Deanship of Graduate Studies

Al-Quds University

Quality of Healthcare Documentation at UNRWA health Centers in the Gaza Governorates

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MPH Thesis

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Quality of Healthcare Documentation at UNRWA health Centers in the Gaza Governorates

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Quality of Healthcare Documentation at UNRWA Health Centers in the Gaza Governorates

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Jerusalem – Palestine

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Dedication

To the person who taught me that knowledge is power. The man who supported me and encouraged me to believe in myself

My father

To the strong and gentle soul who offered me everything to make me be who I am today

My mother

To the wonderful person who gave me the support and affections all the way

My wife

To the real treasure in my life, Munir, Rkan and Ryan

My sons

To those who have been an inspiration to me

My teachers

I dedicate this thesis for all of them

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed:

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With sincere respect
Mohammed Alkhaldi

Abstract

Information play a vital role in health and the medical record is an important medium for providing information for the health staff, decision makers and researchers. This study aims to ascertain the quality of healthcare documentation at UNRWA health centers in the Gaza Strip, in order to enhance the quality of care which optimally contributes to better health outcomes.

A mixed-methods approach was used, in which data have been triangulated. In total, 204 randomly selected (systematic sampling approach) healthcare providers participated in the quantitative part of the study with 96% response rate and408 patient records were reviewed. In addition, seven in-depth interviews were conducted with purposively selected key informants. Quantitative data were collected through group-administered questionnaire and then records were reviewed. The preliminary findings derived from the quantitative part informed the qualitative data collection. The overall reliability was high (Cronbach's Alpha 0.890). The Statistical Package for Social Sciences software was used for the quantitative data entry and analysis while the Open Coding Thematic technique was used to analyze the qualitative data.

Results showed that 35% of participants were males, 65% females. About half of them were nurses, one third were doctors and the rest were midwives. One third of the participants received on-the-job training about documentation. The overall quality of healthcare documentation has elicited score of 77%. Healthcare providers' perspectives had the highest score (81%), followed by documentation practicalities (78%), then knowledge and managerial factors (74%) each. Barriers to healthcare documentation scored 72%, with work overload, shortage of staff and lack of training were perceived as the main barriers for healthcare documentation.

Findings from the records review revealed that the overall availability and completeness of available parameters were 74% and 80% respectively. A real gap was found in the Non-Communicable Diseases records; the availability and completeness were 74% and 53% respectively. In addition, the patient complaints, physical examination findings and management plan availability in the general health records were low.

Inferential statistics show that males, younger, doctors, Bachelor degree holders and graduates of Arab countries elicited less quality scores and more documentation errors than their counterpart from other groups.

Results of the qualitative study were supportive to what was found in the quantitative component. Interestingly, key informants consider the change of documentation from the paper-based to the electronic based documentation system is one of the greatest achievements of the health department during the last decade. Qualitative findings emphasized the importance of supervision and training to improve the quality of documentation.

The study concluded that the quality of healthcare documentation at UNRWA health centers is reasonable, but still it requires further improvement with greater emphasis on training, supervision and further development of the electronic information system.

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List of abbreviations

AHDI	Association of Healthcare Documentation Integrity
ANOVA	One Way Analysis of Variance
CPSO	College of Physicians and Surgeons of Ontario
CRNBC	College of Registered Nurses of British Columbia
CRNNS	College of Registered Nurses of Nova Scotia
EMR	Electronic Medical Record
FHT	Family Health Team
LSD	Least Significant Difference
MOH	Ministry of Health
NCD	Non-Communicable Disease
NCQA	National Committee of Quality Assurance
PCBS	Palestinian Central Bureau of Statistic
PIE	Problem Intervention and Evaluation
POMR	Problem Oriented Medical Record
SOAP	Subjective, Objective, Assessment and plan
SPSS	Statistical Package of Social Science
UNRWA	United Nations Relief and Work Agency for Palestine Refugees in the Near East
WHO	World Health Organization

Chapter I: Introduction

1.1 Background

Medical record is defined as a paper or electronic document containing information regarding a patient's health status and the corresponding medical opinions based on that information (Chishlom, 2014). The history of the healthcare documentation is almost run in parallel with the history of medicine. Yet, there is a controversy about the starting of healthcare documentation practice. Many archaeologists believe that the Egyptians were the first to start recording the medical history of their patients (Pourasghar, 2009).There are many records on papyrus from Egyptian physicians where descriptions of diseases, diagnoses, medical and surgical treatments are documented (ibid).

Information plays a central and vital role in health, and in this regard, the medical record is an important medium for providing information for the health staff (Pourasghar, 2009). In today's practice, where the accountability level has increased, the providers are expected to be both systematic in providing client services and able to produce clear and comprehensive documentation of those services rendered. *"In this era of accountability, documentation has changed from something that should be done well to something that must be done well"*, (Cameron & Turtle-Song, 2002, p. 286).

Khan (2012) described the flow of information during most clinical encounters as follow: there is an exchange of information occurs between a patient and a healthcare provider with the incorporation of a diagnostic physical exam. In addition, other sources of information besides the patient are previous clinical notes, information from laboratory results, or medication lists. By this newly obtained information with relevant clinical history items in the patient's medical record, in addition to the healthcare provider's existing clinical knowledge, the health care provider will be able to formulate a set of diagnoses, an assessment, and a follow up plan for the patient.

Healthcare documentation is a vital component of safe, ethical and effective medical practice, regardless of the context of practice or the tool that is used in the healthcare documentation (College of Registered Nurses of Nova Scotia-CRNNS, 2012). There are different types of healthcare documentation tools are available to healthcare providers (Khan, 2012). Commonly used healthcare documentation tools are paper-based, computer-based, or dictation based (ibid). Since health care providers spend a significant part of their day on healthcare documentation, it is important that their chosen tools create clinical notes that provide high quality documentation of the visit (Neri, et al., 2014).

Every note should stand independently and provide enough information so a new provider reviewing the medical record should know exactly what the patient is being seen for, their course of treatment and the physician's plan of action (Weed, 2012). For this reason, medical records usually contain numerous details including identifying (demographical) information (i.e. name, surname, age, sex, address, and phone number), patient profile (i.e. occupation, education, marital status, etc.), chief complaint, past medical history, current health status, physical examination results, results retrieval (for laboratory, radiological tests), diagnosis and medical or surgical interventions according to (World Health Organization-WHO 2008).

The data in the medical record is primarily used for patient care (Jernigan, 2009). However, the data in the records can also be used for other purposes which include education such as training medical students, nursing students, residents, etc(Burke, et al., 2014). In addition, these data considered a communication tool between different care team members and different providers (Ning, 2012). Furthermore, it can be used for research purposes, regulation, policy making and legal implication (Khan, 2012). Medical records are also used for financial purposes, reimbursing medical fees and proving information for third parties (such as insurance companies) which are indirect consumers of the data in medical records (Ning, 2012).

To achieve the above mentioned benefits of the medical records, documentation should be of high quality (Pourasghar, 2009). The quality of medical records may be defined in various ways and described in terms of a number of attributes, depending on the perspective and purposes of the user (Logan, Gorman, & Middleton, 2001). Subjective attributes of note

quality are up to date, Accurate, Thorough, Useful, Organized, Comprehensible, Succinct, Synthesized and Consistent (Neri, et al., 2014).

Medical records have relatively been subject to many international studies, such as: Ning (2012), Chishlom (2014) and Neri, et al. (2014). This study is an organized trail to assess the quality of healthcare documentation in our local context, where the number of studies about this subject is relatively low, and how the staff thinks about the documentation task itself. The importance of the study is gained from the need to evaluate such abandoned subject and to seek employees' inputs about quality healthcare documentation which in a way or another is being influenced by the larger local context.

