduce mortality rate also” (I26).



Here working in a team allowed members to support each other and aid patient safety. In HFG7 (HFG-AD) patient safety was linked to *'Environment'*, *'Organisational culture'*, and *'Leadership'*, placing it within the larger structural and cultural setting of RH, thus indirectly to teamwork, staffing levels, workload and time management. It was linked directly to *'Knowledge'* and *'Experience'*, which are more personal *'skills'*, and indicate the importance of tacit KS in cross-professional teamwork and PCC.

Patient-Centred Care (PCC) was considered a unifying focus for teams, especially cross-professional teams, *"Improve 'patient care', then you will get 'patient safety'"* (HFG7-1). This view can be seen across HFG artefacts. The manner in which patients were subsequently discussed by participants demonstrated different opinions within this overarching discourse and highlighted a variety of factors. In the HFG-ADs, participants were asked to compose an overall statement reflecting their agreed view on cross-professional teams in RH. HFG4 offered three statements as they could not agree on one. Two of these related to the role of the patient within teams. Statement 2 emphasised PCC as a concept,

"A good understanding of patient centred care can create teamwork culture in the organization". (AD-HFG4, TS 2)

"The patient is core of successful mixed healthcare teams, which depends on culture and leadership in the institution and being monitored by local standards". (AD-HFG4, TS 3)

The first indicated that PCC must not only be implemented, it must be fully understood by all team members, and linked this to the wider culture of RH, again reflecting the official discourse that teamwork is both necessary and beneficial. The second used different phraseology, placing the patient at the 'core' of a team, but alongside an equal need for a supportive culture, leadership and auditing.

Patient-centred care was considered as facilitating teamwork, (HFG4-1), giving a unified goal and language to teams (HFG1-4). In contrast, a word frequency analysis of transcripts from the discussions across all HFGs indicates that as a term, 'PCC' was only used three times in discussion around teamwork, as can be seen in figure



(5.14.). Similarly, while ‘patient’ was referred to 417 times, ‘patient safety’ was mentioned only 20 times.

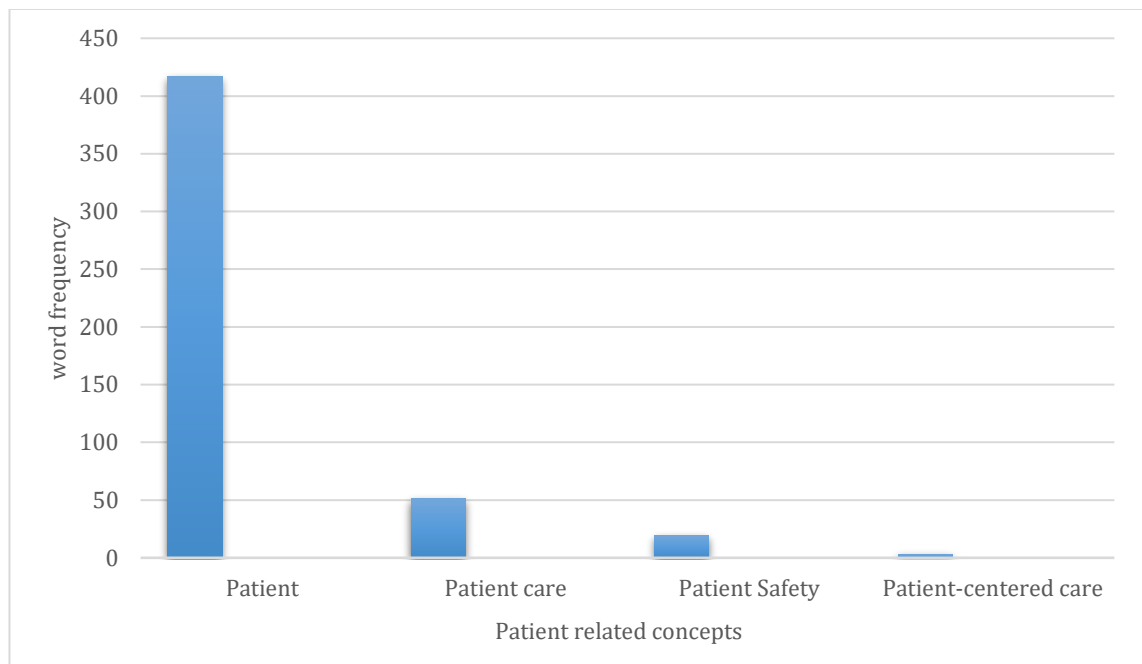


Figure 5.14: Patient related concepts graph (**Source:** Content analysis of the participants’ verbal discussion)

Some participants noted that PCC was not fully integrated as a way of working in RH, thus the discourse did not always reflect the reality of daily healthcare and teamwork experience

“There is a mis-understanding of patient-centred care.... We have sometimes ‘consultant-centred care’ here” (HFG4-4),

Another participant, (I22), explained that a dysfunctional team created delays in patient care, which would impact the patient but also RH, for example, a longer stay by a patient would also be more expensive for RH.

5.4. Teamwork/Cross-Professional Work

In interviews and HFGs, there was a great deal of overlap between the concepts of team, teamwork, cross-professional work, and collaboration. This will be further unpicked below.



There was no clear agreement between participants about what each of these topics were and how they related to each other. This was not surprising because importance was placed on how individuals worked together rather than the terminology they used. Thus, collaboration was used as an alternative to teamwork, or alongside it, as a process leading to teamwork or vice versa. In documents, 'collaboration' was more likely to be used for institutions, sectors, and organisations than teams or individuals.

When participants separated teamwork and collaboration, generally teamwork was used more often as a descriptor for departmental teams, as discussed above, and collaboration for cross-department work. However, teamwork was broadly considered to be in some way 'deeper' and requiring a 'commitment' that was not evident in collaboration, although this was not articulated clearly. These comments demonstrate that there is some confusion around what is considered teamwork, and a lack of shared understanding around interaction types among RH healthcare professionals.

5.4.1. Behaviour and Feelings Around Teamwork

There was little in the DA applicable to behaviour and feelings around teamwork, but it was spoken of in the interviews and HFGs. Administrative and managerial participants thought that RH supported teamwork and spoke about teamwork in a general and more abstract way, to the extent that the entire hospital was spoken of as one team. It was also spoken of in terms of family, indicating a warmth and affection for team members, and indicative of the stress Omani culture places on family. These views extended to seeing the team leader as a parental figure, evident in comments both about and by team leaders.

Teamwork was felt to be necessary, and as a concept was taken for granted in healthcare, as one could not work alone. Teamwork was considered reciprocal, so the bad actions of one member could impact the team and affect patient care. At the same time team support did not remove personal responsibility, a theme that came out more strongly in interviews as team leaders spoke about their role. Team leaders were more likely to comment on the need to take final decisions in cases, whether that was clinical or administrative.



The official discourse around teamwork was that it was both necessary and beneficial. Individuals offered adverse examples of teamwork, but there was always the assumption that there was no alternative. Where participants discussed the disadvantages they had experienced through teamwork, such as delays, personal conflict, and mis-match between departments, ultimately teamwork was perceived as positive. Attitudes from the interviews and HFGs can be summed up in the comment of a nurse (I14),

“I have to work as a team otherwise I cannot do the work alone... it’s not easy actually. I mean, it’s better for us to be in a team, but not easy... it’s making the work easy”.

So, teamwork could be challenging but eased the work, and in line with this, teamwork and collaboration were described as skills in the HFG-ADs. It was felt that these skills were not automatic and better training was required, although there was little provision for this.

5.5. Communication

In looking at knowledge sharing, I was interested in how participants spoke about their communication and communication pathways. In the preliminary DA, I looked at *the Autonomous Hospital Initiative* which defined communication, “*transference of a message, the interpretation of its content and the understanding of the underlying meaning and its intent*”. In the DA proper, of the terms analysed, communication was the most common because the RH has a *Communication Plan* (D22). However, this document was intended to outline communication with internal and external stakeholders rather than healthcare teams, hence it covers communication types and routes rather than relating communication to KS or teamwork. In interviews and HFGs participants made clear that there was an obligation for communication, with participants commenting that communication and KS were expected professionally and ethically.

As a general topic communication was spoken of in positive terms but without much explanation of how this needs to be done, for example, *Nursing Department Philosophy*, speaks of “*open communication and sharing*” (D10). In interviews and HFGs, participants stated that there were documents on communication, for



example one interviewee stated she had reviewed documents from management, *“one of them was something regarding communication”* (I10). But she could not remember details.

In the interviews and HFGs communication was discussed directly and indirectly, for example,

“I always tell them if they have any doubt, call me, inform me, I am ready to help you” (I17).

In the HFG-TMs communication routes were mapped out, and in the discussions, participants used the terms ‘teamwork’, ‘collaboration’ and ‘communication’ in describing them. These maps demonstrated participants’ views on the extent of communication, *“We are communicating to everybody”* (HFG6). In HFG-ADs, communication was important, *“communication should be a sub-heading... because it is a state on its own”* (HFG4). In line with this, communication was linked to minimising adverse errors in HFG-ADs. In HFG7 a more holistic view of communication was discussed including, for example, sending and receiving information, body language, and the communication environment, demonstrating a nuanced view of communication. Also, in the HFGs there was often a ‘checking’ of information, with questions being asked of the group such as, *“Does this make sense to you?”* (HFG3).

From a word frequency analysis, ‘communication’ occurred 159 times across the HFGs, as shown in figure (5.15.). The word frequency analysis incorporated context as well as content, thus 10 of these occasions related to communication as a skill. Communication was seen as a skill needing development in individuals and across RH as a whole. Communication skills were considered as necessary for successful cross-professional teamwork and was thus an important element in all HFGs.

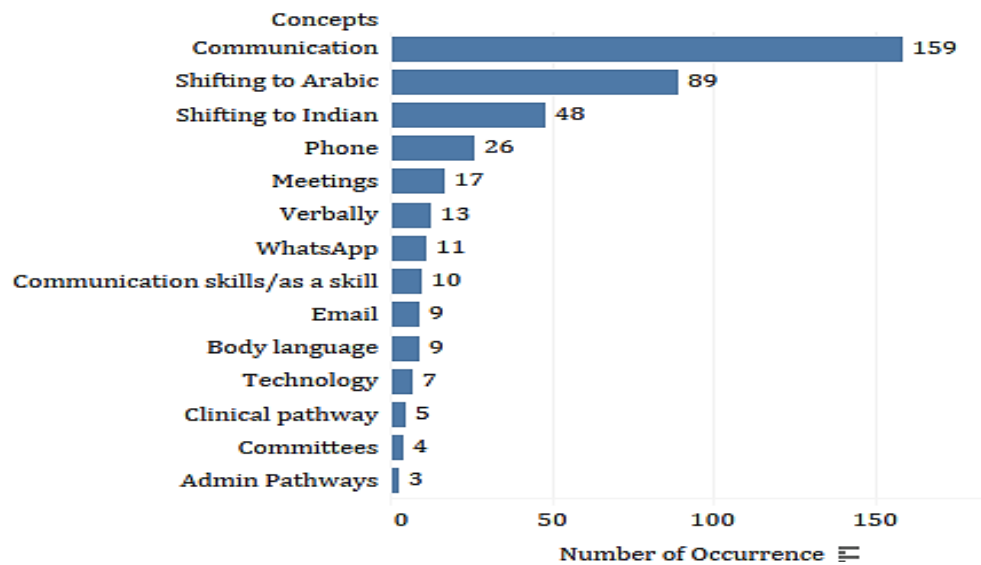


Figure 5.15, Communication related concepts graph (Source: Content analysis of the participants' verbal discussion)

4.5.1. Communication as Mapped in HFG-TMs

The HFG-TMs required participants to map their communication flow within the team and with other departments, teams or individuals. The maps, therefore, demonstrate the flow of communication within RH and provide an insight into the types of interactions within these teams as perceived by the participants.

4.5.2. Communication Types and Pathways

The level and variety of communication is evident from this review of communication practises from the HFG-TMs. Communication varied and was dependent on department and individual need. Thus Infection Control, in their educational and auditing role, had very different needs than A&E, for example. Senior participants were more likely to be involved with committees and have administrative roles and so have different priorities. Also, the nursing management system meant that nurses communicated with two administrative systems.

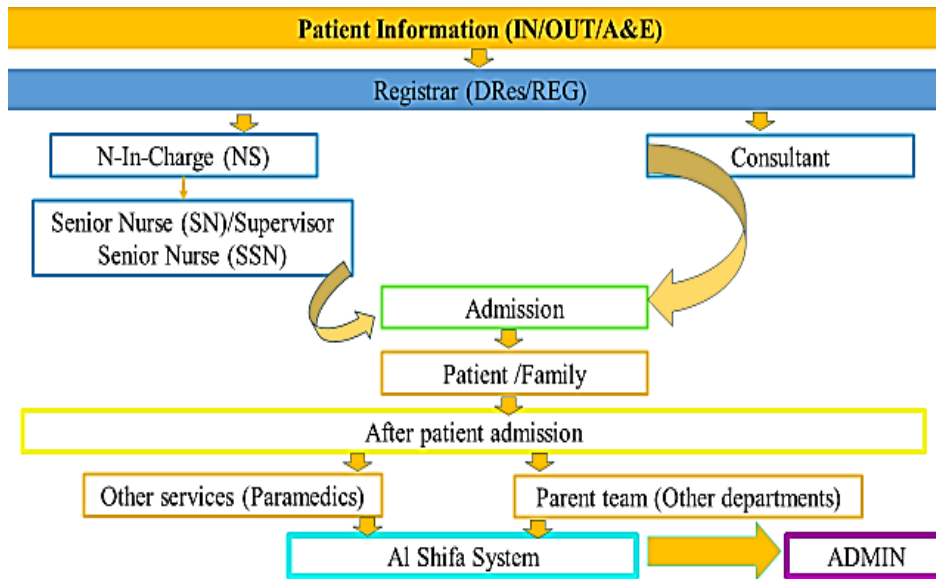


Figure 5.16. *Communication: Admin Pathways Artefact (Source: EM-HFG1 ICU team)*

However, in general, communication pathways were divided into clinical and administrative. Communication included patient care, administrative issues, patient issues, family issues, circulars, and so forth. Patient communication was most commonly linked to the ward nurse, and in the maps generally nurses were linked to patient communication, facilitating information from clinicians to patients, and about, though not necessarily from, patients to clinicians. Communication in the ICU department was described by the same individual, as both ‘complicated’ and ‘easy’. As a group they described their teamwork as heavily cross-professional, because their patients had complex needs, thus, instead of linking communication within the map, as other groups did, they created two tables to explain how communication occurred within the department (figures (5.15.), presenting administrative issues, and (5.16.) the clinical communication pathway.

Different methods of communication were used by different individuals and at different times, for example, in HFG1 it was noted that communication depended on the “*issue*”, or “*information*”. A clinician noted,

“So depending on what does the patient have, I will be communicating with so-and-so” (HFG6-4).

The pathways for communication could also alter between shifts, for example there may not be a ward nurse on the afternoon or night shifts (HFG6). Nurse



communication was seen primarily in terms of patient-related information and knowledge, whether that communication was with other nurses, clinicians or paramedical services, for example communication to orderlies for moving the patient.

During HFG-TMs, participants clarified communication pathways, for example, in HFG1, as a clinician was adding the communication and teamwork indicators, they asked, *“so they would inform?”*, *“And she will convey the message to the?”* However, clinicians tended to answer first when clarification was requested, even though a nurse took the lead in planning the map.

Occasionally participants had to double check or alter communication routes, for example,

“HFG6-3: “It will usually be the senior specialist, the specialist?”

HFG6-4: “Not always”

Nevertheless, during the creation of group maps there were generally clear communication routes that members of the team were able to relate. This is not to say communication routes were simple, with one participant describing the routes as *“A spider-house!”* (HFG1).

In HFG-ADs, communication was considered a major issue for cross-professional teamwork and patient care, for example,

“Communication should be a sub-heading... because it is a state on its own. It effects the process of communication, like among healthcare workers and, between healthcare workers and patient” (HFG4).

Communication was also linked to stress management and conflict management (HFG2).

HFGs and interviews mentioned having a focal point within a department or section, which clarified communication pathways. ‘Dissemination’ was also used in documents, specifically in terms of learning and the development of *“communication networking”* to keep management informed (D15). However, there was a view in some HFGs that communication could be improved, (HFG1), because good



communication was linked to “*Minimising adverse errors*” (HFG4). Specific issues were highlighted. For example, in HFG2 a nurse described clinicians not communicating over prescription changes.

Good communication was also linked to the complex requirements of patient care, “*Because complex patients need more, and it depends on communication*” (HFG4). The implication is that only with good communication can the complexity of patient care be addressed.

5.5.3. Communication Tools

From interviews and HFGs, immediate communication was preferred, such as face-to-face and by phone call. As noted, the HFG-TMs included daily communication for patient care. The variety of methods described were linked to time and staffing issues. In HFG6, Obstetrics and Gynaecology, participants mentioned ‘sign language’, a ‘communication book’ and a ‘delivery board’ which showed all the important information for each patient. The variety of tools was used because “*We cannot speak every time, our staff every time, no?*” (HFG6). Indeed, despite the different tools and pathways for communication, access to other hospital professionals could not be guaranteed,

From the word frequency analysis across all HFGs, communication by phone was mentioned most often, followed by meetings and ‘verbal’ (see figure (5.17.)). This indicates the importance of synchronous communication in the hospital, as much of the work requires instant communication and KS. WhatsApp was the next most frequent mentioned method of communication, with 11 instances, again indicating its usefulness for departments and teams. It allows for the instantaneous sharing of information and knowledge in groups that are not co-located, and where people do not access WhatsApp immediately, they can receive information and knowledge, and revisit information and knowledge, at their convenience.

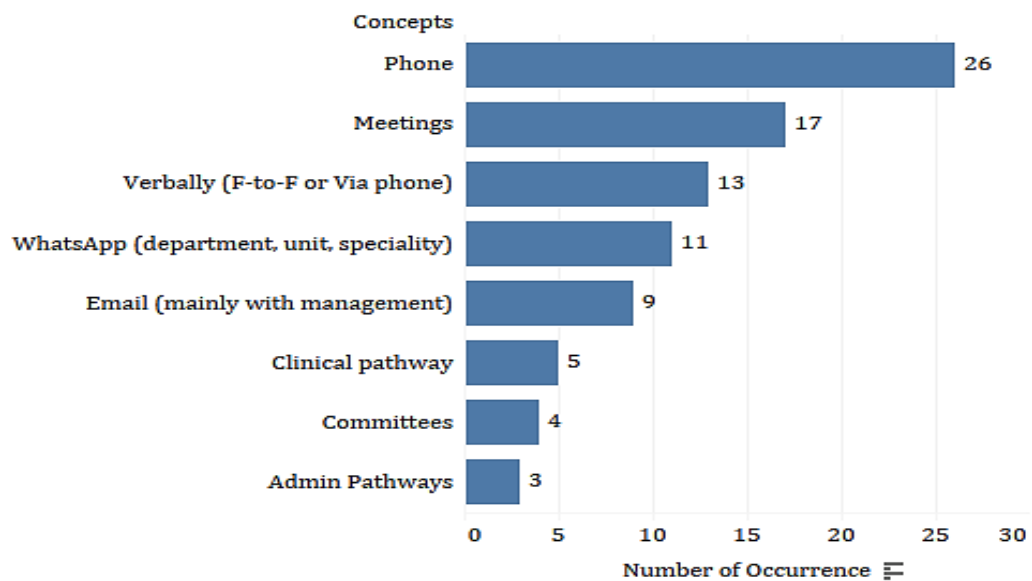


Figure 5.17: Communication channels concepts graph (**Source:** Content analysis of the participants' verbal discussion in HFGs)

Participants described daily communication by using the phone or a consultation, answering a question, getting advice, or for administrative issues. Email was linked with administration rather than clinical care, “between the manager and the administration” (HFG2).

In contrast, documents tended to be more general, or speak of meeting minutes, and thus the methods of communication participants associated more with administrative communication. When the electronic communication methods were discussed, such as the AL-SHIFA healthcare information system (HIS), convenience was highlighted even where problems were noted, such as a lack of integration. Once logged on AL-SHIFA, the message would automatically be accessible by administration. A&E (HFG5), also used a communication book for one-way communication with nurses, as clinicians did not consult the communication book for information or knowledge, rather they used WhatsApp,

“So we cannot give individual but we... create WhatsApp.... it's effective and even our department also we use it to communicate ... between us consultants, and also there are groups created for the Juniors” (HFG5).



WhatsApp was used widely in the department and between different groups and teams, which supports the findings of the interviews. Participants explained that WhatsApp was not an official tool but was popular.

Whilst technology was considered positive for patient care (HFG4), it could create division within a department. As noted, emails were linked to higher levels of management and administration (HFG5), but there were concerns raised over integration, access and funding for technology. These three factors were linked in HFG-AD4 and correlated to *'patient care'*. However, the Internet in general was seen positively, reflecting the support for webinars in the interviews,

"The internet, yeah, technology, availability of technology! It's easy to, it's good to share knowledge and it's good technology" (HFG4).

Participants were aware that communication requires more than sending a message; a message needs to be sent, received and understandable, thus communication was both complex and holistic, though issues around this were more evident in the interviews.

5.5.4. Communication Skills

However, communication problems were acknowledged (HFG4) and it was described as a skill. Communication skills were discussed in relation to leadership, *"He should explain to them, inform them, or show them"* (HFG1). Communication skills were also linked to outcomes and patient care. However, there was little reference to skills training, although in interviews the nursing department referred to communication training in general, and remedial training after a negative performance appraisal.

In one of the HFG-ADs (HFG2), communication as a skill was linked to stress management and conflict management. Despite some reference to this element of communication, during HFG-TMs, participants typically described communication in practical terms, for example patient related knowledge.



5.6. Knowledge Seeking and Sharing

Most participants spoke about knowledge sharing in the same way, and through the same pathways, apart from Infection Control (HFG3) who, as noted, spoke more about education as KS, their primary interaction with other departments. Through interviews and HFGs, there was a desire to share knowledge and the view that KS was part of effective teamwork. Participants felt sharing knowledge included the suggestion that those from abroad or who had attended a conference or workshop should share knowledge to improve RH (I7). Knowledge was shared for success and patient care and it was believed RH supported this, *“I think the hospital policy is supporting sharing of information or knowledge”* (I5).

KS relates to two of the main research questions, therefore, it was important to understand the communication and interaction processes of healthcare professionals within and between their healthcare teams. This section will therefore consider participant views on knowledge related beliefs and behaviours within RH. Participants tended not to differentiate between information and knowledge, therefore at times these will be conflated in the following section.

Participants were specifically asked about KS, seeking and donating behaviours. Unanimously they spoke positively about KS, and that KS occurred daily, for example, *“I’m sharing the knowledge so that we can succeed”* (I1). KS was considered beneficial to RH as an organisation, also the participants and patients, as a junior consultant noted, *“we share the knowledge. Because our aim is patient improvement or patient care”* (I5). But KS could also be for personal pleasure, *“I tend to share simply because I want people to know about it”* (I6).

Knowledge was talked about in terms of benefiting the individual, for example, healthcare was described as *‘life-long learning’*, as well as benefiting the team through sharing experience (HFG4). It was closely linked with multi-disciplinary teamwork in one of the HFG-ADs, (HFG7), which connected teamwork with knowledge and experience.



5.6.1. Royal Hospital as a KS environment

KS was considered part of daily work, and frequently linked to learning and teaching. One participant described medicine as,

“one of the maybe few professions where it’s a continuous process of learning, you don’t stop. So when it comes to sharing and giving it’s a continuous process for us” (I23).

Another participant considered the difference between a teaching-oriented hospital and a research-oriented one, that in research individuals are more reluctant to share,

“But we are in a service atmosphere where everybody has to play a role, pass on information” (I20).

These quotations demonstrate that KS was taken for granted and as a necessity, individuals ‘had’ to pass on information. Other participants explained that as RH is a tertiary and teaching hospital it made sense to seek and share knowledge and gain from the experiences of others, (I4). For some also the diverse workforce of RH was considered as enabling KS from different national and institutional backgrounds.

5.6.2 Types of Knowledge, Information and Tacit Knowledge

As noted, there was often an overlap between knowledge and information. In the DA, ‘knowledge’ was linked to ‘sharing’ in the *Code of Professional Conduct for Nurses and Midwifery Council* (D13). D13 stated that KS includes mentorship and guidance, which would include tacit knowledge. However, this is a national document used by RH rather than originating with RH.

KS was described as constant in interviews and HFGs. Frequently this would be patient related, however other types of knowledge were described, such as developing skills and how to use equipment. When participants were asked about the types of knowledge they shared in their daily work, these fell into three primary categories, patient-related, medical-related and administrative knowledge.



5.6.2.1. Patient-related knowledge

Most of the KS mentioned by participants related to patients, directly or indirectly. As noted, this included information as well as knowledge as participants conflated the two. One interviewee noted,

“if you have an awkward case say you tend to say, ‘What will you do, what would you do with this one?’” (I2).

This was an active seeking of knowledge that would benefit the patient as well as increasing the knowledge of the individual. This participant also described KS within the department,

“we meet every day between seven and seven-thirty for discussion on patients, and any awkward, difficult things that we want to discuss” (I2).

Many examples were given of participants asking for knowledge outside of their speciality, for example referrals and consultations, and many participants discussed specific cases where KS occurred relating to patient care, such as,

“I’ve got one patient with anaemia, haemoglobin was around 6.9, so I called the haematologist and I asked him, ‘I have this case scenario and I think it is this diagnosis. What should I do? Who should I follow up?’ And they gave me the labs which I do, and whom should I follow up, who should I refer to them.” (I5),

This included process information as linked to patient care. Another participant described sharing knowledge that was non-medical but relevant, for example, that a patient smoked before surgery.

Gaining advice from a senior member of staff was spoken of positively, for example, a clinician described calling a colleague at home to discuss a treatment option,

“And he came and he said the same thing ... but at least it made me relax that I haven’t missed anything” (I13).

However, despite being able to ask for knowledge and help, personal responsibility was still considered important *“I don’t depend on somebody else.... Finally, it’s my own responsibility” (I7).*



5.6.2.2. Medical-Related Knowledge

Many participants spoke of teaching, training and learning when discussing KS, for example, training in equipment or new medications,

“if they, they have the knowledge and skills on specific equipment that you don’t know... how to manage things or how to troubleshoot the thing” (I11).

This would also indicate tacit KS. Infection Control as a department particularly stressed their role in teaching, which was also highlighted in the HFGs, and further discussed below.

KS between people from different professional and cultural backgrounds was seen positively by participants, as here when speciality knowledge was mentioned,

“in genetics ... I know far more... about population among Arabs, all their conditions, all their inherited disorders in comparison to someone ... I meet in Europe. And vice versa. And that’s why always teamworking is very helpful to improve the experience and it has a remarkable impact on the learning process” (I6).

This participant links teamwork, KS, and learning, echoing a theme of teamwork facilitating KS, and vice versa.

5.6.2.3. Administrative Knowledge

Some participants spoke of sharing administrative knowledge, for example through committees (I23), and that communication methods differed, for example the minutes of a meeting or via email. One nurse spoke of needing more information for her administrative work, and felt further training was needed (I20).

5.6.3 Knowledge Sharing Pathways and Methods

There was a close overlap between communication and knowledge pathways and methods in interviews and HFGs. In describing their KS participants listed paper and electronic methods of documentation, and they considered that learning to use documentation properly to ensure knowledge/information was not missed was a professional skill, *“if we go through everything, we won't miss anything” (I26).*



However, online information was also mentioned, for example, webinars and the E-library (HFG4). Meetings were used to share knowledge, for example over mortality and morbidity issues. To include all members of a team or department, a participant described KS *“through the WhatsApp group and the [weekly] meetings”* (I25). Sharing ‘on the job’ was common, and included peer sharing and networks.

In interviews and HFGs there was a hierarchy of KS. A participant explained that if a diagnosis was more complicated, *“I will direct them to go to the consultant ... or I will ask the consultant”* (HFG6). This hierarchy of experience and KS was considered to benefit the individual, the patient and the team. Many instances of KS occurred when seeking knowledge outside a participant’s speciality or relating to equipment and training. Drawing on the personal experience and skills of others again encompasses tacit knowledge shared through observation of skills,

“if I am not that much familiar, they will allow me to observe and learn the things” (I9).

Knowledge could be shared along different pathways, administrative or clinical, official and unofficial, formal and informal, as in table (5.2.)

Official	Patient documentation (paper and electronic), consultations, meetings, committees, handover, rounds, emails, progress notes, organised training and mentorships.
Unofficial	Peer group sharing, professional groups, journal clubs and internal and external networks.

Table 5.2. Knowledge sharing pathways as described by interview participants

Doctors and nurses talked about communication by phone, for a consultation, answering a question, getting advice, or other administrative issues. Similarly, a senior nurse described how communication over the phone is used for quick responses and to overcome delays,

“So, if the patient needed surgical for this, example of this case, they will call immediately, they will not wait till the morning” (I10).



Another participant explained that referrals were made via AL-SHIFA, but they would also phone for speed,

“Ok, we have two systems. We have an official consultation system in the AL-SHIFA system. So, we put in an official consultation, and they are supposed to see that, but we don’t wait for that, we make a telephone call, inform the consultant ... It if is an emergency, I myself will talk to consultant. If it’s not an urgent thing, my registrar or the residents they will inform their registrar and they communicate to the consultant. That is the system” (I17).

This appears to double the work but was generally praised by participants. Unofficial pathways of KS also included professionals outside of RH, as one participant said,

“Sometimes I communicate with my colleagues in my field in other countries. I’ve got friends in the UK where I was trained and places.... Because I send a case, unofficially” (I17).

5.6.3.1. Documentation

Participants stressed the importance of documentation, which was linked to patient safety when sharing information and knowledge, as this clinician explained,

“It’s very important for patient safety and management, ... everything has to be shared and documented” (I12).

Several participants referred to progress notes, or a communication book, (I25). These allowed for asynchronous communication with all members of a team or department, when the size of a department or shift changes made face-to-face communication impossible. However, there were difficulties, as one participant described explained, they didn’t know if their department still had a communication book.

Learning to use the documentation properly and ensure knowledge was not missed was considered a professional skill and could involve using several sources of knowledge and documentation, thus everything had to be checked (I26). Nevertheless, as will be discussed below, sometimes information and knowledge were missed.



5.6.4. Knowledge Seeking and Sharing

A word context analysis showed that knowledge was related to skills and collaboration when participants were discussing these topics (figure 4.18.). There was also a desire for information across the hospital to be standardised to improve multi-disciplinary teamwork, (HFG1). KS was described as constant in the hospital, for example, consultations were described,

“an average for every doctor, maybe one or two a day. So that, to a team it would amount to quite a bit” (HFG6).

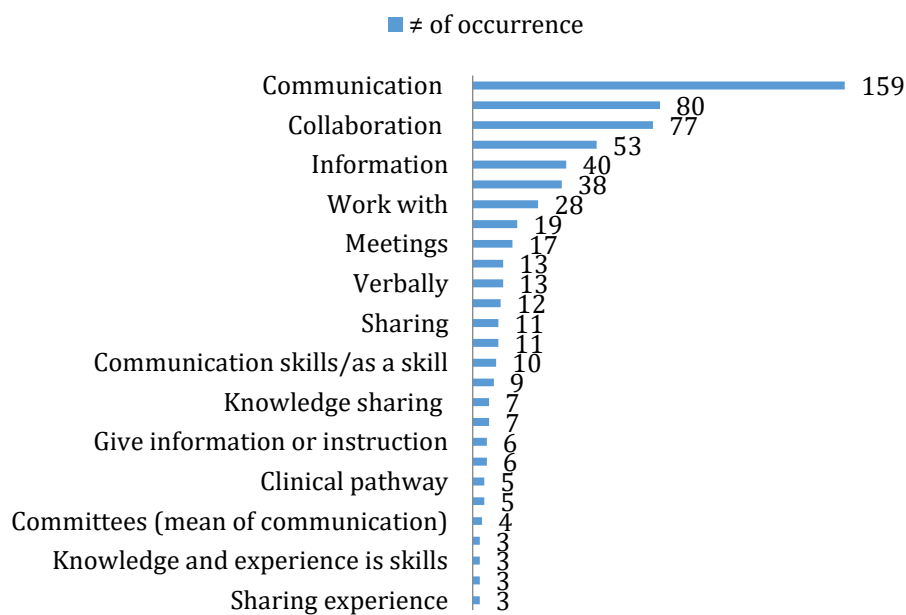


Figure 5.18. Knowledge related concepts (Source: Content analysis of the participants’ verbal discussion during HFGs)

Clinicians not only asked for knowledge, they checked their diagnoses and treatment plans if they were unsure. This was seen in terms of a back-and-forth as clarifications were made and checked, thus even though KS indicates one person is donating knowledge and another receiving, the roles could shift within an encounter. Likewise, HFG2 discussed the importance of support and KS within the team. Tacit knowledge is important in these encounters as it is the greater experience of senior



members of staff that is the focus whether the intention is for a consultation or to clarify and check choices.

