

**PATIENT INFORMATION MANAGEMENT AT  
UNIVERSITY HOSPITAL OF LIBREVILLE,  
GABON**

**By**

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## **ABSTRACT**

The purpose of this research study was to investigate the factors leading to the problems being experienced in patient information management at University Hospital of Libreville. This was based on the fact that there was poor management of patient information that affected the quality of service delivery in the health sector. To reach this objective, the research study used a qualitative approach to conduct the investigation. Interview and observation were used to obtain information from healthcare professionals on the practice of patient information management in their services in order to identify the challenges. Themes were used to analyse findings in order to identify the issues related to patient information management.

The identified challenges were categorized as the lack of IT system, lack of storage facilities, and the lack of skilled healthcare professionals. These challenges represent the obstacles to patient information management to the required standard at University Hospital of Libreville. The implementation of appropriate technology systems and storage should enable the hospital to improve patient information management.

The key findings are that despite the fact that services at University Hospital of Libreville face numerous difficulties, it would not be impossible to adopt or create a proper system. The research provides feasible recommendations that should address the challenges faced by patient information management within the hospital so that improved services can be provided to citizens.

## **DECLARATION**

I, Louissette Divassa, declare that this research report is my own unaided work except as indicated in the references and acknowledgements. It is submitted in fulfilment of the requirements for the degree of Master of Management in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other University.

.....

**Signed on the ..... day of November 2017**

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## **DEDICATION**

I would like to dedicate this entire work to my beloved and wonderful mum,  
Marguerite Waka Mbembo.

I cannot describe what she has done in my life but I just ask God to keep  
her alive in order for her to reap what she sows.

I love you, mum.

## **LIST OF ABBREVIATIONS**

ES:	Emergency Service
GS:	Gynaecology Service
PIM:	Patient Information Management
PS:	Paediatric Service
SDDMA:	Statistics Department of the Directorate of Medical Affairs
TMIM:	Theory of Motivated Information Management
WHO:	World Health Organization

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# **CHAPTER 1**

## **INTRODUCTION AND BACKGROUND.**

### **1.1 INTRODUCTION**

Information refers to all the specific arguments presented about a context (Reynolds, 2015). Information management is a leading activity in any organisation which aims to give people access to effective information and supports services to promote work outcomes (Detlor, 2009). Aziz, Rankin and Waugh (2015) suggests that it is a process of controlling information within an organisation. Reynolds (2015) claims that information management is a process of organising information which is used to support the development of the organisation.

Information management action is valuable in improving the implementation of services in all organisations. According to Ceeney (2009), it is a better technique to ensure new services in the public sector. Van den Boer, Pieterse, van Dijk and Arendsen (2015) observes that service delivery in business can be enhanced by improved use of information while some authors observe that information management is linked to technology systems. Yasser, Alina and Nor (2013) suggests that information systems are a helpful tool that sustains the management of information.

In the health sector, managing information is a critical requirement for achieving objectives such as patient health decisions and the organisation of health care facilities. Zehner (2015) emphasises health information management as a method of consolidating and protecting medical information. Sih and Bricks (2008) and Gupa, Daigle, Mojica and Hurley (2009) note that the quality of services and treatment provided in the

hospital are improving through the management of information concerning patient history.

The World Health Organisation (2012) describes patient information management as the activity of gathering and keeping patient information during the clinical process. This procedure requires the optimal use of paper records, register books or an electronic system available within the hospital (World Health Organization, 2012). Similarly, Klasnja, Civan Hartzler, Unruh and Pratt (2010) explains that patient information management is the action of giving personal health information to clinicians which includes various systems.

Patient information management is applied not only for the benefit of personal care. Patient information management has numerous advantages in the health care industry. First, it helps health care organisations to improve their services, plan activities, conduct research, and facilitate the analysis and the sharing of patient data, according to the World Health Organisation (2012). Second, it helps to achieve effective management of services within the health care organisation (Klasnja, Civan Hartzler, Unruh and Pratt, 2010). The same authors argue that information systems are shown to have the potential to improve patient information management to achieve specific goals in the health sector, most especially in developed countries.

Improving patient information management within the hospital requires the consideration of the entire hospital and health care workers especially because in the health sector, patient information management affects not only the health services but also the well-being of the entire population. In this study, the focus was to investigate the experiences of patient information management at the University Hospital of Libreville and make recommendations to address the identified challenges.

## 1.2 BACKGROUND OF THE STUDY

Patient information management represents the potential to improve hospital organisation and provide health care service quality to patients. In developed countries it is practiced in the health industry. Inzucchi, Bergenstal, Buse, Diamant, Ferrannini, Nauck and Matthews (2015) demonstrates that the management of patient information is conducted in the United States and European health sectors. Through clinical patient records, for example, the United States and European diabetes associations were able to manage information on diabetes in order to provide better services to patients suffering from diabetes. Additionally, in American health care services, the services provided to patients with specific diseases are based on the patient's records available in the clinical system. Loren, Mangu, Beck, Brennan, Magdalinski, Partridge and Oktay (2013) explains that the treatment of patients with cancer is based on the clinical samples. Qaseem, Wilt, Weinberger, Hanania, Criner, Van der Molen and Shekelle (2011) indicates that the information management of patients with pulmonary infection helps to improve the services provided to that particular patient during treatment.

Despite the fact that the health care industry in several countries in Africa faces numerous difficulties, patient information management is of specific concern. What has exacerbated the situation in Africa is the lack of the necessary information technology for managing patient information. The study conducted by Sobngwi, Ndour-Mbaye, Boateng, Ramaiya, Njenga, Diop and Ohwovori (2011) provides information on diabetes patients in African countries and is based on data from individuals with diabetes and patient records. Similarly, the research of Makani, Cox, Soka, Komba, Oruo, Mwamtemi and Newton (2011) in Tanzania on anaemia disease shows that anaemia is a leading cause of death among children based on hospital information. Information systems are also linked to patient information management in Africa; Castelnuovo, Kiragga, Afayo, Ncube, Orama, Magero and Kambugu (2012) concludes

that electronic management records in Africa have contributed to more effective HIV patient information management.

Located in Central Africa, Gabon is surrounded by the Atlantic Ocean, the Republic of Congo, Cameroon and Equatorial Guinea, with an estimated population of 1,606,321 (2011), according to a KMPG (2012) report. The country's sanitary infrastructure is perceived as being one of the best in West Africa (KMPG Report, 2012). The health sector in Gabon is divided into four sectors: public, private, semi-public and paramilitary, according to the General Director of Statistics (DGS) (2009). The government has implemented a policy intended to improve public health. The disposition of health facilities is effective throughout the country, where almost 700 structures (dispensaries and care offices) are dedicated to provide primary care to the population (Sylvia Bongo Foundation Report, 2009). In addition, health insurance has been reorganized and now provides health cover for all citizens. This coverage is financed by the mobile operators, independent workers, companies and the state (Musango and Aboubacar Inoua, 2010).

The attitudes regarding information management within the hospital must be taken into consideration. There is a direct connection between patient information management and the level of the population's health. Through patients' information management, hospitals' services could be better informed on pathologies that affect populations at a specific time. The medical services, therefore, have to upgrade their performance by improving health information management.

The practice of patient information management within the hospital contributes to eradicating disease and improving the health of the patients (Weymann, Härter, Dirmaier and Petrak, 2013; Brophy, Sarma, Khandker and Kurczewski, 2016). Information management in the hospital is concerned with the information obtained from the patient in order to treat

that patient optimally, and lack of such information could result in the inefficiency of the services and poor quality of health.

The scope of the University Hospital of Libreville as the area of investigation is appropriate because it is located in the main capital and it attracts many patients. Moreover, it is one of the oldest and largest referral hospitals in Gabon and is centrally located. It is under the supervision of the Gabonese Health Ministry and has a triple mission: to provide medical care, training and conduct research. The hospital has different services that are operational 24 hours a day. This makes it easy for the researcher to explore how health care professionals manage patient information in order to establish the potential obstacles and make recommendations that could be of benefit to the hospital to improve the quality of the services rendered.

### **1.3 PROBLEM STATEMENT**

Hospitals can be viewed as an environment that provides health services to all, and patient information management is one of the tools that will assist health service management to provide improved health services. This requires gathering, keeping and sharing patient information in the spirit of providing the needed health solutions to individuals. Over the past decades, the Gabonese government has implemented numerous health sector initiatives such as the construction of new facilities, renovation of the existing infrastructure, and developing comprehensive health insurance frameworks that ensure that almost 70% of the population is covered by the new insurance scheme. This has provided better access to the health services and contributed to improved quality of health. Unfortunately, the Gabonese public health sector has long been faced with various problems such as the lack of equipment and human resources, and poor functioning of departments in the hospital. The mismanagement of patient information causes hospitals to function below their normal standards. Patient records are not well kept, archive services are almost

non-existent in hospitals, and even where these happen to be available, the archivists are not appropriately trained. Hospitals do not have necessary tools for patients' information the management. The World Health Organisation (2012) explains that the lack of proper information management of patients in Gabon has affected the quality of service delivery within the health sector. In addition, the lack of exchange of data between hospitals within the country exacerbates the situation. In spite of numerous studies on patient information management and how it impacts on health service delivery, most especially in advanced countries, the existant literature on the possible impact of these various information management challenges in health service delivery in emerging/frontier economies has not been extensively explored. Furthermore, the literature that examines the context in Africa and most importantly in Gabon is limited, and hence little is known about the potential impact of information management composition on performance and service delivery in Gabon. There was thus a need to critically examine the information management situation of hospitals within the Gabonese health sector since understanding how these factors come into play in health services could be useful to government, academics, and practitioner research. In line with the above problem, this study seeks to investigate the practice of patient information management at the University Hospital of Libreville.

#### **1.4 PURPOSE STATEMENT**

The purpose of this study was to investigate the factors leading to the problems being experienced in patient information management at University Hospital of Libreville. It was the responsibility of the researcher to:

1. Present findings on patient information management at University Hospital of Libreville.
2. Interpret and analyse the findings on patient information management at University Hospital of Libreville.

3. Recommend strategies for consideration regarding patient information management at University Hospital of Libreville.

### **1.5 RESEARCH QUESTIONS**

From the above discussions, the proposed study will be guided by the following questions:

1. What are the factors leading to the problems being experienced in patient information management at University Hospital of Libreville?
2. What are the trends in patient information management at University Hospital of Libreville?
3. What are the strategies for consideration in patient information management at University Hospital of Libreville?

### **1.6 SIGNIFICANCE OF THE STUDY**

The main objective of this study was to investigate the factors leading to the problems being experienced in patient information management at University Hospital of Libreville in Gabon. This research is considered relevant because many problems in the society are connected to the well-being of the population. Patient information management could be one of the strategies to ensure service quality in the hospital. The researcher has chosen to conduct this study because the efficacy of the health system contributes to the overall development of the country. Identifying the factors that impede adequate patient information management at University Hospital will contribute to the delivery of an improved health service to the citizens of Gabon. The question of the development of health services in public hospitals in Gabon is necessary and important to understand the performance of this sector, particularly within the public structures.