1.2 Research problem

Imagine a health service without medical records, health care would be miserable and total anarchy! There are a lot of studies that examine the quality of the medical records worldwide. Nevertheless, there is still inadequate knowledge about how health staff practices healthcare documentation in different circumstances such as developing countries. The number of in-depth studies on the quality of healthcare documentation is quite low; however, some studies included a component about documentation as small part of larger studies. However, these studies show information gap about the quality of healthcare documentation, especially in our region (Elron, 2009; Abu Sada, 2012; Abu Dagga, 2014). In addition, the researcher observed that there are a number of gaps and negligence in some aspects of medical record documentation during the daily practice in the United Nations Relief and Work Agency for Palestine Refugees in the Near East (UNRWA) health centers.

Therefore, this study attempts to investigate the status of healthcare documentation and explore the obstacles for documentation practices, in order to improve it and to gain the benefit of improving the quality of the delivered services to our clients. Thus, this study will bridge an information gap about the status of healthcare documentation in the UNRWA health centers.

1.3 Aim of the study

This study attempts to ascertain the quality of healthcare documentation at UNRWA health care centers in the Gaza Strip. It allows the identification and analysis of potential gaps and provides recommendations for improving documentation practices and subsequently enhancing the quality and continuity of health services which positively impact health outcomes.

1.4 Study objectives

1- To assess the quality of healthcare documentation at UNRWA health centers in reference to the international standards.

2- To ascertain the strengths and weaknesses of documentation practices in healthcare.

3- To recognize differences in documentation practices in reference to organizational and personal characteristic variables.

4- To suggest some recommendations that aim to improve healthcare documentation.

1.5 Study questions

1- What is the degree of awareness about the characteristic of quality healthcare documentation among UNRWA employees?

2-To what extent are the characteristics of high quality documentation are reflected in the UNRWA medical records?

3- Is there a commitment to the protocols of healthcare documentation for each visit?

4- What is the status of the forms used in the medical records?

5- What are the mistakes that frequently presented in the records?

6- How is the electronic recording affect documentation practice?

7- What is the relation between employee's demographic characteristics and healthcare documentation?

8- Are there any differences in documentation between different service delivery points?

9- Does the provided service have an effect on documentation practice?

1.6 Context of the study

1.6.1 Geographical and political context

Geographically, Palestine is a small country about 27,000 km^2. The Gaza Strip, an area that is partially governed by Palestinians after Oslo agreement which stipulated partial control of the West Bank and Gaza Strip to the Palestinian Authority, is a narrow band of land. It is 45 Km long and 6-12 Km wide with an area of 365 km^2 (Palestinian Central Bureau of Statistic - PCBS, 2015). The Gaza Strip is surrounded by the Mediterranean Sea from the west, Egypt from the south and the occupied Palestinian lands in 1948 from the other sides.

After the end of the First World War in 1918, Palestine was under the British Mandate. In 1948, the majority of the Palestinian land was occupied and what is called "Israel" was established. In 1967, it occupied the rest of Palestine. The Gaza Strip was under the control of the Egyptian administration, between 1948 and 1967. From that date, the Gaza Strip was under the control of the Israeli occupation until the establishment of the Palestinian Authority on 1994 after Oslo agreements. The Palestinians in the Gaza Strip started to have autonomy and to feel some improvement in the social and economical status, until the flare up of the second Intifada the year 2000, when their conditions started to deteriorate again. In 2007, another event worsen the life of the Gazans is the Palestinian political rift. This is followed by tight siege on the movement of members and goods across the borders, and then by three Israeli aggressions on the Gaza Strip which resulted in thousands of deaths, injuries and disabilities among people, with damage of thousands of houses, factories and agricultural resources (PCBS, 2016a). These circumstances made most of the people in the Gaza Strip depend a lot on humanitarian aids and the free of charge services like those provided by UNRWA. In addition, these circumstances affected the documentation practices where the healthcare providers focus was on emergency conditions more than focusing on quality of services or developmental projects.

1.6.2 Demographic context

In 1948, 1.4 million Palestinians lived in Palestine (PCBS, 2011). The same source denoted that more than 800 thousands of them were forcibly displaced from their original towns

and cities into the West Bank and the Gaza Strip, neighboring Arab countries, and other countries of the world. At the end of 2016, there is 12.7 Million Palestinians all over the world (PCBS, 2016b). Among them about 1.88 million are living in the Gaza Strip (PCBS, 2016c). The same source reported that the population density in the Gaza Strip is 5154 inhabitants per km2 in, which indicates that the Gaza Strip is among the most densely populated areas in the world, especially; the available land is not well occupied by human activities. The average households family size in the Gaza Strip at the end of 2015 was 5.7 (ibid) with a fertility rate 4.5 (Ministry of Health - MOH, 2016)

According to PCBS (2016b), 67.7% of the people in the Gaza Strip are registered Palestine refugees. While UNRWA (2016) reported that 74.3% of the people in the Gaza Strip are registered Palestine refugees. Among the people in the Gaza strip, about 16% of them are above 40 years of age, according to the PCBS (2016c). Meanwhile, UNRWA (2016) reported that 23.2% of the refugees are above 40. This percentage carries a burden on the UNRWA health department especially with the epidemiological transition of the diseases that is happening in the area including the Gaza Strip. This transition of the diseases requires the medical records to be of high quality to ensure patients' safety and continuity of their care.

1.6.3 Socioeconomic context

People in the Gaza Strip are living in difficult socioeconomic situations. The last reported poverty rate was 38.8% at the end of 2011 (PCBS, 2016c). The average household size in 2015 was 5.7, with 41% unemployment rate for population aged 15 year and over in the same year (ibid). The same source mentioned that the main sources of livelihood in the Gaza Strip are employment at the services sector (mainly at government, UNRWA or NGOs) with frequent interruption of monthly salary, agriculture and livestock rearing and fishing. Adding to these factors, the Israeli siege since 2006 and the repeated aggressions on the Gaza Strip have exhaustive consequences. Nowadays most of Gaza Strip population depends on humanitarian aid which is not providing a solution to the catastrophic situation. The deterioration of both economic and social status in the Gaza Strip negatively affects the health status of the population and the economic recovery became difficult as long as the Siege remains. Even if it is ended, it will take years to repair the damage and to recover the economy. Still, lack of effective exit strategies at the current time could create a kind of

dependency at the downside consequences. The negative effects of the deteriorated socioeconomic status in the Gaza Strip on the health of the population will carry a burden on the medical records as well in the form of decreased quality of healthcare documentation, as the provider will centered the medical note on survival issues rather than the quality of the records.

1.6.4 Health context and healthcare system

Compared to other countries at a similar level of economic development, the Palestinian population's overall health status outcomes are relatively good partially due to the strong performance on most basic public health and PHC functions (MOH, 2014a). During the year 2015, life expectancy at birth in Palestine was 73.5 years (MOH, 2016), compared to 73 years as the average of Middle East and North Africa (World Bank Group, 2016) and 71.4 years globally (WHO, 2016).

It is acknowledged that the Gaza Strip witnesses a status of epidemiological transition where mortalities are shifting from communicable diseases to no-communicable ones (MOH, 2016). The same source indicates that the leading causes of death are chronic conditions, namely cardiovascular, cancer, cerebrovascular, and perinatal period conditions, while infectious diseases came in the ninth position and contributed to2.4% of the leading causes of death (MOH, 2016). Nevertheless, poverty-related diseases and illnesses, such as malnutrition, anemia and other psychological illnesses also exist. Such shift in the disease pattern needs complete and accurate medical records in order to assure continuity of care for such conditions.