Tacit knowledge, through the signifier, 'experience' was considered as facilitating good teamwork, and it was taken for granted that "*Experience of each team, they are sharing*" (HFG4). In turn KS was also closely linked to cross-professional teamwork, thus in one of the HFG-ADs, "*the 'work' [i.e. teamwork], the 'knowledge', it will go with 'experience'*" (HFG7). Indeed, knowledge and experience were considered skills and linked to competency and good teamwork (HFG7).

Infection Control spoke about the different KS roles of clinicians and nurses in their department as they related to KS, indicating different responsibilities,

"For doctors it's mostly sharing our expertise in medical microbiology as well as infection control. Nurses it's the same but we do also exchange others information, like sterilisation and infection" (HFG3).

Whilst participants spoke of searching for information online or in the library, they more frequently spoke of consulting others for information. When describing methods of seeking knowledge, 'ask' was one of the most commonly used terms, for example, "*you need to ask because you don't know*" (I11). A participant with a heavy administrative workload explained they needed to seek knowledge on medicine changes to remain up to date and be ready to answer if they were asked (I6). Another participant commented,

"So many times you say, 'Okay, I will, I will consult a colleague, for instance, and discuss with him.' ... So we learnt and the next time we take decisions ourselvesand that's what you call it experience" (I23).

Thus, gaining experience, learning and KS through teamwork involves sharing tacit as well as explicit knowledge.

The informal and formal KS with colleagues and team members often indicated a tendency towards a hierarchy of KS, as participants described moving up through a clinical hierarchy of experience, for example,



“When I have doubt first am asking my in-charge, then my in-call doctor also otherwise we will ask the HoD so we are getting solution from there... always I am at the computer checking evidence-based practices I am checking” (I26).

This hierarchy of KS was clear in the HFG-TMs. Interview data also indicated that knowledge could be sought from different sources in parallel, such as, the Internet and colleagues. Nevertheless, hierarchy did not necessarily stop discussion between individuals,

“I would call the on-call person, and ... we decide how are we going to go ahead.... It's not that I say and that's it, you can't speak, or she or he says and I can't speak.... We discuss and we come to one conclusion” (I13).

'On the job' KS occurred during rounds for example, and patient information was shared daily, as a nurse noted that before endorsement in the mornings,

“my In-Charge first will tell the information, then she ask the nurses, ‘do you have any information to pass to your colleagues?’ That time we are sharing” (I26).

This indicates sharing between team members rather than top-down communication.

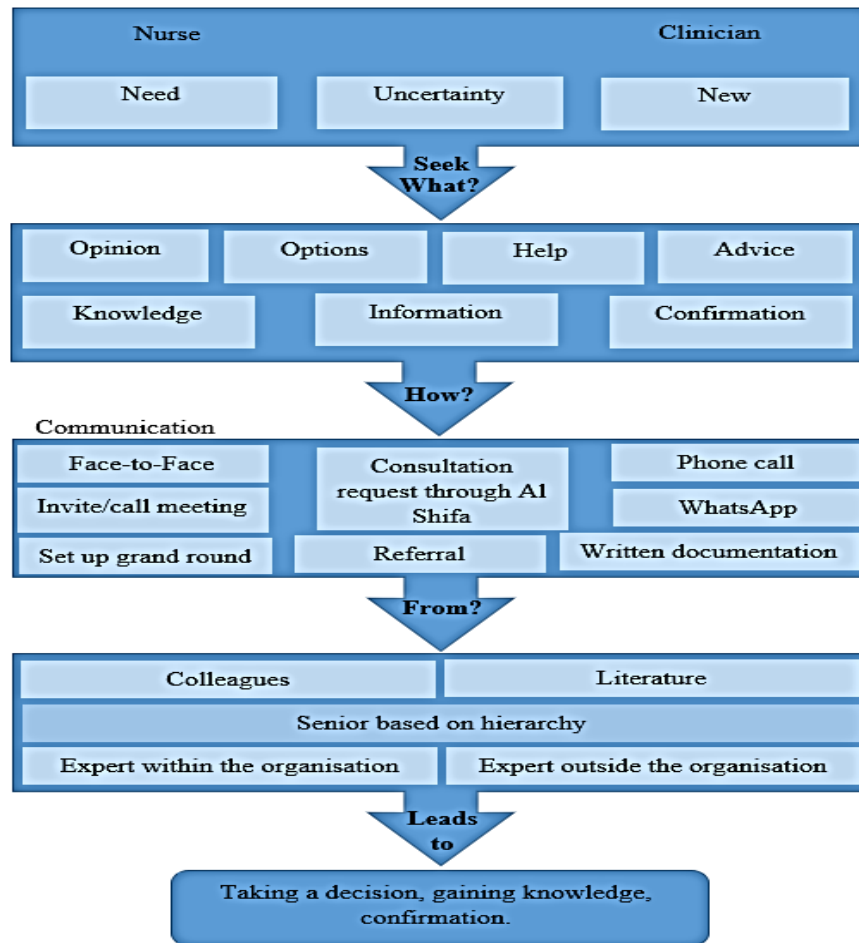


Figure 5.19. Knowledge seeking pathways (Source: Developed from the interview data for this research)

Participants, particularly the more senior participants, described using previous cases and examples when sharing knowledge, again potentially indicating tacit and explicit knowledge being shared.

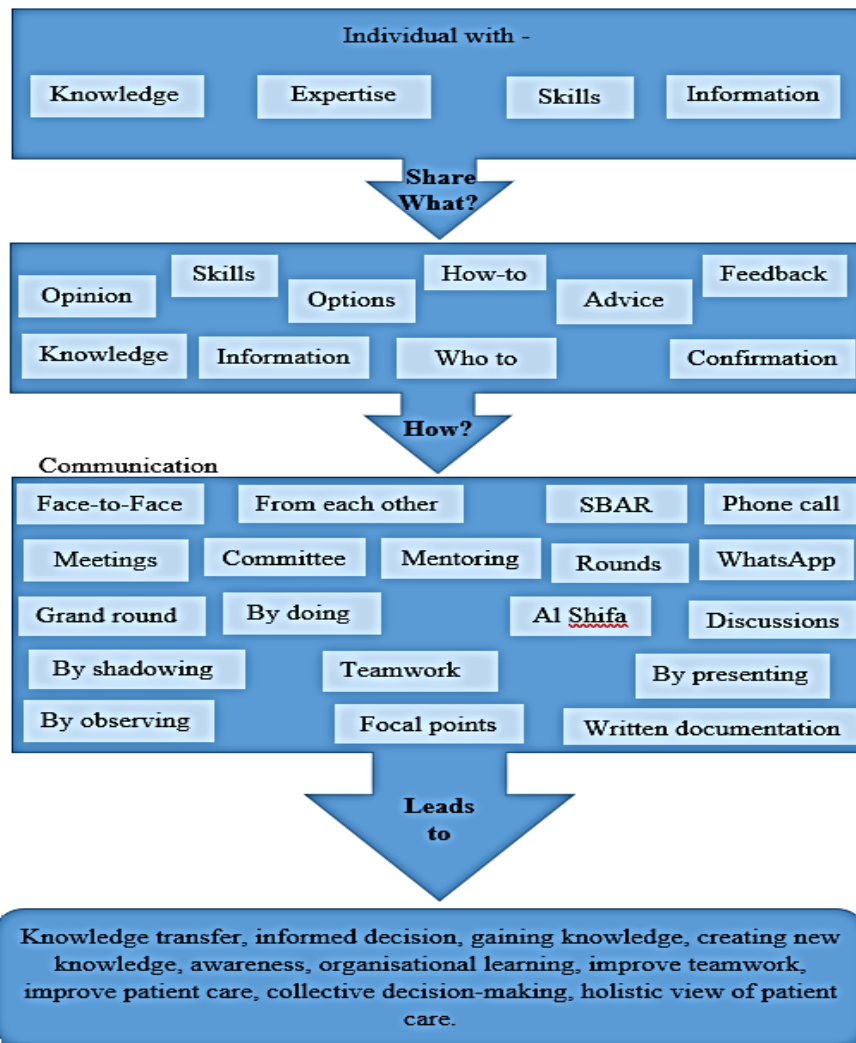


Figure 5.20. Knowledge sharing pathways (Source: Developed from the interview data for this research)

5.6.5. Education, Teaching and Learning

RH is a teaching hospital for students of Oman Medical College, Sultan Qaboos University and visiting students from abroad, thus teaching and learning were described as occurring daily. Participants spoke positively about teaching and learning, and it was often considered a two-way exchange, usually by clinicians. Participants described departmental meetings where a member was selected to give a presentation on a topic. A participant from the ICU (I26) stated such ‘lectures’ were weekly within the department. One senior clinician explained his expectations of this form of KS,



“they are more confident, they read a lot and sometimes they teach me also, and I reciprocate, and I teach them also. So it’s a give and take responsibility. I enjoy it also” (I17).

Another interviewee described how they asked for help from endoscopy to capitalise on endoscopy’s greater experience,

“because definitely she is better than us, she is doing it every day.... We will do it maybe, but we know that she’s there and if anything goes wrong she is there to help us and to guide us” (I24).

This could indicate tacit as well as explicit KS. More formally, participants mentioned specific classes for learning, such as Basic Life Support, and workshops, also the training required for specific roles, for example to join CCOT. As noted, Infection Control had a teaching role across the hospital, from cleaners and laundry department to clinicians (I25). They described teamwork with the education department, designing courses for infection control and patient safety (HFG3). In one of the HFG-ADs, participants linked ‘Education’ directly to ‘Minimizing adverse events’ (HFG4). Throughout the HFGs, participants considered education as an important area of KS, as one participant noted, *“I think all of us thought of education and communication” (HFG7).*

However, often education was spoken about tangentially, nevertheless, it was considered necessary for patient safety and good, efficient healthcare. It was often positioned within the hierarchy of ‘I ask my superiors, I teach my juniors’,

“When our juniors have a doubt they come to us. So then we are educating them, and this is how it should be done.... So we are teaching it and we are learning at the same time” (HFG6).

Participants were aware that workload and time constraints meant that a clinician could not drop everything for a consultation, particularly on a nightshift, hence when they could attend a patient and give suggestions, it was possible to learn for the future,

“once they put their plan, you are going to read the plan, you are learning from that. They don’t have to really come and teach you” (HFG6).



So, education must be thought about in the broadest terms of knowledge dissemination through various means. Alongside formal education events, it was also considered the responsibility of individuals to learn from such encounters.

5.6.5.1. Sharing experience and tacit knowledge

As noted, closely linked to teaching and learning was the idea of gaining experience, *“sharing information, sharing the experiences also from, that’s how I learn”* (I11). A lot of the KS occasions described by participants involved sharing experience and tacit knowledge. For example, nurses more commonly spoke of learning through observation, *“if I am not that much familiar, they will allow me to observe and learn the things”* (I9). This could be formalised, as under the preceptor system for training nurses, (I1). Likewise, a nurse described training in the OT, but differentiated between what she considered ‘proper training’ and learning through observation,

“there was no proper training.... But... you will be standing with an anaesthetist; you will observe sometimes complications... so you will be trained that time what the doctor he is doing, what skills and what medication he will ask, what he is doing to the patient. ... And from each other in recovery we are getting, sharing the experience” (I8).

This was then a blend of informal and formal knowledge sharing, explicit and tacit knowledge. Another senior clinician explained,

“whenever we communicate with the teaching units and the juniors we always say some of our experience, ‘In this case like that, two years ago we had a case like this, this is what we did.’ So it’s always like, I always share the experience that will help them to learn and understand actually” (I17).

Again, this is hierarchical KS, and potentially involves tacit knowledge. Likewise, the team could offer assistance and advice to members who were struggling, and thereby support the team as a whole as well as the individual, for example,

“If I do bad this week, the other team will suffer, so even if they see me doing really bad, they will alert me, ‘Maybe this one need this one” (I15).

The colleagues that an individual would most likely work with were team members, so work and KS were inextricably linked to teams and teamwork.



Participants also described appreciating the opportunity to confirm or double check decisions, and considered this part of gaining experience, as above (I13). In turn, senior and more experienced participants spoke positively about being consulted as they gained more experience, for example,

“When I was resident I had always my seniors to ask. ... When I am now, if it is my speciality, the others are asking me” (I13).

5.6.5.2. Keeping up to date

Many participants spoke about KS in terms of ‘life-long learning’, and the need to keep up to date with new information. A senior consultant saw room for improvement in RH, comparing Oman to the U.S.A. where self-assessment was mandatory, (I7). But participants generally spoke positively of continued learning, for example one nurse enthusiastically explained that webinars allowed her to learn from outside RH,

“An operation conference goes on in India, ... and the whole day I’ll be watching that. And I can ask them questions. So now is a big, big, web, that is called webinars”.

Many participants spoke of reading to keep up to date, (I7), and sharing what they had read,

“if there is a difficult case, I might go and read about it and inform that other person, ‘Ok, this is what I read, what do you think about it?’” (I13).

Nevertheless, whilst the hospital library was rarely mentioned, the E-library was praised and access to journals and books was taken for granted.

5.6.6. Missed Knowledge

Participants were asked specifically about occasions where knowledge had been missed. One clinician stated that because of improvements and the role of the nurses and residents, *“it doesn’t happen now”* (I13). Others gave personal examples where knowledge had been missed either because someone had not been informed or had not checked information. For example,



“there are so many things happening with the patient that sometimes small, small things might be missed” (I13).

Another nurse recalled an occasion where she attended the patient before having time to read the progress notes, so when the doctor asked about the patient, she could not outline the case, *“Oh my gosh, I feel such a stupid!”* (I11). Knowledge could also be missed in investigations, such as personnel issues or administrative issues, (I10), emphasising the importance of non-medical knowledge and information.

5.7. Culture and Diversity

Within the data corpus, culture was used in its widest sense, and to include the training background of the participants, their nationality, and the RH as an institution. As a busy tertiary hospital, the assumption throughout the interviews and HFGs was that the mix of nationalities and experience created a positive KS and teamwork environment. The following sub-themes arose from the data.

5.7.1. Personality

Personality traits were important in both interviews and HFGs. Participants admitted they would be less likely to work with or share knowledge with an ‘egotistic’, rude or unreliable person, but it was always stressed that this would not affect patient care, *“I’ll not withhold anything that needs to be told them”* (I7). But where the participant had positive experiences with previous teamwork or KS, they would be more likely to approach that person again.

Not only was KS considered necessary for patient care, and participants felt they were obliged to share, one participant stated they shared knowledge, *“simply because I want people to know about it”* (I6). From the data sets personality traits can be linked to an individual’s decisions to participate in knowledge exchange. ‘Personality’ as affecting teamwork was frequently mentioned in HFG-ADs and related to all team members. It was felt that the individuals who make up a team create their own ‘team spirit’ as it were, (HFG4), hence good teamwork depended on the personalities within the team. Autocratic ego-driven attitudes were universally considered as barriers, for example,



“Some of the consultants, they feel like they are the boss, and they have, their orders have to be followed and they feel they know everything” (HFG4).

Indeed, ‘ego’ was singled out as the quality most likely to damage patient care (HFG4).

Helping colleagues was not only seen as necessary, it was considered obligatory across healthcare as part of the professional culture, for example,

“In our profession as surgeons it is shameful you don’t give help.... This is the code of surgeons, you have to give help” (I3).

Nevertheless, some participants admitted hesitating depending on previous experiences with an individual. A senior consultant said,

“if it is for the patient’s sake I think nothing would stop me, but I would hesitate if I had some... bad interaction with that person. ... But at the end, if I really need to call, I would put aside all personal and things and call” (I24)’

All participants stressed that the patient would always come first where personalities clashed, for example because of ego or rudeness, or a lack of interest in learning. Nevertheless, a clash could create delays in treatment and risk to the patient. Participants noted that the stubbornness of others or if they did not try to understand or help were potential barriers. For others, not being credited for work, or if colleagues were dictatorial and imposed their views. However, where dangerously incompetent or deliberate wrongdoing had occurred, interviewees felt they could not collaborate, *“If someone did something very stupid and bad for the patient” (I5)*. Participants did not want to be blamed for someone else’s mistakes, nor feel they had to protect others (I9).

Some interviewees admitted their own personality could affect their KS,

“Sometimes if I made really remarkable efforts in getting some info-, some learning for my personal development, I feel sometimes, I feel jealous, I don’t want to share this with others, why they should get it ready? ... But at the same time I always think ... I should be a role model, ... I have to teach people” (I6).



This example demonstrates the positive power of constructive ideas around leadership and good practice. The positive discourse that leaders were role models, impelled this participant to share even when he did not want to.

5.7.2. Diversity

Some participants mentioned issues around diversity. Diversity was both stressed by participants, and underplayed, as participants described the professional culture of RH as diverse yet also overcoming any cultural diversity. Participants differed on how they perceived the effect of diversity on KS, for example, some felt it required more training, and others that there were no difficulties. Nevertheless, there was appreciation for the opportunity to benefit from a variety of experiences, be that experiences from different countries or from length of experience (I6). In the HFG-ADs, diversity and skills were linked to a good patient outcome (HFG7). However, a participant commented that a barrier to sharing knowledge was too much variety in a group, where individuals were of different levels of experience and so needed different types of knowledge and support.

Participants respected other cultures, an aspect of Omani values that participants were proud of, but participants also felt different cultures were positive for teamwork (I5). Participants commented more about difficulties with the religious and national culture of patients than their work colleagues. In the interviews it was considered important to understand the national background of others in order to minimise differences and support teamwork (I12). To do this some participants felt more training was needed. One participant, (I22), spoke of having to train 35 staff from different countries, Oman, the Philippines and India, who struggled to work together due to differences in culture. She gave the example of an Indian nurse frustrated at speaking to a Filipino nurse who would not look her in the eye. For the Indian nurse this indicated disrespect, but the Filipino nurse explained, *“I committed the mistake and I’m shy and I feel embarrassed to see”* (I22). The cultural norms relating to body language, communication and demeanour could therefore impact negatively on communication and teamwork. Another participant stated,

“So we try to understand each member, what does he know, where does he come from, what cultural background he has. And then try to minimise or try to make



that member be part of the team ... so this will not affect the knowledge or interaction with the team” (I12).

Participants differed on how they perceived the effect of cultural diversity on KS and teamwork. Whilst cultural diversity was considered of benefit, (I6), as above, it was also undercut by the assumption that RH professional culture would temper cultural differences. Thus, participants disagreed whether training was needed in communication skills, for example.

5.7.3. Language

There was an interesting disconnect between the way language was used and spoken about. Language was not a topic in the documents analysed, but in the interviews and HFGs participants were asked whether they considered language to be a barrier. Everyone stated that there were no problems caused by language in their teamwork or KS, although the IC group noted that sometimes cleaners had very poor English and Arabic and then communication was a challenge. English was the lingua franca in RH, and all healthcare interactions were required to be in English.

In the HFG discussions, none of the participants had English as a first language; most groups spoke primarily Arabic as a first language, or an Indian language. Participants who shared a mother tongue often used it, particularly when under time constraints, for example, during the ICU session (HFG1), the male participants slipped into Arabic frequently as they were planning their final map. Indeed, Arabic was spoken in all but one HFGs, at times extensively. In Obs-Gyne (HFG6), participants switched to an Indian language. Through the HFGs, participants switched to Arabic 89 times, and Indian 48 times.

Whilst these sessions took place outside of the healthcare environment, all participants were comfortable switching languages and frequently moved between their mother tongue and English. This raises the question as to whether this happened when individuals spoke to a compatriot on the ward? This has the potential to create a barrier to KS or teamwork if a team member feels excluded.



5.7.4. Gender

Gender was always spoken of being unproblematic in general terms, even though it was pointed out that RH was unusual in having a female Director of Nursing. There was an even split in the interviews, between men and women, but more of the senior roles were taken by men. A male nurse commented that he felt excluded at times, but he linked this to his non-Omani nationality rather than his gender.

However, as Oman is a strongly patriarchal society, gender had an underlying influence, for example, a clinician commented that women could not have a family and a surgical career because they needed to look after the children.

5.7.5. Organisational Context, Culture and Climate

Through the interviews and HFGs, even where participants could not think of specific instances, all considered the professional culture of RH as supportive of teamwork and KS. As discussed in fully Chapter Two, RH is the largest tertiary teaching hospital in Oman, and so participants referred to the richness of the RH work environment in positive terms, for example, the size of the organisation, the specialisations and disciplines involved, the diverse workforce, and the teaching role of the hospital, which resulted in working in healthcare professionals with different levels of experience, knowledge, education, background and training. This provides a fertile environment for developing experiential knowledge and opportunities for individuals to share their knowledge, experiences and skills.

The complexity of cases, and the increase in co-morbid patients means that each patient may interact with many healthcare professionals: clinicians, nurses, medical orderlies, and other allied health professionals. In turn this requires on-going teamwork, collaboration and knowledge exchange between different healthcare professionals. An administrative manager noted,

“One of the unique things about a hospital is that everything rests on the team, not the individual, especially in a large government hospital. Although the senior consultant is in charge of a patient, the team determines how good the care will be” I20.



Nevertheless, in interviews and HFGs, specialisation and professional boundaries were described as potential barriers, with, for example, “*a little bit of sensitivity between some departments*” (HFG5).

In the interviews examples were given of patients falling between the cracks when dealing across departments because of differences in structure and policies, however the culture of RH was perceived by participants as team and teamwork-centred around patient care,

“without a multi-disciplinary team approach, you won’t be able to give proper care of the patient... It could be a dietician, a nutritionist, a pharmacy, a social worker, a nurse, a treating doctor, so you need all the team to work together for once to reach the goal... needed for that patient” (I1).

5.8. Barriers and Facilitators to Cross Professional Teamwork and Knowledge Sharing



Figure 5.21. Word Cloud representing the primary and secondary factors affecting cross-professional teamwork as described in HFG-ADs

Whilst, as noted, cross-professional teamwork and KS were described as ongoing and positive in RH, participants were asked about the barriers and facilitators they thought affected both phenomena. Many of the topics were presented at different times both as facilitators to better teamwork, communication and KS, and as



barriers. It should be noted that at times participants used hypothetical factors to answer the question, particularly when discussing barriers. Figure (5.21.) presents a summary of the factors that participants considered influential for cross-professional teamwork. Table (5.3.) presents a matrix of barriers and facilitators to cross-professional teamwork compiled from the interviews and HFGs. Communication, organisational structure, culture and support were reported as the most influential determinants to cross-professional KS, collaboration and teamwork, followed by diversity, and personality traits. This section presents these determinants as they emerged from the data.

Table 5.3: Matrix of factors influencing cross-professional teamwork

Potential factors as discussed from all data sources a = Semi-structured interviews b = Hybrid focus groups-Affinity Diagrams discussion (HFG-AD)	Source of data	
	A	b
Audit	✓	✗
Collaboration	✓	✓
Communication	✓	✓
Culture and Diversity	✓	✓
Environment	✗	✓
Hospital Structure and Hierarchy	✓	✓
Knowledge and experience	✓	✓
Language	✓	✓
Leadership	✓	✓
Management	✓	✓
Patient (patient safety, patient education)	✓	✓
Personality and individual Cultures	✓	✓
Resource and funding	✓	✓
Reward and Recognition	✓	✗
Sending and receiving Knowledge and Information	✓	✓
Sharing (knowledge, learning, teaching)	✓	✓
Skills	✓	✓
Speciality and discipline	✓	✓
Standards and policies	✓	✓
Team related factors	✓	✓
Technology	✓	✓
Time, Staffing and Workload Factors	✓	✓
Training	✓	✓



5.8.1. Education and Training

Training was not a major theme in the documents studied. The two primary references were to announcements about training, and training on documentation. stated, “*Ongoing training*” was ‘key’ to improve clinical handover compliance (D12). The nursing department mentioned formal training the most, and sourced training from outside the hospital. However, this was primarily for nurses with administrative roles, to overcome ‘communication laps[sic]’ (I1). Nursing also used remedial training after a negative performance appraisal, for example in communication.

Nursing also used the ‘preceptor’ system as training given, (I11), whilst another participant spoke of mentoring for doctors (I15). Both of these allow for the sharing of tacit knowledge as they are focused on observational and hands-on training. Some participants mentioned a lack of training when they join new teams, departments, or specialities, for example a nurse felt that that when she was moved to the OT recovery, she was not given training in the necessary skills, (I8). Similarly, training in leadership skills was felt to be lacking, particularly for non-managerial staff, as a nurse explained, she was given more responsibility, but not the necessary training for the role (I11).

However, whilst many participants expressed a desire for more training, a clinical manager, admitted that that budgeting prevented this (I3). Issues around lack of training were generally ascribed to financial reasons rather than any lack of will on the part of RH management. Whilst in HFGs particularly, soft skills were considered important, training for these were rarely mentioned by participants.

Whilst much of the tacit and on-the-job training was linked to working with a team, one clinician added the caveat,

“If you have too many levels with students, interns, residents of different categories, teachers, because each one have different types of expectations and it’s difficult to satisfy everybody” (I8).

His experience was that teaching a team widely ranging in knowledge and experience was not successful.



KS was described as a facilitator for good teamwork and vice versa in interviews and HFGs. Likewise, good KS was a sign of good teamwork and vice versa. In HFG-ADs, knowledge and experience were considered skills, which were linked to competency and good teamwork (HFG7). Improving the skills and knowledge of individuals benefited the individual and the team, *“Being part of teamwork helps me improve myself”* (I11). Teamwork and KS were considered indivisible for patient care and safety.

5.8.2. Technology

Technology was an important method for KS and disseminating information. Whilst AL-SHIFA and SBAR were spoken of positively as enabling teamwork, communication and KS, participants also mentioned frustrations around technology. Participants highlighted difficulties caused by the use of technology, such as a lack of integration, and the separation of nurse and clinician notes (I15). Several participants felt the system was just ‘not there yet’,

“the IT is working on integrating... so most of the details are in the Kardex but the SBAR, as soon as we get the IT integrating it... currently it's online but it's not integrated” (I1).

As noted, emails were generally used for administrative communication, but even then, a senior clinical manager explained,

“Emails capacity is not good not all, staff have an official email addresses and sometimes from the official emails to individual emails Yahoo, Hotmail. Doesn't deliver. So, there are communication gaps sometimes” (I4).

In contrast, the most common facilitator for KS mentioned was WhatsApp, even though this was unofficial and none of the WhatsApp groups mentioned were created by RH administration. Rather they had been created within departments by individuals to address department needs.

A lack of computers and slow IT system were also mentioned as barriers, but the IT department was rarely mentioned across the data corpus. A senior nurse noted,



“we have very ... slow computers ... also sometimes shortage also, because how many in that ward staff, how many doctors, will depend [on one computer] ...Then she will not get enough time to write all the history” (I18).

She explained that if staff need to prioritise time, patient care was first, and documentation could be neglected in the process. Participants also commented on the lack of integration between different documentation systems, for example,

“Previously when we are using papers we write in the same page, both the nurses and the doctors.... Nowadays with the new electronic system ... they have their own and we have our own” (I15).

As with the need to document admissions in AL-SHIFA, and phone for consultations, this appeared to create extra work for participants, although none of the participants explicitly stated this.

5.8.3. Hospital Structure

The division of the healthcare environment into specialities and sub-specialities was also seen as both barrier and facilitator for teamwork, and in the HFG-ADs was seen to impact patient care. For example, *“every team is specialised by itself. When it is out of our speciality, we get the help of others” (HFG6)*. This reflects the increasing fragmentation and specialisation in modern healthcare, but it can create silos and divisions, especially where specialities,

“think that they know better than the other professions, so they are not flexible when you challenge them or have a conversation” (HFG4).

Departmental structures and sub-specialities were also described as barriers to teamwork and KS, for example, a medical officer explained that the mismatch between departmental distribution and sub-specialities complicates the process of diagnosis and treatment, *“when we are dealing with other sub-specialities, they are refusing to take the patient”* leading to *“failing the patient” (I16)*. Structural differences were seen negatively to divide disciplines, when sub-specialities did not work together, and a patient could slip between the cracks, indicating that such structural issues were an important barrier to successful teamwork and patient safety (HFG7). Thus specialities were considered to work well together when there



was communication and KS rather than competing and protecting their professions and knowledge. A&E, who worked widely with other departments, acknowledged that in RH,

“there is unfortunately a little bit of sensitivity between some departments and others” (HFG5).

5.8.4. Policies, Procedures and Protocols

When asked about policies or guidelines supporting teamwork and KS, participants confidently stated that there were such documents on the intranet but could not identify any (I10, I5). Instead often participants referred to protocols and procedures governing inter-department or inter-hospital procedures. A clinical manager explained,

“Between us and radiology department, also we have agreed protocols and, when to send the patient, and the urgency, and what type of the investigation to be done and where to be done. So, there is a communication between us and them, also between us and the labs” (I15).

Such policies may not explicitly link to teamwork or KS but were perceived by participants to support the phenomena. There were also structural elements that supported KS, for example, participants described a designated ‘focal point’ within a department, unit or team, a role which clarified communication pathways, (I5). Likewise, some teams, such as Discharge Planning, had a ‘focal person’.

However, there was also mention of tension in cross-professional work caused by a conflict of protocols, as different departments had their own documentation, guidelines and structure (HFG2). Several participants spoke about RH’s drive toward documentation, which was linked to gaining Canadian Accreditation. As discussed in the Document Analysis Chapter, this process led to documents being removed, edited and altered whilst I was in Oman.

5.8.5. Structure, Hierarchy and Leadership

Hierarchy was described as a facilitator to good teamwork and KS. It was considered necessary, but participants resented where they felt an individual was being dictatorial. An example was related in which a registrar could not question a



consultant's decision to discharge a patient, even though they disagreed "*because he is a consultant she has to await orders. She couldn't argue with him*" (HFG4). Similarly, when sending patients for procedures or tests, or consulting on patients, there was a hierarchy of who to approach, which came out most clearly in the HFGs, where participants mapped their communication and teamwork. In the interviews the point was made,

"So, we put in an official consultation, and they are supposed to see that, but we don't wait for that, we make a telephone call, inform the consultant ... It if is an emergency, I myself will talk to consultant. If it's not an urgent thing, my registrar or the residents they will inform their registrar and they communicate to the consultant. That is the system" (I17).

There was a hierarchical pathway described on who should be called and at what point, depending on the severity of the case. In such cases, hierarchy was seen to aid communication flow, through communication with focal points or team leaders (HFG3). Team leaders were usually easily identifiable, for example the head of the unit, or the doctor, (HFG1), (HFG3).

Within the different HFGs, hierarchy was also evident through interactions, although it was not always prominent. Nevertheless, in HFGs there was a tendency for clinicians to talk between themselves and for nurses also. Likewise, communication was described as hierarchical,

"And also there is communication between the junior nurse and junior doctors... regarding treatment" (HFG3).

Whereas, "*As senior consultant you have access to all*" (HFG1). This comment was made by a nurse, who took the lead in the mapping process, despite there being two senior consultants present, thus she was not describing her own position, rather that the team leader would have access to the professionals and information they needed.