Specifically, this dissertation will make three areas of contribution to knowledge. Firstly, the findings from this study as explained under the

objectives will make an empirical contribution to the existing body of knowledge on the subject. Most research that is undertaken on the above subject is done in developed economies such as the United States, the United Kingdom and Canada. Little is known about how PIM affects quality health service delivery in developing countries like Gabon. Developed countries are mostly characterized by established health care system frameworks, proper regulations and supervision and stringent reporting standards as stipulated in their various Acts. In contrast, developing countries exhibit weaker information processing tendencies, and a lack of infrastructure, technology and skills. Applying the frameworks of developed economies to developing countries' phenomena could thus be highly misleading.

Second, developing comprehensive health sector policies and strategies requires a detailed understanding of issues as they are experienced at the implementation level. The findings from this study could be useful to the Gabonese government in planning for the necessary information management systems to deliver better health care.

Finally, this study makes a theoretical contribution through the use of comprehensive and diverging theoretical frameworks. Using a single theoretical framework, as seen in many studies to define the topological space of a complex health system issue like factors affecting PIM is not adequate. This work will employ and merge the various characteristic domains of identified theories in literature to explain and link the variables of the research, leading to a more comprehensive understanding of issues.

## **1.7 CHAPTER OUTLINE**

A description of each section of the project study is provided below. Chapter 1: Introduction and Background of the study, presents the general overview of the topic. It provides the introduction, background of the study

and the rationale of the study. It also presents the problem and purpose statements, the research question on which the researcher focused to address the research problem, and the research objectives.

Chapter 2: Literature review provides a review of the literature that is linked to the topic and the potential theory which was used.

Chapter 3: Research methodology discusses the research approach used to conduct the study, the identification of the relevant population of the study, and methods of data analysis.

Chapter 4: Presentation of the findings presents the data that were collected through the methodology from the identified population comprising health workers from University Hospital of Libreville.

Chapter 5: Interpretation and Analysis of findings presents the results of the data obtained. Finally,

Chapter 6: Conclusion and recommendations provides the conclusion of the study and makes recommendations to University Hospital of Libreville regarding the practices of patient information management.

## **1.8 CONCLUSION**

This chapter presents the central focus of the research study - that is patient information management at University Hospital of Libreville - and covers the background information on how patient information is managed in different parts of the world such as the United States and in certain African countries. It explains the problem and purpose statement of the study, explains the research question and the significance of the study.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This section discusses two main points: the theoretical framework and the literature that is related to the research subject. The explanation of literature review and its significance is given, followed by discussion of theories of information management which can be applied to patient information management and explores the concepts linked to patient information management.

Onwuegbuzie, Leech, Bustamante, Collins and Combs (2010) defines literature review as a record of studies available in documents, photographs, videos and drawings which align with the research being done. These documents can be both published and unpublished (Onwuegbuzie, et al., 2010). The literature review links information on the current topic to previous research (Ridley, 2008). All the information recorded must be presented clearly by linking it to the current research subject (Onwuegbuzie et al., 2010).

According to Onwuegbuzie and Frels (2011), one of the goals of the literature review is to enable the researcher to explore all the points that align with the research. This exercise assists the researcher to focus on the area of investigation, and also to select information that is important to the research. The perspective of the research might be explained by identifying the information that is not available in the previous studies (Onwuegbuzie et al., 2010).

Drawing on all these definitions and goals that discuss and explain literature review in multiple approaches, this literature review draws on

information from different sources in relation to the subject. The Oxford English Dictionary defines research as a discovery of knowledge from different sources so as to form evidence and provide new conclusions. According to Onwuegbuzie et al. (2010), literature review involves selective information that represents the knowledge of the topic.

## **2.2 SIGNIFICANCE OF LITERATURE REVIEW IN RESEARCH**

The Oxford English Dictionary defines research as the systematic investigation into and study of materials and sources in order to establish truth and reach new conclusions. It is that process where literature review is one of the steps (Creswell, 2002). Literature involves selective information that represents the knowledge of the topic (Onwuegbuzie et al., 2010). Doing a review is helpful to identify the methodology and theory that are relevant to conduct the study (Hart, 1998). The topic is decided by identifying the problem and developing the research questions (Maxwell, 2005).

Regarding the current subject of patient information management, the literature review will explore areas like health administration, information management, health care information systems, information management and technology. As cited by Onwuegbuzie et al. (2010) the researcher has to select salient literature in order to provide an effective review.

## **2.3 THEORETICAL FRAMEWORK**

Theory plays a fundamental role in research. It is a set of ideas proposed to explain an aspect or a study (Oxford English Dictionary Online). Swanson and Chermack (2013) argues that theory has been established to understand, clarify and predict phenomena.

A framework is an indispensable outline of items which support an approach or an object (Oxford English Dictionary Online). The framework

is an approach that develops the concepts which are relevant to the research problem. In this regard, the theoretical framework is the arrangement of the theory that assists in conducting a research study (Swanson and Chermack, 2013). The theoretical framework will be built by developing areas or aspects that are significant to the research.

Information management engages different actors and tools. Firstly, in a study by McMullan (2006), it appears that health professionals collaborate with patients to analyse information. Raynor, Silcock, Knapp and Edmondson (2007) suggests that the health professionals are implicated in improving the quality of using medicines by drawing on patient information. Thus, health professionals can be viewed as actors to be engaged in patient information management. Secondly, the information management involves technology systems which are central factors in health information management. Information technology systems in the health environment impact on care quality and patient outcomes (Chaudhry, Wang, Wu, Maglione, Mojica, Roth and Shekelle, 2006; Buntin, Burke, Hoaglin and Blumenthal, 2011). There are two main factors involved in patient information management: technology and human resources. Many theories have been applied in the field of information management or health information management. Theory of motivated information management (TMIM), organizational theory, social cognitive theory and sociotechnical theory will be the focus of this research.

### **2.3.1 Theory of Motivated Information Management**

The Theory of Motivated Information Management (TMIM) is a theory presented in 2004 by Afifi and Weiner (2014). It is a psychological theory that studies the relationship between information management and uncertainty (Guerrero, Andersen and Afifi, 2011). This theory examines issues of elderly care, sexual assault, organ donation and similar (Afifi and Robbins, 2014).

TMIM entails three phases, namely the interpretative, evaluation and decision phases (Afifi and Weiner, 2006). Each phase contributes to the process of information management (Afifi and Weiner, 2006). Theory of motivated information management can be viewed as the combination of these three phases in order to evaluate and provide information (Littlejohn and Foss, 2009), as supported by Guerrero et al. (2011) who suggests that the level of uncertainty motivates people to manage the information that they have.

Although the theory of motivated information management is a young concept, two studies based on the theory have been identified in the recent past. Tokunaga and Gustafson (2014) undertook research into the theory of motivated information management where the purpose of the study was to investigate whether predictions of theory of motivated information management are consistent across various relationship types, and examined whether the predictive process of offline interpersonal information seeking is articulated in the theory of motivated information management, as applied to a mediated context. The TMIM was tested in conversation about family health history and it appears to be useful when it comes to the search of information (Rauscher and Hesse, 2014).

The theory of motivated information management is applied in many studies of information management. However, in the case of patient information management, it will be for the research to identify one system in the hospital and explore how, for example, the health professionals use the tools available in the service to manage the patient records.

Regarding the above discussion, the theory of motivated information management will not be appropriate for the study because the areas that deal with the research problem do not align with the purpose of the theory.

### 2.3.2 Organisational Theory

The history of Organizational Theory dates back to the nineteenth century in Europe and the United States. Its approaches derive from sociologists and economists (Hatch and Cunliffe, 2012). Some authors like Durkheim, Marx and Smith have contributed to this theory (Hatch and Cunliffe, 2012), where organisational theory is a collection of theories that involve culture, social structure, technology and physical structure. According to Hatch and Cunliffe (2006), organisational theory combines different knowledge from multiple subjects such as sociology, economy, political science, biology, psychology and engineering. It can also be applied to the field of public and business administration, education, health care, the arts and social science (Shafritz, Ott and Jang, 2015).

The broad theories within organisational theory are:

- Classical organisation theory;
- Neoclassical organisation theory;
- Organisational economic theory;
- Human resource theory or organisational behaviour perspective;
- Modern structural organisation theory;
- Power and politics organisation theory;
- Theories of organisational culture and change;
- Theory of organisation and environment; and
- Theory of organisation and society.

Each theory provides a specific perspective and approach of an organisation (Shafritz et al., 2015).

According to Shafritz et al. (2015), the main approach of the theory is the interaction between the organisations and their environment. According to Hatch and Cunliffe (2013), organisational theory is applicable in marketing,

finance, information technology, operations, human resources and communication.

There is a broad range of studies that draw on organisational theory in the health care environment. Ratnapalan and Uleryk (2014) suggests that the theory of organisational change leads to organisational learning; that theory is useful in the health care sector in order to contribute to knowledge sharing, communication and promote health care quality. Fatkin (2012) inspects the medical libraries in America and concludes that organisational theory has the potential to achieve health improvements.

Borkowski (2015) argues that organizational theory is the theory which examines an organisation at the macro level. Organisational theory seems to be complex as regards its content. However, at all times the theory can be applied to patient information management pertaining to one of its areas of applicability, which is information technology. In this research many aspects of the hospital will be explored such as the human resources and the technology systems available in the infrastructure where the study is located.

It is the view of the researcher that the organisational theory is not applicable and will be inadequate for the research purpose. The study on patient information management requires attention to be given to specific areas and not to all hospital infrastructures. Thus, if the researcher identifies one theory in that present group of theories as relevant, then the research can be conducted according to that particular theory.

### **2.3.3 Social cognitive theory**

Social cognitive theory was developed by Alfred Bandura (McAlister, Perry and Parcel, 2008). This theory is characterized by interaction between people, behaviour and the environment (Pajares, 2002).

Social cognitive theory suggests that people can change and amend their behaviour by observing others (Thompson, 2014). Bandura (1997) argues that this theory influences how people view other people and themselves. McAlister et al. (2008) argues that it is where compoment is determined by dynamic relations between people and their environment.

According to Glanz, Rimer and Lewis (2002) and McAlister et al. (2008), the core concepts of social cognitive theory include:

- Environment factors;
- Situation;
- Behavioural capability;
- Expectations;
- Self-control;
- Observational learning;
- Reinforcements;
- Self-efficacy;
- Emotional coping responses; and
- Reciprocal determinism.

Nabi and Clarck (2008) notes that observation can impact negatively on people's behaviour. Another criticism of social cognitive theory posits that there is a lack of explanation about the relationship between social cognition, people, environment and personality (Boundless.com).

Observational learning is an aspect of social cognitive theory which suggests that by watching other people certain behaviours are acquired (Glanz et al., 2002). Roger, Shah, Dunnington, Grieve, Shanmugham, Dawson and Courneya (2005) suggests that observational learning has a benefit for the treatment of patients with breast cancer.

Thompson (2014) points out that social cognitive theory is reliable in health communication. Bandura (2004) discusses health promotion through social cognitive theory which suggests that the management of people's health behaviour is an advantage for people. This is done through management by cognitive concepts such as self-management, self-regulation and self-efficacy. Bandura (2004) points out that social systems can affect human health.

Social cognitive theory is associated with people, behaviour and the environment. This theory will thus be appropriate in conducting a study on patient information management. Regarding its concepts as mentioned above, the concept of environment that is viewed as physical environment (Glanz et al., 2002) can also refer to hospital. Thus, exploring the hospital environment will be necessary to improve the management of patient information. However, when considering the application of the study in the future, this theory will not be ideal to attain the goal.