The Palestinian health care system is complex as there are four main providers for healthcare services; MOH, UNRWA, NGOs and the private for-profit service providers. MOH is the main health care provider; it provides primary, secondary, and tertiary services and purchases advanced medical services through referring patients to the neighboring countries and other private and NGO health care facilities. Also, it plays a role in providing and controlling immunization, public health activities, licensing and registration of health facilities and insurance program. MOH (2014b) reported that the provision of health care services in the Gaza Strip is adversely affected by the continuous Israel siege and the internal political division. Meanwhile, the primary and secondary health sectors continue to function, it faces

many challenges as shortage of essential drugs and medical disposables at MOH facilities. This put the patients at substantial risk of medical complications and deterioration in health status, especially for those with chronic conditions as cancers and other Non-Communicable Diseases (NCD). Despite of previous, it is worth to mention that the health sector has exerted significant efforts not only to maintain health services but also to improve and present some new services such as opening of new specialized services at MOH hospitals as cardiac surgery and cardiac catheterization, introducing new schemes for health services as Family Health by UNRWA (ibid). The second provider of health services is UNRWA, which provides primary health care services to the refugee population. Additionally, UNRWA purchases secondary and tertiary care services when needed. The NGO sector provides a wide range of services including primary, secondary and specialized services such as disability related services. The private for-profit health sector also provides the three levels of care through a wide range of practices.

Despite this complexity in the system, coverage and accessibility to healthcare services with all actors are appropriate in most of the times, unless emergencies occur. In addition the political commitment to health is obvious as manifested in high spending on health which is around 9-12% of the gross domestic product with a recent increase to reach more than 15% (MOH, 2011).

Till few years ago, the Palestinian healthcare system is depending mainly on the paper-based medical records and still in the early stages of e-health readiness, as reported by Abu Hamra (2014). Though, many organizations have shifted to the Electronic Medical Records (EMR). Meanwhile, during the study of the quality of healthcare documentation in the Gaza strip, multiple studies that were performed in the governmental hospitals reported there were remarkable deficits in the availability, completeness and accuracy of the data recorded in the medical records (Abu Daga, 2014; Abu Sada, 2012; Elron, 2009). Putting the Palestinian healthcare system back to the larger Arab systems, studies showed that most of the Arab countries lagged behind in the application of electronic health systems due to lack of dedicated financial resources, in addition to professional incompetency (Alsadan, et al., 2015).In addition, the same problems of availability, completeness and accuracy of the data were located in different Arabs countries (Farhan, et al., 2005; Khresheh & Barclay, 2008; Al-Zahrani, et al., 2012).

1.6.5 UNRWA

UNRWA was established as a subsidiary body of the United Nations General Assembly on 8 December 1949 to carry out direct relief and works programs for Palestine refugees (UNRWA, 2013). Today, UNRWA has operations in five fields: Jordan, Lebanon, Syria, the Gaza Strip and the West Bank. It provides services through five main programs which are: education, health care, relief and social services, infrastructure and camp improvement, microfinance, and emergency response programming, including in times of armed conflict (UNRWA, 2013).

UNRWA provides health care services for Palestine refugees in the Gaza Strip through 22 primary health centers, which are characterized by a very high workload. Therefore, the centers are distributed into three geographical areas (North with Gaza city, middle and south area) for better managerial control and supervision. Annex1 shows the map of distribution of the health center across the Gaza Strip. The UNRWA health program is mandated to protect and promote the health of Palestine refugees within the agency's five areas of operation, so that they could achieve the highest attainable level of health as indicated in the UNRWA's second Human Development Goal, *"A Long and Healthy Life"* (UNRWA, 2014, p.7). The health services provided are mainly primary care services, which include: Maternal and child health, general curative services, NCD, physiotherapy, some dental services, some laboratory and radiologic services and school health. In addition, UNRWA purchases secondary and tertiary care services when needed from the MOH and other private providers. For running these services, the UNRWA health department in the Gaza strip is hiring around 1000 employee (UNRWA, 2016).

In the recent years UNRWA in general and its health program in particular faced many challenges. Among these challenges are the scarcities of resources, the comprehensive health services that is provided free of charge, the epidemiological transition of diseases that is happening in the area and affecting the Gaza Strip as well, in addition; the poor socioeconomic conditions of the Palestine refugees. These challenges forced UNRWA to begin a health reform in October 2011 by adopting the Family Health Team (FHT) approach and e-health in June 2012 as the core strategies of the reform to strengthen primary healthcare (UNRWA, 2016).

The FHT approach offers comprehensive primary healthcare services emphasizing care of the entire family. In the FHT approach, families are registered with a team consisting of a doctor, a midwife and one or more nurses. This team is responsible for all the health care needs of the families registered with them. The patients see the same team each time they visit the health center. The approach is person centered rather than disease centered; focusing on the comprehensive health needs of the patient and family over time.

In parallel with the adoption of FHT approach, UNRWA has adopted e-health which complements and facilitates the introduction of the FHT approach. It is a family file, containing all relevant information of all the family members, which is a key feature of the FHT concept. Through e-health, information on all aspects of the patient's care, including both curative and preventive services, is easily available at any station a patient may need to visit.

The electronic system incorporates an interface that fits the information technology and management needs for the FHT. On the ground, the use of electronic system has facilitated and streamlined the daily operation of health centers. It has led to better documentation, more efficient use of space, rational use of stationary and printed forms and streamlined patient movement. It has eased the burden of paperwork on staff (UNRWA, 2016). Today all the health centers that belong to UNRWA in the Gaza Strip are applying the Electronic system in their daily practice. In addition to that, UNRWA health department is a pioneer in using information communication technology as appeared in the result of Abu Hamra (2014) as she found that UNRWA had the highest score on the degree of dependency on the information communication technology when compared to MOH and NGOs.

1.7 Operational definitions and definition of terms

Medical record

It is a confidential paper or electronic document that is kept for each patient by a healthcare professional or organization. It contains the patient's personal details, a summary of the patient's medical history and medical notes of each event which includes symptoms, signs, diagnosis, treatment, and outcome, with relevant documents and correspondence are also included (Neri, et al., 2014).

Healthcare documentation

It is the process of recording the care and the clinical assessment, professional judgment and critical thinking used by a health professional in the provision of that care (WHO, 2007).

High level documentation score

It reflects responses with points 4 and 5 in the used 5 point Likert's scale or an overall score of 75-100% (Bhattacherjee, 2012).

Moderate level score

The assumption is that the moderate level score is expected from the responses lie around the mid of the used Likert's scale or an overall score of 50-74% (Bhattacherjee, 2012).

Low level score

The responses reported will be closer to the minimum anchor of the evaluation scale or an overall score below 50% (Bhattacherjee, 2012).

Characteristics of quality in medical record as adopted by WHO (2007, 2013)

1. Verifiable

It is the possibility to go back to the originator of the record to check its validity, with cryptographic signing by its originator, such that its authenticity and integrity can be checked without communicating with the source (Mohan, et al., 2009).

2. Definable

Is to identify clearly the person about whom it is written and the people who have contributed to the record (Wijesekera, 2013).

3. Legible / clear

It is ability of any person other than the author of the record, to read the record at glance with an adequate light source (Wijesekera, 2013).

4. Accurate/ correct

A measure of how well the record reflects the provider's actions during the clinical encounter (Chishlom, 2014).

5. Complete

It is the note written in the client's medical record, where all required data are present and the medical record contains all pertinent documents with appropriate documentation (WHO, 2013).

6. Factual

It is the descriptive and objective information about what is seen, heard, felt and smelt by the provider and should not depend on inferences or conclusions or personal opinion (Delaune & Ladner, 2010).

7. Consistent

It is the harmony, regularity or steady continuity of the medical record that is free from variation or contradiction (Burke, et al., 2014).

1.8 Study Layout

The study is comprised of five chapters: introduction, conceptual framework and literature review, methodology, results and discussion, conclusion and recommendation.

The first chapter presented general introduction to the study, where a brief background regarding the subject of the study was provided. The researcher illustrated the problem statement, justification for conducting the study, the general goal and specific objectives, research questions, definition of terms and context of the study.

The second chapter included two parts; conceptual framework where the researcher provided a schematic diagram of the conceptual framework of the study, and the second part presented the literature review related to the study topic and variables. In depth detailed theoretical inquiry including previous studies were presented to enrich the study.