At times the clinicians admitted they did not know how the nursing teams were structured within the department, their job profiles or communication pathways, as noted above. For example, in Obs-Gyne (HFG6) when explaining that clinicians ask



any nurse for supplies, a nurse explained, *“It is not possible for every Staff Nurse to Pharmacy of Store, I want that”*. ICU (HFG1) Likewise, the internal structure of the team could hinder teamwork and KS interactions. Autocratic leadership, where participants could not question their superiors, were seen to close down communication, negatively affecting interactions. (17)

5.8.5.1. Leadership

Leadership was stressed through the HFGS and was considered to include an understanding of how hierarchy worked in the team. This involved good communication so a leader could ‘inform’ or ‘show’ how to proceed (HFG1), for example being able to delegate to other members of the team and listen to them, and not asking them to complete tasks that were not part of their responsibility,

“when the consultant communicate with the other team, like he talk to them at the level of their knowledge and the level of their responsibility, like not asking a junior doctor to write a medical report for example” (HFG4).

Good leadership was considered supportive of teamwork in a democratic sense,

“The leader should respect the view of the others, and should allow that they have certain limitations” (HFG1).

Likewise,

“like friend with the team, he’s not like, ‘I am the boss, you are the workers, you are just for the orders.’ You know like a friendly team and a friendly department” (HFG4).

In the HFG-ADs, leadership was also linked to confidence, and was considered a skill. However, all of these references were to a theoretical ideal of leadership, and how teamleaders fulfilled their role in reality was rarely mentioned. Some team leaders described their own leadership,inform

5.8.6. Time Management and Workload

Along with personal qualities, time and workload were most commonly listed as barriers to teamwork and KS. For example, a clinician, explained, that nurses *“don’t attend with us in the round, they are busy with their patients, busy with their work”*



(I12). One HFG-AD (HFG7) included workload in their diagram. Similarly, (I18) noted that when time was short, documentation could be neglected. Likewise, it was commented in, that just because a request for consultation was made, clinicians from other departments could not be expected to drop everything and attend, because of their own heavy workload (HFG6). Similarly, a clinician stated that nurses were not available to accompany them on rounds because they had a separate and heavy workload (I12). Again, it was explained that there was less KS during clinics because of the heavy workload, implying that KS is more of a luxury at times, requiring time(I12). Similarly, a nurse stated that when they needed advice from a doctor, they knew the doctor could not come immediately if at all, so they needed to educate themselves where possible (I19). Through the HFGs, there was some discomfort on the part of doctors to be included in the same team as nurses, and the heavy workload of nurses was cited as a reason for this.

One participant quoted above (I6) admitted that he had no opportunity to share knowledge as he was the only representative of his speciality,

“But the obstacles here is the scarcity of the human resources... And that’s why I end up of having limitations on practising this, this sort of teamworking. And the learning process of course, get limited mainly to other resources like the journals, articles and so on” (I6).

Being reliant on journals, he misses out on the tacit knowledge available through the experience of others, and his tacit knowledge is lost to RH.

It was also discussed how important workload and organisation was in a dynamic healthcare environment, particularly in intensive care, for example that patients needed to be moved as soon as they were stable to make room, or admitted as soon as possible because of the seriousness of their condition,

“because patient cannot wait, it’s not like a normal patient who can wait for assistance. So these things we need to improve it more in our multi-disciplinary team” (HFG1).

Thus, it was perceived as an element of cross-professional work that needed improving in RH. Elsewhere teamwork was directly linked to time management,



both as supporting time management and requiring good time management (HFG7). Thus, there was an understanding that effective patient required time and effort.

As mentioned when interview participants were describing their teamwork, some teams changed on a regular basis due to rotations, and in HFG2, this was seen both as an advantage, in that it gave the opportunity to learn about new people and share new knowledge, but also a disadvantage in that it meant socialising and so creating a sense of 'team' was more difficult.

Finally, understanding how the team works together was considered an organisational factor,

"it's not up to my personality that I don't know your role, but it is the hospital, what do you call it? That it is not making the role of every member clear to every member.... It is policies here" (HFG7).

So, it was felt the hospital administration had a role in disseminating the information that would support cross-professional teamwork.

5.8.7. Preparation and Fear of Judgement

While participants positively linked asking for information with good teamwork, a few noted barriers, such as not being prepared with up-to-date or evidence based information (I25). Preparation for teaching and answering questions was perceived as important, particularly by nurses but there was also a fear of judgement for perceived ignorance *"I feel the senior doctor will say, 'Oh this, he doesn't know this simple information'"* (I12).

5.8.8. Confidentiality

Confidentiality, which was the most common reason given for not sharing knowledge or information. Such information would only be shared with those for whom it was essential. Participants felt that not all knowledge and information should be shared,

"Unless it's confidential, then I won't share. If it's something confidential or really sensitive to the family or social, it should not go outside the medical." (I13).



This summarises a lot of the views around difficulties with sensitive information that may or may not impact on care or consultations, examples given were HIV or child abuse issues. However, it was not mentioned in relation to teamwork.

5.8.9. Culture and Diversity

Culture was used in the broadest of terms by participants, for example, it was described as both personal, institutional, national and by profession, *“Like we have a certain culture among us nurses”* (HFG4). Participants discussed how culture affected teams, particularly around views of hierarchy, such as, where someone had trained affected how hierarchical they were (HFG4). Training in the UK was considered as creating a strong sense of professional hierarchy, in comparison with the U.S.A. (HFG4). Likewise, participants linked the culture of the majority of team members to team culture. This is an example of the type of team for which hierarchy would be important,

“So, it depends on who is in that team... so our consultant, he came from the UK and he have his registrar from India and his resident from, lets’ say he’s from Egypt, or an Oman student” (HFG4).

Another cultural difference was seen in the training of nurses, (HFG4), with nurses from India described as ‘passive’ and ‘lacking initiative’, in comparison to an Omani nurse trained in the U.S.A, *“she will be a little different in her communication skills”* (HFG4). The ‘passivity’ connected to nurses from India was seen as a barrier to good patient care,

“A nurse who is passive will not challenge the treating physician, if in case she saw something wrong or a wrong prescription or anything. She will not be a very strong advocate for the patient” (HFG4).

This was reflected by the behaviour of participants, for example, during the HFGs, Omani nurses were more likely to speak up, comment and offer opinions than any of the expatriate nurses.

As noted above, the Obs-Gyne group (HFG6) were all from India, and whilst the nurses attempted to interact and work with the clinicians, the clinicians kept themselves apart. This included physical interaction. On entering the room, the



clinicians sat in a separate row from the nurses, rather than alongside. Whilst working on the maps, the clinicians opted to work together, but tried to control some parts of the maps created by the nurses, for example, they would not let the nurses place clinicians in their teams. This is further explored in the Discussion Chapter.

In the HFG-ADs, diversity, as a general quality, was seen as a facilitator for cross-professional teamwork, and linked with having the variety of skills needed for a good patient outcome,

“If you get a ‘diversity’, if you get different ‘skills’, with different ‘skills’ you will be able to achieve your ‘outcome’” (HFG7).

At the end of each HFG-AD, participants were asked to write a sentence to summarise their diagram, and HFG7 discussed the sentence, *“So great outcome can be achieved with a great diversity and skills”*. This demonstrates the way participants linked these factors and the positive view they had of them.

Diversity was directly linked to the healthcare environment, with one affecting the other, indeed links were made between a *“Safe environment, skills and diversity”*. (HFG7). Diversity was also linked to culture, which is discussed above, as background culture was acknowledged to make a *“lot of difference”* (HFG4) to how individuals interacted. This contrasts with comments in interviews where cultural diversity was often brushed away as irrelevant to RH culture.

5.8.10. Outcomes

The HFG-ADs viewed outcomes as an important way to assess the quality of patient care and linked outcomes with standards and targets (HFG4). They were discussed in terms of patient care and patient safety, but also time and workload management. A good outcome was also linked to diversity and skills, and as shown in this chapter, teamwork and leadership, knowledge and experience, were all considered skills.

“For me I would say the desired best patient-outcome can be achieved by having the proper skills required, which, all the skills there, best environment and diverse healthcare professionals” (HFG7).



Thus, outcomes were seen in terms of the participants’ work within the hospital but also in terms of the patient experience.

5.8.11. Factors Arising from the Affinity Diagrams

The HFG-ADs were focused specifically on the factors that participants associated with cross-professional teamwork. Here I present these factors as listed by HFG2 (figure5.22.) to illustrate the way in which they were put together by participants.¹⁶ Once participants had ranked the topics they felt were most relevant to cross-professional teamwork, collaboration and KS, they were asked to link them in the ways in which they considered they affected and influence each other. The dots on the diagram represent voting by participants of which aspects they felt were the most important to cross-professional teamwork in RH. As part of the analysis, a concept map was developed to bring together the topics arising from the diagrams (see appendix 4.3.). Table 5.4. lists the themes as they arise from the discussions around process of creating, ranking and describing affinity diagrams and the group statements

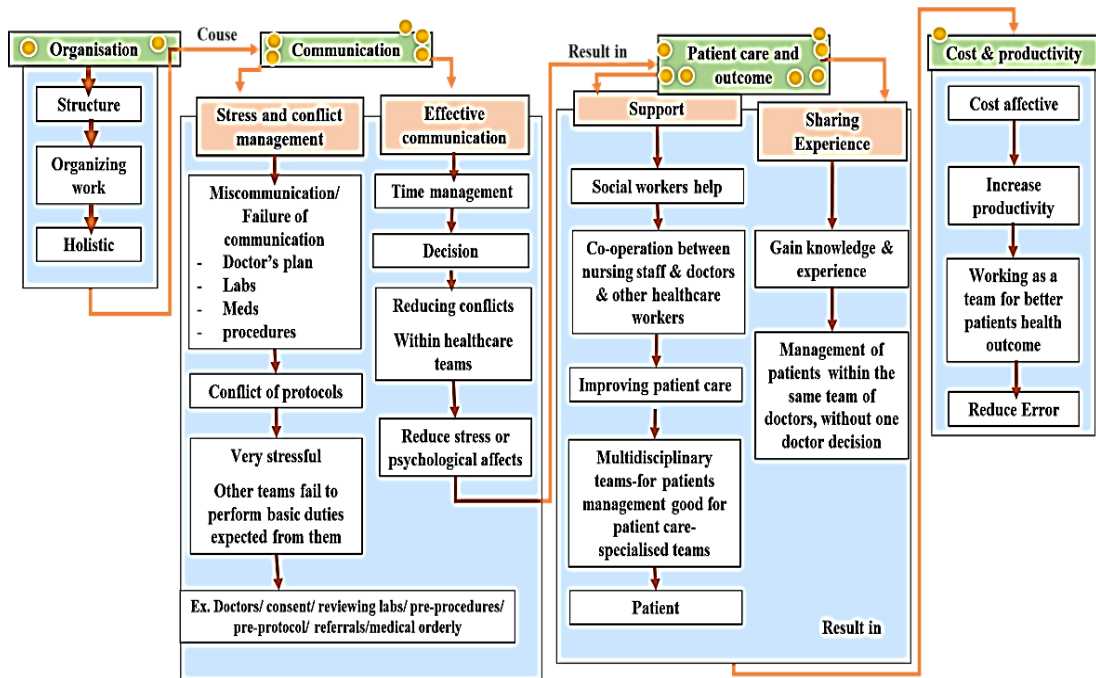


Figure 5.22.: Affinity Diagram 1(HFG2)

¹⁶ Diagrams created from HFG4 and HFG7 are included in appendix 4.2.



<i>"Patient management and safety". AD-HFG2</i>
<i>"Good communication & collaboration between all team members and other teams together with respect and accepting diversity are the main factors in providing good patient care". AD-HFG4-S1</i>
<i>"A good understanding of patient centred care can create team work culture in the organization". AD-HFG4-S2</i>
<i>"The patient is core of successful mixed healthcare teams, which depends on culture, and leadership in the institution and being monitored by local standards". AD-HFG4-S3</i>
<i>"Diversity and skills of healthcare environment provide a better patient outcome". AD-HFG7</i>

Table 5.4. Affinity diagram group statements

Diversity, as noted above, was linked positively to cross-professional teamwork, collaboration and KS on every level. The diversity of RH as a teaching and tertiary hospital was seen positively and linked to teamwork, collaboration and KS. Diversity was also linked to personality and how healthcare professionals communicated, and in this it was linked to enriching collective knowledge by learning from each other. This was viewed as an important benefit to cross-professional work, and thus linked cross-professional teamwork with tacit KS.

Knowledge and experience were linked to education and background, and were seen to affect teamwork and collaboration in that information had to be 'made available' by individuals. Thus, teaching was linked to informal and formal KS. In the diagram created in HFG4, KS was linked to personality, expertise, competence and culture, all of which impacted cross-professional teamwork.

Through the HFG-ADs. KS was linked to communication and successful cross-professional teamwork. HFG2 linked gaining and sharing experience with patient management, as it allowed for improved shared decisions. They also associated sharing experience with support through cross-professional cooperation. Sharing experience within cross-professional teams benefited patient care.



Organisational structure and culture that did not support communication was linked negatively to teamwork and KS, leading to breakdown, Failure in communication of knowledge, information, clinical decisions, led to bad patient care and outcomes. A lack of support also negatively affected the healthcare professionals, if stress, conflict and miscommunication could not be resolved. HFG2 also explicitly linked communication failure with the ability of a team to perform even basic duties, which added to the stress of teamwork. To avoid this, participants linked conflict management protocols to support teamwork. Likewise, HFG4 linked the complexity of patient care as a facilitator to cross-professional practices, if guided with organisational policies, standards and training, as these reduced role ambiguity. Similarly, HFG7, linked organisational environment, culture and structure with healthcare outcomes, as these factors influenced workflow and guided individual interactions within and between teams. Organisational rules, responsibilities, leadership for teamwork, communication and KS, were linked to training in skills for leadership, communication, teamwork and KS.

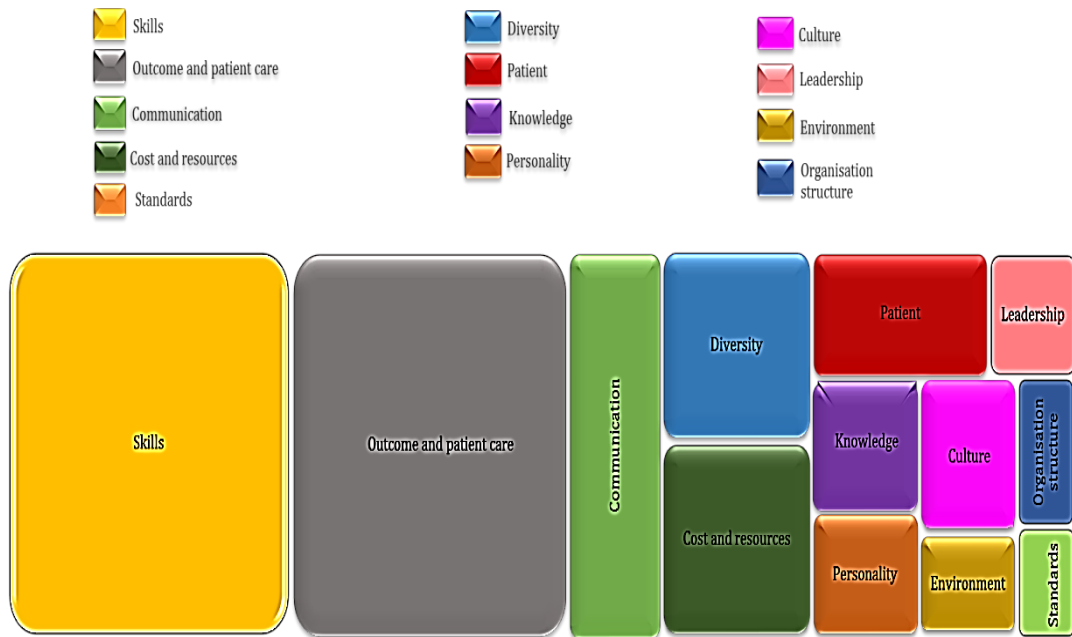
Cross-professional work was linked with effective communication allowing the sharing of experiences and shared decision-making. This was linked to better time management, reducing conflict around misunderstanding and miscommunication, which reduced stress. Finally, the availability of resources for teamwork and KS, like training and communication technology reduced adverse events.

5.8.11.1. Participant Voting

Participants voted on the most important factors affecting cross-professional teamwork. From this it could be seen that cross-professional teamwork, collaboration, and KS were considered facilitators for patient safety, improved patient care and professional development, benefiting both patients and professionals. The organisational structure, environment, culture and resources, were ranked highly in the voting. Finally, the voting also highlighted links between diversity, KS and skills, as seen by participants.



Figure 4.23: Factors that affect cross-professional teamwork based (**Source:** HFGs participant votes)



5.9. Chapter Summary

This chapter has integrated the data sources to create a holistic view of the phenomena under study. The complexities of how participants view team, teamwork and KS is evident, nevertheless themes became apparent and these have been outlined. Thus, we see that although teamwork was perceived as positive across the data corpus, there was no agreement of what constituted a team. Both concepts of ‘team’ and ‘teamwork’ were linked to departmental, speciality and professional boundaries in discourse, even when participant experience was more nuanced. There was a divide in language used around teamwork and collaboration across the data, arising from these boundaries and the hierarchal structure of departments, and solidified by power dynamics and hospital culture.

Departmental teams were generally static, although affected by rotation and rota. Other static teams crossed departmental boundaries, for example the Cardiac Team. As with departmental teams, these were generally static with members knowing each other, again affected by rotation and rota. These teams were often self-identified as patient-centred care providers in the HFGs. Other clinical teams were temporary, coming together for a specific case or emergency. From interviews and HFGs, these could be made up of individuals from multiple professions, specialities



and sub-specialities and often membership depended on rota, the specialities and/or roles required, rather than the individuals. These teams were described with greater vagueness in both interviews and HFG-TMs as there was not always a clear team boundary or articulation of whether the activity was considered 'teamwork'.

Case-based and contingency teams were described primarily in interviews and were formed for specific cases, as HFGs concentrated more on day-to-day teamwork. These teams were created when a speciality needed outside expertise in patient care and lasted for as long as required for a diagnosis, procedure, treatment plan, or longer term. However as discussed below, there is some disagreement around what participants viewed as 'teamwork' in such cases. Contingency teams could be uni- or cross-professional, but were usually clearly defined, as they were by invitation. This was especially the case for teams such as CCOT, as they required specific training to join. However, from interview data it was clear that whilst membership may be clear, the operation of the team could clash with the structure of the department in which the team was operating, creating a barrier to effective teamwork and knowledge sharing.

Joint clinics ('combined clinics', 'multi-disciplinary clinics') were mentioned in interviews and HFG-TMs as examples of cross-professional work. They were highlighted more by departments with a heavy co-morbid caseload, such as Oncology and Obstetrics and Gynaecology, and as an out-patient service.

Teamwork was indivisible from communication, and teamwork and KS were also conflated categories, through rarely explicitly. Hence in interviews and HFGs, participants spoke of consultation separately as KS and as cross-professional teamwork. Added to this patient-centred care was the umbrella under which these concepts were united. No matter the nature of the shared interaction, PCC was considered to give it a goal and focus.

Whilst participants stated that organisational support for teamwork and KS was important, this was not evident in the data. There were no policies, for example, for communication or conflict resolution in the event of a breakdown, although departmental policies relating to process did exist. HFGs particularly commented on this lack of administrative support. Without such documentation there was no way



to create a shared understanding of KS and teamwork, standards relating to the phenomena or ways of auditing cross-professional teamwork and KS.

Indeed the data corpus revealed tension in the way teamwork and KS were perceived and practiced, and the taxonomy around teams and teamwork practices was problematic, thus collaboration and teamwork were multivalent concepts, moving from synonyms to parallel concepts, to opposites, that is, if it isn't teamwork, it must be collaboration. Hence signifier and signified remain elusive.

Interviews and HFGs spoke of training on-the-job, with tacit KS occurring within teams. The extent to which it was linked to cross-professional teams in part rests on how individuals define teams, as so much collaborative work involved communication and KS, for example, seeking 'know-who' as well as 'know-what' as it related to a patient case. Participants linked personal and professional development through learning from each other via observation and discussion, and KS. Working in cross-professional environments gave participants a context in which to share knowledge.

The data indicates that effective cross-professional teamwork and the level of KS are intertwined as communication was considered the catalyst for both phenomena, and influenced by personality, skills, education as much as the organisational structure, environment, support and culture. The final chapter will discuss these findings in the context of the literature, placing the study in a broader context.



Chapter

6

Discussion and Conclusions

Chapter Overview

The previous chapters listed the findings from the different data sets, integrating them and highlighting the themes that arose.

This chapter aims to follow those themes as they relate to the research questions. It links the findings to the literature, placing the findings within the wider picture of teams, teamwork, knowledge and knowledge sharing within Omani healthcare.

After an initial overview of the theoretical basis used in the analysis, I will discuss themes relating to team and teamwork, knowledge and knowledge sharing, communication and patient care. Finally, I will consider the facilitators and barriers to the phenomena under interest.

The chapter then concludes with an overview of the research, outlining the contributions of this research and my reflections on the process, and a note on further research.



Introduction

The level of KS practices within cross-professional work in an acute tertiary teaching hospital is important with the increasing complexity and specialisation within healthcare that requires continuous interaction, knowledge and experience exchange among professionals. The success of this process is vital to deliver the best outcomes and in the most efficient and economical manner, again increasingly important aspects of healthcare (Fitzgerald and Davison, 2008; Körner, *et al.*, 2016). Whilst there is some research on the relationships between knowledge sharing and teamwork, little has been specific to the healthcare environment in the Middle East (Lin, 2007; Rico *et al.*, 2008; Mesmer-Magnus and DeChurch, 2009; Adenfelt, 2010; Choi, *et al.*, 2010). This study is an exploratory study of these phenomena in a tertiary teaching hospital in Oman. This research has addressed the questions:

- What team types dominate the experience of healthcare professionals within the Omani healthcare system?
- How is knowledge shared in these teams?
- What factors or combination of factors can influence, directly or indirectly, the knowledge sharing process in cross-professional teamwork?

These questions were broken down into the following objectives:

- To identify the types of knowledge sharing practices within these teams.
- To understand the impact of cross-professional teamwork on knowledge sharing and vice versa
- To characterise factors or combinations of factors that can influence, directly or indirectly, the knowledge sharing process in cross-professional teamwork.
- To highlight the link – if indeed it exists – between effective cross-professional teamwork and the level of knowledge sharing among team members in healthcare settings.

Using a multi-method case study, the data collected and reviewed over the previous chapters demonstrates the complexity of views around teams, teamwork, knowledge and KS. It has also highlighted the subsequent themes to arise, such as collaboration and patient-centred care. There was a variety of settings, individuals and topics covered through the data corpus, thus picking out themes and meanings required careful and systematic analysis, as outlined in the Methodology Chapter.



It must be stressed that as a teaching tertiary hospital, the wide variety of settings in Royal Hospital means it is difficult to generalise between departments on what, for example, is the most successful type of team, or what departmental team needs would be. However, from the experiences and maps created by participants, clear themes arose, which are important if we are to consider how best to support cross-professional teamwork and patient safety.

6.1. Theoretical Background

This study concerns the human interactions related to the phenomena of interest, therefore, to underpin my methodology, following Niels-Ingvar (2005) I consider both teamwork and knowledge sharing as socially situated. Previous studies of teams in healthcare have consider social dimensions such as trust and leadership, but this places teamwork and KS more broadly in the social sphere (Lee *et al.*, 2010; Wickramasinghe, and Widyaratne, 2012). However, there is a disjunction between writing and talking about teams and in undertaking teamwork, thus theory should support the understanding of teams, teamwork and KS (Finn, 2008).

6.1.1 Activity Theory - Knotwork

Activity theory, developed by Vygotsky (1978) and consequently adapted by Engström (1999), explains how social interactions such as teamwork and knowledge sharing are influenced by the activities during which they take place. It links knowledge sharing, learning and the ways in which individuals come together to achieve tasks. It also understands communication as multifaceted and affected by the specific individuals involved, their objectives, the communities involved, and tools and rules applied. As an 'activity' theory, it privileges process over content, portraying teams as unstable and complex, even a 'nomadic' state (Deleuze and Guattari, 2004b; Bleakley, 20013).

Knotworking does not require rigid or pre-determined frameworks for collaboration, which is conceptualised as individuals coming together temporarily in a 'knot' and tying a knot can be initiated by any individual (Engeström, 2005). It



is useful for describing cross-professional collaboration in highly dynamic settings. For example, in healthcare, professionals from different specialisations will come together to collaborate, bringing the threads from their individual activity systems. During that process of collaboration, the threads will be tied, untied and retied as they tackle the task. Negotiated knotworking describes a way of organising work in settings that require collaboration when relatively separate individuals can come together and tie a knot of activity in short and unstructured ways. Negotiation occurs when the object of the activity, for example, the diagnosis of a patient, is unstable and non-standard, requiring the integration of expertise from individuals from disparate professional backgrounds (Engeström, Engeström and Vähäaho, 1999; Engeström, 2005).

Again, Reeves and Lewin (2004) and Reeves *et al.* (2010) have applied this to healthcare in the context of a large UK hospital. They found cross-professional collaboration mostly occurred as “short, unstructured and often opportunistic interactions” (Reeves *et al.*, 2010:98). As the wards were busy with a variety of health professionals coming and going, structured and lengthy interactions were difficult. They concluded, “the notion of a clearly defined interprofessional team was misleading. Rather interprofessional interactions were more loosely formed and transient in nature” (Reeves *et al.*, 2010:98).

When considering the interactions of individuals in healthcare, knotworking blurs the boundaries between teamwork and collaboration. Knots are defined through the shared activity, which relies on improvisation and persistence, both important attitudes in the dynamic settings of healthcare. Hence, knotworking, as a theory, allows the researcher to step beyond much of the prescriptive literature on teamworking, a great deal of which assumes teams are static, stable and repetitive. Nevertheless, the term “knotworking” itself may conceal as much as it reveals. Like ‘teamwork’, it is not in and of itself a ‘good’ thing (and offers the pun ‘not-working’), rather it is a useful concept to understand the fluidity of modern healthcare in contrast to ‘networking’, which has undertones of stability. Salas *et al.* (2008) considered teamwork as a ‘performance episode’, that includes a variety of activities, and this opens the concept of ‘team’ for being, as Griffiths describes it, “a



loose rubric for action” (cited in Finn, Currie and Martin, 2010:1070). It opens the way to new conceptualisations of teamwork that may be suited to the fast pace and dynamic needs of modern healthcare. As Bleakley notes, networking describes “forms of work that actively strive for stability” and knotworking “forms that show high tolerance of ambiguity and high levels of improvisation”. It is a change in looking at teams, from how they are constituted to how they work, i.e. process (Payne 2000; Bleakley 2013).

6.1.2 Communication and Knowledge Sharing Theories

I consider KS to be “the social practice of knowing”, and highly dependent on context. (Brown and Duguid, 1991; Lave and Wenger, 1991; Blackler, 1995; Orr, 1996; Wenger, 1998; Boer, 2005). Hence, rather than interpreting knowledge sharing and communication as a linear process, I will follow Rogers and Kincaid (1981), who suggest a ‘convergence’ model. In this model, as knowledge is shared between individuals, and can enable mutual understanding, agreement, and action. Again, this theory rises from a social constructionist foundation, where words and discourse gain sense within a professional community (*Cf.*, Boland and Tenkasi, 1995; Derrida, 1976).

6.1.2.1 Tacit knowledge sharing in healthcare

Jaeschke *et al.* (1994) argue that the main source of healthcare knowledge is from journals and clinical literature, including guidelines and case reports, however Davenport and Prusak (1997) and Wyatt (2001) argue that there is more tacit knowledge used in healthcare, but it is not properly documented. Tacit knowledge is difficult to conceptualise and study (Polanyi, 1966; Nonaka, 1991), as it is intrinsic to the individual, incorporating experience, skills, acquired knowledge and applied judgement, and is also context specific (Tsoukas, 2003; Ewenstein and Whyte, 2007; Hecker, 2012; Albes, 2016). Spraggon and Bodolica (2016) used the idea of ‘knowledge-as-activity’ to mitigate these difficulties, which is particularly useful when considering collective tacit knowledge (Cook and Brown, 1999; Collins, 2007; Finn and Waring, 2010; Hecker, 2012). As Finn and Waring note, “there is a need to make explicit the role of shared knowledge in underpinning teamwork, particularly



in group cohesion, communication and performance” (2010:117) For Nonaka (1991) tacit knowledge can be ‘codified’, converted into explicit knowledge through ‘externalization’. These conceptualisations open possibilities for studying the transmission of tacit knowledge. As noted in the methodology, observation of participants was not possible, hence, this research considers tacit KS within its social context, and draws on the words, experiences and artefacts of participants to draw out where tacit knowledge is shared (Ghassemzadeh *et al.*, 2013).

Iedema and Scheeres (2003) describe a move in healthcare care from ‘doing’ work to ‘talking’ work, that is, moving toward a system where communication and negotiation create collaborative practice. The more complex the situation, the more communication and KS is required. From participant accounts it could be seen that much cross-professional teamwork required KS as the primary component, for example in a consultation or cross-professional meeting. Engeström’s knotworking model includes a useful way of looking at KS, through the idea of ‘mycorrhizal structures’ to describe the ‘mental landscape’ created from sharing tacit knowledge and experience, which supports successful knotworking activities (2008:229). Thus, knotworking is the visible element of the mental maps created through KS, and this mental map creates “situation awareness – collective understanding for imminent team activity rehearsed in team briefs” (Bleakley *et al.*, 2012) However a note of caution is sounded by Finn and Waring (2010:124) who found that “transient, flexible teamworking” can conflict with the creation of knowledge within the collective mind, importantly the ‘architectural knowledge’ of how a team works together.

Knotworking recognises the complexity and uncertainty of modern healthcare working. Whist studies have indicated that stable teams can create innovation and new knowledge, (Hannemann-Weber, 2011; Cf., Xyrichis and Lowton, 2008) that is not to say that knotwork cannot. In the fluid environment of healthcare, knotwork is well placed for KS and the creation of new knowledge and innovative practice strategies because it tolerates high levels of ambiguity and complexity, what Bleakley calls, ‘will-to-adaptability’ (2013:21).



6.2. Teams

Definitions of 'team' vary, as discussed in the literature review. There are also differences in the way academics and researchers write about teams, formal work groups or communities of practice. For cross-professional team. I adopted a combination of the definitions from Dyer (1984) and Thylefors *et al.*, (2005), "an organizational work unit or social entity composed of ... different professions with high task interdependency and shared and valued common goals". This was a pragmatic choice as it allowed for a social constructionist study of teams and did not constrict the descriptions of teams by participants, or from my own experiences.

6.2.1 Team Types

The first research question was

- What team types dominate the experience of healthcare professionals within the Omani healthcare system?

The exploratory nature of this study included mapping different team types as described by participants in interviews and HFGs. Few documents in RH listed or described teams, hence I used the descriptions of teams by participants to map the common team types. As a large, dynamic organisation, RH has many clinical and administrative requirements, and whilst some of the administrative teams were outlined in documentation, particularly because some documentation was national and standardised or for the purpose of setting up hospital administration. In contrast, participants noted that clinical teams were created by departments to suit need, and so differed across the hospital.

Participants described a wide range of team types, but usually fixed on their home department as their team. As participants disagreed over team boundaries and the extent of integration, without a standard framework of teams by healthcare professionals working at RH, whilst understanding team types aids in understanding collaborative practices, purely imposing 'types' from the literature is of questionable use to support teamwork and collaboration. Thus, the research did not reveal a dominant type of team, but rather that certain characteristics are



discernible. Further information about these teams is included in Appendices 8.1 and 8.2.

From the data corpus, teams in RH could be single or cross-profession, static or ephemeral. They were all hierarchical to the extent that there was some level of team leader or chairperson, usually the most experienced and/or senior member of the team. They were often dynamic and fluid, thus varied by the level of integration between members (Hibbert, Arnaud and Dharampaul, 1994). Hall and Weaver (2001) argue that teams function along a continuum of integration, which they represent as multi-, inter- and trans-disciplinary. However, participants did not distinguish between teams in this way in their descriptions of cross-professional teamwork.