#### **2.3.4 Sociotechnical theory**

The sociotechnical theory was articulated by Trist, Bramforth, Emery and others during the 1950s and 1960s (Lussier, 2015). More recently, extensive studies were conducted using sociotechnical theory to evaluate the impact of the usage of technology in such sectors (Baxter and Sommerville, 2010; Westbrook, Braithwaite, Georgiou, Ampt, Creswick, Coiera and Ledema, 2007).

Lussier (2015) notes that sociotechnical theory incorporates people and technology in analysis. Berg, Aarts and Van Der Lei (2003) points out that the sociotechnical theory is based on the relationship between technology and the social environment. In this regard the implementation of the technology system within an organisation can positively improve the provision of the services.

Jenkins, Walker, Stanton and Salmon (2012) observes that the concept of sociotechnical theory concerns people and society on one hand and machines and technology on the other hand. Sociotechnical theory has been applied in the health environment. Li (2010) explains that the sociotechnical approach was evaluated and indicates that the technology may contribute to change some negative aspects in health care organisation.

The importance of the sociotechnical theory approach in the health care environment was highlighted. As an example, in the implementation of the electronic record as a solution to performing health care services, Muhammad, Teoh and Wickramasinghe (2012) suggests that the sociotechnical approaches could deliver a better understanding of technology in health care systems.

The effectiveness of patient information management engages health professionals, technology and the services within the hospital as participants to improve the management of patient information.

In this regard, sociotechnical theory has an opportunity to improve the efficacy of health care services in managing information through its approach, which consists of the connection between people and social environment. This theory will be valuable for use in the research.

## **2.4 CONCEPTUAL FRAMEWORK**

Conceptual framework is an organisation of ideas that are constructed and used to conduct a study (Maxwell, 2013). This section provides the theory that can be used to inform an overview of health care information available in documents as well as exploring the field that aligns with patient information management.

### **2.4.1 Knowledge management**

Knowledge management (KM) and information management (IM) are two different approaches. As defined by Henczel (2001), knowledge comprises the experiences and skills needed to develop actions. The Oxford Dictionary Online defines knowledge as being all experiences and values which can be used to assess matters. Knowledge management aims to accomplish objectives by using knowledge (Introduction to Knowledge Management, 2007). It refers to actions that use knowledge to realize goals related to addressing market challenges (Greiner, Böhm and Krcmar, 2007). Knowledge management has been discussed by Omotayo (2015) as being an advantage tool which leads to the success of the organisation. Serenko, Bontis, Booker, Sadeddin and Hardie (2010) argues that technology is one of the tools which promotes knowledge management.

Ekta (2011) suggests that knowledge management includes information management and personal management. The research will focus on information management which is identified by Singh (2007) as being a field that concerns the management of information from different documents, and both internal and external records.

### **2.4.2 Health Administration**

Health administration is that part of the health care system which is dedicated to providing a health care service of high quality to patients (Keating, Landrum, Lamon, Bozeman, Krasnow, Shulman, Brown, Earle, Oh, Rabin and McNeil, 2011). Tuerk, Fortney, Bosworth, Wakefield, Ruggiero, Acierno and Frueh (2010) suggests that health administration plays an important role in knowledge management within the hospital setting, based on the characteristics of health administration which are to co-ordinate and share the health information. Furthermore, the role of

health administration is to provide quality care to patients. Additionally, Keating et al. (2011), on comparing data from the private sector and the Veterans health administration on patients with chronic illness, found that the care provided by the Veterans health administration is comparable with or better than the private health sector in the United States.

Regarding the above findings, health administration is a central aspect of health information management and quality of care. The organisation of health administration can thus impact on patient information management. For this study, it will be necessary to explore the structure of health administration at the University Hospital of Libreville which is the focus of the research in order to highlight what has been done already and identify any gaps in knowledge.

### **2.4.3 Brief overview of information management**

There are a number of definitions of information management. According to Letelier (2011), information management is utilised to find, store and make information available. Detlor (2010) defines information management as the process of acquiring, organising, storing, distributing and using data. Best (2010) argues that the purpose of information management is to collect, analyse, conserve and make information accessible according to the sphere of interest.

Extensive research has been conducted on information management in different sectors. In the health industry, the management of information within the hospitals can be useful in providing good services to the patients. Archer, Fevrier-Thomas, Lokker, McKibbin and Strauss (2011) conducted a study to demonstrate how patient information can be used to improve the services in the hospital and found that patient information is one of the ways of improving the performance of such services. Similarly Mithas, Ramasubbu and Sambamurthy (2011) explains that information

management influences company performance and suggests that information management is beneficial for improving systems within the company and in particular in relation to customer services.

Several studies show that technology is linked to information management and enables data sharing. Buntin, Jain and Blumenthal (2010) identifies information technology (IT) as a critical tool for information management and posits that in the health sector, the implementation of information technology can improve services by giving accessibility and improving health quality. Krestyaninova, Viksna, Kurbatova, Rucevskis, Neogi, Gostev, Perheentupa, Knuuttila, Barrett, Lappalainen, Rung, Podnieks, Sarkans, McCarthy and Brazma (2009) suggests that information systems were historically integrated to manage data from laboratories for biomedical studies.

From the above discussion, it appears that information management impacts positively in different areas. Improved information management at University Hospital of Libreville could thus be beneficial to that institution. This will be made possible by the implementation of a rigorous technology system that will allow for the improvement of services, quality of data and enhancing data sharing between hospitals, thereby making information available to assist in the provision of improved health care to the hospital community.

#### **2.4.4 Patient information management**

Patient information management is a process that includes obtaining, storing and analysing patient information (ahima.org). This collection of information is undertaken in different ways but more recently the most utilized method is the electronic method, as this is considered more adaptive to managing health information (Pagliari, Detmer and Singleton, 2007). Many hospitals have adopted and adapted similar methods, more

especially in developed countries. Ludwick and Ducette (2008) examines the outcomes of this tool in seven countries and concludes that the performance of using the electronic system is the same in each country.

Among these studies, there is a consensus that technology is implemented as a solution to improve the management of health information. Jacobson, Ito, Maki, Orringer, Bays, Jones, McKenney, Grundy, Gill, Wild, Wilson and Brown (2014) discusses the application of health information technology as a method used to share information in order to guide patients. Several investigations in the health sector support the use of information that is managed through health information technology (Cohen and Stussman, 2010).

#### **2.4.5 Technology and patient information management**

Technology has the potential to improve services in a hospital (WHO, 2012). Use of technology in the hospital was implemented some years previously (Haux, 2006). According to Blaya, Fraser and Holt (2010), use of technology in health can be viewed as the set of electronic systems that have been in the health care industry for some time. Demiris, Afrin, Speedie, Courtney, Sondhi, Vimarlund, Lovis, Goosen and Lynch (2008) examines the use of technology systems to help in the management of specific diseases. Studies indicate that electronic communication contributes to improved design of health care processes. Numerous studies can be cited to support the fact that technology systems are essential in patient information management. Nkqubela, Herselman and Conradie (2010) reveals that technology systems are a need within health care in rural areas. Conceicao, Borges and Asscenco (2015) examines the influence of information systems in the management of patients' services in the hospital of Leiria.

From engaging with the various authors, the importance of technology in patient information management is clear. The research aims to determine which health technology systems are currently used in Libreville hospitals. There is a lack of information available in examining the case of Gabon, in particular the extent to which technology may or may not influence patient information management at the University Hospital.

#### **2.4.6 Types of medical records**

According to the World Health Organisation (WHO, 2002), medical records contain the information about the health of patients which can be used to track the patient, and plan health interventions as well as improve the services in the health industry. Having explored the literature available on the types of patient medical records, the study identifies two types of records: electronic records and patient paper records.

Mason and Pons (2010) defines patient paper records as referring to the non-electronic form where the patient health information is kept. Such files are often used in the hospital in less developed countries (Mason and Pons, 2010). NgouMveNgou, Mouba, Sima Ole, Moukala Pangou, Toung Mve, and Meye (2013) examines the impact of tuberculosis in pregnant women in Libreville, and the study reveals that data was obtained from the register of the patient records from the TB Centre.

There are numerous definitions updated to define electronic patient records. Pagliari, Detmer and Singleton (2007) posits that it is an application system by which people can obtain and transfer their information in privacy and confidence (Americans to their Healthcare, 2004). These electronic patient records or electronic health records are used in many countries and have their own benefits and impact on the health system. In American hospitals, as noted by Jha, DesRoches, Campbell, Donelan, Rao, Ferris, Shield, Rosenbaum and Blumenthal

(2009), the use of electronic records has improved the quality of care and the sharing of information. Hospitals in the United Kingdom also use electronic records. Sheikh, Cornford, Barber, Avery, Takian, Lichtner, Petrakaki, Crowe, Marsden, Robertson, Morrison, Klecun, Prescott, Quinn, Jani, Ficociello, Voutsina, Paton, Fernando, Jacklin and Cresswell (2011) reveals that despite numerous obstacles the use of electronic records has been implemented in all hospitals in the United Kingdom. In the African context, electronic records were used in Malawi and almost 42,834 files of patient information were registered in the case of provision of antiretroviral therapy (Douglas, Gadabu, Joukes, Mumba, McKay, Ben-Smith, Jahn, Schouten, Landis Lewis, Van Oosterhout, Allain, Zachariah, Berger, Harries and Chimbwandira, 2010).

The anticipated impact of these systems in obtaining patient information relates to higher cost and the time spent by the user learning to make use of electronic records (Anderson, 2007). For instance, for the forma paper, the folder must be safeguarded from any risk of fire (Mason and Pons, 2012). Nonetheless, in summary, electronic records have been adopted in a number of health systems, including in some African countries, for purposes of improving patient information management. Hence focussing on the articles is considered necessary to the issue of improving patient information management at University Hospital in Libreville.

#### **2.4.7 Patient information management in the United States**

Patient information management is an important element that needs serious attention in the medical process (Smolij and Dun, 2006). The management of patient information is applied in different ways in each country.

For instance, in the United States, patient information management is made possible through technology systems. The American government

has spent almost \$19 billion to develop health information technology (Kaplan and Harris-Salamone, 2009). Jha et al. (2009) observes that patient information is managed by electronic systems. Chen, Garrido, Chock, Okawa and Liang (2009) examines the impact of electronic records on ambulatory care. The data was taken amongst an entire membership in 2004-2007 in Hawaii and revealed that the number of calls, visits and messages from patients was higher in 2007 than 2004. Darkins, Ryan, Kobb, Foster, Edmonson, Wakefield and Lancaster (2008) asserts that health informatics enables hospital management to provide good care, manage disease, and promote patient self-management. In addition, Kelley, Brandon and Docherty (2011) points out that hospitals in the United States are expected to use electronic nursing documentation because it enables improved quality of care.

In the United States patient information is processed through informatics systems made available through the health infrastructure. At this point the level of patient information management in the Libreville Hospital cannot be compared to the American system. However, as Greenhalgh, Potts, Wong, Bark and Swinglehurst (2009) explains, a system cannot operate itself, but requires human assistance.