The third chapter described methodology including study design, population, sample, instruments, pilot study including validity and reliability of study instruments, ethical considerations and statistical procedures.

The fourth chapter presented the study results and discussion. The researcher presented the results in form of Figures and Tables that make it easy for the reader to understand and make comments. The results were discussed in relation to available previous studies that directly related to the topic of this study and its objectives.

Finally, in the fifth chapter, the researcher presented conclusion, recommendations and suggestions for further research that related to the study results and open a horizon for other researchers to work on this subject and its effect on our daily practice.

Chapter II: Conceptual framework and literature review

This chapter summarizes the arguments, studies and claims pertaining to the main study concept which is the quality of healthcare documentation as presented in the reviewed scholars, reports and local studies. This is described after introducing the conceptual framework of this study which presents the core of the study, the quality of healthcare documentation, beside the other domains that the researcher examined their effects on the previous main concept.

2.1 Conceptual framework

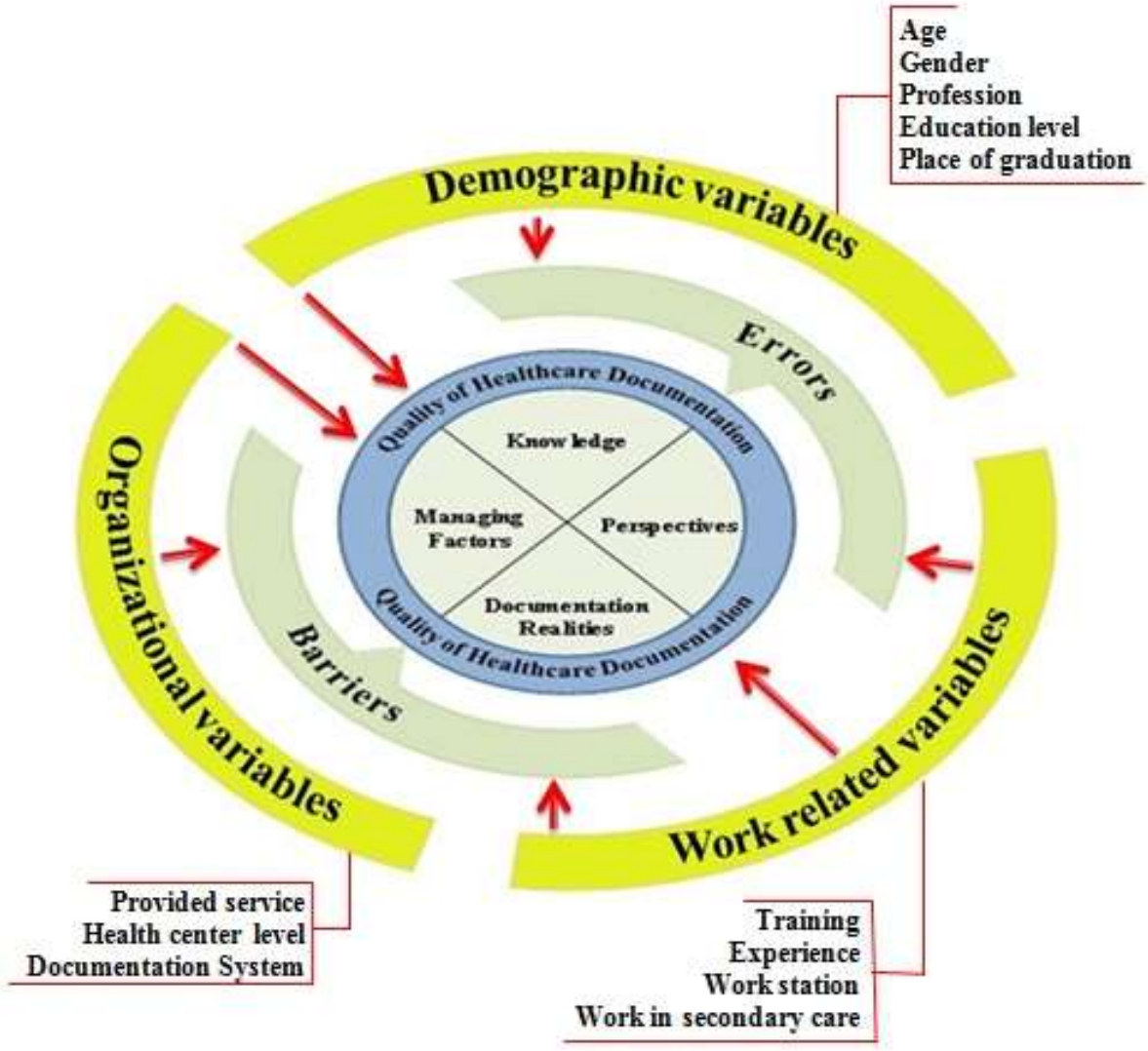

Figure 2.1: Conceptual framework, self constructed.

The researcher constructed the conceptual framework based on the literature review and his personal experience. The framework helped logically linking potential factors that could affect quality of healthcare documentation. The researcher divided these factors into three main domains which are provider characteristics, management related factors and characteristics of the medical records it selves, as shown in Figure 2.1.

2.1.1 Dependent variables

Quality healthcare documentation is the dependent variable which has been made operational through studying the healthcare documentation practice with the healthcare provider's perspectives about quality healthcare documentation. According to WHO (2007) the quality healthcare documentation incorporates the following attributes: Complete, accurate, consistent, factual, legible, definable and verifiable. These terms are operationally defined in the previous section. These characteristics are built up by the following domains:

1. Knowledge and perspectives about healthcare documentation. This domain could include the following variables: familiarity with healthcare documentation quality which can be achieved through formal school education or on the job training sessions, knowledge about the basic principles of documentation, perspectives and opinion about the importance of quality healthcare documentation and using standardized languages and terminologies. These factors are thought to be relevant to healthcare documentation and affect its quality positively.

2. Management related variables

These are also will be divided into three constructs:

- **Managerial supervision:** It is important for the success of any activity such as documentation. These variables include: the provision of supervision on regular basis, supervisor feedback, practical support and identifying employee's learning needs. These variables are expected to support the quality of healthcare documentation.

- **Protocols:** these variables include the availability of protocols tat guide documentation practice, the consistency of the protocols with international standards and the update of the protocols every few years. The protocols are expected to influence the quality of healthcare documentation positively.

- **Organizational culture variables** which are employees' satisfaction, commitment, work load and burden of documentation and number of employees. These variables could affect the documentation practice in different degrees and directions.

3. Realities: These include the medical records and the requirements of the documentation practice. It consists of the features of the EMR, the paper forms used in daily practice and the availability of materials for hand written documentation with Systems that are responsive to, and accommodate changing client population needs. These aspects are thought to be regarded in the medical records and it could either improve or adversely affect its quality.

4. Barriers to healthcare documentation: These variables are inversely related to the quality of the healthcare documentation. These barriers include: Shortage of staff, work overload, negative attitude, lack of commitment to work and no training.

5. Errors of documentation, which includes prescribing errors, inconsistent diagnosis, wrong laboratory result and spelling errors. These errors will act negatively on the overall quality of the healthcare documentation.

2.1.2 Independent variables

The study addressed a set of factors which have been the subjects in many studies as: Ning (2012), Chishlom (2014) and Neri, et al. (2014). These factors proposed to influence the quality of healthcare documentation by different degrees and directions. In this study, these factors are the independent variables and they are addressed in the following domains:

1. Demographic characteristics such as: Age, gender, job, educational level, and city of graduation. These factors are exploring potential influence of self and context with more focus on self-related characteristics on the overall quality of healthcare documentation. These characteristics could either improve or adversely affect the quality of healthcare documentation.

2. Work related characteristics such as: years of experience, duration of work in secondary healthcare, training on healthcare documentation and station of work. The effect of these characteristic on documentation practices and its quality cold be on either direction, positive or negative.