Most teams were affected by rota and rotation, which was further exacerbated by RH's role as a teaching hospital. Whilst a department may be considered a team in and of itself by participants, smaller teams were often more fluid. Thus, even 'static' teams changed. As a nurse commented of her experiences in teams that changed through rotation, (I22),

"As the team members change, the team concepts and definitions also change."

Thus, understandings around teams and team need constant renegotiation and the fluidity of teams described requires us to move beyond many of the assumptions in teamwork theory and literature of teams as static and steady. This fluidity encompasses not only the micro-negotiations necessary for successful teamwork but team boundaries and ideologies. Schrage, quoted in Egolf and Chester (2013:55) argues, "the word 'team' has been politicized, so ensnared at the pathology of the organization, that we really don't know what it means anymore." Schrage believes we should focus on collaboration rather than defining 'team', removing the semantic issue. Thus, 'team' is indicative of the discourse itself, the assumption that 'teamwork' requires 'teams', and to be a team is to fulfil certain expectations; a circular argument.



6.2.1.1. Boundaries and integration

The findings indicate that clear boundaries to a team were not as important to participants as a shared goal and objective, and for many of the participants this shared goal is 'patient-centred care' (Cf. West and Slater, 1996; Xyrichis and Lowton, 2008). Participants in interviews and HFGs referred to patient-centred care as a glue for creating team objectives and this is discussed further below under the section on facilitators and barriers. Hence, whilst dynamic teams have the potential for disrupting efficient teamwork by, for example, constraining RH staff from understanding fully their roles or committing to a team, they were nonetheless associated with a patient-centred focus for teams and teamwork. Thus, to what extent do healthcare professionals need to consider themselves a team in order to work together successfully? The discursive tension around 'team' and 'teamwork' opens a space to conceptualise cross-professional collaboration in terms of knotworking. It appears positive collaborative effort does not rely the existence of clear team boundaries; participants at times referred to 'teamwork' for collaboration that was not related to a team, hence knotworking is a useful way of conceptualising such work. Nevertheless, the expectation as much as existence of team boundaries creates a potential gap in knowledge sharing and communication.

Participants with administrative duties were more likely to talk about teams in a theoretical and generalised manner, including anyone who worked together in a team; thus, teams were idealised and blended. Administrative participants were more likely to speak of departments as teams in and of themselves, and at the extreme, the entire hospital was referred to as a single team. As Bleakley (2011) comments, being described as, or considering oneself as part of the wider health team rather than a specific medical team, reflects interprofessional rather than professional identity, and many participants used team in this manner as well as referring to teams that are more specific. Additionally, these generalisations can be seen as discourse reflecting the power dynamics of administrative and senior staff (Derrida, 1976). Thus, teams *are* 'families', 'inclusive', and 'necessary' for modern healthcare (Cf. Participants were drawn into the discourse that teams are beneficial and necessary, not just in RH, but healthcare as an institution (Cf., Arthur, Wall, and Halligan, 2003; Finn, 2008). Finally, this feeds into Arabic culture and the



importance of family and social ties (Kuehn and Al-Busaidi, 2000; Mohamed *et al.*, 2008; Al-Esia and Skok, 2014)

Just as much of the literature on teams assumes stability, participants were trapped by the discourse of teams as stable entities, even when describing ephemeral teams. Thus, teams demonstrated, as Bleakley terms it, ‘will-to-stability’ (Bleakley, 2013:21). No participants described teams as complex and unstable, and such qualities in a team were not perceived as a resource. However, as Bleakley argues, it is in this very instability of knotworking that “emergent properties may move the team to new and innovative levels of activity, particularly in the context of cross-team collaborations” (2013:21; *Cf.* Tsoukas, 1996; Spraggon and Bodolica, 2016). Ambiguity, instability and the informality of what Goffman termed ‘backstage’ interactions can allow space for innovation and tacit KS (1956).

This dilemma of integration versus autonomy of specialities was evident as participants described belonging to formally identified teams linked to specialities, and at the same time, more fluid teams based on immediate need (McCloskey, 1990; van Mierlo *et al.*, 2007). When discussing teamwork in the operating theatre, Finn, (2008:104-5) argues that teamwork is a “discursive means through which professional members negotiate the contradiction between integration and specialization, furthering different versions of unity.” This was supported within this research as participants used team and teamwork as concepts and descriptors to show allegiance to departments and specialisations depending on the context they were discussing. However, there was little comment about levels of integration or autonomy within teams.

There was considerable disagreement around the role of nurses by participants (*Cf.*, Hart, 2015) Whilst an administrative participant described nurses as part of every team, doctors were more likely to describe the nurses as working in parallel rather than with them. Nurses were more likely to see themselves as belonging to teams when they worked with others. This could be seen as part of the boundary work discussed by Nancarrow and Borthwick (2005), and a way that doctors protected their professional boundaries. As boundary work it also has implications for



knowledge sharing between these groups. This discrepancy could lead to nurses feeling rejected, unappreciated or disrespected, and disengaging from collaborative and KS behaviour in cross-professional activities, supporting Hart's (2015) findings. There were also potential issues around interpretation of role and membership of teams by more junior members, who were described as 'shared' between teams rather than describing themselves as members. The discourse used removed agency from these members.

6.3.1.2. Patient role

Patient role was discussed by participants generally only when prompted. When asked about the position of the patient, some participants placed the patient within the team, others didn't, and within the HFGs there was some disagreement around this. Whether participants included patients within the team varied between departments, for example, in Paediatrics and ICU, patients were not capable of participating in decisions relating to treatment. Participants agreed that more could be done to include patients, but this was influenced by the engagement and education of the patient. However, no participant described asking patients about their role, rather it was imposed by the needs of the department (*Cf.*, Stewart, 2001).

The extent to which patients were considered team members or not did not appear to affect the ideal of patient-centred care (PCC), which was overwhelming considered the focus of the team. Even where the patient was considered passive and a service receiver, they could still be viewed as the centre of the work, and this was the emphasis of the patient related comments by participants – that PCC, whether the patient was considered a member of the team or not, was a way to unite a team and an important team goal.

Nevertheless, the extent to which PCC was merely a discourse, in the same manner as teamwork, is an issue. PCC was cited as good and important, but there was relatively little understanding and agreement about what PCC means beyond an ideal of 'putting the patient first'. Ogden, Barr, and Greenfield (2017) developed a conceptual map for PCC, covering, *inter alia*, partnership, education and training, and policy and management. Few of these ideas were specifically related to PCC by



the participants in this study. Patients were not seen as partners in the team and although it was acknowledged that patients may need to be included in team processes on occasions for training and support (for example, with home dialysis) there was no mention of either specific policies or training related to PCC.

6.3. Teamwork/Cross-Professional Work

Teamwork was considered positive, albeit at times challenging, in the literature and by participants. The complexity of healthcare requires effective and efficient collaboration among healthcare professionals. (Antoni, 2010; Kuhlmeier, 2011; O'Leary *et al.*, 2012; Ezziane *et al.*, 2012; Körner, *et al.*, 2016). Expectations and needs differ across the hospital. Thus, how participants described their teamwork and collaboration varied, and there was an overlap between teamwork and collaboration in the comments of participants, which reflects the way in which the two concepts are used in the literature (Leathard, 2004, see discussion in Xyrichis and Ream, 2007).

Reeves and Lewin (2004) studied healthcare professionals collaborating in a demanding hospital environment and noted that one barrier to successful collaboration was that different professions viewed 'collaboration' differently: doctors considered it the coordination of tasks, nurses as a means to generate social capital (*Cf.*, Finn, 2008). This was supported in this study as doctors tended to speak more of teamwork in terms of solving a problem, for example through consultation, and nurses more in support and sharing the workload.

There was a difference between the discourse of teamwork and how participants described their experience of teamwork (Finn, 2008). For participants, the discourse around teamwork indicated they considered teamwork, as a concept, to require greater organisation, structure, shared spaces, shared management, a shared name or label, for example a joint clinic, shared objectives, goals, and relationships. However, when discussing examples of teamwork, the primary factor was undertaking a task with others, working together. Therefore, 'teams', do not need to be defined as such, neither do they need to follow formative stages, such as



Tuckman's stages of Forming, Storming, Norming and Performing; they can move straight from Forming to Performing (Asgari, 2017).

When differentiating between teamwork and collaboration, some participants described it in terms of structure versus process, or vice versa, hence differences could reflect participant views. Other participants stated that teamwork had a depth of interaction or a relationship not possible in collaboration, thus the latter was purely task-oriented rather than including the familiarity created by teamwork.

These elements were evident in the data corpus as participants related their views and experiences of teamwork when described as a positive practice. Schrage's (1990) definition of collaboration, which includes the idea of having clear lines of responsibility without restrictive boundaries, which was reflected in the disagreements around membership of teams. By moving from team to knotwork, we can remove negativity relating to boundaries and permeability, and potentially invite innovative methods of collaboration. Hence the instability of 'teams' in RH can be viewed as a resource, creating innovation as knotworking enables teamwork to be seen in terms of activity rather than a group. As Bleakley (2013:25) notes, knotworking "is not reducible to an agent or an organization as a point of control", rather it is a way of describing threads of activity between individuals and teams that are tied, untied and re-tied to achieve an outcome (Engeström 2008:194). Thus, it remains a useful descriptor for many of the examples of teamwork used by participants in the interviews.

6.4. Communication

The second research question addressed through this research was

- How is knowledge shared in these teams?

It was evident that many of the interactions that participants deemed 'teamwork' or 'collaboration' involved KS as a primary component, yet the team-bound discourse of healthcare curtailed the way they spoke of these interactions. Hence consultations were frequently labelled as 'teamwork' by many participants when asked about cross-professional teams, however when asked to relate an instance of KS, clinicians



would often use examples of consultations. Thus, participants used the same kind of activity to identify with a cross-professional, ephemeral team and to demonstrate their KS activity.

As participants spoke about teamwork and KS, they frequently spoke about communication and it became apparent that communication was an important theme even though it was not one of the research objectives. Successful KS requires interaction and communication among team members (Cohen and Bailey, 1997; Wickramasinghe, and Widyaratne, 2012:217). KS cannot occur without communication. Participants spoke of the methods of communication they used to share knowledge and spoke about communication skills.

6.4.1 Communication Pathways

Communication pathways in RH were divided into either administrative or clinical. However, there was also the divide between hierarchical and peer-to-peer KS (Al Shamsi, 2010). Both were described as important and used in different ways. Doctors gave examples of communicating to seek knowledge from their seniors and share with their juniors, and of communicating outside of their speciality for knowledge, which in turn, was more likely to be described in terms of peer-to-peer communication and KS. Similarly, nurses spoke of hierarchical and peer-to-peer KS. The literature indicates the challenges of cross-professional communication, and this was evident through this research. The findings generally support Manojlovich and Antonakos, (2008), that nurses perceived that doctors communicated less with them. In contrast, doctors considered that that they communicated well with the nurses, but they had different priorities.

6.4.2 Communication Methods

Participants described face-to-face and mediated communication. Lundby (2009) divided mediated communication into three, interpersonal, interactive and mass. Participant accounts described these three methods in their communication, as participants asked for knowledge, shared knowledge, and distributed knowledge. Interpersonal and interactive knowledge could occur in various spaces, and the widespread use of WhatsApp enabled mass communication, especially as it was often described as being used for KS among wider groups, where, for example, a



larger team may be divided in to several smaller working groups through a rota. However, the ubiquity of WhatsApp could indicate a weakness in tacit KS, as tacit knowledge cannot be created or shared over physical distance but requires face-to-face, personal interaction (Mengis and Eppler, 2008; Spraggon and Bodolica, 2016). Hence a communication method such as WhatsApp cannot supplant personal interaction within collaboration, teams or knotworking.

Nevertheless, participants described a lack of integration between different methods, which raised the risks of information and knowledge being lost or missed, for example when AL-SHIFA was used, it was followed by a phone call for more immediate information. Although AL-SHIFA was intended to facilitate communication between nurses and clinicians, at the time of this research (2016) the system was implemented for nurses only. Regular department and team meetings were mentioned by all participants, and these have been shown to have a positive impact on team communication in the literature (Borrill *et al.*, 2000; see also Lowe and O'Hara, 2000; Batorowicz and Shepherd, 2008; Xyrichis and Lowton, 2008). In contrast to WhatsApp mentioned above, meetings offer the opportunity for tacit KS within departments and teams.

Participants described communication and cross-professional communication as supported by RH, even though participants could not identify any policies in support of this. (Tija *et al.*, 2010). Again, knotworking can prove useful as a theoretical frame in which to encourage communication and KS within collaborative activities and is a suitable descriptor for healthcare collaboration in RH. (*Cf.* Bleakley, 2013).

6.4.3 Communication Skills

Communication skills were often spoken about in terms of cultural difference, often with the proviso that communication was good, and always in the context of face-to-face communication. As Bailly *et al.* (2010:478) note, such communication involves language, psychological, affective and social elements of interaction. One participant was able to offer examples where culture had been seen to affect communication but throughout the interviews and HFGs, this was downplayed by participants. Nevertheless, effective communication is vital for successful KS, tacit



KS, and teamwork (Kreps and Thornton, 1992). As Batorowicz and Shepherd (2008) argue, whilst communication requires time and effort, the payoff is enhanced collaboration and thus better healthcare. (Cf. Malone and Koblewski, 1999). Whilst the Omani MoH intended regular and compulsory communication skills training and teamwork workshops, participants did not discuss such initiatives. There was some mention of training for managerial, administrative employees, although this was not clearly linked to the government initiative, but there appeared to be no such scheme across workers at all levels (Alshishtawy, 2010).

6.5. Knowledge and Knowledge Sharing

This section corresponds to the second and third research questions.

- How is knowledge shared in these teams?
- What factors or combination of factors can influence, directly and indirectly, the knowledge sharing process in cross-professional teamwork?

As noted, participants spoke interchangeably about information and knowledge. Whilst participants did not use the technical vocabulary of knowledge and KS they described a wide variety of knowledge types, KS methods and pathways. There are challenges to empirically investigate KS, in particular tacit KS as much of the process is cognitive and abstract, thus examining how participants described their KS experiences proved beneficial.

KS is the act of making knowledge available to other, and thus it is not necessarily a two-way exchange (Ipe, 2003; Mooradian *et al.*, 2006; Szulanski, 1996; Wickramasinghe, and Widyaratne, 2012). Participants usually spoke of KS in one-way terms, they were either seeking knowledge (usually ‘asking’) or providing knowledge, although there was a general acknowledgement that they learn from each other. KS was both hierarchical and peer-to-peer, and there was some overlap when KS occurred in formal settings such as weekly meetings or presentations/lectures. Indeed, teaching and learning were frequently discussed by participants and linked to both KS and teamwork mainly in connection with training and lifelong learning. Training on-the-job was described as both informal and formal, as participants frequently mentioned sharing their knowledge to colleagues.



Empirical studies have demonstrated that KS is not automatic, even where organisations strategise to encourage it (Hansen, *et al.*, 1999). However, in a knowledge rich healthcare environment such as RH, KS was described as a daily occurrence and celebrated as such by participants. KS was considered to be part of professional culture, not just within RH, but healthcare more widely. Davenport (1997) describes KS as a voluntary activity, however, when asked to share an instance of KS, participants mostly described KS as a result of a request, formal or informal, for knowledge. This follows Teng and Song (2011), who suggest KS could be solicited or voluntary (See further the discussion in Wickramasinghe, and Widyaratne, 2012).

The literature highlights how KS within teams yields potentially higher team performance (Wickramasinghe, and Widyaratne, 2012; Obrenovic, Obrenovic, and Hudaykulov. 2015). Previous research suggests that active KS among team members affects the process and success, as suggested by Berends *et al.* (2006), Lee *et al.* (2010) and Wickramasinghe, and Widyaratne, (2012). Studies have shown that communication between individuals and teams are vital for patient safety and good patient outcomes (Niels-Ingvar, 2005; Vincent, 2005), with the specialisation of healthcare knowledge is fragmented within the healthcare environment and KS becomes more significant (Grant, 1996). Participants constantly linked cross-professional teamwork and KS with patient-centred care and patient safety. This was most clearly evident in the HFGs and affinity diagrams

6.5.1 Types of Knowledge

Lowendahl *et al.*, (2001) identified three types of knowledge shared by individuals, 'know-how', (subjective and experienced-based), 'know-what', (objective, often task-related) and 'dispositional' (aptitudes and abilities) (Wickramasinghe, and Widyaratne, 2012). Both know-how and know-what were described by participants when discussing how and why they shared knowledge. Dispositional knowledge could be inferred, for example, when participants spoke of the team supporting them in learning new skills.



Tacit knowledge is also embedded within what Collins (2007) terms 'social collectivity', as collective tacit knowledge (CTK), and in the workplace is created collectively by individuals as they work together or socialise (Nonaka and Takeuchi, 1995; Tsoukas, 1996; Lam, 2000; Vissers and Dankbaar, 2013). Such tacit knowledge is a group undertaking as team, group or organisational members create, process and share tacit knowledge (Leonard and Sensiper, 1998; Lam, 2000; Nevo and Wand, 2005; Hecker, 2012; Vissers and Dankbaar, 2013). Hence collective performance depends on how this CTK is shared (Lewis and Herndon, 2011; Argote and Ren, 2012).

Participants did not speak of tacit or explicit knowledge, collective or individual, rather they described specific instances of knowledge, such as training for new skills or information relating to a diagnosis and situations in which one, the other, or both, were likely to be shared, for example through the preceptor system. Thus, the sharing of tacit knowledge could be glimpsed through the data.

6.5.2 KS Practices and Methods

Within the literature, KS was frequently studied in terms of organisational innovation. Wickramasinghe and Widyaratne (2012:214, referencing Ipe, 2003) stated, "An organization's ability to effectively leverage on its knowledge is highly dependent on its people even though it encompasses knowledge enabling platforms". As noted above there were various methods of communication and therefore KS. Whilst KS and communication were mapped in the HFGs, in interviews participants spoke of a wide range of KS activities including meetings, presentations, consultations, training in new equipment or drugs, incorporating explicit and tacit knowledge. Participants spoke of a wide variety of practices and methods. In the literature such variety is linked to effective KS behaviour (Berends *et al.*, 2006; Jones and Borgman, 2007; Spraggon and Bodolica, 2016). For example, consultations were spoken of both in terms of seeking knowledge and discussing together to come up with a diagnosis and treatment plan, indicating not just one-way KS but collaborative problem solving (Huang and Newell, 2003; Berends *et al.*, 2006). Participants also described training, formal and informal (Al-Alawi *et al.*, 2007), conversation, formal and informal (Fong and Chu, 2006; Newell *et al.*, 2006; Al-Alawi



et al., 2007), meetings, briefings and reviews (Fong and Chu, 2006). Participants also described online and electronic methods of KS, such as emails, webinars and WhatsApp (Hall, 2001; Fong and Chu, 2006; Jones and Borgman, 2007).

Participants discussed KS as occurring both in hierarchical situations and peer-to-peer, one-on-one and in groups. KS was considered not only beneficial for patient care but personally rewarding, both to give and receive. One clinician, who did not have fellow specialists with whom to share knowledge, commented on the lack of opportunity to share knowledge. Interestingly despite his specialist isolation, he presented KS as integral to teamwork, in line with Garrett and Caldwell, (2002). Many participants described training on the job, for example the preceptor system, and descriptions of learning through observation. This would include not only the explicit knowledge required for the participant's role, but also tacit knowledge.

Participants described KS as occurring within their teams, but it is difficult to assess whether this was because team colleagues were most likely to be in that space and consider the knowledge interesting or useful. Thus, does KS occur within a team qua team? For example, doctors described KS within rounds as part of teamwork, nurses described sharing with their colleagues. Where, for example, participants spoke of KS as something they wanted to do, it would be with those they interacted with, and this is most likely to be team colleagues. However, this does not indicate whether knowledge relating to patients was clearly passed on, Participants discussed occasions where they had not passed on information or where they had missed information related to a patient.

6.5.3 Organisational Support

Organisational management for managing KS can improve their performance and competitive advantage (Nonaka and Takeuchi, 1995; Andrews and Delahaye, 2000; Bartol and Srivastava, 2002; Cabrera and Cabrera, 2005; Lin, 2006, 2008; Refaiy and Labib, 2009; Yi, 2009; Wickramasinghe, and Widyaratne, 2012). However, whilst there were formalised opportunities for KS, such as presentations, there was little evidence for RH organisational support for KS. In the DA, only the *Nursing Code for Conduct* (D13) explicitly spoke of KS, mentorship and guidance, and this is a national



rather than a RH document. Administrative participants took the view that where communication occurred, KS occurred.

Whilst there was little support of teamwork or KS in the documentation studied, for the most part participants supported both in their daily work. However, when joint clinics were used as an example of KS and teamwork, participants stated that these were not entirely successful, citing a lack of integration, KS and that the physical set up of joint clinics did not encourage full KS and teamwork between specialities. In examples like this, stronger organisational support would encourage KS and teamwork. Similarly, some shadowing was mentioned as well as the nursing preceptor system, however a more structured and formal use of mentoring and shadowing/observation could support KS and teamwork (Nahapiet and Ghoshal, 1998; Marks *et al.*, 2000; Obrenovic, Obrenovic, and Hudaykulov. 2015). Knowledge, especially tacit knowledge, can be shared through shadowing, mentoring, workshops, and so forth, which aid in the creation of shared mental models that, in turn, aid KS and teamwork (Marks *et al.*, 2000). Many of the clinician participants spoke of KS during rounds and consultations, both of which could aid in the creation and exchange of tacit knowledge (Obrenovic, Obrenovic, and Hudaykulov. 2015).

6.5.4 KS Motivations

As with communication above, different participants described different motivations for sharing knowledge. Ghassemzadeh *et al.* (2013) note that organisational support and personal motivation were primary factors on tacit KS. Whilst RH did not have policies and guidelines in place for KS, it is a teaching hospital and participants felt this in itself supported KS, contrasting, for example, a research environment where individuals may wish to protect their research, to the teaching environment. The professional culture of healthcare was also seen as supportive, and participants spoke of this in terms of obligation – to be a healthcare professional required sharing knowledge. Thus, it can be seen in terms of normative commitment (Hooff and Ridder, 2004). In the light of Ghassemzadeh *et al.*'s research, tacit KS could be further facilitated through affective commitment encouraged by RH. This is discussed further below.



Individuals were expected to seek knowledge where they lacked, aid others in gaining knowledge where they noticed a lack and share knowledge more generally. This supports Körner, (2009, 2010) that, healthcare professionals must integrate their personal and professional perspectives to work together on the treatment and care of patients. This requires KS, and knowledge integration within healthcare teams (Körner, 2013; Körner *et al.*, 2013).

6.6. Barriers and Facilitators to Teamwork and Knowledge Sharing

This section specifically corresponds to the research question:

- What factors or combination of factors can influence, directly and indirectly, the knowledge sharing process in cross-professional teamwork?

This exploratory research identifies a variety of determinants affecting KS, healthcare teams and teamwork practices and experience and indirectly affect as they influence communication and collaboration practices which impact both teamwork and KS. Some of these impacted positively, some negatively, and some had the potential to do either. This section discusses these factors under three main headings, organisational-based, individual-based, and technology-based factors.

When speaking about barriers and facilitators to teamwork and KS, participants often spoke in hypothetical terms, particularly when discussing barriers. No participant could offer an example where they experienced the total breakdown of teamwork, rather they described potential or actual strategies of managing conflict to avoid a breakdown, for example asking professionals known to the individual for assistance. When administrative participants were asked about policies relating to breakdowns in teamwork and communication/KS, they acknowledged that there were none unless patient error is involved.

6.6.1. Organisational-based factors

Participants 'knew' that teamwork and KS were 'good', reflecting the dominant discourse in healthcare. Several participants wanted to show their knowledge on teamwork and KS and so spoke theoretically about both. The extent to which the official discourse influenced answers was undercut through extended probing



questions, encouraging participants to provide examples from their experiences and through the art-based, activity-based nature of the HFGs. Many participants spoke of barriers to teamwork and KS in the same way, and often the same barriers were mentioned when asked about both phenomena, indicating the extent to which they are intertwined. As noted above the terminology related to the phenomena of interest was vague and problematic at times indicating a lack of shared understanding of teams, teamwork and KS. Thus, participants in interviews described teams as much in terms of organisational structure (e.g., department) and management style (e.g., structure and hierarchy) as day-to-day working practices. In contrast, the HFGs allowed participants to map their teams, beginning with themselves and working outward, including the communication and collaboration that occurred outside the team. This gave a clearer picture of the day-to-day practises and participants commented that it allowed them to see their teams in different ways.

However, team and teamwork did not always align to departmental and physical boundaries, particularly in terms of cross-professional teams, and this reflects the lack of RH supporting infrastructure. Thus, even structured cross-professional teams such as joint clinics, did not necessarily describe themselves or their work in terms of 'team'. Whilst it is a challenge for an organisation such as RH to accommodate both the needs of healthcare professionals to work together in a dynamic environment, and oversight of a fragmented medical structure covering the wide variety of specialisations in a large tertiary hospital, this needs to be considered in terms of how they can best support healthcare professionals. Particularly as the interaction of individuals is constructed in particular ways to fit within their social world, and through the discourse of teamwork and KS as multivalent but positive factors (*Cf.* Finn, 2008). This requires both individuals and administration to negotiate roles, identity and membership within cross-professional collaboration.

6.6.1.1. Organisational context and climate

As Chatman and Cha (2003) note, organisational culture has a large effect on teamwork, and KS. Indicative of the strength of the official discourse around



teamwork and KS, all participants stated that RH supported teamwork and KS, particularly through documentation. At the same time, many commented on the lack of training for these skills.

Participants listed the size of RH, the wealth of specialisations, knowledge, experiences, skills, education and backgrounds as facilitating teamwork and KS. KS was particularly linked to RH as a teaching hospital, and therefore a learning-oriented culture. As a tertiary hospital, some participants commented on the complexity of their cases, which necessitated the need to seek knowledge from different healthcare professionals.

6.6.1.2. Patient-centred care

Whilst patient-centred care (PCC) was not an initial focus of this research, it came to the fore as a theme as many participants considered that placing the patient at the centre of the teamwork, if not the team, would unify a team through a shared aim. As with teamwork and KS there was an extent to which this reflected the official discourse of healthcare. Hence, despite agreement that PCC was positive, there was disagreement about what the term means in practice (Stewart, 1995; Lewin *et al.*, 2001; Amey *et al.*, 2006; Reeves *et al.*, 2010). Whereas Balint (1955, 1956) developed the concept of patient-centred care in contrast to 'illness-centred medicine' (*Cf.* Brown, 1999), in one HFG it was contrasted with 'consultant-centred care' (FG4), that is, that an individual could dominate a team to the detriment not only of teamwork but also the patient. This aligns with Herbert (2005:2) who argues that PCC encourages the active participation of each discipline in the treatment of each patient. Participants linked PCC to patient safety. PCC has been linked to a positive environment for patient recovery (Edwards, 2002).

PCC also provides a framework for KS among healthcare providers to aid in clinical decision-making across disciplines. This helps to overcome professional silos that develop in healthcare. Thus, the participants agreed with the literature that PCC encourages KS and collaborative, team-based approaches (Dean, 2008). Nevertheless, there was discomfort among some participants about the extent to which patient-centred care situated the patient within the team, increasing the patient's knowledge and understanding of their illness, empowering them within



the healthcare system. For some participants this had gone too far, for others it was not at a satisfactory level. Another barrier mentioned to full inclusion of the patient was lack of patient education, as participants stated that patients and their families must learn how to work with healthcare professionals, but this was considered to be the responsibility of the patient. This is an important issue as patient compliance is linked to the extent to which the patient can understand the information given to them and recall it, and to their satisfaction levels regarding the consultation. (Ley, 1982; Ogden, 2008).

6.6.1.3. Hierarchy and structure

When relating KS activity, none of the participants indicated that this was an issue across horizontal boundaries. Despite the literature on boundary work, all clinician participants spoke of sharing knowledge with other doctors, despite professional boundaries between disciplines. However, there was some division and hesitation about sharing knowledge with nurses, usually related in terms of 'we/they don't have the time'. Healthcare is a highly stratified environment and in all participant accounts hierarchy was considered necessary as a structure for the smooth running of teams and the wider hospital (although autocratic attitudes were condemned). However, this could be exacerbated by Oman's paternalistic culture and high power-distance score (Hofstede, 1980). These could explain an acceptance of paternalised hierarchies, and inequality that feeds through into a discomfort with sharing knowledge with nurses (Al-Azri, 2013).

However, it was not necessary for participants to fully understand the hierarchy of those they worked with, for example, in (HFG6) the clinicians were not aware that a specific nurse was responsible for medical supplies as they would request supplies from any nurse. The nurses explained that their request was then passed on to the nurse responsible for supplies to ensure smooth running of the stores. Similarly, when sending patients for procedures or tests, or consulting on patients, there was a hierarchy of who to approach, which came out most clearly in the HFGs, where participants mapped their communication and teamwork. Whilst documentation on KS and teamwork were not available, procedural structures were in place that supported both phenomena, for example,



“It if is an emergency, I myself will talk to consultant. If it’s not an urgent thing, my registrar or the residents they will inform their registrar and they communicate to the consultant. That is the system”.

Thus, there was a known hierarchical pathway.

On the other hand, hierarchy was described as a barrier to teamwork in an example where a doctor could not go against the decision of a consultant, and participants resented dictatorial attitudes of senior staff. This also reflected on attitudes toward leadership. In previous research, the support and attitude of leaders has been shown to affect the levels of KS within teams, indeed Karamitri *et al.*, (2015:13) view leadership as a major factor in encouraging “a problem-seeking and problem-solving culture” in healthcare (*Cf.*, Lee *et al.*, 2010; Srivastava *et al.*, 2006 Wickramasinghe, and Widyaratne, 2012), Hierarchies could, on occasion, be inverted. Nurses who spent most of their time with specific patients, such as in ICU, spoke of the importance of their knowledge about the patient and how this was passed to the clinician (*Cf.* Xyrichis *et al.*, 2017).

At the same time, specialisation and professional boundaries were described as barriers, with, for example, (HFG5) “*a little bit of sensitivity between some departments*”. Examples were given of patients falling between the cracks when dealing across departments because of differences in structure and policies. There was also an example given of the CCOT attempting to work within a department and being hampered by the hierarchy and structure of that department as it clashed with the CCOT. A connected barrier to KS was confidentiality, which was the most common reason for not sharing knowledge or information. Such information would only be shared with those for whom it was essential, usually connected to the department.

Participants were asked whether they would speak up if they saw problems in their teams, and their answers indicated that hierarchy and culture affected the choices they made. The power differential within healthcare was replicated as nurses spoke of apprehension when speaking to doctors (*Cf.* Finn, 2008). However, participants stressed that patient care would require them to speak out, although the extent to



which this reflects official discourse is a point to consider. For example, nursing administration commented that nurses from India or the Philippines were less likely to speak out, and so were not considered 'good advocates' for patients. This was not linked to training rather it was accepted as the way things were with nurses from that background (*Cf.* Hofstede, 1980).

6.6.1.4. Reward and audit

Previous research has argued that rewarding teamwork and KS can be both a barrier and facilitator (Bartol and Srivastava, 2002; Wolfe and Loraas, 2008). However, when asked about motivations for KS and teamwork, participants spoke favourably of reward as a facilitator, but only in specific ways. Participants spoke of wanting small scale acknowledgement by immediate senior staff rather than grand gestures and ceremonies. The only references to formalised rewards were among senior and administrative staff. Xyrichis and Lowton (2008) discuss the importance of audit in team effectiveness, as it allows for personal and team evaluation. Participants rarely spoke of any feedback on their performance, and audit processes were felt to be lacking.