#### **2.4.8 Patient information management in Africa**

Many authors have written about health in Africa. Countries in Africa have challenges within the health sector especially the less developed countries (Schneider, Blaauw, Gilson, Chabikuli and Goudge, 2006). Gething, Noor, Gikandi, Ogara, Hay, Nixon and Atkinson (2006), in the case of their investigation into health management information systems in Africa, argues that the system of information management is present in African countries but it is struggling to provide the right data. There are, however, some countries that are an exception.

One such example is the South African health system which is constantly evolving. Notably, it is characterized by decentralized services and combined with the public and private sectors (Coovadia, Jewkes, Baron, Sanders and McIntyre, 2009). The South Africa model compares well with European or American countries in health information management. Boulle, Van Cutsem, Hilderbrand, Cragg, Abrahams, Mathee, Ford, Knight, Osler, Myers, Goemaere, Coetzee and Maartens (2010) uses the data from the electronic patient information system to conduct their study on antiretroviral treatment programmes in Khayelitsha, South Africa. Lessells, Mutevedzi, Cooke and Newell (2011) have undertaken research based on data available on the programme database.

Although there has not been extensive examination of how patient information is managed in South African hospitals, there is a significant level of management in place.

#### **2.4.9 Patient information management in Gabon**

In Gabon the health sector is characterized by the correct disposition of health structures across the whole territory. This system includes four areas: public, private, semi-public and paramilitary sectors (Musango and Aboubacar Inoua, 2010). Despite appropriate location of facilities, the Gabon health system faces numerous challenges, including poor management of patient information.

Medical records in Gabon are still in paper form despite the development of technology systems within the health industry. Mason and Jonathan (2012) discusses ophthalmology services where the patient information is paper-based. The World Health Organisation (2014) points out that one of the goals to achieving optimal health care in Gabon is the implementation of a sustainable system of health information. Additionally, in its report (2014) the World Health Organisation found that the information in the

Gabon health care system is dysfunctional. Ndonghan Iyangui, Clanet and Kombila (2011) argues that there is some mismanagement of information amongst patients who had malaria during the colonial period. A further example is where Ngou Mve Ngou et al. (2013) found that there was a lack of information about pregnant women with tuberculosis.

In the Gabonese context it is difficult to evaluate the information systems available for patients in the hospitals. However, according to the information found in articles and reports, it is clear that there is mismanagement of patient information in the health sector. The development of patient information management will therefore address numerous areas such as information systems, human resources (the skills or knowledge of the health professionals) and the quality of the infrastructure (the hospital). The adequate quality of all these elements is essential for conducting the study in order to improve the quality of the management of patient information at the University Hospital of Libreville.

## **2.5 CONCLUSION**

The literature explores how patient information management is undertaken in different countries, and highlights the factors that should be considered to drive patient information management in the Gabonese case and especially at University Hospital of Libreville. However, it is clear that there are many areas that engage with patient information management within the hospital.

The literature indicates that health technology systems are found in patient information management, but also in performing services delivery to patients within the hospital. The literature also points out that despite challenges faced by a number of countries in Africa some of them have a significant level of patient information management.

The literature has addressed patient information management. The researcher considers this study of patient information management important because it will help with improving service delivery and promoting quality care within the hospital. Developing these services is important in the Gabon health sector as there are obstacles that undermine the improvement of the country's health infrastructure.

The main challenges in enterprise patient information management have been identified as being the information technology systems. Technology and patient information management are interconnected and both are regarded as being indispensable for the development and performance of health services provided to the population.

The literature indicated the importance of using socio-technical theory in the research to achieve the objectives of the study.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

The main objective of the study was to investigate the factors leading to the problems being experienced in relation to patient information management at University Hospital of Libreville. This chapter focuses on the research method used in the study. It explains the quantitative and qualitative research approaches, the research design considered for the study and describes the data collection method that was used. It also explains data presentation, data analysis, validity and reliability, limitations of the study, and ethical considerations.

#### **3.2 APPROACH TO RESEARCH**

Khan (2008) argues that research can be considered as a tool which assists the researcher to understand the phenomena under investigation. It is applied to guide the researcher to address a problem on the basis of scientific rigor. In addition, the research draws on a particular structure that was followed by the researcher in order to provide a report at the end of a process.

In this study, the methodology was chosen as informed by the research problem, which is the identification of the challenges in relation to patient information management at University Hospital of Libreville. This part of the work informs the procedure that was selected to undertake the study in order to answer the research question. Conducting research can be done using one of two main approaches: the quantitative and qualitative methods.

### 3.2.1 Qualitative method

The qualitative research approach emerged from thinking around sociology and anthropology (Merriam, 2009). In contrast to the quantitative method, qualitative approach originates from the constructivism and interpretivism view of the world (Bradford, 2011; Merriam, 2009). These philosophies suggest that the social reality can be constructed and interpreted according to the opinions of people. According to Creswell (2013), qualitative research approach is a method that is adopted to explore and examine the perceptions of individuals regarding the social reality. Creswell (2013) notes that qualitative data is based on exploring and understanding the social reality and that the purpose of the study is to:

- Explore the social reality;
- Understand the phenomenon in detail;
- Obtain the views of participants about social reality; and
- Study the phenomenon in its natural setting.

The principal characteristic of qualitative research methodology is that the researcher studies the phenomenon according to the opinions given by individuals (Merriam, 2009). Other characteristics of qualitative methodology highlighted by the same author are through data gathering using different methods, building up a credible theory, the researcher is the tool of collection and analysing data, the researcher is able to describe the social reality in detail, the design of the study can be changed during the study process and the sample is made by the researcher in accordance with the purpose of the study.

According to Anderson (2008) the qualitative research method has several limitations:

- The research is subjective. It is based on people's views and the researcher is involved during the study process which may impact on the rigour of the study.

- The results are sometimes contested.
- The process of analysis takes time.
- It can be difficult for the researcher to interpret the discoveries.
- Confidentiality can be a problem during data presentation.
- During the process of data collection the researcher can influence the respondents.

The other limitations of the qualitative research method are that the sample is small and often selected by the researcher (Merriam, 2009). In the qualitative approach there are many ways of designing the study. According to Creswell (2013) qualitative research design is based on five different approaches:

1. Narrative design which is based on humanities philosophies where the researcher conducts the study to obtain individuals' opinions about their life.
2. Phenomenology research from psychology and philosophy, which is undertaken to describe the phenomenon according to the views and experiences of people.
3. Grounded theory based on sociology roots is embraced when the researcher has a motivation regarding the observers' opinions.
4. Ethnography research has its origins in sociology and anthropology and is where the research seeks to explore the belief of participants in their natural setting.
5. Case study is developed when the researcher wants to study the case in depth.

Sampling in qualitative study is often the responsibility of the researcher. The most widely used is purposeful sampling which is done according to the purpose of the study. The researcher selects the appropriate individuals on which data will be gathered (Merriam, 2009).

Qualitative research collects data through many methods such as documents, interviews, observation and the investigator (Merriam, 2009). Documents involve the exploration of newspapers, reports and journals that the researcher can use to add information about the research topic. The interviewer obtains information from individual interpretations, focus group information, telephone or face-to-face interviews. Observation refers to recording people's behaviour in their natural setting (Creswell, 2014).

Data analysis in qualitative methodology relies on the process of coding and organising data from sources in order to present them in different forms which involve five periods, namely:

- Organising data;
- Reading data;
- Classifying data by codes;
- Interpreting data; and
- Presenting data.

The importance of using this method is that the research is able to explore the case in depth, information gathered during the study process can provide a new orientation for the research, the results can be transferable, the researcher can get all the information about the topic, the interview questions are not pre-determined, and data relies on individual experiences of the social reality (Anderson, 2010).

### **3.2.2 Quantitative method**

The quantitative method is one of the processes that can be used to conduct a study. That method is usually engaged in the research to measure or examine a social reality by testing theory and quantifying the relationship between variables (Creswell, 2014). Merriam (2009) argues that quantitative method is used to examine the extent of the manifestation of a phenomenon in the society.

Quantitative method has its roots in the positivist philosophical view of the society which assumes that the social reality has to be studied as material by observation and not explanation (Bradford, 2011). In addition, positivism accepts that there is a distance between individuals and social reality and it has to be studied according to the process of natural science (Neuman, 2011). According to Merriam (2009), the positivist approach believes that the phenomenon can be observable and measurable in the reality. Neuman (2011) argues that the positivism approach is based on the natural observation of the phenomenon. That means the researcher must observe the social reality without taking on the opinions of individuals.

Quantitative research has been discussed by Burke and Larry (2012) as a study which seeks to principally assemble quantitative data, but also relies on testing empirically the hypotheses by confirming or rejecting them. Hypothesis in quantitative methodology is the prediction or proposition made by the researcher about the research question (Creswell, 2014). There are different types of hypothesis:

- Causal hypothesis;
- Null hypothesis;
- Alternative hypothesis; and
- Non-directional hypothesis.

Furthermore, Creswell (2014) contends that quantitative approach refers to the explanation of the social reality through the mathematical method. In addition, Neuman (2011) states that data in quantitative methodology are collected in numerical form according to the processes established by the researcher. Quantitative research methodology is used when the study seeks to explain, measure and analyse the phenomenon and the measurement links the observation of the variables in reality (Yilmaz, 2013). Measurement is linked to the observation of the variables in reality (Creswell, 2013). Neuman (2011) discusses variables as a concept that

has different values and can be measured empirically. There are three variables linked to a social reality:

- Independent variable;
- Dependent variable; and
- Intervening variable.

Quantitative design is based on two main approaches: descriptive and experimental research (Wayne and Adams, 2015). Experimental research design involves pre-experimental research and quasi-experimental research (Neuman, 2011; Creswell, 2014). Experimental studies are conducted to test theory in order to highlight the factors that impact on the prediction of that theory (Creswell, 2014). Bernard (2013) argues that experimental design involves various approaches, and is used when the study seeks to investigate the variable that has influence. Merriam (2009) observes that the design in quantitative studies is pre-established by the researcher, while descriptive research relies on the numerical description of a social reality by conducting a study on a part of a target population (Creswell, 2014). In addition, Neuman (2011) argues that it concerns the process of gathering people's opinions by using the same method and examining these views.

Sampling procedures are defined by Neuman (2011) as a process of selecting a group of people on which the researcher seeks to conduct a study in order to generalize the result to the population. Merriam (2009) explains that in quantitative research the sample is often large and representative of the study population. In quantitative research there is a range of sampling methods:

- Random sample;
- Stratified random;
- Systematic random; and
- Cluster random.

Usually, quantitative method gathers data from questionnaires and surveys which are analysed according to the mathematics/statistical procedure (Yilmaz, 2013). In addition, quantitative research uses the deductive approach during the research process (Merriam, 2009). That means the research begins by adopting a theory and formulating hypotheses which will be tested during the observation process (Ritchie, Nicholls, Lewis and Ormston, 2013)

The advantages of using the quantitative method are based on the sample. In quantitative research, the investigator uses a large sample to involve an important part of the population in the study in order to generalize the results (Merriam, 2009).

The limitations of quantitative research are that it does not give participants an opportunity to use their own words to explain or give an answer regarding the manifestation of the phenomenon in the society (Yilmaz, 2013). The design of the study cannot change because the researcher is guided by the pre-structured approach (Merriam, 2009).