3. Organizational variables such as: Level of the health center, type of the service provided, implementing quality improvement processes related to effective documentation and the workload. These factors are thought to affect the quality of healthcare documentation in different directions.

The above mentioned variables are included in the study as multiple studies showed a relation between these variables and the quality of healthcare documentation. The knowledge and managerial factors would have an effect on the provider's perspectives and practices, which in turn would affect healthcare documentation. Even though, these relations are not always present and it is acting in many directions. For this reason, these variables are included in the study for exploring how it would affect the healthcare documentation.

2.2 Literature review

2.2.1 History of healthcare documentation

Taking about the starting point of healthcare documentation in the past is difficult. In 1993, Davarpanah & Mehdigholikhan said that many archaeologists believe that the Egyptians were the first physicians who start recording medical information about their patients. They add that there are many records on papyrus from Egyptian physicians where descriptions of diseases, diagnoses, medical and surgical treatments had been documented (as cited in Pourasghar, 2009). The simple method of handwriting a clinical note has existed at least since the fifth century before Christ, with Hippocrates used the idea of portraying a patient's clinical course in the medical record (Khan, 2012).

The modern medical records roots can be traced back to the end of the 19th century, when healthcare professionals realized that documenting patient care benefited both providers and patients (Jernigan, 2009). The same source added that the only tool that is used at that time was the paper-based medical records, where the health care provider used free handwriting to document any medical encounter. Since late 1960's, the EMR has been introduced as a tool of recording the patient information electronically on computer instead of on paper, exclusively in United States governmental hospitals (Seymour, Frantsvog & Graeber, 2012). They added that the adoption rate of EMR has been slow to catch on with healthcare providers, but the rate is getting faster specially after governmental legislations in many countries around the world.

2.2.2 Definition of healthcare documentation

There is a congruency in the definition of healthcare documentation between multiple researchers and multiple international reports. It was defined by Potter & Perry (2010) as anything written or electronically generated that describes the status of a client or the care or services given to that client. College of Registered Nurses of British Columbia (CRNBC, 2003, p.5) added to this definition *"may be paper document or electronic document, such as EMRs, faxes, e-mails, audio or video tapes, and images"*. While the CRNNS (2012) symbolise documentation as not optional task and it is an integral part of nursing practice and professional patient care rather than something that takes away from patient care. In addition, WHO (2007) referred documentation to recording both actions taken by health care providers, patient's need and their response to illness and the care they received. It is used to monitor the patient's progress and to communicate with other health care providers. Moreover, it reflects the care that is provided to the patient. Moreover, Hanna, Anderson, & Maddox (2005) defined the healthcare documentation as confidential record that is kept for each patient by a healthcare professional or organization that contains the patient's personal details, a summary of the patient's medical history and documentation of each event which includes symptoms, diagnosis, treatment, and outcome, with relevant documents and correspondence are also included. Further, in keeping up with the technology, a lot of organizations worldwide have adopted the EMR systems which are defined by Ludwick, & Doucette (2009) as a computerized health information system where providers record detailed encounter information such as patient demographics, encounter summaries, medical history, allergies, intolerances, and lab test histories. Some may support order entry, results management and decision support. Some may also contain features or be integrated with software that can schedule appointments, perform billing tasks, and generate reports.

2.2.3 General status of healthcare documentation

Internationally, multiple studies tried to assess the status of healthcare documentation. Mishra et al. (2009) tried in their study to assess the adequacy of medical records. They found that patient condition was missing in 66% of the reviewed records with 74% contain abbreviations in the diagnosis. The same source indicates that Doctor's signature was illegible in 79% and missing in about 2% of the reviewed records. Logan, Gorman, & Middleton (2001) tried to

study the quality of medical record that is attributed to completeness and correctness, by using two different documentation techniques. They found that the mean of completeness and correctness using dictation technique were 68% and 98% respectively. In the same time, the mean of completeness and correctness using the encounter form were 69% and 93% respectively. In 2014, Burke, et al. studied the effect of the EMR on the over all quality of the out patient clinical notes and the quality of all its elements.

Locally, Abu Dagga (2014) tried to assess the discharge process in the govermentl hospital in Gaza. Her results were nearly consistent with that of Mishra et al. (2009). She found that, the overall mean of completeness was 82% and for correctness 74%. in addition, her study showed that documentation of health related information is the weakest part in the discharge process, where the average percentage of complete health information is 75% and acurrate by 59%. she added, compliance with documentation according to ICD 10 is important for epidemiology. In this regard, she found that there is little improvement where there are 75% of the discharge seets completing the ICD 10 in contrast to Abu Sada (2012) who found ICD 10 completeness to be 59% only.

One of the key informants, who were interviewed by Elron (2009), was not satisfied with documentation practice at Alshifa hospital and attributed the incomplete documentation due to the absence of unified strategy and language for documentation. Confirming to this, documentation in the admission sheet was available in 97% of the records but only 15% are complete. This study mentioned some barriers of the documentation practice in the Gaza Strip. These barriers include human related factors, such as: Shortage of staff and work overload, negative attitude, inadequate knowledge regarding standards and lack of commitment to work. Among the managerial barrier to documentation, Elron (2009) flagged the following gaps in documentation; no written guidelines, absence of incentives, no training and weak supervision with follow up.

2.2.4 Values of medical records

Information plays a central and vital role in medicine, and in this regard, the medical record is an important medium for providing information for the medical staff (Pourasghar, 2009). The patient's record provides the only enduring version of the care as it evolves over time (Gutheil,

2004). In the past, medical record was used as a tool for physicians to keep personal notes on a patient for follow-up visits (Jernigan, 2009). The same source pointed out that this idea has changed as the medical record started to be an ongoing history of a patient through sickness and health .The main purpose of the healthcare documentation is to assure the delivery of high quality services to the patients (Burke, et al., 2014; Gutheil, 2004). To ensure that appropriate patient care is delivered, a healthcare provider may offer a plan for the patient within a clinical note, as well as the rationale surrounding the plan. This plan can be used by other team member to shape their own clinical decision-making. In this capacity, the clinical note can serve as a primary means of communication between different health professionals (Ammenwerth, et al., 2001; Khan, 2012). It serves also as a communication tool between different levels of health care system such as primary care doctors and subspecialists, outpatient and inpatient doctors (Jernigan, 2009). Another purpose of the medical record is denoted by Khan (2012) and Burke, et al. (2014) which is the using of the medical records in practicing defensive medicine, where healthcare providers may include detailed information and descriptions in their clinical note in order to mitigate the potential for future legal actions by their patients. Another benefit of the medical records has appeared with the technological advancement and the increasing use of EMR, the insurance company started to depend on what physicians had documented in the medical record for particular visits for billing justification and financial reimbursement, especially in the high income countries (Jernigan, 2009). Medical record can be used for basic and clinical research purposes which are highlighted in Park (2013) editorial. While Keenan, Nguyen, & Srinivasan (2006) showed that EMRs have great potential as an educational tool, but thus far, strong data to support their use for this are lacking. As well, the literature showed that the medical records can be used for regulation (studying cost-effectiveness, assessing compliance with standards, accrediting professionals and hospitals) and policy making (allocating resources, strategic planning, public health surveillance and institutional strategies for the future (Pourasghar, 2009). From the above mentioned benefits, the aim of documentation of medical data in the records is not just for archiving purposes, but also for a broader use of the information.

2.2.5 Methods of documentation

Well written case note provide accountability, corroborate the delivery of appropriate services, support clinical decision and like any other skill require practice (Cameron & Turtle-song, 2002). There are many methods for medical record documentation which were the focus of a lot of studies found in the literature. These methods include: narrative, source oriented, problem oriented, Problem Intervention and Evaluation (PIE), focus and documentation by exception.