6.6.1.5. Workload

One of the most common barriers mentioned in terms of both teamwork and KS, but particularly the latter, was workload, with participants speaking of staff and time constraints on their work. One HFG included workload as a factor in their affinity diagram. Participants linked shortcomings in communication and documentation to workload, which reflects the findings of previous research on the negative impact of time constraints on teamwork and KS (Huber, 1991; Manojlovich and Antonakos, 2008; Pagano, 2010). Participants understood that workload could create delays, in consultation and treatment, and good teamwork and communication was considered to be a way to overcome this, with multiple communication methods used to request and offer knowledge. Similarly, workload was cited as a reason for doctors and nurses to not consider themselves in the same team, for example, nurses were not available to accompany doctors on rounds because they had a separate and heavy workload.



6.6.1.6. Help and support

Participants described the help and support from they gained from the team as a facilitator for both KS and teamwork, which in turn were considered co-dependent. Improving the skills and knowledge of individuals were viewed as benefiting the individual and the team, (I11), “*Being part of teamwork helps me improve myself*”, and the two were indivisible as both were necessary on a daily basis for patient care and safety. Tacit KS was linked more closely with this kind of support in teams, with colleagues sharing information to help the team.

Likewise, nurses spoke more about support in getting the work done, and the detrimental effects on the team of not pulling one’s weight within the workload of the team, supporting Finn’s (2008) where nurses used more relational language around teamwork. For many of the nursing participants, help and support was linked to assistance in getting the work finished. Karamitri *et al.*, (2017) note that nurses need to collaborate with other professionals to obtain knowledge to care for patients, which was evident in participant comments, for example nurses learning from watching doctors in the OT.

6.6.1.7. Training

Whilst help and support within teams were described in terms of informal KS, training was considered as formal KS. In documentation, the two primary references were to announcements about training, and training on documentation. (D12) “Ongoing training” was ‘key’ to improve clinical handover compliance. In HFGs, knowledge and experience were considered skills, which were linked to competency and good teamwork (HFG7). Nevertheless, there was less mention of specific training opportunities outside of the nursing department’s documentation. Issues around lack of training were generally ascribed to financial reasons rather than any lack of will on the part of RH management. This included training in soft skills, which was assumed to be a good thing when it was mentioned but equally that it did not occur. Some participants noted that training in leadership skills and communication would be welcome to support their work.



6.6.2. Individual-based factors

Individual personalities, experiences, background and culture shaped the way participants interact with each other within cross-professional teams. Participants considered RH to be a diverse healthcare environment, and this was considered as a positive. However, participants also listed diversity as a barrier to KS more than teamwork, indicating they felt they could work with diverse team members, but may not be able to communicate clearly with them.

6.6.2.1. Personal traits

The motivations for KS and teamwork were a mix of professional and individual. Professionally, as noted above, KS was considered obligatory for healthcare workers, but personal motivation was also described as important – participants wanted to share for the joy of sharing. Lee and Hong (2014) argue that men and higher educated professionals are more strongly motivated to share knowledge, however this was not evident in the comments of participants, and nurses were equally keen to share to peers. There was some discomfort in sharing, for example, one participant commented that they resented sharing the knowledge they worked hard for, but as a healthcare professional and role model, they ‘had’ to share.

Personal traits were important in both the interviews and HFGs. Participants admitted they would be less likely to work with or KS with an ‘egotistic’ person or a rude or unreliable person, but it was always stressed that this would not affect patient care. But where the participant had positive experiences with teamwork or KS, they would be more likely to approach that person again. Much research has been undertaken in the effect of the ‘Big Five’ characteristics on teamwork and KS (Barrick and Mount, 1991; K. Matzler *et al.*, 2008)). These characteristics are: openness to experience, conscientiousness, extraversion, agreeableness, neuroticism. Data was not collected about the extent of these characteristics and whilst participants did not use this language, more amenable and open individuals were sought out for KS and teamwork in cross-professional situations. Omani culture has been linked with trust and reciprocity, both of which support KS and collaborative behaviour (Alhousary and Underwood, 2016). This also related to the



level of trust between individuals (Andrew and Delahaye, 2000, Costa *et. al.*, 2001; Mooradian *et. al.*, 2006; Renzl, 2008; Wickramasinghe, and Widyaratne, 2012).

6.6.2.2. Language and discourse

There was an interesting disconnect between the ways language was used by participants, and how they spoke about language issues (Potter and Wetherall, 1987). When participants were asked whether they considered language to be a barrier, it was universally agreed that language created no problems as everyone spoke English. However, in interviews and more noticeably in HFGs, participants used their mother tongue, especially where they were under pressure with time constraints, or struggling to format the map. In interviews, as participants knew I spoke Arabic, at times they switched to Arabic to make or clarify a point. Admittedly, in a clinical environment, the vocabulary would be more prescribed, but this demonstrates that language use was not entirely unproblematic. There was therefore the potential for language to be used as an exclusionary practice in teams, even if this is unintentional.

As noted, participants used the official discourse that teamwork and KS were positive and necessary practices. As with Finn's (2008) study, doctors and nurses tended to speak of teamwork using repertoires, with doctors speaking of solving problems, usually through a diagnosis or treatment plan, making explicit the interconnecting of teamwork and KS, and nurses spoke of sharing the workload and supporting each other through teamwork. This research also supported Sanders and Harrison (2007) as doctors were more likely to use an 'expertise' discourse, when describing their teamwork and KS activities, and nurses used a 'holistic' discourse, stressing the importance of caring for the patient. Despite the different emphases in the way participants from different professions spoke of their teamwork and KS roles, it was always emphasised that KS for the benefit of the patient would come first.

However, as Finn suggests, in order to connect discourse and practice, healthcare professionals must be able to 'do' teamwork as well as 'talk' and 'write' teamwork (Iedema and Scheeres, 2003). Thus, as well as an 'intuitive' understanding of



teamwork, there must be the ability to articulate a discourse of teamwork, to create a shared understanding (Finn and Waring, 2010). This does not require all team members to be aware of theoretical approaches to teamwork, rather that they use reflection when thinking, talking and writing about teamwork, for example handovers, briefings, and reporting incidents (Bleakley, 2006a; Finn, 2008).

6.6.2.3. Diversity

Participants celebrated the diversity in RH. Diversity in healthcare settings can cause barriers to KS and teamwork (diversity broadly: genders, religions, races, nationalities, and languages) (Kossek and Lobel, cited in Bassett-Jones, 2005:169; *Cf.* Cooper-Patrick, 1999). However, diversity was both stressed by participants, and underplayed, as participants described RH as diverse yet with a professional culture that overcame cultural diversity. This largely reflected the official discourse, because when asked about more specific instances, the answers became more nuanced. Whilst there was appreciation for the opportunity to benefit from a variety of experiences, be that experiences from different countries or from length of experience, participants differed on how they perceived the effect of diversity. In the AD-HFGs, diversity and skills were linked to a good patient outcome.

Nevertheless, previous studies have shown that diversity can cause barriers to communication and teamwork (Kossek and Lobel, cited in Bassett-Jones, 2005:169; *Cf.* Cooper-Patrick, 1999). For some participants, diversity was an added challenge to KS and teamwork. In particular, national culture was singled out as having an impact on whether individuals were comfortable speaking out in a team. Al-Esia and Skok (2014), Mohamed et al (2008) and Kuehn and Al-Busaidi (2000) have all pointed to the tendency of Gulf Arab workers to prefer working with ethnocentric groups, and to hide knowledge from expatriate workers. None of the participants commented about KS in this way and all highlighted the importance of sharing knowledge for the sake of the patient, however this was self-reported behaviour and observational data would be useful for a comparison.



6.6.2.4. Individual culture including professional, religious and nationality

Culture was used in its broadest sense by participants. Participants considered Oman to be respectful of other cultures, but equally that individuals from other cultures should adapt to Omani culture, and linked difficulties with religious and national culture more to patients than work colleagues. Similarly, culture can facilitate or become a barrier, whether professional culture, personal culture, or ethnicity, it covers the norms, values, and attitudes of the healthcare professionals and patients.

Participants considered it important to understand the national background of others in order to minimise differences and support KS and teamwork, although as noted they were more comfortable working with a team member from another country, than sharing knowledge. Participants felt more training was needed for cross- cultural teamwork and KS, because whilst cultural differences were seen as 'positive', particularly in AD-HFGs, there were examples given of difficulties, for example, a participant had struggled trying to train a mix of Omani, Filipino and Indian staff together. The need for more training in cultural awareness was spoken about more by nursing participants. Previous research has shown that team interactions by nurses are more relational and doctors are more technical (Finn, 2008) possibly, therefore nursing was more open to wider cultural awareness. Gasiorek and Van de Poel argue for language and cultural awareness training to aid communication. Likewise, Campinha-Becote (2001) describes cultural competence as an extension of PCC and requiring on-going knowledge and skills development (Henderson *et al.*, 2018) However, professional culture was felt to be a uniting factor, and RH as an institution was described as a unifying force.

6.6.2.5. Gender

Gender was always spoken of being unproblematic in general terms, even though it was pointed out that RH was unusual in having a female Director of Nursing. Moberg and Kramer (2015), indicate that gender differences can negatively affect communication between colleagues in a healthcare setting. Similarly, Gorter, Bleeker, and Freeman (2006) note that assumptions about gender can have a



detrimental effect on communication and argue for greater awareness and training. Oman's patriarchal culture influence views of gender and healthcare, for example a doctor who stated that gender made no difference to his teamwork and KS also explained the lack of women in surgery as 'natural' because women look after the children and cannot devote themselves to a surgical career.

Whilst there was an even gender split in the interviews, more of the senior roles were taken by men. RH had a highly gendered environment in that most of the doctors were male and nurses were female. This interplay of professional and gendered culture has been studied in terms of power differentials. For example, Jefferson, Bloor, and Spilsbury (2015:184) argue that "nurses and other colleagues tend to demonstrate less cooperation with female consultants", thus there is a bias towards male healthcare providers. Whilst this exploratory research did not include the level of observation required to confirm this, In HFG6, all participants were female and Indian. Noticeably, whilst nurses were ready to co-operate, the doctors distanced themselves.

However unpicking gender as a barrier or facilitator is complicated by the interplay of gender, professional culture and national differences. For example, a male nurse commented that he felt excluded and passed over for promotion at times, but he linked this to his non-Omani nationality rather than his gender.

6.6.3. Technology-based factors

The communication infrastructure of RH was seen as both a barrier and facilitator (Moenaert, *et al.*, 2000). Whilst IT was described as supporting KS and teamwork, caveats around the lack of integration were made. Doctors and nurses were described as having different notes which were not shared via IT, and when Al-SHIFA was used for a consultation or request, this would also be requested by phone as well. As Karamitri *et al.*, argue, IT, whilst needing to assist healthcare professionals, does not support the "highly tacit and distributed organizational knowledge" in healthcare (2015:12).



Whilst the lack of computers available and the slow IT system were mentioned as barriers, the IT department was rarely mentioned across the data corpus as team that others interacted with, which could imply that it was considered in a separate category to the medical and paramedical departments. In contrast, one of the most commonly mentioned facilitators for KS was WhatsApp, even though this was an unofficial method of communication and none of the WhatsApp groups mentioned were created by RH administration. Possibly the reason for the success of WhatsApp is that groups were created within departments by individuals to address department needs. WhatsApp also allowed KS between individuals who were not in the same space and time. Nevertheless, as WhatsApp is a written medium means that it does not accommodate tacit KS.

6.7. Conclusion

As little research has considered teamwork and KS in Oman, I chose to focus on this under-researched area with an exploratory multi-method investigation of teamwork and KS, especially tacit knowledge, within cross-professional teams in the Omani healthcare system. This research focussed on the human factor, conceptualising both teamwork and knowledge sharing as socially situated activities. It explored factors that increase or lessen healthcare professionals' tendencies to engage in teamwork and KS behaviours, as such it is intended to be the basis from which more in-depth research can be built. of knowledge sharing between healthcare teams, specifically tacit-knowledge sharing amongst cross-professional teams.

Having identified the team types in RH as experienced by participants, it scrutinised how cross-professional teamwork and KS were understood by participants, and how they described these phenomena. Whilst my intention was to consider the levels of KS in cross-professional teams, communication and patient-centred care were increasingly evident in participants accounts. This has grown in importance in the light of research into medical errors that associated lack of knowledge sharing and miscommunications.



Teams and teamwork were seen as fundamental to RH, which reflects the strength of the concept of teamwork within healthcare. Oman rates highly as a collectivist culture, and as such, one would expect teamwork to be rated highly. However, in the context of a highly dynamic and rapidly changing work environment, teams must be highly flexible and able to cope with high levels of ambiguity, and clear team boundaries did not appear to be as important in defining with whom participants shared knowledge and worked with (leedma and Scheeres, 2003). Rather they served to create identities for participants, linking them to departments or specialities, and being a 'team player' was perceived as positive. Bleakley (2013) notes however, the ideal 'team player' must adapt to the increasingly ad hoc basis of team composition alongside the increases in 'cross-team activities' (Cf. Finn and Waring, 2010) and this was apparent as participants described collaborative work within and outside teams.

From the findings, it was clear that teams offered participants a sense of belonging and pride – this is my team – when they were stable and within the departmental structure. However, in cross-professional departmental teams there was a tension where doctors and nurses worked together (Finn, 2008). Whilst nurses were more egalitarian in their conception of team membership, doctors were more likely to exclude nurses from their cross-professional teamwork. Also important to participants was the idea of patient-centred care (PCC) as a concept around which a team could unify, even if the team was ephemeral. It was held as the gold standard for teamwork and KS, although participants tended to use the term as a catch-all for patient care in general, and rarely included patients in their considerations of teamwork and KS. Finally, and most importantly, participants prioritised interpersonal skills and experience as most important in facilitating teamwork and KS. All participants would choose to work with and share knowledge with those who reflected their personal values and were pleasant to work with. However, when dealing with those who were difficult, it was stressed the work would get done because the patient must come first.

Just as teams and teamwork are not in and of themselves the answer to the challenges in modern healthcare, so knotworking is not without its trials, however



it is a useful descriptor of the ad hoc encounters that are increasingly necessary in healthcare, and offers a language for discussing how healthcare professionals work together. (Cf. Reeves *et al.*, 2010; Bleakley 2013). Teams require stability, cohesion, common goals and a common identity thus healthcare professionals need the skills for teams and networking, as well as the flexibility for knotworking. Thus, healthcare professionals need to develop the soft skills that will allow them to tolerate and use uncertainty and ambiguity, both of which support collaboration between individuals and teams (Bleakley et al., 2011). Nevertheless, encouraging cross-professional collaboration and KS requires the healthcare professionals involved to become self-aware through reflection, and collaborate within and across teams, and work toward compressing hierarchies and professional boundaries (Reeves *et al.*, 2010). For this, the research should focus on the activity itself, the ‘unstable knot’ as Engeström (2008) terms it. Bleakley (2013) adds, “this represents a shift in thinking from content to process, and from simple aggregation to complex system”. As exploratory research, this study has offered the first steps in this through its focus on teamwork and KS.

6.8. Confounding Factors and Limitations

Rumsey (2003) explains the importance of spotting and resolving or mitigating research limitations or confounding factors. Accepting this as a best practice in research I have highlighting through this research different confounding factors and limitations as expected in any applied methods, methodology, tools and approaches. Some specific aspects will also be discussed below:

6.8.1. Limitation of the Sample

The data was collected from one case, which represents a modest sample. Whilst initially I was concerned that a short period of data collection (4 weeks) over the summer period would make it difficult to recruit enough participants, as noted above this did not prove to be the case. The variety of data sources also ensures the sample is not too restricted.

There is a limitation to the ability to generalize findings from a particular population to other sites, which can be abstracted to encompass comparable characteristics



(Gall, Borg, and Gall, 1996). The case study of the RH was selected in part to mitigate this, as it was the largest tertiary teaching hospital in Oman, with an international workforce. All Omani hospitals follow the same management structure, and the mix of Omani and international staff was typical of other major hospitals in Oman and many of the barriers and challenges to teamwork and KS can be generalised. In addition, this research is an exploratory investigation and the first of its kind in this area and context, thus it will provide the first empirical base for any further research in this field.

6.8.2. Limitation of Response and Completion

In a busy healthcare setting, there is the possibility of reluctance to participate. It was made clear to participants that their choice to participate was fully voluntary, and that they did not have to answer any questions they were not comfortable with. They were also assured of their privacy and anonymity throughout the research. All participants were fully informed of what was required for the interviews and HFGs, and signed consent forms. One participant chose not to go ahead with the interview on discovering that the interview would be recorded.

I was aware of potential difficulties in undertaking interviews and HFGs in a second language for me as the moderator and many if not all of the participants. Hence, I used the pilot sessions, described above, to ensure I did not use jargon or complicated sentences (Salkind, 1991; Cooper and Emory, 1995; SurveyMonkey, 2009; SurveyMonkey, 2013). Nevertheless, misunderstandings did occur, and I was able to deal with these on the ground, in both the interviews and HFGs. The main misunderstanding was a difficulty in my pronunciation with many participants struggling to differentiate between 'rule' and 'role'. To solve this problem, I wrote the word down and participants immediately understood.

6.8.3. Limitation of the Data

Case study relies on subjective data, as it focuses on human experience, for example the researcher's observations or the participants' statements. Thus, data can be subjective in nature and based on the feelings, opinions, and explanations of participants. In responding to this issue, I raised data objectivity and moderated subjectivity through the triangulating methods as recommended by Stake (2005). I



also included review of the relevant documentation from RH and a literature review to broaden the scope of data.

As this is a purely qualitative case study, there is little scope for statistical analysis or estimations of the extent of the phenomenon under study. The multi-method approach will ensure a broad scope of data. I am aware of the potential disadvantages of semi-structured interviews, such as, limiting the number of participants as each interview lasts for a considerable time; difficulty in comparing the results as each interview is unique; with a small sample, the findings cannot be representative; time consuming in collection, transcription and analysis.

As noted, this is exploratory research and due to the time restraints against undertaking observations or focus groups to capture the phenomenon under study, in-depth interviews are the best way to create a holistic map of the phenomena of study. I was able to continue interviewing until data saturation was achieved so could be confident that I had a strong data set. I also adopted multi-method and triangulation through the data collection, sampling and analysis to strengthen the findings.

6.9. Contributions of this research

6.9.1. Theoretical and Methodological Contributions

This research reports on a non-traditional methodological approach to eliciting rich qualitative data through a fully integrated qualitatively driven multi-method with QUAL+QUAL→*qual* elements, which is a unique approach for the health research field. By blurring boundaries between focus group (FG) and workshop approaches, I have introduced a hybrid focus group (HFG). This integrates the best aspects of each approach and offers an interactive-driven investigation, using activity orientated creative exercises. Through the HFGs and interviews, I hoped to glimpse how not just knowledge, but tacit knowledge was shared.

The official discourse around teamwork and KS describes both as important and ongoing activities in RH. From participant accounts it is clear that both phenomena occur, and that participants link the two, describing KS activities as teamwork.



However, encouraging participants to move beyond the official discourse was more challenging. As Bleakley (2013) notes, “while theorizing generally results from empirical research on practitioners, it is clear that much more collaborative research work needs to be done with practitioners.” And this, I feel, is a strength of this research. The co-production of artefacts in the HFGs were of benefit to both me and the participants as encouraging new and interactive ways to look at KS and teamwork. They resulted in a rich data that gained its meaning not only from the finished artefact but also from the process whereby it was shaped. The HFGs proved a valuable method in creating a welcoming safe space for participants to engage with the research. Participants volunteered to try these new styles of HFG despite their workload. Several participants used their breaks to come to the HFGs after they were informed of the creative and interactive nature of the sessions. (Colucci, 2007; Cooper and Yarborough, 2010; Silverman, 2013; Caretta and Vacchelli, 2015). Incorporating creative participant-led activity, which resulted in artefacts that were then described by participants, to minimize misunderstanding on my part, and augment the visual data.

Participants commented on how much they enjoyed the HFGS and how they had enabled them to look at their teamwork and KS activities in new ways. Thus, they could be a step toward encouraging participants and the wider hospital staff to learn reflective skills and a shared language for understanding how they work together in ways that minimizes barriers (Cf., Bleakley, 2013)

Through this research I have demonstrated how using this approach empowered participants, allowing me as researcher to step back and enabling participants to control of the way they shaped, developed and constructed visualisations of the phenomena under study. HFGs also drew on participant interpretation of their artefacts and researcher observation into the creative process, interpersonal dynamics, and culture.

This discussion has also used ‘Knotworking’ as a lens for examining dynamic KS and teamwork, building on ideas that arose from the Literature Review (Griffiths, 1997; Salas *et al.*, 2008) and opening the way to new conceptualisations of teamwork



fitting the dynamic needs of healthcare. Knotworking is a 'social dynamic' theory, where the interactions of the participants create the phenomena of interest. Whilst teamwork has frequently been described in terms of content and role, that is, 'how' things are done. Knotworking focusses more on process, and 'why' things are done (Bleakley, 2011:1172). Whilst in much research there is an assumption that 'looser' teams are poor functioning, and by strengthening the team and its boundaries, they can improve performance, this did not appear as a finding in this research (See discussion in Reeves, Xyrichis and Zwarenstein, 2018). Rather participants stated that they worked with other healthcare professionals, whether designated as a team or not, and the unifying factor was PCC rather than team identity. Conceptualising collaborative work in terms of knots allows participants and researchers to step away from the coercive assumptions within 'team' and 'teamwork' when examining how social actors work together.

6.9.2. Practical Implications

RH, as with all healthcare institutions in Oman, also needs to balance the personal needs of expatriate staff against the ongoing Omanisation of the workforce. How can RH encourage employees who are aware they will be replaced by Omani workers, to share their knowledge? Shamsudin *et al.* (2016) suggest that if job security is not possible, an organisation retains a responsibility to support personal and professional development of employees to help them find employment elsewhere. This could include the soft skills and communication training sanctioned by the MoH. Participants across RH mentioned a desire for more training. Healthcare is an environment of life-long learning and RH has a Professional Development Department, and whilst it currently offers clinical training rather than social, cultural and soft skills, the administrative infrastructure is in place. As part of this, and as leadership is seen particularly in patriarchal, familial terms in Arabic culture, leaders need to be exemplars. Leaders were praised as role models and in this way, they can model the KS activities necessary in healthcare.

This research highlighted a lack of policies, guidelines and shared understanding of teamwork and KS. Whilst RH was working toward Canadian Accreditation, and thus not all policies were available, a move toward the creation of guidelines for KS and teamwork would support KS activities. Whilst the variety of teamwork experiences



imply that a one-size-fits-all would be impossible, such guidelines would be useful in situations where there was antagonism between individuals or departments. Further research in how policies have been written and adapted for Canadian Accreditation, and how policies have been created and implemented elsewhere could fill this gap.

Negotiated knotworking is not a random encounter, the ad hoc offstage meeting of Goffman, rather is it what Engeström (2008) describes as “collaborative intentionality”. Hence it can be encouraged as a focus of collaborative work through soft skills training and reflective practice. Healthcare professionals from different disciplines need the skills for working in groups and tolerating the ambiguity of short-term collaboration. It is not that silos must be smashed but spaces must be opened for teamwork and KS. The latter is strong within healthcare as it is a professional obligation, but personal and organisational forces can create barriers. Again, organisational initiatives for training in collaborative skills and communication, the soft skills associated with teamwork, would aid in strengthening the expertise needed for teamwork, building on the clear importance of interpersonal skills evident in the data. Using, knotwork to describe collaborative work in such training allows individuals to negotiate the tension between autonomy and integration in new ways, not removing team as a concept, but allowing for a more nuanced view of collaboration and KS between different professionals. This could be a broader initiative within healthcare.

Tacit KS was seen to occur most commonly ‘on the job’, and therefore most likely within teams as these were the groups that individuals were surrounded by. Formal and informal tacit KS occurred, and RH could further encourage this through encouraging staff to be involved in KS through team meetings and debriefings. Encouraging communities of practice, which were referred to by a couple of participants, could support KS through different interest groups. Building on Tsoukas (1996) and Spraggon and Bodolica (2017), making time for and encouraging social interaction outside of strictly work activities encourages not just the sharing of tacit knowledge, but the creation of knowledge and tacit knowledge by bringing people together in a less formal environment. This could help to



overcome the potential barrier to KS between Omani and expatriate workers, which, whilst not explicit in this research, has been a factor in other studies (Kuehn and Al-Busaidi, 2000; Mohamed *et al.*, 2008; Al-Esia and Skok, 2014). This would include nurturing a shared vision and shared mental model between co-workers, which could be achieved through PCC. The emphasis on PCC that was evident through participant comments could serve as a unifying factor for both KS and teamwork. Participants frequently commented that they would do all things for the sake of the patient. Thus, PCC could be promoted to unify groups, as a clear and shared goal was evidently important in facilitating teamwork in both the literature and in participant comments.

6.9.3. Reflections on this Research

This has been an exploratory research and very much a first step in understanding teams, teamwork, knowledge and knowledge sharing within the Omani healthcare system. As such it has been an opportunity for me to learn not just how participants view these topics, but where the focus should be on further research.

I was aware that as a previous employee of RH I was privileged to be both same and other to participants, which influenced the way they spoke to me. That the interviews were in English was useful as this is the language that participants must use in their daily work, however it could lead to misunderstandings and the potential for me to inflate any perceived variances in the way participants used language.

This research allowed participants to concentrate on the topics they felt were important for teamwork and KS, but they struggled with the idea of tacit knowledge, thus this had to be extrapolated from comments about how and where KS occurred more generally. This would be a useful starting point for further research. Whilst this research has uncovered much valuable information around KS and teamwork, it was of necessity general, missing much of the nuance on the extent to which hierarchy and power differentials impacts on KS and teamwork. In this more could have been done to focus comments on how participants felt their KS and teamwork were linked.



6.9.4. Directions for Further Research

Further research is necessary to build on these first steps in understanding KS and teamwork within Oman's healthcare environment. This could be supported by a systematic literature review of the phenomena, concentrating on the convergence of teamwork and KS in Arabic culture as the topic gains increasing traction in research.

Whilst a wide variety of participants took part in this study, and the use of multi-methods enabled a rich data picture of the phenomena under study, this can be enhanced through an ethnographic study that allowed for observation of KS and teamwork activities. Tacit KS was most frequently indicated when participants described shadowing and sharing experiences on the job, and further ethnographic study would allow for longitudinal observation of the phenomena, to distinguish between reported and observed behaviour. This could be in RH or a comparison through research in other hospitals. It would also be of benefit to study in more detail the effects of Omanisation on KS activities in healthcare across Oman.

Two areas of interest for further study specifically in RH would be the joint clinics in RH, and gender relations. Joint clinics were offered as examples of KS and teamwork, but also as lacking integration resources, especially relating to allotted time and location. They were also one of the areas in which doctors described working with nurses. Whilst this collaborative work was at times described as teamwork, this was only within the confines of the joint clinic, even though they may work with the same nurse in the department. Whilst many participants glossed over gender within the workforce, Oman is a highly gendered and patriarchal society. Nursing has historically been viewed as a female dominated, and therefore caring profession, in opposition to the male medical clinician. The extent to which this is promoted through the discourse of healthcare and how this affects nurse/doctor relations within teamwork and KS activities would be an interesting focus for further research, and offers itself for wider comparative work on gender, teamwork and KS in healthcare in the West.



More generally, adapting the HFGs for further study in a variety of organisations for comparison, would support and build on this study, and offer other researchers a tool for investigating the views of healthcare workers on complex phenomena.

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Appendices

Appendix (1.1): Literature thematic analysis of the conceptual foundation for cross-professional teamwork in healthcare: Concepts related to collaboration

Literature - Thematic Analysis of the Conceptual Foundation for Cross-Professional Teamwork in Healthcare: Concepts related to collaboration [compiled from D'Amour et al., (2005:118-119), edited and expanded by Affra Al Shamsi]	
The Common Concepts	Regrouped Definitions of Collaboration under these Concepts
Sharing Most authors made use of this concept	Shared Responsibilities Baggs and Schmitt, 1988; Pike, McHugh, Canney, Miller, Reiley and Seibert, 1993; Arcangelo, 1994; Cowan and Tviet, 1994; Arslanian-Engoren, 1995; Henneman, 1995; Lee and Cohen, 1995; Henneman, Liedtka and Whitten, 1998; Lindeke and Block, 1998.
	Shared Decision-Making Baggs and Schmitt, 1988; D'Amour, 1997; Liedtka and Whitten, 1998
	Shared Healthcare Philosophy King, 1990
	Shared Values Henneman, 1995; Clark, 1997
	Shared Data Ivey, Brown, Teske, and Silverman, 1987; D'Amour, 1997
	Shared Planning and Intervention Baggs and Schmitt, 1988; Lindeke and Block, 1998
	How Different Professional Perspectives are Shared Walsh, Bradeck and Howard, 1999
	Partnership
The Common Concepts	Regrouped Definitions of Collaboration under these Concepts
Interdependency	Actors who Depend on One Another Fagin, 1992; D'Amour, 1997; Liedtka and Whitten, 1998

	<p>Collaboration Requires Professionals be Interdependent rather than Autonomous Pike et al., 1993; Evans, 1994</p>
	<p>Interdependency arises from a Common Desire to Address the Patient's Needs Golin and Ducanis, 1981; Henry, Schmitz, Reif and Rudie, 1992; Evans, 1994; Liedtka and Whitten, 1998</p>
	<p>Increasing Complexity of Health Problems Demands the Expertise of, Contributions from, and Participation by, Each of the Team Professionals Stichler, 1995</p>
	<p>When Team Members become aware of Interdependencies, Synergy Emerges and Individual Contributions are Maximized Morin, 1996</p>
	<p>The Output of the Whole becomes Larger than the Sum of Inputs from Each Part Alpert et al., 1992; Henry, Schmitz, Reif and Rudie, 1992; Pike et al., 1993; Evans, 1994.</p>
	<p>Interdependency should Lead to Collective Action D'Amour, 1997</p>
Power	<p>Collaboration as a True Partnership, Characterized by the Simultaneous Empowerment of Each Participant Whose Respective Power is Recognized by All Cowan and Tviet, 1994; Stichler, 1995; Sullivan, 1998</p>
	<p>Such Power based on Knowledge and Experience rather than Functions or Titles Henneman, 1995; Henneman et al., 1995; Munding, 1994; Stichler, 1995</p>
	<p>Power is a Product of the Relationship and Interactions between Team Members Friedberg, 1993</p>
	<p>In Order to Maintain Actual and Perceived Symmetry in Power Relationships, Collaborative Interaction is Required Corser, 1998</p>
	<p>Power cannot be Separated from the Relationship through which it is Exercised Friedberg, 1993</p>

Appendices

Appendix (2.1): An example of the search strategy used through diverse resources **Search keywords used to identify the literature**

<u>On team work</u>	<u>On knowledge sharing</u>	<u>Health settings related</u>	<u>Oman related</u>
Team	Knowledge sharing	Hospitals	Ministry of Health
Group	Knowledge exchange	Health services	MoH
Teamwork	Knowledge transfer	Medical	Oman
Team work	Information sharing	Medical staff	Sultanate of Oman
Group work	Information exchange	Healthcare professionals	Omani
Collaboration	Information transfer	Healthcare teams	
Cooperation	Experience sharing	Physicians	
Communication	Experience exchange	Nurses	
Partnership	Experience transfer		
	Knowledge management		
	Tacit knowledge sharing		
	Implicit knowledge sharing		
	Dissemination/ transfer/ exchange/		

Search strategies

- Boolean operators “AND” and “OR”, since “NOT” were applied in addition to limitation of dates and languages as applicable.
- Meaningful truncations for e.g. singular/plural; noun/adjective forms of the search terms were considered; abbreviations and acronyms also were considered.
- As I am familiar with the topic I listed alternative words or phrases for my concepts; I also used thesaurus and subject headings to identify synonyms. I used search engines like Google Scholar and skimmed read some of the results, looking for alternative words and phrases; the same with any relevant articles, to make sure I am not missing any other terms.
- I also used truncation (*) (for finding singular and plural forms of words and variant endings) and wildcards (?) (finds variant spellings of words)
- The search strategy evolved through trial and error and as I discovered different or new terminology and language, I kept refining my search strategy.
- I checked the database help pages before beginning any search.
- Adjacency searching was applied to make the results more relevant (adjx or NEAR/x)
- Citation searching was used when applicable.
- Several searches by author were also conducted.
- I applied a check list for developing a search strategy adopted from the Cochrane Review.