### **3.3 RESEARCH DESIGN**

According to Creswell (2014), qualitative, quantitative and mixed methods are the main research approaches that can be adopted to conduct a study and refers to the strategy that can be applied by the researcher to organize the research. This study sought to investigate the factors leading to the problems being experienced in patient information management at University Hospital of Libreville. Thus, despite the limitations of a qualitative approach method, the study used a qualitative approach to conduct the study. The advantages of qualitative over quantitative methodology and the nature of this study provided the main motivation for the selection of the qualitative approach.

Hennink, Hutter and Baley (2011) argues that qualitative research aims to discover the opinions of people concerning a particular case in their natural environment. Hence, qualitative methodology was suitable for the researcher to investigate the case of patient information management at University Hospital of Libreville by asking the individuals involved in the process. Furthermore, Kumar (2014) contends that conducting a qualitative study is not to quantify the phenomenon but to explore it and the use of exploratory study is conducted when there information about the subject is limited. The use of the qualitative approach helped to explore the process and to understand the problems experienced regarding the procedures regarding patient information management at University Hospital of Libreville. It was helpful, therefore, to reach the fixed objective that health professionals were able to explain their own experiences concerning patient information management at the hospital.

Creswell (2008) defines a research design as a plan which is set up by the researcher to collect and analyse data. According to Wagner, Kawulich, Garner and Botha (2012), research design guides the researcher on how the investigation will be conducted. In other words, it refers to approaches that will be taken by the researcher to conduct the study. In the qualitative research method, grounded theory, case study, phenomenology and research and ethnography are part of the research design (Creswell, 2013). This study used the case study approach. Creswell (2008) consequently defines case study as an approach in which the researcher has the possibility to explore the phenomenon in depth. The research study was drawn on patient information management as a case study in University Hospital of Libreville in Gabon. The study examined how health professionals from different departments in the hospital manage patient information. Applying a case study approach, the study explored the practice of patient information management by the health professionals.

According to Hancock, Windridge and Ockleford (2007), a case study in health can be conducted to develop new services in the hospital. Moreover, case study was appropriate to this study because there is not much information on patient information management at University Hospital of Libreville and it allowed the researchers to study patient information management in depth at the specific location in order to identify the factors that may contribute to problems with patient information management.

### **3.4 DATA COLLECTION**

In qualitative research there are different approaches for obtaining data such as focus groups, interviews, documents and observations. According to the purpose of the study, the research used primary and secondary methods as techniques of obtaining data in order to answer the research question.

Primary methods of data collection have been defined by Wilson (2014) as being interviews, questionnaires and observation. Thus, the research used interviews and observation as its primary methods.

#### **3.4.1 Interview**

The interview as a technique of data collection is used to obtain the interpretation of people on a specific social reality (Stewart, Gill, Chadwick and Treasure, 2008). It allows the researcher to have direct contact with the possible participants. With this technique the health professionals were interviewed according to the sample which was selected to obtain their views on the practice of patient information management in the various departments at the hospital and to identify challenges in patient information management in their services. The interview was piloted in four services of the University Hospital of Libreville. Before engaging the interview process, the researcher clarified to the respondents the

importance of conducting the research study and why their views and experiences were necessary. The interview data collection consisted of 20 interviews conducted over a period of two weeks. A semi-structured interview was used and the questions were written in the simplest way to ensure the comprehension of the interviewees.

### **3.4.2 Observation**

The technique which is used to explore the realities in a natural setting (Paradis, O'Brien, Nimmon, Bandiera and Martimianakis, 2016; Walshe, Ewing and Griffitchs, 2011) is observation, also as a method of data collection that enables the researcher to obtain clarity regarding the social realities. The researcher directly observed the staff's management on patients' information. The observation took place within the services at University Hospital of Libreville at its natural setting. This gave the researcher the opportunity to explore the procedures related to patient information management within the services. The main focus of data collection over observation technique was to explore how patient information management is done within the hospital services at University Hospital of Libreville with regards to the recording and storing of patient information. The observation was done in a period of one week and the researcher spent three hours per day in each service. With this technique, the researcher also verified information collected with interview questions. An observation grid was used.

With the interview questions the researcher was able to obtain the views of health workers involved in patient information management about their experience in patient information management, and by observation the investigator explored how patient information management is completed within the services. Likewise, it allowed the researcher to identify the specific problem faced by each service when conducting patient information management.

Secondary data, on the other hand, are the information collected from different documents such as journals, reports and magazines (Wilson, 2014). In this study, the secondary data was used to augment the information obtained from the interviews and observation. Through those approaches it was possible to obtain information on factors leading to the problems being experienced in patient information management at University Hospital of Libreville.

### **3.4.3 Population**

The population concerns the people who are to be studied (Whitley and Kite, 2012). It is a group of people from which the researcher selects the sample in order to conduct the study (Neuman, 2011). The relevant population of this study was the health workers involved in patient information management at University Hospital of Libreville, and the total population was twenty. As they are daily in contact with patient information, they had the ability to present the problems experienced in patient information management within services at the hospital.

### **3.4.4 Sampling method**

Neuman (2011) explains that sampling is a method of selecting a small population from the whole population to conduct a study which could be either quota, convenience, self-selection, snowball or purposive. In this research study, the researcher used the purposive sample. Whitley and Kite (2013) explains that the purposive sampling concerns the choice of people to conduct the study agreeing to the purpose of the research. The project study sought to investigate the factors leading to the problems being experienced in patient information management at University Hospital of Libreville. However, the hospital comprises many departments and as such, it was difficult to engage all the departments. For this study

the sample was therefore selected from among the health professionals in different departments designated by the researcher. It was of benefit for the researcher to choose the interviewees according to the objective of the study. The sample contained five health professionals from each department of the hospital.

#### **3.4.4.1 Composition of the sample**

The statistics department of the medical affairs department was selected because the IT department of the hospital only handled the maintenance of the devices.

**Table 1: List of Departments & Participants**

<b>Department</b>	<b>Number of participants</b>
Emergency service	5
Gynaecology service	5
Paediatric service	5
Statistics Department of the Directorate of Medical Affairs	5

### **3.5 DATA PRESENTATION**

Data presentation of the study starts from the introduction of the study and concludes with recommendations.

**Table 2: List of Chapters**

<b>Sections</b>	<b>Purpose</b>
Chapter 1: introduction and Background of the study	This first chapter of the report presents the central focus of the research study - that is patient information management at University Hospital of Libreville. It covers the background, the problem and purpose statement of the study, gives the research questions and the significance of the

	study.
Chapter 2: Literature Review	This section discusses literature review of the study. It provides the theoretical framework and the conceptual framework.
Chapter 3: Research Methodology	This chapter is centred on the research approach that was applied to conduct the study. It aligns research design with ethical considerations.
Chapter 4: Presentation of Findings	This chapter presents the data collected from the identified population through the selected technique with the objective of identifying issues that impact negatively on patient information management at University Hospital of Libreville
Chapter 5: Interpretation and Analysis of Findings	This section provides the analysis and interpretation of the data presented in chapter four
Chapter 6: Conclusion and Recommendations	This final chapter provides the conclusion of the study and makes recommendations on patient information management at University Hospital of Libreville.

### 3.6 DATA ANALYSIS

There are numerous definitions of data analysis. In a qualitative study the analysis of data implies summarising of data collected in the narrative form, coding and explanation of data (Hancock et al., 2007). Bernard and Ryan (2010) argues that it concerns the interpretation of data collected through the selected process. The focus of the study was patient information management at University Hospital of Libreville. This was to highlight challenges and made recommendations. Based on the information obtained through interview and observation, data were analysed using codes and themes. Coding in qualitative data analysis could involve symbols and concepts that assist the researcher to

understand the research problem (Sullivan, 2009). Codes were represented in symbols that elucidated the practice of patient information management within hospital services. In fact, data from each data collection process were compared and analysed by using themes, and a conclusion was reached based on the findings. Regarding the purpose of the study it was helpful to establish the factors that influence patient information management at University Hospital of Libreville.

### **3.7 VALIDITY AND RELIABILITY**

Merriam (2009) explains that validity and reliability in the study relies on the methods of collecting, analysing and interpreting data as well as the presentation of findings.

#### **3.7.1 Validity**

Benz and Newman (2008) defines validity as the degree to which an instrument that attempts to be used to measure a phenomenon produces stable and consistent outcomes. Likewise, validity in the study is connected by the technique used in a research study (Hesse-Biber and Leavy, 2011).

##### ***3.7.1.1 Internal validity***

According to Merriam (2009), internal validity concerns the relationship between the outcomes of the research and the reality which involves the use of the appropriate instruments to measure what they were meant to measure. The researcher used the same interview question for all the participants. The researcher then transcribed the information so as to identify the similarities and the differences between the answers and develop themes.

### **3.7.1.2 External validity**

External validity in qualitative study is defined by Mayer (2011) as the generalizability of the results beyond the immediate study. It is measured by the tools used by the researcher to conduct the study (Montello and Sutton, 2006). The study was conducted at University Hospital of Libreville and the sample was chosen from the health professionals within the departments. The conclusions from this study will be generalizable to all the services and other public hospitals in Gabon.

### **3.7.2 Reliability**

Reliability, according to Gagnon (2010), relies on the explanation and examination of findings of the research. In other words, the reliability of a study refers to the procedures that were used by the researcher to analyse the data. The data from all interviewees and observation notes were interpreted independently of the views of the researcher.

The research utilised triangulation to test the validity of the study. Triangulation entails the use of different methods of obtaining data in order to compare them (Hays and Singh, 2010). According to Hesse-Biber and Leavy (2011), triangulation is the method of testing the validity of the findings in the study by including other methods to get information in order to compare them. The researcher used the interview and the observation to compare the findings to establish whether the responses of the interviewees and their practices in patient information management were the same.

## **3.8 LIMITATIONS OF THE STUDY**

The relevant population of this study should be the health sector in the whole of Gabon. However, due to the limited availability of funds and time for this study, the sample was drawn from University Hospital of Libreville only. A study on a single institution is not adequate for the purpose of

generalisation. Furthermore, questionnaires were given out to respondents in English and translating the questions to French and back to English could distort some details even though the researcher intended to personally administer the questionnaires through the interview process. Furthermore, the use of the chosen methodology could be a limitation to the work. The research adopted a qualitative approach and the size of the sample could be an obstacle to generalising the results to all the public hospitals. Further limitations may be the lack of documentation at the hospital concerning the selected area of investigation, as well as funds, as the researcher financed herself to complete this study. The study was undertaken in Gabon.

### **3.9 ETHICAL CONSIDERATIONS**

Neuman (2011) explains that ethical issues concern the arrangements which must be made by the researcher to conduct a study objectively. In this study the ethical issues were related to the consent and confidentiality of data collected. The respondents in the study were selected according to their involvement with patient information management at University Hospital of Libreville. To ensure their full consent, the researcher explained the purpose and the objectives of the study to all the potential interviewees so that they can participate freely. During the interview process, the researcher assured the interviewees that confidentiality will apply, that their identity will not be revealed and information will be used only for the study. The final report will be provided to the authorities of the University of the Witwatersrand and to the director of University Hospital of Libreville.

### **3.10 CONCLUSION**

The chapter discussed the methodology used to conduct the study. It starts by giving the explanation of quantitative and qualitative method. This research study was a qualitative study and sought to investigate factors

leading to the problems being experienced in patient information management at University Hospital of Libreville. The methods of data collection were through interview and observation. The sampling method approach was a purposive sample. The section offered arguments on data presentation and analysis. Validity and reliability were discussed as well as ethical considerations.