The narrative documentation method is the traditional method of medical records documentation. It is a story format that describes the client's status, interventions and treatments, and the client's response to treatments. Narrative documentation is easy to use in emergency situations, in which a simple, chronological order is needed (Potter & Perry, 1993). However, in this type of documentation it is often difficult to avoid being subjective, and there is normally a lack of analysis and critical decision making on the part of the health care provider (Delaune & Ladner, 2010). The same source indicates that narrative documentation is now being replaced by other formats because: it fails to reflect the nursing process, it is time consuming and the information is difficult to retrieve.

Leahy & Kizilay (2005) describes Source oriented method as a narrative recording, where each member of the health care team has a separate section on which to record data. He adds, because each discipline has a separate record, care is often fragmented and any details about specific problem may be distributed throughout the record. This method has similar advantages and disadvantages to narrative documentation since health care providers use an unstructured approach in documenting in the progress notes (Delaune & Ladner, 2010;Potter & Perry, 1993).

Problem Oriented Medical Record (POMR) is the most commonly used documentation approach by physician and other health care professionals, developed by Weed (1964). The focus of POMR documentation is on the client's problem, with a structured, logical format to narrative charting called SOAP. It is an acronym for Subjective, Objective, Assessment and plan (SOAP), with each initial letter representing one of the sections of the patient case note (Potter & Perry, 1993). The subjective component contains information about the problem from the client's perspective, such as symptoms described by the client like any pain

(Cameron & Turtle-song, 2002). The objective part consists of information which can be observed and measured by the health care provider, and these include: physical findings, laboratory results, and results of x-ray examination (Potter & Perry, 1993). The assessment section demonstrates how the subjective and the objective data are being formulated, interpreted and reflected upon, while the plan summarizes the treatment direction (Cameron & Turtle-song, 2002). Other formats that can be used in POMR documentation are SOAPIE and SOAPIER which add I for intervention, E for evaluation the effectiveness of intervention and R for revision which are the changes from the original plan of care (Potter & Perry, 1993). Weed (1964) expounds that POMR has the following major sections:

- Database: which is an assessment data and representative to all disciplines (history, physical, laboratory findings, educational and discharge needs), which become the basis for a problem list evaluation of the client's condition.

- Problem list: Is a listing of the client's problems derived from the database, with each problem numbered and labeled as acute, chronic, active, or inactive. The list is revised as new problems arise and others are resolved.

- Initial plan: Based on problem identification; the starting point for care plan development with client participation in setting goals, expected outcomes, and learning needs.

- Progress notes: Charting based on the SOAP, SOAPIE, or SOAPIER format. The entries of these formats are usually made every 24 hours on any unresolved problem or whenever the client's condition changes.

Quinn & Gordon (2003) suggested that the major advantage of the POMR documentation method is its widespread adoption, leading to general familiarity of the concept within the field of healthcare. They added that it also emphasizes clear and well-organized documentation of findings with a natural progression from collection of relevant information to the assessment to the plan on how to proceed. The format was accused, by the same authors, for encouraging documentation that is too concise, overuse of abbreviations and that it is sometimes difficult for non professionals to decipher.

After SOAP charting gained in popularity, the problem, intervention, evaluation (PIE) method was developed to streamline documentation. Whereas SOAP was developed on a medical model, PIE documentation has a nursing origin (Buckley-Womack & Gidney, 1987). The key

components of this method are assessment flow sheets and nurse's progress notes with an integrated plan of care that eliminates the need for a separate care plan. Each client problem is labeled and numbered for easy reference. When interventions are implemented to manage the client's problem, the problem number is identified; this method eliminates the traditional care plan by incorporating an ongoing plan of care into the daily documentation (Potter & Perry, 2010).

Focus documentation: is a method of identifying and organizing the narrative documentation of client concerns to include Data, Action, and Response (DAR). This method is not limited to client problem but it documents any client situation, even one unrelated to specific client problem (Scoates, Fishman& McAdam, 1996).

Documentation by exception: is a documentation method that requires the provider to document only deviations from pre established norms or standards. With standards integrated in the documentation form, the provider need only to document significant finding or exception to the predefined norms. It was developed to overcome the recurring problem of lengthy, repetitive notes and to enable the identification of trends in client status (Cummins & Hill, 1999).

2.2.6 Paper-based versus EMR

Paper-based medical record was the only tool used for documentation of medical practices for a long time. With the newly emerging technologies, EMRs have started to replace the old tool in an escalating pattern as shown in the results of Hsiao, Hing & Ashman (2014) study. Multiple studies have compared the two tools in term of Advantages and disadvantages. Bates, et al. (2003) talked about some advantages of the paper-based medical record, including: It is simple, easy to creat and need little training to use as it is widely spread and accepted, in addition to a low implementation cost. While in talking about paper-based medical records disadvantages, Jernigan (2009) and Valle, Patel & Maratt (2010) agreed about that the paper-based records are time consuming both in formating and retrieving information, difficult to read as it is frequently illigle and is not easily transferrable to another provider. In addition reviewing the record requires the physical chart in hand so it is available to only one person at a time. Bates, et al. (2003) added to these disadvantages: the old records are growing so thick

as to be unwieldy, segmented with multiple volumes that require large and multiple storage sites which makes it difficult to evaluate the record quality. Finally, the paper-based records are not always available, especially when patient is receiving care in different medical centers (Pourasghar, 2009).

The EMRs are widely covered in literature as it is the future tool for documentation. Of the advantages that possessed by the EMR, Valle, Patel& Maratt (2010) mentioned that the electronic records allow easy access to patient information from a remote location, which in turn is important for care of certain populations, such as rural residents, children, pregnant women, lactating mothers, and the elderly, who depend heavily on primary care physicians. At the same time, the electronic record improves the quality of healthcare documentation due to enhanced legiblity as it is typed not hand written. This feature will lead to reduction of the medical errors, particularly wrong medication, as it is shown in Bates, et al. (1999) study which demonstrate 80% reduction of medication errors for the inpatients. This is supported by the results of McGuire, et al. (2013), who found that improvement of documentation quality after the application of EMR leads to improve patient safety. Furthermore, one of the most important advantges of electronic records that can encourage policy mkers to adopt this technology, is improving time and cost efficiency. This advantage appeard clearly in Canadina study where EMRs saved approximatly 1.8 hours per physician per week which valued at $84 million during 2011 (Rozenblum, et al., 2012). In addition to that, saving the time of documentation helps to increase the the time spent for direct patient care (Minda & Brundage, 1993; Hakes & Whittington, 2008).

The disadvntages of electronic record include: high implementation cost, complexity of the system which needs training and technological disadvantages such as software failure, and bugs which lead to jumble data and deleted info (Jernigan, 2009). Furthermore, Usability erros are among the most disadvantages of EMR faced in daily practice and can affect the quality of medical record. Usability errors include: copy and paste previous medical notes that risks repeating information from the previous days which may no longer be up to date, adjecency error, discrepency between data fields and letting the computer take discisions and actions (Bowman, 2013). In addition, screen design and layout of the EMR system may be one of the disadvantages, as studied by Sittig, Kuperman & Fiskio (1999).

2.2.7 Documentation standards and contents of medical record

The rising demands on healthcare systems and associated costs require a much more efficient and transparent means of recording, transmitting and accessing reliable clinical information in order to manage and deliver high quality care to patients, and populations. This part of literature review describes standards for the structure and content of patient records (Burton, Anderson, & Kues, 2004).

Carefirst (2014) says the record should be organized in chronological order, not contain information for other persons and take into account the ethical issues specially the confidentiality of the record. WHO (2012) stipulates that any entry should be eligible and signed by its author with the date of initiation is clearly mentioned. There are six domains of standards other than the above mentioned ones that should be included in the medical record to meet quality criteria of medical record documentation (Carefirst, 2014).