1. Define text words	
2. Determine synonyms for the text words	
3. Control for different spellings or using appropriate truncations	
4. Consider brand names when searching for a specific drug treatment	
5. Perform test searches – I	
6. Identify “controlled vocabulary” (keywords) used for the indexing of databases (MeSH for MEDLINE, Emtree for EMBASE)	
7. Decide on whether to perform an “exploded” or a “focussed” search for keywords	
8. Check if all words are spelled correctly!!!!	
9. Combine logically all search terms	
10. Perform test searches – II	
11. Customise the syntax of your search strategy to the specific databases	

Appendices

Example 1:

(Team OR group) AND knowledge AND (sharing OR transfer OR exchange OR dissemination) AND (mechanism(s) OR method(s) OR way(s) OR technique(s))

Example 2:

(Teamwork OR collaboration OR partnership OR cooperation) AND knowledge AND (sharing OR transfer OR exchange OR dissemination) AND (healthcare OR medical OR physician(s) OR Nurse(s))

Databases used:

Medline	Sheffield University Library catalogue
Embase	Taylor and Francis journals
PsycINFO	Informa - Taylor and Francis (CrossRef)
Web of Science	LISA: Library and Information Science Abstracts
Scopus	ProQuest
Ovid databases	CINAHL
Google scholar	PubMed
Emerald	Science Direct

Appendix (2.2): Classification of knowledge and its meanings from the literature

	Knowledge Taxonomy	Implication
Aristotle (384-322BC)	<i>Episteme</i>	Which can be equated to scientific knowledge.
	<i>Techné</i>	Arts and craftsmanship.
	<i>Phronesis</i>	Practical wisdom, prudence.
Polanyi (1958/1978, 1966)	Know-how	Primarily about the manner in which “the advanced scientist makes research on the basis of personal skills”, thus incorporating differing aspects of knowledge.
Polanyi (1966)	Tacit knowledge	Tradition, inherited practices, implied values, and prejudices.
Machlup (1980)	Practical knowledge	
	Intellectual knowledge	Embracing scientific, humanistic, and cultural knowledge.
	Pastime knowledge	News, gossip, stories, and the like.
	Spiritual knowledge	
	Unwanted knowledge	
Dretske (1981)	Information	“that commodity capable of yielding knowledge, and what information a signal carries is what we can learn from it”.
	Knowledge	“An information-produced (or sustained) belief, but the information a person receives is relative to what he or she already knows about the possibilities at the source”.
Polanyi (1983; 1998)	Tacit knowledge	Everything in the mind of people.
	Explicit knowledge	everything that has been codified.
Ackoff (1989)	Data	Symbols; data is raw. It simply exists and has no significance beyond its existence (in and of itself). It can exist in any form, usable or not. It does not have meaning of itself. In computer parlance, a spreadsheet generally starts out by holding data.
	Information	Data that are processed to be useful; provides answers to “who”, “what”, “where”, and “when” questions.
	Knowledge	Application of data and information; answers “how” questions.
	Understanding	Appreciation of “why”. It is an interpolative and probabilistic process. It is cognitive and analytical. It is the process by which I can take knowledge and synthesize new knowledge from the previously held knowledge. The difference between understanding and knowledge is the difference between “learning” and “memorizing”.
	Wisdom	Evaluated understanding. It is an extrapolative and non-deterministic, non-probabilistic process. It calls upon all the previous levels of consciousness, and specifically upon special types of human programming (moral, ethical codes, etc.).
Anderson (1990)	Declarative knowledge	Know-what.
	Procedural knowledge	Know-how.
	Conditional knowledge	Know-when and know-why.
	Situational knowledge	Know-where and know-which.

Appendices

Lundvall and Johnson (1994)	Know-what	knowledge of 'facts', which seems similar to 'information', and is possible to fragment it into bits
	Know-why	Knowledge about values and regulations of motion in nature, in the human mind and in society and it is linked to innovative improvement in certain science-based areas, also it is the type of knowledge used to make advances in technology more rapid and reduce the frequency of errors in procedures of trial and error.
	Know-how	Skills i.e. the capability to do something, it plays a key role in all activities in the economic sphere in addition to manual skills.
	Know-who	Involves information about who knows what and who knows to do what. But it also involves the social capability to co-operate and communicate with different kinds of people and experts.
Wikström and Normann (1994)	Information	Can be regarded as a piece of knowledge of an objective kind: details about an event or a situation in the past, the present or the future, or an indisputable scientific fact. Information provides stimuli which generate action requiring skill. Information can also refer to fragments of knowledge which provide the building blocks of a knowledge 'pattern', which engenders understanding of a connection.
	Skill or know-how	Unlike information is embedded in the individual. It means that a person knows what to do in a particular situation in order to achieve a certain result.
	Explanation	Traditional positivist scientific knowledge concerned with causal relationships and regularities. This type of knowledge is not person-based, except in its early stages before it has left the brain or the laboratory or the desk of individual scholars or research teams.
	Understanding	Is the most profound form of knowledge. Understanding arises when we recognize principles and connections. Understanding is thus also embedded in the individual. Understanding is learning.'
Nonaka and Takeuchi (1991, 1994,1995)	Tacit Knowledge	Highly personal, hard to communicate to others, deeply rooted in the individual's action, experience, ideas, values, or emotions.
	Explicit Knowledge	Formal and systematic, easy to communicate and share.
Blackler (1995)	Embrained knowledge	Dependent on conceptual skills and cognitive abilities.
	Embodied knowledge	Action oriented and likely to be only partly explicit.
	Encultured knowledge	The process of achieving shared understandings. Cultural meaning systems are intimately related to the processes of socialization and acculturation; such understandings are likely to depend heavily on language, and hence to be socially constructed and open to negotiation.
	Embedded knowledge	Resides in systemic routines. It explores the significance of relationships and material resources.
	Encoded knowledge (also codified knowledge)	Information conveyed by signs and symbols.
Ruggles (1997)	Process knowledge	How-to.
	Catalog knowledge	What is.

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	Experiential knowledge	What was.
Probst (1998)	Individual knowledge	Relies on creativity and on systematic problem solving.
	Collective knowledge	Involves the learning dynamics of teams.
De Long and Fahey (2000)	Human knowledge	What individuals know or know how to do something.
	Structural knowledge	Embedded in the systems, processes, tools and routines of an organization.
	Social knowledge	Largely tacit, shared by the member of the group, developed as the result of working together.
Boersma (2002)	Basic knowledge	Inherent to running a company and is available in each organization. This knowledge is independent from the organization type and is mostly not part of the core competence of an organization.
	Specific knowledge	Related to a particular industry in which an organization is operating. The knowledge is needed to analyze and solve specific problems.
	Crucial knowledge	Comprises the knowledge that provides an organization with its competitive advantage, narrowly related to the core competence of the organization. The more crucial particular knowledge is for the organization, the better managers have to monitor it.
Bertrams (2003)	Specialized knowledge	Knowledge which is required in order to produce products or services.
	Market knowledge	Knowledge about current and potential markets, like competitors, suppliers, consumers.
	Client knowledge	Knowledge about the needs and characteristics of the consumers.
	Organization knowledge	knowledge about the mission, objectives, strategy, division of employees over different departments etc.
Becerra-Fernandez et al. (2004)	General knowledge	Held by a large number of individuals, can easily be transferred.
	Specific knowledge	Possessed by a very limited number of individuals, not easily transferred.
Christensen (2007)	Professional knowledge	Is created and shared within communities-of-practices either inside or across organizational barriers.
	Coordination knowledge	Makes each employee knowledgeable of how and when he is supposed to apply knowledge.
	Object-based knowledge	Knowledge about an object that passes along the organization's production-line.
	Know-who	Knowledge about who knows what, or who is supposed to perform activities that influence other's organizational activities.
Zhang et al. (2008)	Individual knowledge	Related to the process, that is the element cell for knowledge creation, storage and usage.
	Team knowledge	The accumulated knowledge capital of the team is more than the sum of knowledge of each member, creating a valuable result.
	Organization knowledge	To form a complete organization, it possesses its own unique structure, function partition and procedure.

Appendix (3.3): A comparison of case studies and ethnographic studies definitions

Research Approach	Definitions
Case Study	MacDonald and Walker (1975) cited in Suryani (2008:118) : “the study of the instance in action”.
	Kemmis (1980) as cited in Bassey (1999) : “case studies consist in the imagination of the case and the invention of the study... which are... cognitive and cultural processes.”
	Cohen and Manion (1989) cited in Bassey (1999) : case study is the method through which individual units (i.e. a person, a group or a community) can be observed with the intention of examining the relation between that unit and various phenomena.
	Cresswell (1998:61) : “exploration of a bounded system... over time”
	Yin (2003:13) : “empirical enquiry to investigate a contemporary phenomenon in a real-life context, especially when the boundaries between phenomenon and context are not clearly evident”.
	Robson (2005:178) : “the focus is on a case (which is interpreted very widely to include the study of an individual person, a group, a setting, an organization, etc.) in its own right, and taking its context into account. Typically involves multiple methods of data collection. Can include quantitative data, though qualitative data are almost invariably collected”.
	Stake (2005:443) : defined by “interest in the individual case, not by the methods of inquiry used”.
Ethnographic study	Honor (1993) as cited in Flick et al., (2004) : usually focuses on a specific culture, characteristics and all information embedded in it.
	Cresswell (1998:58) : “a description and interpretation of a cultural or social group or system in which the researcher studies the meanings of behaviour, language and interactions of the culture sharing group”.
	Flick, (2002) : A method to explore the nature of a certain social phenomenon and it tends to use unstructured data.
	Robson (2005:178) : the focus is on the description and interpretation of the culture and social structure of a social group. Typically involves participants’ observation over an extended period of time, but other methods (including those generating quantitative data) can also be used.
	Hammersley (2006) : a study at first-hand about what people do and say in a particular context.

Collection of definitions of case study and ethnographic study approaches (sources: combined for the purpose of this research)

Appendix (3.4): A comparison between case study and ethnography

Elements of Comparison	Case Study	Ethnographic Study
Object of Research	<ul style="list-style-type: none"> ▪ In-depth analysis of a particular instance, event, individual, or group 	<ul style="list-style-type: none"> ▪ describing a social group or entire cultural or social system

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The Study's Intention.	<ul style="list-style-type: none"> ▪ Outward looking, aiming to delineate the nature of phenomena through detailed investigation of individual cases and their contexts. 	<ul style="list-style-type: none"> ▪ Inward looking, aiming to uncover the tacit knowledge of culture participants.
Characteristics	<ul style="list-style-type: none"> ▪ Holistic ▪ Context sensitive ▪ Comprehensive ▪ Systematic ▪ Layered ▪ Triangulation 	<ul style="list-style-type: none"> ▪ Holistic, or micro analysis (debatable) ▪ Eclectic approach ▪ Necessary presence of researcher in the field ▪ Researcher is research instrument ▪ Interactive-reactive approach ▪ Involves naturalistic observation ▪ Cross-cultural frame of reference ▪ Extensive duration of time ▪ Participant observation ▪ The researcher creates social relationship with the participants ▪ First-hand observation
Product of Research Study (Outcome)	<ul style="list-style-type: none"> ▪ Can result in very different products – an in-depth analysis of a programme, event, activity or individuals 	<ul style="list-style-type: none"> ▪ A holistic portrait of a group or system
Strengths	<ul style="list-style-type: none"> ▪ Larger details on a specific phenomenon. ▪ Naturalistic generalizations ▪ Holistic interpretation and always refers to a social context. ▪ Data collected from natural phenomena in people's real lives 	<ul style="list-style-type: none"> ▪ Current ▪ Reliable ▪ Complete ▪ Specific data to answer the relevant questions ▪ Best source of data for comparative study and analysis
Weaknesses	<ul style="list-style-type: none"> ▪ Potentially lack of systematic procedures ▪ Potentially biased views influence findings and conclusions. ▪ Hard to offer scientific generalization due to limited evidence ▪ Rely on subjective data ▪ Data varies based on participant's description, opinion, and feeling. 	<ul style="list-style-type: none"> ▪ It investigates only a few cases or a single case, hence the findings cannot necessarily be generalized to other social contexts. ▪ Emphasizes the researcher as the primary instrument in data collection.
A Method of Research Study (Approach/ Process)	<ul style="list-style-type: none"> ▪ Can use different methods that focus on the collection of in-depth data from multiple sources rich in context - documents, archival records, interviews, direct and/or participant observation, physical artefacts ▪ Can include quantitative methods and analysis (may or may not use anthropological concepts) 	<ul style="list-style-type: none"> ▪ Prolonged observation of the group, typically through participant observation and one-to-one interviews (using anthropological concepts) ▪ Always qualitative.

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<p>With the Aim Of</p>	<ul style="list-style-type: none"> ▪ Understanding the uniqueness of a case or to providing an illustration of an issue 	<ul style="list-style-type: none"> ▪ Understanding the way, a group or social system works, the meanings it gives to actions, artefacts and so on. ▪ Investigates people in interaction in ordinary settings, it looks for patterns of daily living (culture), what people do, say and use, to discover what a stranger would have to know to participate in the group or society in a meaningful way
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Elements of comparisons between case study and ethnographic study (compiled for this research from: Stake and Trumbull (1982, as cited in Stake, 2005); Ragin (1992); Zaharlick (1992); Patton (2002); Cohen (2003); Yin (2003); Hammersley (2006); Walters (2007); Suryani (2013).

Appendix (3.5): The variety of qualitative interviews from Rubin and Rubin (2011, 6-8)

Type of interview	The purpose	Example from our research
Concept Clarification	To explore the meaning of special, shared terms.	The word 'team' was frequently linked to departmental/ specialisation boundaries, with 'collaboration' more likely when talking about working with others outside these boundaries.
Investigative Interviewing	Narrowly focused to learn what happened in a specific instance.	What happens when individuals cross departmental/ specialisation boundaries to work together?
Elaborated Case Studies	Aiming to generalise to broader processes, discover causes, and explain/understand a phenomenon.	Questions related to factors that influence participant practices of teamwork and knowledge sharing.
Ethnographic Interpretation	Sketch an overall cultural setting, such as that shared by an ethnic group, a village, or neighbourhood. Describes key norms, rules, symbols, values, traditions, and rituals.	Investigating aspects of participant interactions with their environment, including practices, beliefs, cultures, rules, etc.
Organisational Culture	a more focused ethnographic study to study rules of organisational behaviour taken for granted, from stories, shared metaphors, and lessons taught to new members.	Questions investigated how participants interacted and shared information and knowledge. including experiences with, and attitudes toward, colleagues, team members, management and patients.

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Evaluation Research and Action Research	To discover if programmes or policies are working, for whom, and what could be improved. Aims to change status quo by documenting the extent of some problem, or examining proposed solutions to see which might work best.	This research investigates study practices related to teamwork and KS by healthcare professionals and compare their beliefs and practices to the existing rules, structure and documentation that exists to support them.
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Appendix (3.6): Interview Protocol-Nurses and clinician

Research Protocol (Clinician and Nurses Interview)

Potential participants will be contacted by the researcher to arrange for a mutually convenient date, time and method (by telephone, online or in person) for an interview. Following that the researcher will send participants an information sheet explaining the research aim and procedure along with an electronic consent form. Participants will be offered the opportunity to ask questions related to the research and their participation before they consent.

For the interviews conducted by telephone, the researcher will call the participants using the phone system built into a home computer. This will allow a tape recorder to be placed beside the speaker of the computer to record the dialogue. The researcher sought permission to audiotape the interview over the telephone and recorded this request on the tape. Questioning will follow the outline of topics provided below.

For the interviews conducted in person, the researcher will arrange a room in the Royal Hospital based on their preference. The interview will be conducted at a table, with the tape recorder placed in the middle of the desk. The researcher's question outline will be the only other thing on the table. The interviewer will take notes to keep track of important points to raise or follow up on after the interviewee finish to allow the conversation to flow without any disturbance.

The researcher will start with the overarching questions and through the conversation, based on the direction it takes, will be using the 'drill down' questions to narrow the focus, get more details or just to bring back the conversation toward the topic of research if it somehow drifts away. The questions and sub questions are arranged in thematic sections based on the research questions, research aims and objectives.

Interview Schedule:

Introduction to the interview

- Thank you very much for your time and participation, this interview will take up to one hour.
- I would like to record the interview, to be able to make a transcript of it.
- All the information I collect is confidential, your privacy will be respected.
- Your name will not be mentioned and results will only be used on a group basis. When quotes are used they will be anonymous.
- Do you still agree to participate?
- If you have any questions do not hesitate to ask them. Do you have any before we start?
- The interview will start with general/background questions and then move to focus on three main areas: teamwork, knowledge sharing, communication and collaboration.
- A brief background of the topic will be provided and the same would be included in the email used to communicate with the interviewee initially to arrange for the interview.
- Ask the interviewee to introduce her/himself and provide a short background of education and work experience.

Interview script:

We will talk about your ... background, current work, working with others, picking a specific team to discuss in more detail, how you use your expertise and that of your colleagues.

1. Tell me a little about yourself, about your training and study background. (e.g., age, position, education, years of service, experience).
2. Tell me about your current work environment.

Probe: Do you have to work frequently with other professional's colleagues? tell me more about that.

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3. Tell me a bit about your day to day work and responsibilities.
Probe: How do you describe your role as a physician or nurse, (depending on the participant) in patient care?
Probe: Describe how you believe others view your role (physicians, nurses, or other healthcare professionals).
4. Could you give me examples of times where you worked with others?
5. How do you feel about your work within a healthcare team?
6. I would like you to think of one team you worked with recently? or the team you have been member of the longest part of your work in this organisation?
Probe: How did you come to be part of this team?
Probe: Could you describe your experience in working with such team?
Probe: How many members in your teams?
Probe: Are they all from the same speciality/department? Why is that?
Probe: Can you describe your role in your team?
Probe: We have gone into details about that team are there any other teams that you can identify which you were member in?
Probe: So how do you work on this team contrast with your work on other teams?
7. Does being part of a team impact your daily work? If so how?
8. Describe a situation where you felt uncertain at work? What did you do?
9. How do you perceive collaboration in your day to day work?
10. How would you describe yourself when it comes to collaborating and sharing information and knowledge with others?
Probe: What kind of reasons do you think would stop you from collaborating with someone?
11. How often do you face situations where you feel a fear of asking for or sharing knowledge? Could you describe that?
12. How does the way your colleagues recognize your work influence your way of collaboration with the team? And when sharing knowledge?
13. How would you describe the overall professional culture within the team? **Probe:** What effect does this have on collaboration as a team?
14. How would you describe the level of competitiveness at work? Between colleagues? Between professional cultures?
15. From your experience, how would you describe the ways in which diversity in your team affects your practice? And your day to day practice?
16. When you have to deal with someone who interacts in a different way than you are used to, how much does it affect your knowledge seeking or sharing with them?
Probe: When someone does not share the same norms and values as you do, does that in anyway influence your work with them?
Probe: Does it influence your knowledge sharing behaviour with them?
17. Can you think of an incident where you missed knowledge? Did that affect your work? Anyway?
Probe: Did the end up being reported as advert event?
18. Describe a recent example where you have had to seek advice or new knowledge to better manage a case?
19. How often you find yourself in a situation which requires you and others sharing your/their expertise? What is the significance of that to you?
20. Has it ever happened that you did not want to share knowledge?
Probe: Could you describe it?
21. Could you describe an incident where you shared knowledge with someone else?
Probe: Why did you share that knowledge?
Probe: How often do you find yourself in a situation which requires knowledge sharing?
Probe: What is the significance of that to you?

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22. How would you deal with situation where you feel that the suggested treatment, procedure or medication would not work or might harm or cause other complications to the patient?
23. What would you do with information /knowledge that you have which is not on the patient chart? Or knowledge/ information which does not fall under medical/ scientific facts but you believe are relevant to the case?
Probe: If you had a situation where you had knowledge such as things which you know either from previous experience, a similar case or noticed in some patient behaviour, or suspect unreported allergies or medication, what do you think you would do?
24. Reflecting on your experiences within teams, what factors contributed to overcoming differences within a team?
Probe: What skills do you think that you bring to support your team and bring it together?
25. What would be the reasons that would stop you from collaborating with someone?
Probe: To what extent do you think culture difference or language affects your collaboration with them?
Probe: What factors do you think affect how well you collaborate with members of your team?
Probe: What factors do you think make collaboration difficult?
Probe: What barriers have you encountered that affect successful teamwork?
Probe: To what extent do you think the work policies support collaboration and teamwork in RH?
26. How would you describe patient role within healthcare teams?
27. What cultural factors in RH affect your workplace and the team you work in?
28. How do you think interdisciplinary communication and collaboration affects patient management (safety)?

Some Generic Probes to be used as necessary:

- You mentioned _____, tell me more about that.
- You mentioned _____, what was that like for you?
- You talked about _____, describe that experience in as much detail as possible.
- What else happened?
- What were your feelings about that?
- It sounds as though you had a pretty strong reaction.
- It sounds like you're saying . . .

Ending

- This was the end of the interview. Do you have anything additional to say?
- How do you feel about this interview? Is there anything you think that I forgot?
- You can always e-mail me if something pops-up later. Thank you very much for your time, you have been of great help.

Thank you.

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Appendix (3.7): Interview Protocol-Clinical Managers

Research Protocol (Managers and Administrative Staff Interview)

Potential participants will be contacted by the researcher to arrange for a mutually convenient date, time and method (by telephone, online or in person) for an interview. Following that the researcher will send participants an information sheet explaining the research aim and procedure along with an electronic consent form. Participants will be offered the opportunity to ask questions related to the research and their participation before they consent.

For the interviews conducted by telephone, the researcher will call the participants using the phone system built into a home computer. This will allow a tape recorder to be placed beside the speaker of the computer to record the dialogue. The researcher sought permission to audiotape the interview over the telephone and recorded this request on the tape. Questioning will follow the outline of topics provided below.

For the interviews conducted in person, the researcher will arrange a room in the Royal Hospital based on their preference. The interview will be conducted at a table, with the tape recorder placed in the middle of the desk. The researcher's question outline will be the only other thing on the table. The interviewer will take notes to keep track of important points to raise or follow up on after the interviewee finish to allow the conversation to flow without any disturbance.

The researcher will start with the overarching questions and through the conversation, based on the direction it takes, will be using the 'drill down' questions to narrow the focus, get more details or just to bring back the conversation toward the topic of research if it somehow drifts away. The questions and sub questions are arranged in thematic sections based on the research questions, research aims and objectives.

Interview Schedule:

Introduction to the interview

- Thank you very much for your time and participation, this interview will take up to one hour.
- I would like to record the interview, to be able to make a transcript of it.
- All the information I collect is confidential, your privacy will be respected.
- Your name will not be mentioned and results will only be used on a group basis. When quotes are used they will be anonymous.
- Do you still agree to participate?
- If you have any questions do not hesitate to ask them. Do you have any before we start?
- The interview will start with general/background questions and then move to focus on three main areas: teamwork, knowledge sharing, communication and collaboration.
- A brief background of the topic will be provided and the same would be included in the email used to communicate with the interviewee initially to arrange for the interview.
- Ask the interviewee to introduce her/himself and provide a short background of education and work experience.

Interview script:

We will talk about your ... background, current work, working with others, your view as an administrator/manager in RH on teamwork, knowledge sharing, communication and collaboration. We will talk about the management role in promoting such activities.

1. Tell me a little about yourself, about your training and study background, your experience and current role in RH. (e.g., age, position, education, years of service, experience).
2. Do you work as part of a team? Tell me about it?

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Probe: Are you required to work as part of a team?

Probe: Does your organisation require you to work within a team?

Probe: do you need to demonstrate team working?

Probe: What is your view of teamwork in healthcare?

3. Tell me about teamwork in RH?

Probe: What type of policies or structure in place to support teamwork environment?

Probe: What are the hospital rules, policies, guidelines and structures when it comes to teamwork?

4. Share with me a team work example or experience?

5. What is the importance of team work in Healthcare management view?

6. What importance do you attach to knowledge sharing between professionals in your healthcare settings?

Probe: How team working or lack of team working among health professionals has an impact on your work?

7. What importance do you attach to communication between professionals in your healthcare settings?

Probe: What is the impact of inter-professional communication on your job?

8. Is there in difficulties or challenges you are facing regarding implementing teamwork, or knowledge sharing?

Generic Probes to be used as necessary:

- You mentioned _____, tell me more about that.
- You mentioned _____, what was that like for you?
- You talked about _____, describe that experience in as much detail as possible.
- What else happened?
- What were your feelings about that?
- It sounds as though you had a pretty strong reaction.
- It sounds like you're saying . . .

Ending

- This was the end of the interview. Do you have anything additional to say?

- How do you feel about this interview? Is there anything you think that I forgot?

- You can always e-mail me if something pops-up later. Thank you very much for your time, you have been of great help.

Thank you.

Appendix (3.8): Activities and exercises for HFGs

Technique name	Description
Free listings	Participants list all elements of a domain, verbally or in writing. Elements can be recorded by moderators or participants and can be shared with the group.
Rating scales	Participants rate a list of items (e.g. words, objects, pictures, etc) on a scale, usually a range of numbers or adjectives, such as a semantic differential. The rating process can be the source of discussion, or the final score. The list and/or scale can be previously prepared or created by participants during the activity. Self-determined scales may be closer to participants' opinions and beliefs, but can make it more difficult to aggregate or summarize answers between/across groups.
Ranking	Participants rank a list of according to a specified dimension. This could be a paired comparison, where items are paired and participants are asked to select 'the most...' or 'least...'. This variation is time consuming but easier because participants express one judgment at a time.
Pile sorting	Pile sorts can be done with cards, papers, objects, photographs, pictures. They are sorted into piles based on similarity/difference. After sorting, the moderator may ask what the items grouped in the same pile have in common and generate discussion.
Choosing among alternatives	Participants are offered various alternatives and asked to discuss the advantages/disadvantages of each. They can select which they believe are most appropriate, useful, etc., and explain their choice. Alternatives can be predetermined or produced during the session.
Label generation	Bulmer (1998) defined a label, in the context of a FG, as a statement, word, description or concept stated by members of the group. Participants answer a question and can keep filling answers until they recognise there is nothing to add or to a time limit. Participants may discuss the labels. Label generation may be used to answer to the following kind of question: "What words come to your mind when you think about...?"
Storytelling	Participants create a "story" around the topic of interest, which shows how participants think about topic, situation or problem. This activity could include personal narrative, imagining other people's narratives, constructing a typical situation/scenario, comparing scenarios (e.g. personal vs. generic idea; at-risk vs. no-risk) and so on.
Role-playing	Participants pretend to be in a certain situation and the rest of the group observes the way they behave and react. At the end of the role-play, participants share their observations. In variants, all participants may gradually be included, 'spectators' may be asked to show what they would have done differently, or participants are divided into two groups who present an argument or debate.
Projective techniques	Sentence completion: sentences on the topic under study are prepared and distributed to participants, who complete them and share the results with the group. Collage: the moderator assigns a theme and distributes materials (magazines, newspapers, flyers, pictures, etc.) to participants, who are divided in small groups, and prepare their work, using the materials, their own words and drawings. The resulting collage can generate discussions. Drawing a picture about a behaviour, idea or attitude and describing it to other participants. At the end, they may also be invited to explore what is similar and different in the various drawings. Alternatively, participants are given a stick person and asked to add words or narrative.
Multi-task exercises	Techniques can be combined in a single exercise, for example, free listing, pile sort and ranking can be combined.

Activities and exercises for HFGs, designed for the purpose of this research Colucci, E (2008:6-17)

Appendix (3.9): Affinity Diagrams Hybrid Focus Group Protocol

Hybrid Focus Group Topic Guide (Affinity Diagrams)
(Different teams)

Affinity Diagrams: this will be based on the themes identified from the interviews, document analysis and the previous data collection stages.

A theme guide was developed from the initial stages and will be enhanced by the interviews and document analysis – this will be used to guide the discussion. The opening question in each of the five focus groups was: “What is the first thing that you come to think of when I say mixed healthcare teams in the RH?”

Each FG will consist of 3-6 participants, this exercise along with the discussion which follows will take approximately 1 hour (30 min: Developing an affinity diagram, 20-minute discussion and reflection on the diagram).

Materials required:

Square self-stick notes (e.g., “Post Its”)

Markers (e.g., “Sharpie”) for post its

Flip chart or whiteboard

Markers for chart/board

sticky “stars” or “dots”

The process:

1. Introduction (10 mins)

- Introduce the research topic and the researcher
- Aim and format of the focus group
- Conventions (confidentiality, speak one at a time, recordings, everybody's' views, open debate, consent forms)
- Personal introduction of participants and their position.

2. Affinity Diagram development (45 min):

30 min: Developing an affinity diagram

1. The researcher will pose a question “***What factors from your experience come to mind when I talk about mixed health care teams in the RH?***” and will write the question at the top of whiteboard or flipchart.

5-8 min-for answering

2. Each participant will write 5-10 statements of fact that relate to the question on individual self-stick notes

5 min-separating (judgments, inferences, and predictions) and grouping

3. The group have to separate judgments, inferences, and predictions and then group the remaining facts based on similarities.

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4. Strictly agreeing facts will be stacked on top of each other

5. Groupings can change...there should be no argument.

6. Basic structure should be established quickly.

5 min-headers development

7. Create header cards for the groups. A header is an idea that captures the essential link among the ideas contained in a group of cards. In some cases, an existing fact can serve as a header. In other cases, a new statement is drafted to summarize the facts. (It can be: Single card or post-it, Phrase or sentence, or Clear meaning)

8. Headers should be written in distinctive style (e.g., different color or script).

5-10 min- development of links and superheaders

9. Arrange groups and identify links among groups. Stack the facts underneath the headers.

10. Arrange the headers/stacks into groups in order to reflect similarities among the headers.

11. Circle these groups and create a label for these groups of headers. Discovering a relationship among two or more groups and arranging them in columns under a superheader. The same rules apply for superheaders as for regular header cards. These labels can be written right on the board or on another self-stick note.

12. Some headers will remain "lone wolves"

Note: If patient management and safety comes up then probe further, "***You mentioned patient safety, can you expand on that?***", and **if it doesn't** ask, "***I notice you didn't mention patient safety, is there any reason for that?***" ***'what relationships if any...?'***

5 min- development of links and superheaders

13. Identify the most significant headers with "stars" or "dots" through multi-voting where each member of the group may allocate three dots/stars as he/she sees fit.

14. Draw lines to indicate relationships among groups.

15-minute discussion and reflection on the diagram

19. Write concluding statements and reflect

20. Draft a statement that captures the essential message of the facts, headers, and groups.

3. Summing up (5min)

- Invite any further comments
- Thanks for participation, and Close.

Thank you very much for participating. I hope you found it interesting. Does anyone have any comments on the process?

If lots of people want to comment you have to bring it to an end and offer to talk to them outside of the meeting or via email

Appendix (3.10.): Team Map Hybrid Focus Group Protocol

Focus Group Topic Guide (Conceptual Landscape and flow analysis)

(Same team members)

Conceptual Landscape and flow analysis:

This exercise aims to looking at knowledge pathways through a team. The opening question in each of the five focus groups will be: “How would you represent your daily work within the overall hospital environment (i.e. if you are dealing with a patient, who would be involved, how, what type of information and knowledge will you share, need or exchange and with who what will be the process and where does the patient fits within that? etc.

Each FG will consist of 3-6 participants, this exercise along with the discussion which follows will take approximately 1 hour (15 min: Group representation of the whole hospital, structure, processes and teams, then,15-min: discussing and reflecting on the diagram; 15 min: Developing individual representations of their daily interaction, and finally, 15 min: discussing this diagram).

Materials required:

- Coloured shapes with colour code sheet
- Markers (e.g., “Sharpie”) for post its
- Flip chart or whiteboard
- Markers for chart/board
- sticky “stars” or “dots”
- glue sticks

The process:

2. Introduction (10 mins)

- Introduce the research topic and the researcher
- Aim and format of the focus group
- Conventions (confidentiality, speak one at a time, recordings, everybody's' views, open debate, consent forms)
- Personal introduction of participants and their position.