## **CHAPTER 4**

### **DATA PRESENTATION**

#### **4.1 INTRODUCTION**

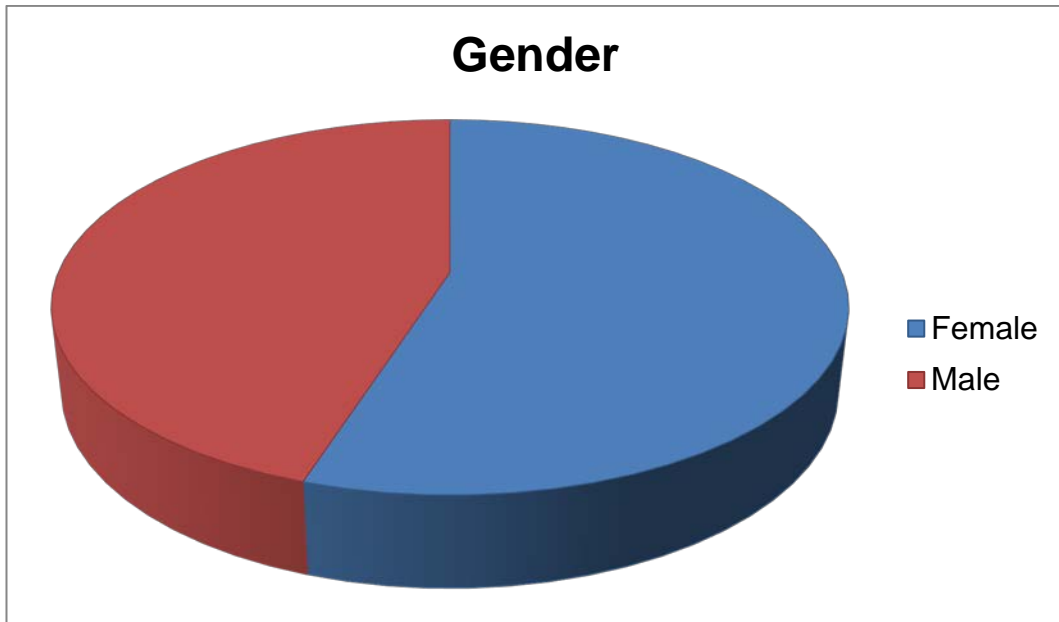
The chapter concentrates on the presentation of data collected through the selected method from the identified population comprising health workers involved in patient information management within services at University Hospital of Libreville. It provides the responses of the interviewees according to the questions organised to conduct the study and information from observation.

#### **4.2 PROFILE OF THE RESPONDENTS**

To reach the objective of the study, data on the factors leading to the problem being experienced in patient information management were collected. The sample was purposively selected from four services of University Hospital of Libreville. Five respondents per department were selected. Only the health professionals involved in patient information management were selected. Before engaging in the interviews the purpose of the study was explained to participants. The choice of the participants was directed by the fact that they are involved in the activity. The respondents were requested to give their position within the services as well. The participation in the interview was free, and each service selected received the approval letter. Of the 20 participants, the majority of the interviewees were nurses.

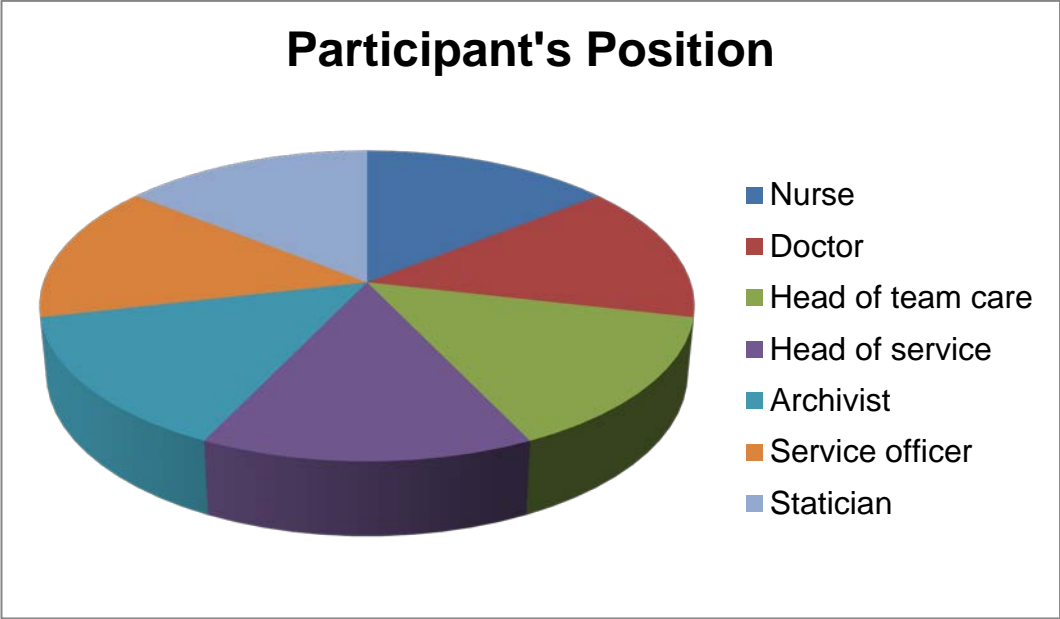
##### **4.2.1 Respondents gender**

Of the 20 participants, the researcher observed that the majority of the interviewees were female.



#### **4.2.2 Respondents category**

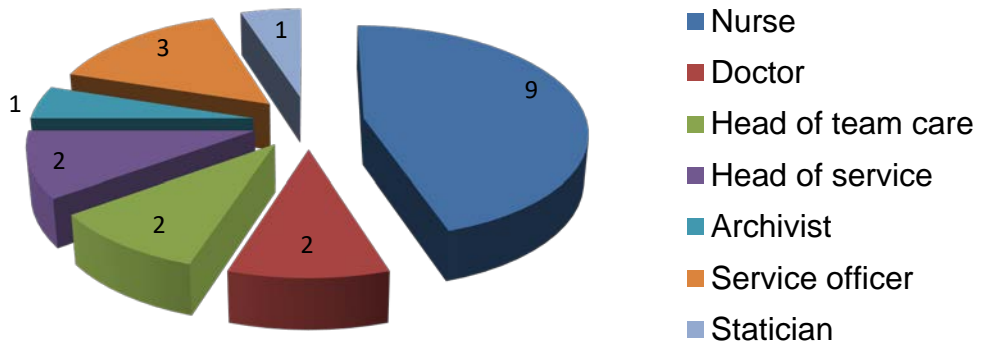
The study goal was to investigate patient information management at University Hospital of Libreville with the objective of obtaining the opinions of health care workers involved with the process. The categories of people that took part in the study were head of team care, nurses, doctors, archivist, statistician, service officer and head of service.



**4.2.3 Respondents position in the services**

Respondents were asked to give their position in the service. Most of the interviewees were nurses. This could be explained by the fact that they are the first in contact with patients.

## Participant's number per position



### 4.2.4 Code name of the respondents.

Codes were created and attributed to each participant. This was done to ensure the anonymity of the interviewee responses.

**Table 3: List of participants**

Number of participants	Services	Code name of participants
	Emergency service	
1		Es1
2		Es2
3		Es3
4		Es4
5		Es5
	Gynaecology service	
6		Gs1
7		Gs2
8		Gs3
9		Gs4

10		Gs5
	Paediatric service	
11		Ps1
12		Ps2
13		Ps3
14		Ps4
15		Ps5
	Statistics Department of the Directorate of Medical Affairs	
16		SDDMA1
17		SDDMA2
18		SDDMA3
19		SDDMA4
20		SDDMA5

### **4.3 FINDINGS**

The findings of the research study were based on the data obtained through interview questions and observation. These data were organized with the goal of answering the research questions.

#### **4.3.1 Presentation of interview data**

The main objective of the interview process was to get the view of health care workers on PIM at University Hospital of Libreville within services in order to identify the challenges that are experienced. An interview questionnaire was established and used with all participants. The questions allowed the interviewees to give their opinions on what they know about PIM, their perception of PIM on their services and their strategies to achieve PIM. As explained above, qualitative research is conducted to obtain the individual's opinion regarding the manifestation of

social reality in their environment (Creswell, 2013). Stewart, Gill et al. (2008) refers to two approaches of data presentation in qualitative research. The first approach is to present the findings by using themes while the other type of presentation involves the combination of themes and conversation during the interview. Thus, the answers of the questions were presented under the following themes.

#### ***4.3.1.1 Theme 1: Participants' knowledge on patient information management***

The question was, "According to you, what is patient information management?" The responses provided by each participant were different. The interviewees responded according to their knowledge. A few of them argued that it is the organisation of all information concerning a patient during his or her presence within the hospital service.

*Ps2 "Patient information management is that action of treating all the information concerning the patient during the clinical procedure".*

*Gs2 "It concerns the treatment of the information provided by the patient upon his arrival at the hospital services."*

Others had the same answer that shows their unfamiliarity with the concept.

*Ps4 "Patient information management concerns the communication between the doctor and the patient."*

*Es3 "It is strictly closed, and concerns that exchange between health professionals and patients".*

*SDDMA3 "It is patient medical field".*

#### **4.3.1.2 Theme 2: Involvement in PIM**

Most of the respondents had similar views. Firstly, they mentioned that the management of patient information is team work.

Gs5 *"All agents are involved in the process of patient information management"*.

Ps2 *"It is a collective work in our service"*.

SDDMA5 *"The tasks are assigned to each agent and the department head co-ordinates. We work together"*.

Furthermore, all the staff is involved.

Gs5 *"From the manager of the service and nurses"*.

Ps1 *"All the workers of the service (doctors, nurses, secretary and the archivist)"*.

Es4 *"Doctors and nurses..."*

SDDMA2 *"The manager of the service and the service officer"*.

They furthermore stated that apart from the staff, technology systems would be favourable for the achievement of the work. The respondents' views are shown below:

E2 *"To conduct patient information management there is a need to involve technology systems."*

G2 *"Technology system is implicated in patient information management."*

SDDMA4 *"Technology system is implicated."*

P4 *"IT tools like the staff is involved in patient information management."*

#### **4.3.1.3 Theme 3: PIM challenges**

There was a similar perception among the interviewees on the challenges faced by patient information management at University Hospital of Libreville. All the respondents were of the view that patient information management in their service is below the normal standard.

Es3 *"Patient information management is more or less well conducted but it would be better if technology system was involved."*

SDDMA3 *"Patient information management faced numerous difficulties that affect the reliability of the information."*

Ps5 *"Patient information management is not too good in our service."*

Gs1 *"Patient information management is not properly conducted in our service."*

The participants indicated that the level of PIM could be justified by the fact that elements that are involved to achieve patient information management are unavailable within services.