The first domain is the basic or baseline client data which should include: Patient identifiers (full name, ID and medical record numbers) on each page of the record and biographical data such as date of birth, gender, address, telephone number, occupation and marital status (Carefirst, 2014). The National Committee of Quality Assurance (2006) added to the first domain the initial medical history and physical exam with past medical/surgical history, family history and personal habits such as smoking and substance abuse. The same source said that the gestational and birth history should be documented for every child less than six year old. In addition to that allergy and adverse reactions are prominently listed either NONE, NKA or if it is known, the reaction and its date should be documented (Carefirst, 2014).

The second domain of standards is the current visit data which should contains: Chief complaint / purpose of the visit as stated by the patient, clinical assessment and examination, diagnosis work up and medical impression, treatment plan that is consistent with the diagnosis, unresolved problem from the previous visit, follow up instructions with time frame for follow up and lastly current medications should be documented and reflect that long term medications are reviewed at least annually by the practitioner and updated as needed (College of physicians and surgeons of Ontario- CPSO, 2012; WHO, 2012; Carefirst, 2014).

Leahy & Kizilay (2005) talked about the third domain of standards which is consistent with (Carefirst, 2014). This domain includes the health education that should be provided to

patients, family members or designated caregivers. The information here should be periodically updated as appropriate and include patient noncompliance to advices.

The fourth domain is the screening and preventive services. Each patient record includes documentation that screening and preventive services were ordered and performed, or that the practitioner discussed these services with the patient and the patient chose to defer or refuse them. The provider may document that a patient sought screening and preventive services from another practitioner (Carefirst, 2014; NCQA, 2006).

The fifth domain is the ancillary and diagnostic services. Results of laboratory and other diagnostics should be documented in the medical record. In addition, the records should demonstrate that the provider reviews laboratory and diagnostic reports and makes decisions based on report findings, as well as the report should be dated upon its initiation (Carefirst, 2014).

The sixth domain is the requests for consultation and specialty referral that is supported with clinical assessment / physical findings and provided in a timely manner according to the severity of the patient's condition. The consultant feedback should be documented in the record when it is provided (NCQA, 2006), as it affects the quality and continuity of patients' care (Kripalani, et al., 2007; Olsen, Hellzén, & Enmarker, 2013).

2.2.8Medical record best practice and its measurement

Benstsen (1976) indicated that healthcare documentation has a bearing on quality of care. This idea was reinforced by WHO (2012) when mentioned that quality information contained within a patient's health record improves patient care and outcomes. Despite the agreement on the importance of quality healthcare documentation and the efforts made to enhance it, there may be inconsistencies in the definition of good healthcare documentation due to variations in documentation practice based on different requirements and documentation systems (Ning, 2012). The quality of medical records may be defined in various ways and described in terms of a number of attributes, depending on the perspective of the user (Logan, Gorman, & Middleton, 2001) and the function the documentation is meant to serve (Stetson, et al., 2008). The lack of unified definition of quality healthcare documentation has forced the researchers to talk about the quality of the medical record in form of attributes (Almutiry, Wills, &

Crowder, 2013). The same researchers described the quality attributes in the medical record in 15 dimensions which are health related. Each of these dimensions is divided into several related characteristics, and each characteristic is further made up to some criteria. Stetson, et al. (2008) studied 22 of these attributes, which are: clear, up-to-date, complete, legible, accurate, thorough, uncluttered, coherent, useful, correct, brief, current, organized, relevant, comprehensible, concise, structured, non redundant, succinct, synthesized, and focused. Liaw, et al. (2013) stated that accuracy, completeness, consistency, correctness and timeliness are the most frequently mentioned attributes in the literature.

The inconsistencies in the definition of the quality healthcare documentation, with the wide varieties in the attributes included in the literature have forced the researchers to develop multiple tools to study these attributes. Burke, et al. (2014) developed the Q-NOTE instrument which scores the medical record based on 7 attributes of quality healthcare documentation which are: clear, complete, concise, current, organized, prioritized, and sufficient information. Their study was to determine if EMRs improve the quality of outpatient clinical notes and they found the quality improved after implementation of the EMRs. Stetson, et al. (2008) sought to design and validate a reliable instrument to assess the quality of physician documentation. In this endeavor, they developed a 22-item Physician Documentation Quality Instrument (PDQI) which tried to describe the quality of healthcare documentation in three note types: admission, progress, and discharge notes. The result of their study was that clinicians believe high-quality clinical notes should be well formed, comprehensible, accurate, and compact. Two of these factors are novel and related to the characteristics of the form (well-formed, compact). Müller-Staub, et al. (2009) measured the quality of documentation of nursing diagnoses, interventions and outcomes by using the quality of diagnoses, interventions and outcomes (Q-DIO) instrument, which is found to be able to measure the quality of documented nursing diagnoses, related interventions and nursing-sensitive patient outcomes but with limited reliability. Another instrument called Cat-ch-Ing instrument was proved to be a valid and reliable audit instrument for nursing documentation in patient records when the VIPS model was used as the basis of the documentation (Björvell, Thorell-Ekstrand, & Wredling, 2000).

2.2.9 Barriers to quality healthcare documentation

Multiple factors could affect healthcare documentation at the same time. The first factor is education and trainning on healthcare documentation. Historically, Medical students and residents receive little formal training related to communication of patient care in the medical record which often results in incomplete documentation (Weizberg, et al., 2011). Friedman, Sainte, & Fallar (2010) found that only 68% Of United State medical schools formally teach students what to document and how to write progress notes in the medical record. Adding to that, 20% of emergency medicine physicians and 5% of interns had formal healthcare documentation training when conducting interviews about intern documentation (Isoardi, et al., 2013). The differences in completeness of the medical records among different professions appeared in the study of Jensdóttir, et al. (2008). They found the nurses to be superior in documenting geriatric issues in acute care setting than the doctors, which was referred to that nurses had formal training on documentation.

Multiple studies (Hicks & Gentleman, 2003; Müller-Staub, et al., 2007; Rosenbaum, et al., 2014) demonstrated that education of health care providers on the overall importance of healthcare documentation through planned and ongoing educational programs provides incentive to improve documentation practice in the form of accurate and complete documentation in the medical record.

Other factors that affect healthcare documentation are knowledge and attitude about the importance of healthcare documentation. In this regards, It was found that 78% of the healthcare provider had low knowledge about medical records documentation and 54% of them had good attitude about completion of medical records and the value of medical records documentation in treatment, education and research (Siamian, Ghafar & Aligolband, 2008). In addition, the same authors indicated that negligence of medical records is due to lack of knowledge and awareness of the students towards the method of medical records documentation with lack of desire in completion of records which in turn affect the quality of their practice.

The load is next in the list of factors that influence healthcare documentation. Physician, in particular, are almost always performing under significant pressure and in environments bursting with multiple demands for their attention, combined with the huge information load

faced by today's providers; this can be a recipe for cognitive overload, which could lead to error in healthcare documentation and negatively impact patient safety (Belden, Grayson, & Barnes, 2009; Chishlom, 2014). In the same domain, Bailey, Wilson & Yoong (2015) found that the healthcare documentation is not affected by the workload only, but started to deteriorate between the middle and the end of the 12 hour shift, when provider's energy started to be depleted.

In the early 1970s, standardized nursing languages began to develop and have been continue to be an ongoing process (Yearous, 2011). The same source added that the American Nurses Association recognizes eleven different standardized nursing languages (terminologies) where some of these languages are specific to practice settings, and others are more comprehensive and can be utilized in a variety of practice settings. Standardized nursing languages provide consistent terminologies which in turn allow for aggregation of data and provide the basis for research, quality improvement, and ultimately helps define best practices and evidence-based guidelines (Rutherford, 2008). Moving in consistency with these findings, Thoroddsen, Ehnfors & Ehrenberg (2011) found an increase from 77% to 88% of the content and completeness in documented nursing care after implementation of standardized terminologies.