2. Conceptual Landscape and flow analysis (45 min):

15 min: Developing the Conceptual Landscape and Flow Analysis

1. For the next 15 minutes I want you as a group to use the material in front of you to represent the hospital structure, departments, teams, and represent yourselves as a team within that. How would you represent your daily work within the overall hospital environment (i.e. if you are dealing with a patient, who would be involved, how, what type of information and knowledge will you share, need or exchange and with who what will be the process and where does the patient fits within that? etc. Draw processes, relationships, and collaboration on the map. Please indicate on the diagram one way or two-way communication and feel free to add notes or comments all over.

15-minute discussion and reflection on the diagram

2. Discuss the diagram with them.

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who do you work with; how do you communicate? Where do you fit within the whole hospital? who would be involved, how, what type of information and knowledge will you share, need or exchange and with who what will be the process and where does the patient fits within that?

3. For the next 15 minutes I want you as an individual within a team to use the material in front of you to answer the same question "How would you represent your daily work within the overall hospital environment (i.e. if you are dealing with a patient, who would be involved, how, what type of information and knowledge will you share, need or exchange and with who what will be the process and where does the patient fits within that? who do you work with; how do you communicate? Where do you fit within the whole hospital? etc. and will write the question at the top of whiteboard or flipchart.

4. Each participant will work separately to develop their map using the materials provided. (15min)

5. The researcher will ask them to explain their diagram and then will collect them and code them based on participants' code number. (15 min)

3. Summing up (5min)

- Invite any further comments
- Thanks for participation, and Close.

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Appendix (3.11.): Information sheet

Interview Participant Information Sheet

Research project title:

Incorporating a Knowledge Management Paradigm into Healthcare: A Mixed Method Investigation of Knowledge Sharing in Cross-Professional Teams in Healthcare.

Researcher: *Affra S. Al Shamsi.*

Affiliation: *The University of Sheffield.*

Invitation:

You are being invited to take part in a research project. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please read the following information and ask us if there is anything that is not clear or if you would like more information.

What is the project's purpose?

The project investigates and explores teamwork and knowledge sharing among healthcare teams. The investigation will include talking (through interviews and/or focus groups) to a number of healthcare professionals about their experiences of working in the healthcare environment in order to understand the teamwork environment and the collaboration that occurs in the healthcare settings and the in-patient care situation. Through taking part in this project you will help us reflect your experience, practices, perception and views on how working among these teams could affect your practice and daily work positively or negatively.

Why have I been chosen?

You have been chosen because of your role as a healthcare professional in the Royal Hospital in the health care services in Oman. Physicians, nurses and administrators in health care will be invited to participate at this stage, in order to gain different perspectives. You have been selected to contribute to the research, as your opinions could add considerably to the research.

Do I have to take part?

*I stress that participation in this research is **voluntary** and you may withdraw before or during data collection without giving any reason, but not after data is anonymised. If you consent to participate in the interviews, you will be requested to send a consent email to (asalshamsi1@sheffield.ac.uk).*

What will participation involve?

This research involves three stages of data collection and you are being recruited for taking part in the first stage represented in an interview. You can choose to take part in all or one or none. All interviews will be securely audio recorded. If you agree to take part in the interview, a researcher will ask some questions about your working experiences. There aren't any right or wrong answers – we just want to hear about your experience and opinions. The discussion should take about an hour at the longest. Please note that some of the questions will relate to your personal history and experiences in healthcare settings, but all information will be anonymous.

The information collected from the interviews, will be used to create a model of the Omani healthcare environment and culture with a focus on teamwork and collaboration and give insights into how they could effectively contribute to individual professional practice and daily work and decisions. The aim is to explore the value of the current healthcare settings in supporting clinical decision-making and practice for clinicians in the Sultanate of Oman.

The interviews will be conducted in person or online through [phone call /email /Skype/MSN] based on the participant's preference. The researcher will make all arrangements related to conducting the interviews at mutually agreed times and locations. The interview will be transcribed and anonymity will

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be maintained. You may be approached at the end of the Interview to volunteer to take part in a focus group discussion. You have the choice to accept or reject taking part.

How long will participation take?

In all including giving consent not more than 1 hours 15 minutes. This is split into two events/sessions: answering your questions and you giving written consent after you have read the participant information sheet, 10-15 minutes; the interviews will take no more than 1 hour.

What are the possible benefits of taking part?

It is expected that the information collected from you could lead to changes within the future healthcare environment, culture, structure, training and support for healthcare professionals in the Sultanate of Oman. Also, we anticipate that it will increase the awareness of the concepts of teamwork, collaboration and knowledge sharing within the health care sector. However, there are unlikely to be any immediate benefits for you.

What if something goes wrong?

If you want to raise a complaint about the way the research is conducted, please contact the project supervisor (a.booth@sheffield.ac.uk) or (j.nicholl@sheffield.ac.uk). If there is any difficulty in keeping an appointment, an alternative will be arranged at the convenience of the participant and you may contact the researcher to arrange this(affralshamsi@gmail.com).

Will my taking part in this project be kept confidential?

The researcher will ensure that they themselves keep all the collected information as strictly confidential. On recorded media, all names will be removed from the focus group at the transcription stage therefore all transcriptions will be anonymous. The recordings will be destroyed in accordance with university guidelines. The transcripts will be stored securely. You will not be recognized in any reports or publications.

All audio recordings will be encrypted/password protected, and they all will be destroyed immediately after transcription, and all information collected will be anonymized during transcription. It should be noted that all participants will have committed themselves to keep all discussions confidential when they consented to take part.

What will happen to the results of the research project?

The results will be available after the research project is completed by [date will be provided]. The results will be presented to the Ministry of Health in the Sultanate of Oman for future planning and development of healthcare settings. It will also be used to inform healthcare professionals. You are welcome to provide your contact details if you wish to be informed when the results are available.

Who is organising and funding the research?

The Ministry of Health in Oman is funding this research, and it is being organised under the supervision of the University of Sheffield, UK.

Contacts for further information

If you require any further information relating to the research, please contact either

Andrew Booth
Researcher Supervisor

a.booth@sheffield.ac.uk

Affra S. Al Shamsi
Lead investigator

affralshamsi@gmail.com

NB all participants will receive a copy of this information sheet.

Thank you for your time.

Focus Group Participant Information Sheet

Research project title:

Incorporating a Knowledge Management Paradigm into Healthcare: A Mixed Method Investigation of Knowledge Sharing in Cross-Professional Teams in Healthcare.

Researcher: *Affra S. Al Shamsi.*

Affiliation: *The University of Sheffield.*

Invitation:

You are being invited to take part in a research project. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please read the following information and ask us if there is anything that is not clear or if you would like more information.

What is the project's purpose?

The project investigates and explores teamwork and knowledge sharing among healthcare teams. The investigation will include talking (through interviews and/or focus groups) to a number of healthcare professionals about their experiences of working in the healthcare environment in order to understand the teamwork environment and the collaboration that occurs in the healthcare settings and the in-patient care situation. Through taking part in this project you will help us reflect your experience, practices, perception and views on how working among these teams could affect your practice and daily work positively or negatively.

Why have I been chosen?

You have been chosen because of your role as a healthcare professional in the Royal Hospital in the health care services in Oman. Physicians, nurses and administrators in health care will be invited to participate at this stage, in order to gain different perspectives. You have been selected to contribute to the research, as you have participated in the interview stage of this research and we believe that your opinions could add considerably to the research.

Do I have to take part?

*I stress that participation in this research is **voluntary** and you may withdraw before or during data collection without giving any reason, but not after data is anonymised. If you consent to participate in the Focus Group, you will be requested to send a consent email to (asalshamsi1@sheffield.ac.uk).*

What will participation involve?

You are being recruited to take part in a focus group discussion. There is a follow on online questionnaire separate to this, you can choose to complete it or not. All focus groups will be securely audio recorded. If you agree to take part in the focus group, it will be a confidential discussion with other professionals around the daily work experiences and issues related to collaboration, professional culture, training styles and knowledge sharing in the healthcare settings environment. This should take no more than 60 minutes. There aren't any right or wrong answers – we just want to hear about your experience and opinions.

The information collected from the focus group, will be used to create a model of the Omani healthcare environment and culture with a focus on teamwork and collaboration and give insights into how they could effectively contribute to individual professional practice and daily work and decisions.

The focus group will be scheduled within the Royal Hospital and requires the participants' presence 'in person'. The researcher will make all arrangements related to conducting the focus groups at mutually agreed times and locations. The focus group will be transcribed and anonymity will be maintained.

How long will participation take?

In all including giving consent not more than 60 minutes.

Appendices

What are the possible benefits of taking part?

Although there are unlikely to be any immediate benefits for you, it is expected that the information collected from you could lead to changes within the future healthcare environment, culture, structure, training and support for healthcare professionals in the Sultanate of Oman. Also, we anticipate that it will increase the awareness of the concepts of teamwork, collaboration and knowledge sharing within the health care sector.

What if something goes wrong?

If you want to raise a complaint about the way the research is conducted, please contact the project supervisor (a.booth@sheffield.ac.uk), or (j.nicholl@sheffield.ac.uk). If there is any difficulty in keeping an appointment, an alternative will be arranged at the convenience of the participant and you may contact the researcher to arrange this(affralshamsi@gmail.com).

Will my taking part in this project be kept confidential?

The researcher will ensure that they themselves keep all the collected information as strictly confidential. On recorded media, all names will be removed from the focus group at the transcription stage therefore all transcriptions will be anonymous. The recordings will be destroyed in accordance with university guidelines. The transcripts will be stored securely. You will not be recognized in any reports or publications.

All audio recordings will be encrypted/password protected, and they all will be destroyed immediately after transcription, and all information collected will be anonymized during transcription.

It should be noted that all participants will have committed themselves to keep all discussions confidential when they consented to take part.

What will happen to the results of the research project?

The results will be available after the research project is completed by [date will be provided]. The results will be presented to the Ministry of Health in the Sultanate of Oman for future planning and development of healthcare settings. It will also be used to inform healthcare professionals.

You are welcome to provide your contact details if you wish to be informed when the results are available.

Who is organising and funding the research?

The Ministry of Health in Oman is funding this research, and it is being organised under the supervision of the University of Sheffield, UK.

Contacts for further information

If you require any further information relating to the research, please contact either

Andrew Booth
Researcher Supervisor

a.booth@sheffield.ac.uk

Affra S. Al Shamsi
Lead investigator

affralshamsi@gmail.com

NB all participants will receive a copy of this information sheet.

Thank you for your time.

Appendix (3.12.): Consent form



The
University
Of
Sheffield.

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Regent Court
80 Regent Street
Sheffield
S1 4DA

Telephone: + 44 (0) 114 222 0706
Fax: + 44 (0) 114 222 0749
E-mail: A.Booth@sheffield.ac.uk

Participant Consent Form

Title of Research Project: Incorporating a knowledge management paradigm into healthcare: A Mixed Method Investigation of Knowledge Sharing in Cross-Professional Teams in Healthcare.		
Name of Researcher: Affra S. Al Shamsi		
Participant Identification Number for this project:		
1. I confirm that I have read and understand the information sheet/letter dated 12/7/2016 explaining the above research project and I have had the opportunity to ask questions about the project.		Please initial box <input type="checkbox"/>
2. I understand that my participation is voluntary and that I am free to withdraw at before or during data collection without giving any reason and without there being any negative consequences, but not after as data will be anonymised. In addition, should I not wish to answer any particular question or questions, I am free to decline. <i>(you may contact the researcher on asalsamsi1@Sheffield.ac.uk).</i>		<input type="checkbox"/>
3. I understand that my responses will be kept strictly confidential and that I need to keep other participants' responses confidential. I give permission for members of the research team to have access to my anonymised responses. I understand that my name will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.		<input type="checkbox"/>
4. I understand and consent to my participation and responses being recorded electronically (i.e. audio in interviews & focus groups and as data in the online survey). Confidentiality applies to this data as under 3 but data that identifies you will be anonymised when storing the data for the research as soon as possible.		<input type="checkbox"/>
5. I agree that the data collected from me can be used in the above research		<input type="checkbox"/>
6. I consent to take part in the above research project.		<input type="checkbox"/>
_____	_____	_____
Name of Participant	Date	Signature
_____	_____	_____
Affra S. Al Shamsi Lead Researcher	Date	Signature

Appendices

Appendix (3.13.): Approval letters from RH



The University Of Sheffield.

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E-mail: A.Booth@sheffield.ac.uk
Director: Professor Simon Dixon, BSc,
MSc, PhD

To
All Clinical Directors
Director, Nursing
Director, Human Resources Management
Director, Finance Department
Director, Administrative Affairs
Director, Quality Control
All Directors and Heads of Departments
Royal Hospital
Ministry of Health - Oman

10th July, 2016

After compliments,

Sub: Assistance in Conducting Research– Affra Al Shamsi (University of Sheffield).

Affra is an Omani PhD student in the School of Health and Related Research (SchARR), Faculty of Medicine, Dentistry and Health, University of Sheffield. Her PhD Research title is: ***Incorporating a Knowledge Management Paradigm into Healthcare: A Mixed Method Investigation of Knowledge Sharing in Cross-Professional Teams in Healthcare.*** Affra is conducting her research by interviews, focus groups, a survey and a documentary analysis.

You can see more details of the research within the attached letter outlining the approval of the Royal Hospital Director General for conducting the research.

We are contacting you to request your support and assistance in undertaking the required data collection. Affra would like to schedule a meeting with you to discuss the best way to undertake the research within your department. This includes:

- 1) identifying any documents that are about teamwork, communication, collaboration or knowledge sharing. This could include,
 - documents relating to the institutional or departmental structure related to teamwork and/or knowledge sharing
 - documents relating to existing teams
 - documents relating to departmental procedures related to teamwork or knowledge sharing,
 - departmental policies, statistics, or reports related to teamwork and/or knowledge sharing
 - committee minutes related to teamwork and/or knowledge sharing
 - Ministry of Health/Royal Hospital circulars or guidelines related to teamwork and/or knowledge sharing

12/7

TO BE CIRCULATED
TO CONCERNED
DIRECTORS & HEAD
OF DEPARTMENTS

THANKS

M. Musalhi

DR. MUHANNA MUSALHI
ASST. DIRECTOR GENERAL
ALLIED HEALTH
ROYAL HOSPITAL

Appendices

- 2) If possible, for Affra to speak in one of your morning departmental meetings to announce the project and explain the importance of staff participation in the interviews and focus groups
- 3) allowing Affra access to the staff emails to send information sheets and arrange interviews and focus groups with participants, or for the department secretaries to send this information on Affra's behalf.

I will appreciate to complete my project within two weeks from today. Hence I would be glad if I can be contacted within as early as possible through my phone: 0096892886656 or email: affralshamsi@gmail.com

Thanking you in anticipation of your assistance in this important matter.

Yours sincerely



Dr Andrew Booth BA Dip Lib MSc PhD MCLIP
Lead Supervisor of Affra Al Shamsi &
Reader in Evidence Based Information Practice
School of Health and Related Research (ScHARR), University of Sheffield

And on behalf of

Dr Peter Cudd BSc PhD
Second Supervisor of Affra Al Shamsi
Senior Research Associate
School of Health and Related Research
University of Sheffield




Affra S. Al Shamsi
PhD Researcher
School of Health and Related Research
University of Sheffield
0096892886656
affralshamsi@gmail.com

Appendix (3.14.): Sampling strategies

Strategies	Description
Key case	Exemplary case
Outlier case	Unique case demonstrating difference
Local knowledge case	The case uses the researcher's knowledge around the case. They may wish to explore issues around it further or have ease of access to it. The researcher may add richness to the data through their knowledge, though bias may be an issue.
Stakeholder sampling	Useful for evaluation research and policy analysis. Major stakeholders are identified, those involved in designing, giving, receiving, or administering the programme/service being evaluated, and who might otherwise be affected by it.
Extreme/deviant case sampling	Extreme cases can represent the purest or most clear-cut instance of a phenomenon.
Typical case sampling	Sometimes we are interested in cases simply because they are not unusual in any way.
Paradigmatic case sampling	A paradigmatic case is considered the exemplar for a certain class.
Maximum variation/heterogeneous purposeful sampling	Cases that cover the spectrum of positions and perspectives in relation to the phenomenon studied, including extreme and typical cases, thus illustrates the overlaps between categories.
Criterion sampling	Cases that meet a certain criterion.
Theory-guided sampling	Cases that embody theoretical constructs, for researchers following a deductive or theory testing approach. This can be considered a type of criterion sampling.
Critical case sampling	A "decisive" case to help make a decision about which of several explanations is most plausible, or one identified by experts as being useful because of the generalisations it allows.
Disconfirming/negative case sampling	A case to disconfirm a theory or analysis in order to test it or expand it, as it is often failure that we learn the most.
Expert sampling	Cases or individuals with the expertise most likely to be able to advance the researcher's interests and potentially open new doors.

Strategies for selecting case studies as suggested by Thomas (2010:76-77) and Palys (2008:697-698).

Appendix (3.15.): Recruitment document

 The University Of Sheffield.

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Director: Professor Simon Dixon, BSc, MSc, PhD

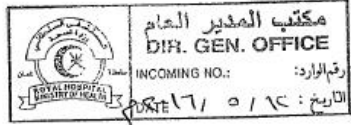
CAS
DR. QASEM AL SALMI
DIRECTOR GENERAL
ROYAL HOSPITAL

Dr. Qasem Bin Ahmed Al Salmi,
Director General of the Royal Hospital
Ministry of Health - Oman

23rd March 2016

Dear Dr Al Salmi

After compliments,


مكتب المدير العام
DIF. GEN. OFFICE
INCOMING NO.:
رقم الوارد:
التاريخ: 17 / 03 / 16

To all Clinical Directors
- all Administrative and Finance
Directors,
For your kind information
Thank you
Mrs. LUBNA AL HASANI
DIRECTOR
TRAINING & STUDIES DEPT.
ROYAL HOSPITAL

Sub; Approval for conducting Document Analysis– Affra Al Shamsi (University of Sheffield).

We are pleased to inform you that, following the granting of Research ethics approval by the Royal Hospital Ethics Committee (26/08/2015) and the School of Health and Related Research Ethics Committee, University of Sheffield (21/12/2015) for the proposed PhD project by Affra Al Shamsi, we have successfully followed the Royal Hospital Research Ethics Committee's suggestion to apply to the Ministry of Health Ethics Committee. We have now been granted the Ministry's final approval (23/03/2016 – Notification Attached). We are contacting you to request that we can now make progress in undertaking the research itself.

Affra is currently an Omani PhD student in the School of Health and Related Research (SchHARR), Faculty of Medicine, Dentistry and Health, University of Sheffield. Her PhD Research title is: *Incorporating a Knowledge Management Paradigm into Healthcare: A Mixed Method Investigation of Knowledge Sharing in Cross-Professional Teams in Healthcare*. Affra is conducting her research by interviews, survey and a documentary analysis.

Affra will now need to start conducting the research by being permitted to start contacting potential participants and their departments. Given the time taken to date in securing the three

File



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E-mail: A.Booth@sheffield.ac.uk
Director: Professor Simon Dixon, BSc,
MSc, PhD

levels of ethical approvals she will also need to begin to undertake document analysis from now onwards instead of delaying until she is physically present in Oman.

Affra's research aims to deepen our understanding of the factors that increase or lessen knowledge-sharing behaviours of healthcare professionals in teams comprising different professions ('cross-professional' teams). It focuses on knowledge sharing among healthcare cross-professional teams, specifically tacit knowledge sharing - the personal and embodied knowledge that can only be revealed through activity, action, or practice. It also seeks to expand our understanding of the relationship between effective cross-professional teamwork and the level of knowledge sharing among healthcare team members. This research will extend previous research by investigating whether tacit knowledge sharing increases efficiency amongst cross-professional healthcare teams. It will offer the first holistic review of knowledge sharing and teamwork practices in Omani tertiary healthcare settings using Royal Hospital as a case study. Thus whilst enabling Omani healthcare professionals, management and the MoH to understand factors that foster effective teamwork and knowledge sharing in healthcare, it has potential for application across the Gulf region given the absence of previous research in this field.

Affra will use documentary analysis to complement the other applied research methods (For further details please see attached research proposal summary). Affra will analyse different types of documents related to Royal Hospital practices, such as policies, statistics, reports and any committee minutes, which might potentially offer insight into the current state of knowledge sharing and team work practices in the Royal hospital as a case study, and which present evidence of the phenomenon under study situation. This analysis will reveal the extent to which the previously reviewed literature matches current practice. Then she will compare this initial depiction to the interviews and survey results to complete the picture. The rationale behind the document analysis is to ensure the consistency of the research data. Potential documents for analysis could include:

- documents relating to the institutional structure
- documents relating to existing teams



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E-mail: A.Booth@sheffield.ac.uk
Director: Professor Simon Dixon, BSc,
MSc, PhD

- documents relating to procedures related to teamwork or knowledge sharing within any department or institution policies, statistics, or reports
- committee minutes related to teamwork and/or knowledge sharing
- the intranet/internet presences of the Royal Hospital (Oman) and Oman Ministry of Health.
- Ministry of Health/Royal Hospital strategic plans

As an experienced overseer of research and projects you will no doubt appreciate the challenges particularly faced by PhD students in completing within a tight time constraint. Therefore, we are appreciating your approval to proceed with the documentary analysis, interview and survey phases, thereby allowing Affra to contact the relevant parties.

Yours sincerely

Dr Andrew Booth BA Dip Lib MSc PhD MCLIP

Lead Supervisor of Affra Al Shamsi &

Reader in Evidence Based Information Practice

School of Health and Related Research (SchARR), University of Sheffield

And on behalf of

Dr Peter Cudd BSc PhD

Second Supervisor of Affra Al Shamsi &

Senior Research Associate

School of Health and Related Research (SchARR)

University of Sheffield

Affra S. Al Shamsi

PhD Student

School of Health and Related Research

University of Sheffield

Appendices

Appendix (3.16.): Interviews Participants demographics

ID*	CLASSIFICATION*	POSITION	DEPARTMENT
I1	Administrative Manager	Senior Nurse	Nursing Admin
I2	Clinical Manager	Senior Consultant	General Surgery and Urology
I3	Clinician	Senior Consultant	Surgery
I4	Clinical Manager	Senior Consultant	Intensive Care/Emergency and ICU
I5	Clinician	Junior Consultant	Paediatric
I6	Clinical Manager	Senior Consultant	Genetics, Quality and Patient Safety
I7	Clinician	Senior Consultant	Urology Department
I8	Nurse	Senior Nurse	Operational Theatre (OT)
I9	Nurse	Junior Scrub Nurse	Cardio OT
I10	Nurse	Senior Nurse	ICU
I11	Nurse	Acting Ward Nurse	ICU
I12	Clinician	Junior Nurse	Paediatric Nephrology
I13	Clinician	Junior Consultant	Paediatric ICU
I14	Nurse	Junior Consultant	Female Surgical Ward
I15	Clinical Manager	Senior Nurse	Obstetrics and Gynaecology
I16	Clinician	Senior Consultant	Urology
I17	Clinician	Medical Officer	Paediatric
I18	Clinical Manager	Senior Consultant	Infection Control.
I19	Nurse	Senior Nurse	Male Medical Ward
I20	Administrative Manager	Senior Nurse	Admin
I21	Nurse	Medical Officer	Paediatric Oncology
I22	Nurse	Senior Nurse	ICU
I23	Clinical Manager (M)	Senior Nurse, Instructor	Admin
I24	Clinician	Senior Consultant	Obstetrics and Gynaecology
I25	Nurse	Specialist	Infection Control
I26	Nurse	Senior Nurse	Cardiothoracic Vascular Surgery

*** INTERVIEWED PARTICIPANTS**

SOURCE: TRANSCRIBED QUALITATIVE DATA.

POSITION AND DEPARTMENTS OF PARTICIPANTS

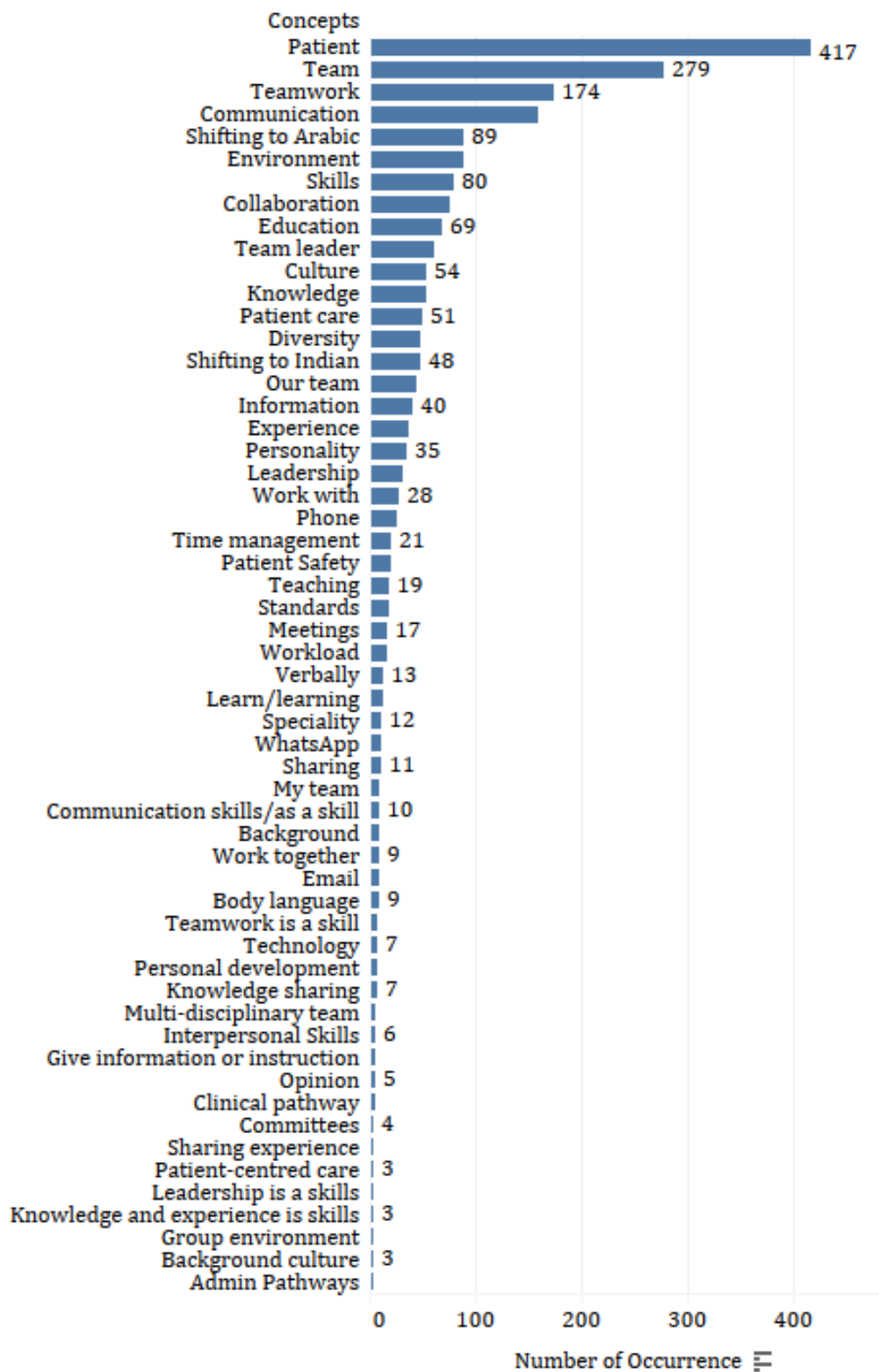
Appendix (3.17.): Hybrid Focus Group Participants demographics

<i>Affinity Diagram Hybrid Focus Groups participants' demographics:</i>					
No. of participants: 16					
Participants' code	Gender	Profession and position	Departments	Years of Experience	Nationality
HFG2-1	Female	Nurse Supervisor	ICU-Adult (A and E)	5-10 years	Omani
HFG2-2	Female	Sr. Staff Nurse	Training and Studies Department	5-10 years	Omani
HFG2-3	Female	Staff Nurse	Infection Control Department	5-10 years	Omani
HFG2-4	Male	Sr. Staff Nurse	Male Medical Ward	5-10 years	Filipino
HFG2-5	Female	Sr. Specialist	Intensive Care Unit (ICU)	5-10 years	Indian
HFG4					
HFG4-1	Male	Sr. Specialist	Paediatrics Nephrology	2-4 years	Omani
HFG4-2	Female	Unit Nurse	ICU	5-10 years	Omani
HFG4-3	Female	Staff Nurse	Paediatric Ward	2-4 years	Omani
HFG4-4	Male	Consultant	Child Health	5-10 years	Omani
HFG7					
HFG7-1	Female	Unit Nurse	Critical Care Unit	5-10 years	Omani
HFG7-2	Female	Sr. Staff Nurse	Infection Control Department	5-10 years	Omani
HFG7-3	Female	Sr. Staff Nurse	Thoracic Cardio Vascular Surgery (TCVS)	5-10 years	Indian
HFG7-4	Male	Sr. Specialist	Paediatric Oncology	5-10 years	Omani
HFG7-5	Male	Sr. Specialist	Paediatric Surgery	5-10 years	Indian
HFG7-6	Female	Sr. Staff Nurse	Infection Control Department	5-10 years	Omani
HFG7-7	Female	Sr. Staff Nurse	Operating Theatre (OT)	2-4 years	Filipino

Appendices

<i>Conceptual Landscape and flow analysis participants' demographics:</i>					
No. of participants: 17					
Participants' code	Gender	Profession and position	Departments	Years of Experience	Nationality
Intensive Care Unit Group					
HFG1-1	Female	Staff Nurse	ICU-MHD	1-4 years	Indian
HFG1-2	Female	Nurse Supervisor	ICU-MHD	5-10 years	Omani
HFG1-3	Female	Sr. Consultant	Adult-ICU	5-10 years	Indian
HFG1-4	Male	Sr. Consultant	Paediatric-ICU	5-10 years	Omani
Infection Control Team Group					
HFG3-1	Female	Microbiologist and Sr. Consultant Director	Infection Control Division	5-10 years	Omani
HFG3-2	Female	Epidemiologist	Infection Prevention and Control Dept.	1-4 years	Indian
HFG3-3	Female	Staff Nurse	Infection Prevention and Control Dept.	5-10 years	Omani
HFG3-4	Female	Staff Nurse	Infection Prevention and Control Dept.	5-10 years	Omani
Emergency Department (A and E Team) Group					
HFG5-1	Male	Sr. Consultant	Paediatric-ER	5-10 years	Omani
HFG5-2	Male	Nurse Supervisor	Adult-ER	5-10 years	Jordanian
HFG5-3	Female	Staff Nurse	Adult-ER	1-4 years	Iranian
HFG5-4	Female	Staff Nurse	Adult-ER	5-10 years	Philippine
Gynaecology Team Group					
HFG6-1	Female	Staff Nurse	Delivery suite (DS)	1-4 years	Indian
HFG6-2	Female	Staff Nurse	Maternity ward	5-10 years	Indian
HFG6-3	Female	Staff Nurse	Gynaecology	5-10 years	Indian
HFG6-4	Female	Sr. Registrar	OB/Gynaecology	5-10 years	Indian
HFG6-5	Female	Sr. Registrar	OB/Gynaecology Fertility clinic	5-10 years	Indian

Appendix (3.18.): Example of the word frequency analysis across HFGs



Concepts recurrence within the HFGs discussion graph (Source: Content analysis of the participants' verbal discussion)

Appendix (3.19.): A comparison of content analysis and context analysis

	Content Analysis	Context Analysis	
Focus	Considering documents as fixed social evidence in an independent container and analysing for content	Embedding documents in the social contexts of their production and use and analysing as commentary or actors	
Strategy	Considering documents as independently adequate resources for understanding Includes some aspect of social practice and meaning	fundamentally ethnographic	
Sources	Container of static and unchanging information	Documents as elements in the field of social activity, with socially situated meanings	
Technique	To “identify core consistencies and meanings” in documents (Patton, 2002:453)	<ul style="list-style-type: none"> Documents as commentary, (e.g., case study, history, and policy analysis) Documents as actors in a social field: more constructivist view of the social world 	
		as commentary	as actors
Used for	To explaining key patterns, themes, and categories	To provide insight into individual and collective actions, intentions, meanings, organizational dynamics, and institutional structures	To study social reality through interaction with human and nonhuman actors, they cannot be used simply as reflections of social reality.
Approach	Inductive analysis for qualitative researchers	A variety of analytic strategies, depending on discipline and research questions	The document is socially important, considered more real than the event/ phenomenon it related to, hence document analysis is the primary element and other approaches are secondary
Selecting documents	Based on a representative or purposive sampling strategy	Documents selected based on importance, relevance and reliability for the study. Requires significant attention to nature of document as socially exchanged and produced	Documents selected based on having a greater “generative” role in producing social relations. Focus on the document’s socially exchanged and produced nature
Source Criticism		The need to examine the authenticity and accuracy of all sources and their	Underlying document production or circulation is of less concern than usefulness of documents

Appendices

		usefulness to the study	
--	--	-------------------------	--

Appendix (3.20.): Ethical Approval - the University of Sheffield



Downloaded: 08/01/2016
Approved: 21/12/2015

Afara Al Shamsi
Registration number: 130259619
School of Health and Related Research
Programme: PhD

Dear Afara

PROJECT TITLE: Incorporating a knowledge management paradigm into healthcare: A Mixed Method Investigation of Knowledge Sharing in Cross-Professional Teams in Healthcare.
APPLICATION: Reference Number 005965

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 21/12/2015 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 005965 (dated 18/12/2015).
- Participant information sheet 1013526 version 2 (18/12/2015).
- Participant information sheet 1013527 version 2 (18/12/2015).
- Participant information sheet 1013528 version 2 (18/12/2015).
- Participant information sheet 1011505 version 3 (18/12/2015).
- Participant consent form 1014420 version 1 (18/12/2015).
- Participant consent form 1011506 version 2 (16/11/2015).