Es1 *"There is a lack of an archive room and an archivist in the service, the lack of a computer system that will keep data."*

Gs5 *"Lack of archive room in the service, the lack of the computer tool."*

Ps5 *"The lack of the IT tool and trained staff for that activity."*

SDDMA4 *“Lack of staff trained for that activity and lack of computer equipment.”*

#### **4.3.1.4 Theme 4: keys elements to facilitate PIM**

It emerged from the interviewees' opinions that all the services faced the same difficulties in trying to accomplish patient information management at University Hospital of Libreville. The participants suggested that to perform that activity, such elements as technology system equipment, trained staff and an archive room have to be established. The respondents' comments were:

Es2 *“To conduct patient information management the service should be provided with a well-equipped archive room, IT tool and skilled staff.”*

Gs4 *“An adequate IT equipment department in the service and an equipped archive room will be helpful to run patient information management.”*

Ps1 *“A trained staff, a computer system and an archive room that meet the normal standards will enable the activity to be carried out well.”*

SDDMA5 *“Provide IT support, provide an archive room with a system that will facilitate the activity and improve the knowledge of agents.”*

#### **4.3.1.5 Theme 5: Responsibility**

Concerning the responsibility to ensure patient information management within the services, there was common agreement among the participants. The majority of the responses to this question were that the activity should be under the management of the heads of department of each department. The statements of the respondents included:

Es4 *“The head of service or senior manager of the service should be the co-ordinators of patient information management within the service.”*

Gs1 *“Patient information management should be under the head of department supervision.”*

Ps2 *“The head of department is the one who can co-ordinate patient information management within the service.”*

SDDMA1 *“As the head of department is the co-ordinator of the service, patient information management should be done under his direction.”*

The main purpose of the interview questions was to offer the participants the opportunity to express their opinion on PIM, appreciate what is done within their service to conduct that activity, point out the challenges and obtain suggestions as to how challenges may be addressed within the selected services and the hospital department as well.

#### **4.3.2 Presentation of observation data**

The objective of this observation was to offer the researcher the opportunity to explore the services of PIM in order to identify the causes of challenges as well as drawing on the information gathered through interview questions.

##### **4.3.2.1 Observation grid**

From observation notes, it was confirmed that patient information at University Hospital especially in the selected service faced many obstacles which undermined performance. There is thus a need to address strategies in order to improve PIM, and it was acknowledged that all the

services where the investigation was conducted were not well provided for in terms of equipment and staff that could facilitate PIM.

**Table 4: Observation Grid**

	<b>Emergency service</b>	<b>Gynaecology service</b>	<b>Paediatric service</b>	<b>Statistics Department of the Directorate of Medical Affairs</b>
Method used to get patient information.	Patient information is collected on paper	Patient information is collected on paper	Patient information is collected on paper	Information on patients received by the department is on paper  The patient information that the department receives is on paper.
Availability of IT equipment within services	There is no computer equipment in the service	There is no computer equipment in the service	There is no computer equipment in the service	There are hardly 3 computers in the service that serve the agents to input the data.
Condition of patient information storing	There is no archiving room. The records are kept either in the offices of the physicians or in the office of the manager	There is no archive room; it is the office of the manager that serves as archive.	The service has an archive but the storage conditions do not meet standards because everything is done by hand.	The service does not have an archive. The information that the service receives is kept in the offices.

	of the department			
Accessibility to patient information by health workers and patients.	Accessibility to patient information is not easy because preservation of the files is not ordered and it can take hours or sometimes days to retrieve the files of a former patient.	Accessibility to information in the service is a problem because the files are not in one place. It is difficult for a patient to have access to his or her file after hospitalization	There is a semblance of access to patient information in the service. But the search may take hours.	Access to the information received on the services is a problem because the records are not stored at a specific location.
Comments	Services have many shortcomings and the management of patient information cannot be done under these conditions. The service must be reorganized so that patient information	The service involves the problems that other services faced. Patient information management is not visible in the service. Everything has to be redone in the management of this	Services have many shortcomings and the management of patient information cannot be done under these conditions. The service must be reorganized so that patient information can be made because	As in all other services, this department has a problem with the equipment that would be used to manage the information of the patients it receives. And the agent affects in the service are not trained for the activity. Everything has to be done

	can be made because access to this information is a problem	information.	access to this information is a problem	again.
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#### **4.4 CONCLUSION**

This section provided the presentation of the findings from the interviews and observation. It discussed the profile of the interviewees, the opinions of the respondents presented under themes in order to provide responses to the research questions and provided strategies to address PIM at University Hospital of Libreville.

## **CHAPTER 5**

### **INTERPRETATION AND ANALYSIS OF FINDINGS**

#### **5.1 INTRODUCTION**

This chapter presents the analysis of the data. The study sought to investigate the practice of patient information management at University Hospital of Libreville. Two data collection methods have been used to conduct the research study: interview and observation. The analysis of findings sought to identify the factors leading to the problems being experienced in PIM at University Hospital of Libreville.

#### **5.2 PROBLEM STATEMENT**

Over the past decades, the Gabonese government has implemented numerous health sector initiatives such as the construction of new facilities, renovation of the existing infrastructure, and developing comprehensive health insurance frameworks that ensure that almost 70% of the population is covered by the new insurance scheme. This has provided better access to the health services and improved quality of health. Unfortunately, the Gabonese public health sector has long been faced with various problems such as the lack of equipment and human resources, and the non-operation of all departments in the hospital have impacted negatively on the services. The mismanagement of patient information causes hospitals to function below their normal standards.

The World Health Organization (2012) explains that the lack of proper information management of patients in Gabon has affected the quality of service delivery within the health sector. In addition, the lack of exchange of data between hospitals within the country exacerbates the situation. The objective of the study was to investigate the practice of patient information management at University Hospital of Libreville. There was a

need to investigate the Gabonese situation because of the limited information available on information management within the health sector. Thus, the result will be useful to the government to improve that activity in health services and to the academics and the practitioners in research as well.

### **5.3 CONCEPTUAL FRAMEWORK**

Sociotechnical theory has informed the research study. Socio-technical theory was identified as that theory which combines people, technology and social environment (Lussier, 2015; Berg et al., 2003). It was first articulated during the 1950s and 1960s (Lussier, 2015).

Sociotechnical theory is beneficial for improving the health care environment. The health care environment is a sensitive sector which requires significant attention. Patient information management requires a process of knowledge management. That area cannot be managed efficiently without the implementation of technology systems because technology is one of the processes of knowledge and has the potential to facilitate knowledge management.

Whetton (2005) suggests that sociotechnical theory highlights the relationship between technology, professional and environment factors. This means using sociotechnical theory to examine the research problem engaging three participants. The health professionals, using the current technology system in the hospital and department in the hospital according to the researcher's selection will be engaged to perform patient information management.

Westbrook and Braithwaite (2010) in their study on information technology in health care systems highlights the importance of information technology on the health care environment. They argue that technology systems in a

health care setting can improve health quality and services. This outcome shows the importance of technology systems in healthcare.

Carayon, Bass, Bellandi, Gurses, Hallbeck and Mollo (2011) indicates that the sociotechnical approach can be a tool to develop the quality of care in a health care environment and can be useful in the implementation of technology systems.

The challenges of this proposed study could be resolved by the sociotechnical theory approach. In patient information management, especially in the case of Libreville, many factors are included. The health professionals' behaviours, the internal environment (hospital) and the information system existing in the hospital are aspects that the researcher will address. Thus, sociotechnical theory involves these concepts which can help the researcher to examine information management in the hospital.

#### **5.4 ANALYSIS OF FINDINGS FROM INTERVIEWS**

The study used themes to present data from interview questions. Findings were examined under the following themes which aim to respond to the research questions:

- Participants' knowledge on patient information management;
- Involvement in PIM;
- PIM challenges;
- keys elements to facilitate of PIM within services; and
- Responsibility.

The literature, data collected and researcher's voice were used to conduct the examination.

## **5.5 THEMATICS**

### **5.5.1 Participants' knowledge on patient information management**

By using knowledge on PIM as a theme, the researcher wanted to know if that activity is familiar and known by the healthcare professionals. The question was, "According to you what is patient information management?" The respondents responded according to their knowledge and answers were diverse. Responses from many participants especially nurses indicated that they are not familiar with that concept. For them it is just a deal between doctors and patients. Other respondents (head of services and manager of services) indicated that they are familiar with the concept and explained PIM.

According to the literature (chapter 2), PIM includes the process of gathering, keeping and protecting patient information obtained during the clinical procedure in order to improve health care activity such as planning activity, and improve services and treatment provided to patients. To analyse all the respondents' opinions, it appears that PIM is unknown by the majority of health professionals, and in particular nurses. This is evidenced by the fact that among them many are trained in training centres which do not meet the required standards.

### **5.5.2 Involvement in PIM**

Involvement in PIM as a theme allowed for a focus on what health professionals understand by PIM. With regard to the literature (chapter 2), a technology system has a positive impact on conducting patient information management. All the respondents believed that one of the elements involved in PIM is a technology system that will ensure the storing of information in secure and easily accessible ways so that patient records are readily available when patients visit hospital services. They also agreed that trained staff is essential in the implementation of PIM.

They reported that human resources would support a technology system to achieve PIM. The researcher with regard to the respondents' views agrees that with well trained human resources and an updated technology system within the services, PIM would be conducted properly.

### **5.5.3 PIM challenges within services**

It emerged from the interviewees that challenges faced by the services to conduct PIM are similar in each selected service of the investigation. The obstacles highlighted by the respondents were:

- The lack of IT equipment;
- The lack of Archive room; and
- The lack of skilled health workers to undertake that activity.

Although the fact that the government has made many efforts, especially to renovate University Hospital of Libreville, the researcher relied on the statement that these challenges pointed out by the respondents remained and are major obstacles to PIM. The researcher believes that PIM is a sensitive activity and the services have to be reorganized to address these challenges to avoid the mismanagement of patients' information.

### **5.5.4 Key elements to facilitate PIM within services**

This theme is related to questions 6 and 7 of the interview questionnaire which concerns the needs of services for PIM. In relation to implementing strategies for PIM the participants suggested that to conduct patient information management, the services should be provided by the technology system with skilled health professionals. An archive room should be provided in each service to make information easily available and accessible.

The researcher concurred that the implementation of these strategies would withstand the challenges faced by the services to conduct patient information management at University Hospital of Libreville but these strategies could be easily implemented by the government volunteers. The investigator believes that the government is a key part of strategies to address PIM at University Hospital.

### **5.5.5 Responsibility**

Regarding the theme of responsibility, the examiner wanted to establish who is responsible for the management of patient information management within services. All the respondents indicated that patient information management is the responsibility of the head of services of each service within the hospital, because all departments are under the management of the head of services and the patient information management should be met by instructions given by them to the staff (health care professionals).

The researcher is of the view that PIM should not only be under the management of the head of services. The question of patient information management also involves the political involvement of the government as they are the provider of the resources identified to achieve PIM. The researcher suggests therefore that the government through the department of health as a provider has that responsibility with the contribution of the manager of services to apply the required strategies.

## **5.6 FINDINGS OF THE OBSERVATIONS**

The following analysis is based on the notes from the observation grid.

1. From the observation notes, it appears that the attitude of PIM management is below the normal standard. Notes in relation to the tool used to get patient information revealed that only paper records are utilised. According to the literature (chapter 2) electronic records

are one of the techniques of gathering patient information with greater potential of improving patient information management.