If during the course of the project you need to [deviate significantly from the above-approved documentation](#) please inform me since written approval will be required.

Yours sincerely

Jennifer Burr
Ethics Administrator
School of Health and Related Research

Appendix (3.21.): Ethical Approval-Ministry of Health-Oman

<p><i>Sultanate of Oman</i> <i>Ministry of Health</i> <i>Directorate General of Planning</i> <i>and Studies</i></p>		<p>سلطنة عمان وزارة الصحة المركزية العامة للتخطيط والدراسات</p>
<p>Ref: MH/DGP/R&S/PROPOSAL_APPROVED/ 12 /2016</p>		الرقم،
<p>Date : 23.3.2016</p>		التاريخ،
		الموافق،
<p>Affra Al-Shamsi Principal Investigator</p>		
<p>Study Title: "Incorporating a Knowledge Management Paradigm into Healthcare: A Mixed Method Investigation of Knowledge Sharing in Cross-Professional Teams in Healthcare".</p>		
<p>After compliments</p>		
<p>We are pleased to inform you that your research proposal "Incorporating a Knowledge Management Paradigm into Healthcare: A Mixed Method Investigation of Knowledge Sharing in Cross-Professional Teams in Healthcare" has been approved by Research and Ethical Review & Approve Committee, Ministry of Health.</p>		
<p>Regards,</p>		
		
<p>Dr. Ahmed Mohamed Al Qasbi Director General of Planning and Studies Chairman, Research and Ethical Review and Approve Committee Ministry of Health, Sultanate of Oman.</p>		
<p>Cc Day file</p>		

Appendix (4.1.): Team membership and affiliation among the different types of teams

Team membership	Teams Composition	Team Description	Perception of team members
Fixed team members	Single profession or discipline team	Belongs to a single profession or speciality, usually hierarchical, members know each other.	Enough time to know each other and build or establish a team identity
Changeable, team members based on need	Cross-profession or discipline team (A)	Some participants belong to a team including other specialities as/when required	Temporary members around the basic team, lost or added according to need.
	Cross-profession or discipline team (B)	No stable composition as members change based on team need. Roles are stable but individual members change.	Fixed members perceive their own membership to the team, but temporary members may find it hard to establish or build team identity.
Change of roles, based on need or rota or workload	Department, unit, specialisation or ward-based team	The constant is the staff nurse responsible for different patients, working with different clinicians and teams.	May join a variety of teams, each involved with the patient that individual is caring for. No standard concept of team or teamwork through constant change.
	Rotating teams	Most departments, units, specialisations and wards use a duty rota, hence continuous movement of staff. Doctors on rotation as part of training.	Often patient-centred. Potentially a lack of commitment to the team, or lack of a team bond through constant movement. Commitment to the team they spent most time with or officially registered with.
Shared members Part of every team	Supportive service departments, potentially part of any medical team through structure or by invitation and need.	Perception of confusion about status of temporary team members, and type of work – collaboration or teamwork.	Can feel part of every team to which they are assigned but can also feel rejected or unappreciated when other team members do not reciprocate that feeling. Also potential for not feeling they belong leading to a lack of commitment, always acting as temporary members.

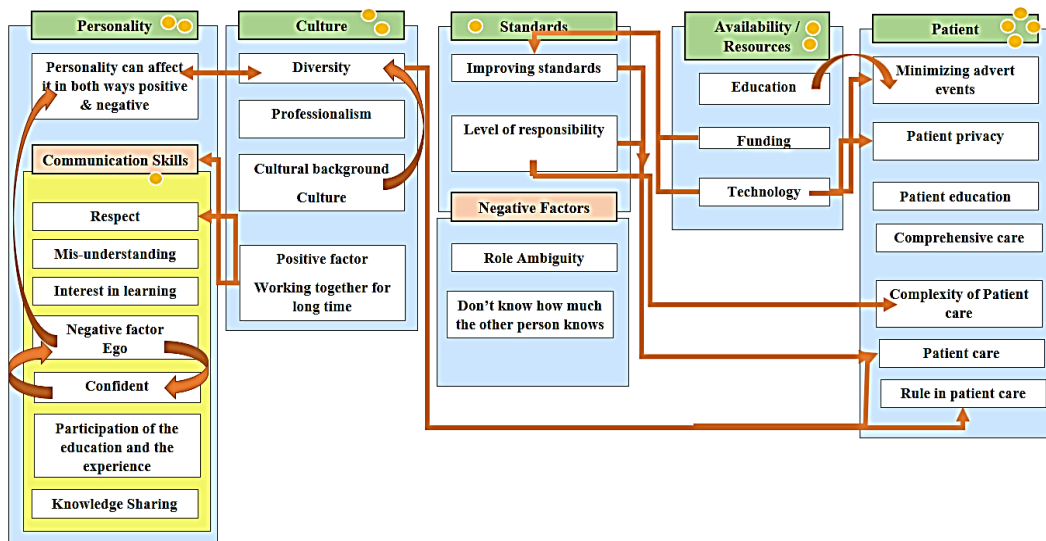
Table., Team membership and affiliation among the different types of teams

Appendices

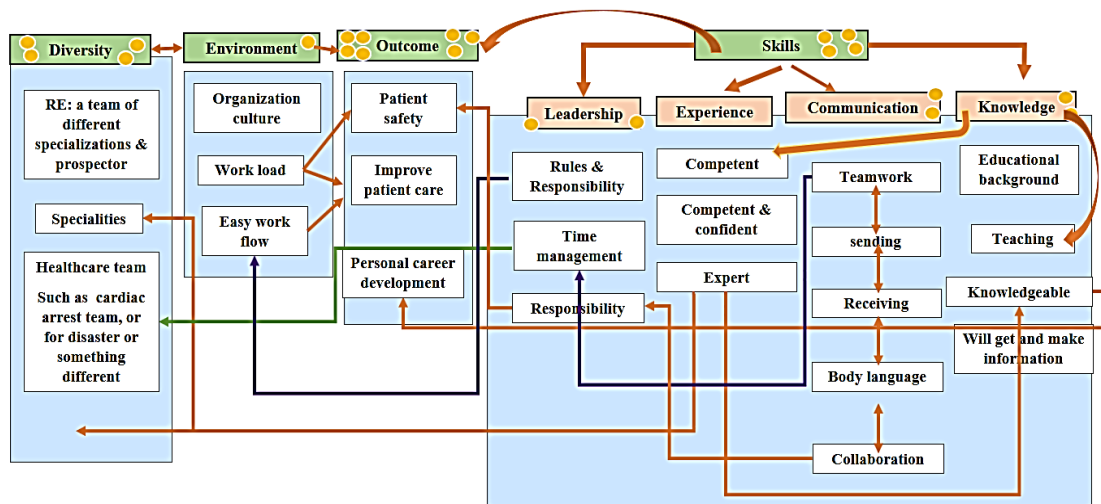
Appendix (4.1.): Content analysis (word frequency analysis) of the participants' verbal discussion

Concept	# of occurrence
Patient	417
Team	279
Teamwork	174
Communication	159
Environment	89
Shifting to Arabic	89
Skills	80
Collaboration	77
Education	69
Team leader	61
Culture	54
Knowledge	53
Patient care	51
Diversity	49
Shifting to Indian	48
Our team	45
Information	40
Experience	38
Personality	35
Leadership	31
Work with	28
Phone	26
Time management	21
Patient Safety	20
Standards	19
Teaching	19
Meetings	17
Workload	16
Learn/learning	13
Verbally	13
Speciality	12
Sharing	11
WhatsApp	11
Background	10
Communication skills/as a skill	10
My team	10
Body language	9
Email	9
Work together	9
Teamwork is a skill	8
Knowledge sharing	7
Personal development	7
Technology	7
Give information or instruction	6
Multi-disciplinary team	6
interpersonal Skills	6
Clinical pathway	5
Opinion	5
Committees (mean of communication)	4
Admin Pathways	3
Background culture	3
Group environment	3
Knowledge and experience is skills	3
Leadership is a skills	3
Patient-centred care	3
Sharing experience	3

Appendix (5.2.): Affinity Diagram (HFG4)



Affinity Diagram (HFG7)



Appendices

Appendix (6.1): Royal Hospital Documents for the analysis

Ref #	Document Title	Type	Source	Date of Document Publication	Author's Name/Credentials or Organization in Support of Document (source credibility)
1	The MoH's Eighth Five-Year Plan for Health Development (2011 – 2015)	Health Development Plan	Ministry of Health Website	2011	Ministry of Health, Directorate of Planning Affairs, Undersecretary of planning Affairs
2	Health Vision 2050 Sultanate of Oman (2014)	Vision and Policy	Ministry of Health Website	2014	Ministry of Health, Minister of Health
3	Management Guidelines for Breast Cancer in Oman	Guideline	Guidance of National Cancer Committee	2011	Royal Hospital & Department of Non-Communicable Disease Surveillance and Control Directorate General of Health Affairs
4	Guidelines for Committees in Autonomous Hospitals	Guideline	Policy document (part of the Autonomous Hospital Initiative)	27 January 2003	Director General of Health Affairs
5	Guidelines to Autonomous Hospitals on Human Resources Management	Guideline	Policy document (part of the Autonomous Hospital Initiative)	27 January 2003	Director General of Health Affairs
6	Process and Performance Indicators	Conceptual Framework	Policy document (part of the Autonomous Hospital Initiative)	27 January 2003	Director General of Health Affairs
7	Guideline on the Organizational Communication Process and Beyond Autonomous Hospitals	Guidelines Channels of Communication and Correspondence	Policy document (part of the Autonomous Hospital Initiative)	27 January 2003	Director General of Health Affairs
8	Job Descriptions for Key Hospital Functionaries (Autonomous Hospitals)	Job Descriptions	Policy document (part of the Autonomous Hospital Initiative)	27 January 2003	Director General of Health Affairs
9	Autonomous Hospitals and National Health Programmes	About the Programme	Policy document (part of the Autonomous Hospital Initiative)	27 January 2003	Director General of Health Affairs

10	Nursing Department Philosophy	Philosophy	Royal Hospital Portal			Department of Nursing
11	Department of Nursing and Midwifery Affairs Mission, Vision and Value	Mission and Vision	Royal Hospital Portal			Department of Nursing and Midwifery
12	Clinical Handover Policy (SBAR)	Nursing Policy	Royal Hospital Portal	01 October 2015		Oman Nursing and Midwifery Council
13	Code of Professional Conduct for Nursing and Midwifery Council	Code of Professional Conduct	Royal Hospital Portal	January 2011		Department of Nursing
14	Handover of Patient Information, on Admission and between Shifts	OBG Policy	Royal Hospital Portal	01 April 2016		Department of Obstetrics and Gynaecology
15	Adverse Events Reporting Guideline	Quality Guideline	Royal Hospital Portal	01 March 2016		Department of Quality Management
16	Recognition and Rewarding Program	Quality Policy	Royal Hospital Portal	29 April 2015		Department of Quality Management
17	Developing and Updating the Vision Statement, the Mission Statements and Set of Values	Quality Procedure	Royal Hospital Portal	29 April 2015		Department of Quality Management
18	Emergency, Urgent, Elective, Definition and Time Standard	Admin Guideline	Royal Hospital Portal	23 August 2015		Deputy Director General of Medical Affairs
19	Adverse Event Reporting Policy	Quality Policy	Royal Hospital Portal	13 September 2015		Department of Quality Management
20	Policy of Ethical Framework and Ethics Committee	Director Gen. Policy	Royal Hospital Portal	13 February 2016		Director General Office
21	Document Control Policy	Quality Policy	Royal Hospital Portal	01 October 2014		Department of Quality Management
22	Communication Plan	Quality Policy	Royal Hospital Portal	29 April 2015		Department of Quality Management
23	The Formation of the Emergency Preparedness Committee (EPC)	Administrative Qatar	Photocopy from original doc.	20 December 2015		Director General
24	The Formation of the Bioethics Committee	Administrative Qatar	Photocopy from original doc.	27 October 2015		Director General

25	The Formation of Antimicrobial Stewardship (AMS) Committee	Administrative Qatar	Photocopy from original doc.	25 October 2015	Director General
26	The Formation of Follow-up to the Government Properties Committee	Administrative Qatar	Photocopy from original doc.	30 September 2015	Director General
27	The Formation of OPD Utilization Committee	Administrative Qatar	Photocopy from original doc.	08 February 2015	Director General
28	The Formation of Employee Health & Wellness Committee	Administrative Qatar	Photocopy from original doc.	12 February 2016	Director General
29	The Formation of Child Protection Committee	Administrative Qatar	Photocopy from original doc.	08 February 2016	Director General
30	The Formation of the Blood Utilization Committee	Administrative Qatar	Photocopy from original doc.	18 January 2016	Director General
31	The Royal Hospital Structure	Structure	Photocopy from original doc.	13 May 2015	Director General Office
32	Nursing Department Committees	Structure	Royal Hospital Portal		Department of Nursing
33	National Genetic Centre Laboratory Committee	Administrative Qatar	Photocopy from original doc	30/9/2015	Director General
34	Adverse Event Response Team	Quality Policy	Royal Hospital Portal	29/04/2015	Department of Quality Management
35	Time Frame to be seen by a Consultant	Admin Guideline	Royal Hospital Portal	23/8/2015	Deputy Director General for Medical Affairs
36	Job Description: Principal Nursing Officer	Job Description	Royal Hospital Portal	11/06/2000	Director General and Superintendent Department of Nursing

Appendix (6.2): Example of Documents Analysis

Ref #	Relevancy	Phrases examined	No.	Context	Main findings
10	Interdisciplinary	Recognising the need for interdisciplinary approaches... facilitating... mutual trust, open communication and sharing	1	Nursing Department Philosophy	Reference to interdisciplinary approaches for comprehensive health care
10	Health care team	We believe that the patient plays a major role in the interactions with the health care team	1	Nursing Department Philosophy	Patient having a role in a the health care team
11	Our team Collaboration	We are committed to fostering an environment that promotes respect, positive communication and collaboration among all members of patient/family/health care team. We work together for the achievement of outstanding results and take pride in our success	1 1	Values Statement	Promoting collaboration and including patient/family
11	Collaboration	To be the leaders for customer satisfaction, learning and improving through constructive engagement and collaboration with key stakeholders.	1	Objectives	Collaboration with internal and external individuals/organisations
13	Partners	You must recognize and respect the role of patients and clients as partners in their contribution they can make to it	1	1.1 Dignity	Code of Professional Conduct for Nurses and Midwives in Oman - Oman wide because for the professional body
13	Informed Consent	Informed Consent is a process of communication between a patient or client and a Nurse Information given to the patient about a procedure and/or treatment You must ensure that the information is accurate, truthful and presented in such easily understood.	1	2. Informed Consent 2.2	Partners – wide term, could be passive/active Primarily about informing patient about treatments etc., and rights
13	Working as a team	Working as a team (Title) The team includes the patient or client, his/her family, informed care takers and healthcare professionals	4.	Working as a team	Patient is in the team
13	Multi-disciplinary	The delivery of healthcare is a complex process that requires a multidisciplinary approach to meet the health needs of society	4.	Working as a team	Complexity requires multidisciplinary teams
13	Cooperative	You must develop and maintain a cooperative relationship with co-workers and others You are expected to work co-operatively within teams and to respect the skills, expertise	2	Working as a team 4.1	Co-operation is part of teamwork

Appendix (6.3): Example of Healthcare teams in documentation

Ref #	Relevancy	Phrases examined	Main findings
10	Health care team	We believe that the patient plays a major role in the interactions with the health care team	Patient having a role in the health care team
11	Our team Collaboration	We are committed to fostering an environment that promotes respect, positive communication and collaboration among all members of patient/family/health care team. We work together for the achievement of outstanding results and take pride in our success	Promoting collaboration and including patient/family
11	Collaboration	To be the leaders for customer satisfaction, learning and improving through constructive engagement and collaboration with key stakeholders.	Collaboration with internal and external individuals/organisations
13	Partners	You must recognize and respect the role of patients and clients as partners in their contribution they can make to it	Code of Professional Conduct for Nurses and Midwives in Oman - Oman wide because for the professional body Partners - wide term, could be passive/active
13	Working as a team	Working as a team (Title) The team includes the patient or client, his/her family, informed care takers and healthcare professionals	Patient is in the team
13	Cooperative	You must develop and maintain a cooperative relationship with co-workers and others You are expected to work co-operatively within teams and to respect the skills, expertise	Co-operation is part of teamwork
	Collaborate	You should consult and collaborate with others to meet the health needs of society You should actively promote collaborative planning	
13	Work with other members of the team	You must work with other members of the team to promote healthcare environments conducive to safe, therapeutic and ethical practice	Team type not specified so generic
15	Team All those who are directly or indirectly involved	The lead will assemble a team for the analysis to be initiated. All those who are directly or indirectly involved might be contacted and their input will be obtained, but the virtual decision on whom to involve in the analysis relied on the discretion and judgement of the leader of the team. The analysis and action plan developed by the team will be reported, within 2 weeks of the event occurrence, to the Quality Management department, and the Departmental Quality Committee for execution at the level of the service. Team names and designations	Creation and role of a team, and it's output
19	Team	The lead investigator will assemble a team for the analysis to be initiated. The analysis and action plan developed by the team will be reported within 4 weeks of the event occurrence, to the Quality Management Department, and the Departmental Quality Committee for execution at the level of the service.	Creation and role of team, and different time frame to AERG

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Appendix (6.4): cross-disciplinary in documentation

Ref #	Relevancy	Phrases examined	No.	Context	Main findings
10	Interdisciplinary	Recognising the need for interdisciplinary approaches... facilitating... mutual trust, open communication and sharing	1	Nursing Department Philosophy	Reference to interdisciplinary approaches for comprehensive health care
13	Multi-disciplinary	The delivery of healthcare is a complex process that requires a multidisciplinary approach to meet the health needs of society		4. Working as a team	Complexity requires multidisciplinary teams
21	Medical committee Multi-disciplinary	The Medical Committee may review in its meeting agenda issues related to noncompliance or failure to follow the rules of the hospital document management system. These issues should be raised to the Medical Committee meetings only if they have not been solved at the level of the directorate of the services. In addition, the Medical Committee is responsible to approve any multidisciplinary involvement documents,	3 1	3 MC 1 Multi-disciplinary	The purpose of this document is to address roles and responsibilities of controlling documents and data throughout the Royal Hospital services (Roles/responsibilities)

Appendix (6.5): Knowledge sharing in documentation

Ref #	Relevancy	Phrases examined	Context	Main findings
13	Informed Consent	Informed Consent is a process of communication between a patient or client and a Nurse Information given to the patient about a procedure and/or treatment You must ensure that the information is accurate, truthful and presented in such a way that it is easily understood.	2. Informed Consent 2.2	Primarily about informing patient about treatments etc., and rights
13	Shared knowledge	To be effective, there must be mutual understanding, shared knowledge, trust and respect	Working as a team 4.3	
13	Share knowledge	You must share your knowledge This includes providing mentorship and guidance	Professional Knowledge and Competence 5.4	Stresses formal knowledge sharing
15	Forward the report	Forwarding the report to the leader of the service, or an identified focal point or the Departmental Quality Committee if exists, for an electronic feedback that includes recommendations and action plan.	Round-table discussion	Disseminating report
15	Plans will be communicated	Any improvement plans will be communicated to other authorities or individuals at the sole discretion of the Director General, or his specific designee.	Round-table discussion	Disseminating plans
15	Report will be forwarded	If the event has originated in other healthcare organization, the report will be forwarded to the hospital management to communicate the event and consequences with the organization where the incident originated.	Round-table discussion	Disseminating information outside of the hospital
15	Dissemination of learning	Dissemination of Learning (Title) Therefore, the concerned department with a responsibility for notifying of receiving details of serious event has a responsibility for the dissemination of learning.	Dissemination of Learning	One of the key aims of the adverse event reporting and learning process is to reduce the risk of recurrence
		The leaning [sic] lesson should be used for hospital wide quality improvement by sharing knowledge and information to other leaders in one or more of the following: <ul style="list-style-type: none"> - The Medical Committee/Quality Management Review Committee - The Departmental Quality Team - Departmental meetings - On request Meetings with departments - Quality updates - Formal communications to leaders via letters 	Dissemination of Learning	Spelling mistake How what is learned from the AE report is disseminated, who to and how
15	Forward ... reports	Investigate and forward adverse event reports, follow up, feedback, make conclusions, address the lessons and close the loop within the agreed duration	Risk Manager Responsibilities	Disseminating knowledge

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Appendix (6.6): Communication in documentation

Ref #	Relevancy	Phrases examined	Context	Main findings
20	Committee Committee	The Ethics Committee Membership: The Ethical Framework Committee may consist of medical ethics specialists, physicians, nurses, a risk manager, a health lawyer, a social worker, and patient representatives from the local community	The Ethics Committee Member-ship	Mixed disciplinary team
21	Communication	Purpose It also defined authorities for development, communication, approval and handling of documents Scope The documents might be policies, process, protocols, guidelines, procedures or forms		The purpose of this document is to address roles and responsibilities of controlling documents and data throughout the Royal Hospital services
21	Communication	They [Directors] communicate the new documents or changes in procedures, instructions or documents.		The purpose of this document is to address roles and responsibilities of controlling documents and data throughout the Royal Hospital services (Roles/responsibilities)
22	Communication	Communication Plan [document title]		Communication Plan [document title]
22	Communication	Introduction The Royal Hospital communication policy has been developed to enable two-ways communication with our internal and external stakeholders. The policy aims to insure that information is shared in an open, transparent, organized, effective, efficient and respectful manner.		Communication policy
22	Communication	Scope The Communication policy at the Royal Hospital is to...		Scope of communication policy
22	Communication	Objectives To ensure that all the hospital staff are well informed about the hospital's strategic plan, operational plan, vision, mission, values, new developments, quality improvement plan, initiatives, available services, new programs, progress successes, courses workshops, achievements, matters and the meetings' minutes and agendas of the Royal Hospital. To ensure that the external stakeholder, patients, volunteers, vendors, media representatives and community, have the right information about the Royal Hospital's vision, mission, values, activities, initiatives, available services, development programs and actions. To enhance and to promote an internal culture of timely, accurate, open, transparent inclusive, relevant, clear, concise, honest, straightforward and coordinated messaging and communication to all stakeholders. To ensure that the hospital website and Facebook account is maintained with current and updated information.		Official communication types, priorities

Appendices

Appendix (8.1): Team Models and characteristics in Royal Hospital from participant accounts

1st Model: Committees

<i>The Model</i>	<i>Key Characteristics</i>
<i>Committees</i>	Committee Members: Can be from a single discipline, or from different disciplines or professions.
	Member roles: Usually specific roles depending on the function of that committee.
	Membership: Well-defined and stable
	Governing style: There is always a designated leader (committee chairman) and a set framework.
	Committee name: Each committee carries an official title, usually in connection to their purpose.
	Goal and objectives: The committee is established around a specific goal and objectives (long or short term)
	Working style: Collective discussion, brainstorming and elected or collective decision making.
	Documentation: Committee minutes produced and circulated based on need. Some committees share their minutes through providing access to them within the Hospital intranet.

Model and characteristics of committees as teamwork practice

2nd Model: Department, Unit or Discipline-based Teams (Uni-disciplinary)

<i>The Model</i>	<i>Key Characteristics</i>
<i>Unit, or Discipline-based teams</i>	Team Members: Individuals from the same profession, discipline or specialisation. It also includes unit or departmental based teams.
	Member roles: Roles based on department or unit hierarchy and assigned by team leader but working to share the workload, cases and daily practices.
	Membership: Well-defined, full-time and stable
	Governing style: Based on unit or department hierarchy, Team leader is usually a senior member of staff with the most experience. They fall under the departmental or unit management.
	Name: Not necessarily identified by a name outside the department or unit; in some cases, they only used alphabetical system like team A and B
	Goal and objectives: No specified goals or objectives outside patient care and treatment
	Working style: Coordinated by supervisor(s), but often members make decisions independently, drawing on advice or consultation where necessary.
	Documentation: Hospital information system (HIS), intranet-based (Al Shifa) and/or doctor's progress notes.

Model and characteristics of Unit, or Discipline-based teams as teamwork practice

3rd Model: Joint Clinics (Combined or cross-professional)

<i>The Model</i>	<i>Key Characteristics</i>
<i>Joint Clinics, Combined clinic, cross-professional clinic</i>	Clinic Members: Selected to complete each other's experiences and specialities
	Member roles: To provide holistic care for patients with multiple or co-morbid health issues.
	Membership: Well-defined, part-time and semi-stable, as roles are the same, but individuals change based on rota.
	Governing style: The case leader usually takes the lead.
	Clinic name: Each clinic carries an official title in connection to their composition.
	Goal and objectives: The clinic is established around a specific goal and objectives in related to an organ, co-morbidity or treatment.
	Working style: Collective discussion, brainstorming and elected or collective decision making, directed toward a shared diagnosis and/or care plan.
	Documentation: there was no specific mention of documentation outside the usual intranet-based (Al Shifa) healthcare information system (HIS) and/or doctor's progress notes.

Model and characteristics of multi-disciplinary clinic as teamwork practice

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4th Model: Cross-Professional Teams

<i>The Model</i>	Key Characteristics
Cross-Professional Teams	Team Members: Selected to complete each other's skills and knowledge, and support patient care based on their experiences with that speciality.
	Member roles: Well-defined roles, working together to complete a procedure, or a treatment plan of a patient.
	Membership: Selected primarily by role, therefore individuals change according to rota/shift, but likely to be regular membership.
	Governing style: Based on hierarchy, with roles assigned by the team leader, usually the most senior member. Decisions made with group discussion though senior member is likely to have final say and responsibility.
	Name: Identified by speciality or sub-speciality
	Goal and objectives: No specified goals or objectives outside patient care and treatment.
	Working style: Coordinated by the highest ranked usually (consultant or senior consultant), who will have the final say on.
	Documentation: No specific mention of documentation outside the intranet-based (Al Shifa) healthcare information system (HIS) and/or doctor's progress notes.

model and characteristics of Sub-Speciality, Multi-Disciplinary Teams

5th Model: Case-based Teams

<i>The Model</i>	Key Characteristics
Case based teams	Team Members: typically selected based on their roles or experiences with that specific case or instruments, professions and speciality.
	Member roles: Each member has a specific role and work together to complete a procedure or treatment plan.
	Membership: Well-defined roles but individuals may change according to shift or rota. Membership is time-limited or by invitation.
	Governing style: Based on hierarchy but dependant on case.
	Name: Any name would be related to the case, for example, kidney transplant team.
	Goal and objectives: To complete a procedure or a treatment plan.
	Working style: Coordinated by supervisor(s), most of the treatment decisions are ultimately made by the supervisor.
Documentation: Participants did not refer to documentation outside the intranet-based (Al Shifa) healthcare information system (HIS) and/or doctor's progress notes.	

Model and characteristics of Case-based teams as teamwork practice

6th Model: Contingency or Purpose-based team (Uni- and Multi-disciplinary)

<i>The Model</i>	Key Characteristics
Contingency or Purpose-based team	Team Members: Selected to complete each other's skills and knowledge and based on their experiences or specially trained for the team.
	Member roles: Defined roles, working together to complete a procedure or treatment plan.
	Membership: Individuals may change based on rota and shift, but only a certain number of members on call due to training and experience requirements. Membership is time-limited and recurring.
	Governing style: these teams were based on hierarchy and on roles assigned by the team leader, characteristically the highest in rank of staff. All the decisions made by this person in relation to what is done, how it is done, and by who.
	Name: Identified by the purpose of the team.
	Goal and objectives: To respond to specific events or emergencies.
	Working style: Coordinated by a team leader who is usually the most senior member and who will usually have the final say on decisions.
	Documentation: There was no specific mention to any documentation

model and characteristics of Contingency or Purpose-based team as teamwork practice

7th Model: Project-based team

<i>The Model</i>	Key Characteristics
Project based teams	Team Members: Typically selected to complete each other's knowledge and skills. It can be by appointment or by volunteering.
	Member roles: They develop and allocate their roles based on the project needs and the knowledge and skills available.
	Membership: Tends to be time-bound and thus only for a set period.
	Governing style: Varies depending on the needs of the project. It could be self-managed, autonomous, semi-autonomous, self-directing or with an elected or appointed supervisor.
	Name: The name is usually linked to the project.
	Goal and objectives: Completing a specific task or project.
	Working style: They work together to complete the project, usually under a team leader.
Documentation: There was no specific mention to any documentation	

Appendix (8.2.): Team membership and affiliation among the different types of teams

Team memberships	Teams Composition	Perception of team members	Perception of team members
Fixed team members	Single profession/ Single discipline team	Belong to a single profession/speciality, usually hierarchical, members know each other.	Enough time to know each other and build or establish team identity
Changeable, team members based on need	Multiple profession/Multiple discipline team (A)	Some participants belong to a team including other specialities as/when required	Temporary members around the basic team, lost or added according to need.
	Multiple profession/Multiple discipline team (B)	No stable composition as members change based on team need. Roles are stable but individual members change.	Fixed members perceive their own membership to the team but can isolate temporary members from such a bond. Temporary staff may find it hard to establish or build team identity.
	Team without boundaries: ward based	The constant is the staff nurse who is responsible for different patients, working with different clinicians/teams.	May join a variety of teams, each involved with the patient that individual is caring for. No standard concept of team/teamwork through constant change.
Change of roles, based on need or rota Change of roles, based on workload Shared members	Rotating teams	Most departments, units and teams use a duty rota, hence continuous movement of staff. Doctors on rotation as part of training.	Often patient-centred Potentially a lack of commitment to a team, or lack of a team bond through constant movement. Developed commitment to the team they spend most time with or were officially registered with.
Part of every team	Supportive service departments, part of every medical team either on structure or by invitation/need.	Perception of confusion about status of temporary team members. Clear separation of temporary members for collaboration and then to move on without them.	Can feel part of every team to which they are assigned but can feel rejected or unappreciated when other team members do not share that feeling. Perception of not belonging leading to lack commitment to any one team and always acting as temporary members.

Team membership and affiliation among the different types of teams