2. In terms of IT equipment within services, observations indicated that there is a lack of IT equipment within services. This is a serious problem because the literature review concluded that technology systems provide the opportunity to share information and are essential to support patient information management.
3. Information on the condition of patient information storing revealed that among the four selected services only one service (paediatric service) has an archive room even though it was not equipped with adequate materials. This constitutes a challenge to perform patient information management within services.
4. Finally, access to information by the health professionals and patients remains a challenge within services. This is indicated by the fact that in most of the services patient information is not kept in an appropriate place.

## **5.7 SUMMARY OF FINDINGS**

The study was guided by the following questions:

1. What are the factors leading to the problem being experienced in patient information management at University Hospital of Libreville?
2. What are the trends in patient information management at University Hospital of Libreville?
3. What are the strategies for consideration in patient information management at University of Libreville?

For the main question, it emerged from the data collected that University Hospital of Libreville services faced numerous obstacles. The findings indicated that services are not equipped with adequate IT systems. The study further revealed that the lack of storage space within services impacts negatively on patient information management. The other factor identified through the collected data was the lack of skilled staff. It

appeared from the data that the health workers were not familiar with the management of patient information. In general the organization of the services was not conducive to enabling the process of patient information management.

For the question concerning the trends of patient information management at University Hospital of Libreville, the findings revealed that nothing is being done as yet. All the elements that could facilitate the process of patient information management were not available within services. Therefore, the process of patient information management has to be reviewed.

In response to the final question that concerns strategies for consideration in patient information management, the findings indicated that many aspects have to be considered such as technology systems, trained staff, and the structure of the services.

## **5.8 CONCLUSION**

This chapter presented the results of the analysis of qualitative data gathered through interviews and observation. The analysis of interviews was done by using themes and supported by literature, and the researcher's and participants' voices. It was established that many factors are connected to the problem experienced in PIM at University Hospital of Libreville. The findings showed that:

- Patient recording is done only on paper;
- Most of the health care professionals are not familiar with the concept of PIM;
- The archiving room needs to be allocated in every service;
- There is a lack of IT equipment that could support the work done manually within services; and

- Government through the department of health does not meet its obligations as a provider of resources.

## **CHAPTER 6**

### **CONCLUSION AND RECOMMENDATIONS**

#### **6.1 INTRODUCTION**

This final chapter of the research report provides conclusions and recommendation of the study. It starts by giving the purpose of the study, the research questions, literature review, methodology, findings and analysis of findings. It then provides some recommendations that can be addressed to develop the practice of patient information management at University Hospital of Libreville to an appropriate standard.

#### **6.2 CONCLUSION**

##### **6.2.1 Purpose statement**

The study sought to investigate the factors leading to the problems being experienced in patient information management at University Hospital of Libreville. Before presenting recommendations and strategies to address patient information management at University Hospital of Libreville, findings were interpreted and analysed.

##### **6.2.2 Research questions**

The research study was directed by the following questions:

1. What are the factors leading to the problems being experienced in patient information management at University Hospital of Libreville?
2. What are the trends in patient information management at University Hospital of Libreville?
3. What are the strategies for consideration in patient information management at University Hospital of Libreville?

### **6.2.3 Literature review**

To investigate the factors leading to the problems being experienced in patient information management at University Hospital of Libreville and to identify challenges and make recommendations, the literature on information management and patient information management was examined.

The literature indicated that information management is conducted to make data available and accessible in an area of interest or concern. Within the health care industry, it is engaged to improve the performance of services and provide good services to patients.

The review specified that patient information management concerns the process of obtaining patient information through electronic or paper records with the aim of storing and analysing patient information for future reference and to improve service delivery.

The collected studies showed that information technology system is associated with patient information management within hospitals. The literature review revealed that in advanced countries and some countries in Africa, technology has been implemented to improve services in the health care environment.

The literature review revealed that sociotechnical theory was the most appropriate to undertake the research study. The research articles revealed that patient information management engages professionals, technology and services within hospitals. Sociotechnical theory is characterized by the articulation between people, technology and the social environment. In this regard, through its approach PIM could be managed.

#### **6.2.4 Methodology**

To conduct the study the researcher used the qualitative method approach. The intention was to explore the practice of patient information management at University Hospital of Libreville and discover the challenges faced by that activity by obtaining the opinions of health professionals.

Data were collected through interview and observation as a primary method of data collection. The researcher derived the thoughts of participants and explored services. Secondary data was collected from articles, books and official publications to construct the literature review.

The relevant population of the research study was the health care professionals of University Hospital of Libreville. The sample method was purposive sampling with the aim of selecting people involved in PIM within the selected services. It comprised 5 participants from 5 departments and among them there were nurses, doctors, heads of team care, male nurses, services officers, and heads of offices.

The interviews were done with the purposive sample by asking people the same questions. This was to understand the process of patient information management in different services. Observations were conducted with an observation grid with a focus on the equipment related to patient information management. Notes were completed during each observation. Analysis of findings was done based on themes.

#### **6.2.5 Findings**

From the data collected it appeared that there is poor management of patient information at University Hospital of Libreville. The study

discovered that there are a number of issues that impact on the running of that activity within the services.

The research study pointed out that services at University Hospital are not well-equipped to conduct patient information management. It is stated that there is a lack of IT equipment within services. The entire process is completed on paper.

The findings from interviews and observation showed that there is a lack of archiving resources that could support patient information management within services. Only one service among the four selected has an archive room but it does not meet the required standards.

The study highlighted that there is a lack of skilled staff in patient information management within services. The findings revealed that there is a need for trained staff to improve patient information management.

#### **6.2.6 Analysis and interpretation of findings**

The qualitative data of the study was analysed by the use of themes. Data were transcribed and coded then presented under the emerging themes.

The research study revealed that most of the health care workers interviewed at University Hospital services were not familiar with the concept of patient information management. This was indicated by the responses obtained on their opinions about patient information management. On the other hand the research study revealed that few of them were able to explain what patient information management is.

The study revealed that patient information is a process that should be done in a team with the involvement of the information technology system. In terms of challenges faced by patient information management, the

study revealed that all the services had similar issues. To address those challenges it emerged that services should be well equipped in the information technology system, health workers should be trained and the archiving room should be provided in each service. All the work should be done under the co-ordination of the heads of services.

Recommendations were made according to the purpose of the study and findings from the data collection. Triangulation was used to examine the validity of findings.

### **6.3 RECOMMENDATIONS**

The aim of the study was to investigate patient information management at University Hospital of Libreville. Based on the findings and the analysis, strategies to achieve patient information management at University Hospital of Libreville are provided below.

First, the administration of University Hospital of Libreville has to improve the model of patient information recording by adding electronic records. As the literature showed, the electronic record is of benefit to patient information management. Implementing this approach will facilitate the organization to provide patient information at any time to the persons concerned.

The administration should ensure that all services are equipped with an adequate computer system which will help the organization to manage patient information. It will also be an advantage for the hospital in terms of planning and supporting activities related to the health of the patient. In general, it will assist the hospital to improve the quality of the services provided.

The health care professionals of the hospital involved in PIM within services must be trained to undertake such an activity. The administration

must organize training programmes for health care workers that will enable them to become familiar with the activity but also enable them to conduct the activity with the technology system that will be available to them.

There is a need for the administration of University Hospital of Libreville to create or adopt a system that will connect all the services within the hospital for the success of patient information management. This will allow services to share patient records and avoid transmission of patient information manually. It will also ensure the exchange of patients between hospitals within the country.

The administration of the hospital should ensure that all services are provided with adequate archiving space that meets the requirements for enhancing PIM.

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## **APPENDIX**

Patient Information Management at University Hospital of Libreville,  
Gabon.

University Hospital of Libreville

BP: 2228

Dear Sir,

I am Louissette Divassa, student at Wits School of Governance in Johannesburg (South Africa). I am doing a Master in the field of Public and Development management.

Currently I am undertaking a research on Patient Information Management at University Hospital of Libreville. I am writing to you to ask your permission to conduct interview with health professional and observation within the hospital's services.

The participation of the interviewees will completely free, and the interview will not take more than 30 minutes. All information gathered during the interview process will be saved confidentially.

Yours sincerely.

Louissette Divassa

**Interview procedure.**

**Name of the interviewee:**

**Position of the interviewee in the service:**

**Purpose of the research project:** we are conducted this research study to explore the experience of patient information management at University Hospital of Libreville in order to highlight the challenges faced that activity and at the end make available some plans to improve the practice of patient information management in the hospital, especially in the services.

**Interview questions.**

1. According to you, what is patient information management?
2. What do you involve in patient information management?
3. How do you perceive patient information management in your service?
4. Who are involved in patient information management in your service?
5. What are the challenges facing patient information management in your service?
6. What are the needs of your service to implement a well practice of patient information management?
7. How the services can be furnished to conduct patient information management?
8. How do you with your colleagues to conduct patient information management in your service?
9. What is the solution to your service for patient information management?

10. Who is responsible to ensure the best practice of patient information management within the hospital services?

Louissette DIVASSA

Libreville le

05 avril 2017

Tel : 0027784911361 /07420064

E –mail : louissettedivassa@yahoo.fr

A Monsieur le Directeur Général  
du Centre Hospitalier Universitaire  
de Libreville

Objet : demande d'autorisation d'interview et d'observation

Monsieur le Directeur Général,

Je suis étudiante en Master Gestion et Développement du Secteur Public à l'université Witwatersrand de Johannesburg en Afrique du Sud.

Présentement, j'entreprends une recherche sur la gestion des informations des patients au CHU de Libreville. Je vous écris afin d'obtenir une permission pour mener les interviews avec le personnel de la santé, et les observations dans les services.

En effet, cette recherche sera pour moi l'occasion d'explorer la gestion des informations des patients pour identifier les problèmes liés à cette activité et à la fin suggérer quelques solutions pour améliorer la pratique de cette activité dans l'hôpital et spécialement dans les services.

La participation du personnel sera à leur appréciation, et l'Interview ne durera pas plus de 30 minutes. Toutes les informations obtenues seront gardées confidentiellement.

Dans l'attente d'une réponse favorable, je vous prie d'agréer, Monsieur le Directeur Général, l'expression de mon profond respect.

Louissette DIVASSA

### **Procédure d'Interview**

**Nom de l'interviewé :**

**Position de l'interviewé dans le service :**

**But de la recherche :** Nous menons cette recherche pour explorer la gestion des informations des patients afin d'identifier les problèmes liés à cette activité et à la fin suggérer quelques solutions pour améliorer la pratique de cette activité dans l'hôpital et spécialement dans les services.

### **Questions**

- 1- Selon vous, qu'est-ce que la gestion des informations des patients ?
- 2- Qu'est-ce que vous impliquez dans la gestion des informations des patients ?
- 3- Comment jugez-vous la gestion des informations des patients dans votre service ?
- 4- Qui est impliqué dans la gestion des informations des patients dans votre service ?
- 5- Quels sont les obstacles rencontrés dans la gestion des informations des patients dans votre service ?

- 6- Quels sont les besoins de votre service pour réaliser la gestion des informations des patients ?
- 7- Comment les services peuvent être équipés pour mener à bien la gestion des informations des patients ?
- 8- Comment faites-vous avec vos collègues pour mener la gestion des informations des patients dans votre service ?
- 9- Quelle est la solution pour conduire la gestion des informations des patients dans votre service ?
- 10- Qui est responsable pour assurer la bonne pratique de la gestion des informations des patients dans les services ?