Among the managerial factors that affect the quality of healthcare documentation, (Schneider, DeHaven & Snell, 2003) found the documentation of preventive services improved significantly after implementation of multifaceted quality improvement intervention. Elron (2009) interviewed one of the manager of Al-Shifa hospital in Gaza Strip who attributed the low quality of documentation in the discharge sheets to the absence of written policy, protocols and guidelines that is regulating the work, absence of incentives, rewards and punishment, absence of effective supervision and follow up, lack of in service training program and the ineffective quality improvement committee.

2.2.10 Management factors affecting healthcare documentation

This section represents the managerial factors that have an influence on healthcare documentation. Although the number of studies that focus on this subject is limited, still there are a lot of studies that mentioned part of the managerial factors that could affect

documentation practice. For the purpose of ease of exploring these factors, the researcher divided it into organizational culture factors and system factors.

Organizational culture factors include employees' satisfaction and commitment to work place, training, organizational culture, work load, time availability and type of the provided services. As described previously, the main purpose of the medical record is to share the information about and to keep the continuity of patient's care. Matzler, et al. (2011) emphasized the role of organizational commitment for information sharing. He hypothesized that highly committed employees are more willing to engage in an extra effort to document their knowledge as they believe that documentation of knowledge is beneficial to the achievement of organizational goals. This hypothesis was highly significant and explained 23% of the variance of knowledge sharing in his study. The success of any organization can be predicted by its success in rising and maintaining employees' commitment where high levels of commitment contribute to positive attitudes and behaviors in organizations, so organizational commitment enhances the success of an organization by making employees committed to the achievement of its goals (Grawe, Daugherty & MaCelroy, 2012).In this regard El Shaer (2016) found that about 76% of UNRWA health staff was organizationally committed to UNRWA, which in turn should be reflected in their documentation practices. Regarding the organizational culture itself, a culture that enhances communication or a culture that is innovative and open is likely to contribute to the success of the healthcare documentation practices (Lambooij, Drewes & Koster, 2017).

The literature review shows that several studies focused on the training about healthcare documentation, especially, training on the EMR. One of the studies (López, et al., 2017) showed improvement in the medical records' completion rate after implementing a training program about documentation of variables. At the same time, Newbold, et al. (2009) recommended focusing the training on super users who are end users who receive extra training on the use of electronic health systems, to be able to support, educate, and advise their colleagues in the clinical setting. Although Törnvall, Wilhelmsson & wahren (2004) found that ongoing in service training is requested to improve the electronic nursing documentation in the primary healthcare setting, Abdekhoda, et al. (2016) unexpectedly found that no significant effect of training on physicians' attitude toward the use of EMRs in producing quality medical record.

Regarding the workload, there was agreement among different studies that workload is among the main barriers that hinder production of a quality medical records (Elron, 2009; Abu Daga, 2014). Adding to that, Shihundla, Lebese & Maputle (2016) reported that nurses find it difficult to cope with the increased workload associated with documenting patient information on the multiple records that are utilized at primary healthcare facilities, leading to incomplete, illegible and inaccurate patient information. At the same time, Rao, et al. (2017) argued that administrative duties, including healthcare documentation, have a negative effect on the delivery of high quality care, as these duties required substantial physician time. As a solution for this problem, both Elron (2009) and Shihundla, Lebese & Maputle (2016) recommended increasing the number of working staff to solve the workload issue.

Regarding the **system related factors** that could affect healthcare documentation; it includes supervision with the availability and use of protocols. Karami & Arani (2010) found that supervision was in the second rank in the factors that affect documentation quality during their evaluation of the quality of the medical records in a university hospital in Tahran. The same study recommended that supervision should be adressed in any strategy that aims for improving healthcare documentation. Supporting the result of this study, Struik, et al. (2014) reported that nurses increased their documentation quality when there is support from the head of department with the presence of feedback on their performance. In addition, Törnvall, Wilhelmsson & Wahren (2004) emphasized on the role of the heads of the primary health centers in strengthening the nurses' professional identity and developing their healthcare documentation skills. Furthermore, in a local study conducted in Al-Shifa hospital by Elron (2009), he attributed the poor availability and completeness of the medical records to many factors, among them, poor supervision was the leading one. Applying the concept of supervision at UNRWA health centers, El Shaer (2016) found that more than 90% of his respondents perceive the supervisors' support to range from somewhat to very supportive. This high percentage of agreements should be touched in the daily practices.

The other part of system related factors is the availability and use of protocols. In this regard, both Elron (2009) and Abu Daga (2014) reported that lack of protocols was among the main barriers of completing the medical records and effective discharge process. Meanwhile, Karami & Arani (2010) results showed that protocols and standards came in the third rank as a factor that contributes in the quality of healthcare documentation. Still, the same source

indicated that targeting the protocols is less effective in improving the quality of healthcare documentation.

2.2.11Common mistakes in documentation

Healthcare documentation errors can be divided into three categories: critical, noncritical and educational opportunity errors (Wolf & Hughes, 2008).

In 2011, the Association of Healthcare Documentation Integrity (AHDI) defined the critical errors as the errors that have the potential to affect patient safety, care, or treatment. The critical errors include: terminology misuse in which an incorrect word can potentially lead to an inaccurate diagnosis, incorrect medical decision-making as well as inaccurate billing of the patient's account (Wolf & Hughes, 2008). Omissions/Insertions is another example of critical errors described by AHDI (2011) as the omitted or added words that change content and have the potential to compromise patient safety. One more example of critical error illustrated by the same source is the incorrect patient demographics or author identification as a medical record number, date of service, date of consultation or date of operation, and author identification number. Another critical error was described by Barker, et al. (2002), which is medication errors. It is either prescribing a medicine other than the right one, or prescribing it in a dose that dose not fit the patient.

AHDI (2011) illustrate the noncritical errors as the errors that have an impact on the integrity of a document but do not change the meaning of the record or have the potential to affect patient care or patient safety. The same source gave examples of such errors as: misspelling, which refers to misspelled words that compromise the integrity of the document. Another example of noncritical errors is incorrect verbiage which refers to inappropriate or excessive editing, but without significant impact on the medical meaning. This does not pertain to changes made for the purpose of correcting grammar or word usage (AHDI, 2011).

Institute of Medicine (1999) described the feedback and educational opportunities errors as incidental findings warrant educational opportunities and should be provided as feedback. Regardless of the reason or type, only those errors that do not change meaning or have the potential to affect patient care should fall into this category (Wolf & Hughes, 2008). These include but are not limited to: Grammar, punctuation, capitalization, plurals, fragment

sentences, abbreviations, slang and inflammatory remarks, inconsequential typos and omissions, capitalization of drug names and incorrect word forms such as femur instead of femoral (AHDI, 2011).

After exploring the literature that covers the subject of the study, the researcher will present the methods that were used in achieving the goal of the study, in the next chapter which is the methodology.

Chapter III: Methodology

This chapter presents information about the methods used to apply this study. It describes the design of the selected approach (methodology), the sample selection and sampling methods, the data collection and data analysis methods and models. Description of the piloting stage and modifications pursued in response to piloting results is fleshed herein. In addition, the study period and the response rate are illustrated. Information about the study instrument, its reliability and validity preceded the study limitations which appear at the end of this chapter.

3.1 Study design

The design of this study is a mixed methods one, in which data has been triangulated (quantitative and qualitative). This study is a descriptive, analytic and cross-sectional study. Cross-sectional studies portray a snap shot of the prevalent situation as in these studies variables of interest in a sample are assessed only once to determine the relationships between them (Singh, 2007). In addition, this study utilizes methodological triangulation between quantitative method (group administered questionnaire with health care providers), qualitative method (in depth interviews with key health providers) and retrospective chart review to validate findings from one method with another, or to enhance understanding of the facts on the ground (Bhattacherjee, 2012).The quantitative part of the study was carried out through group administered questionnaire by doctors, nurses and midwives. Meanwhile, the qualitative part was performed through key informants' interviews with senior medical officers and senior managers who are working at the UNRWA Gaza field office.

3.2 Study setting

The study was conducted at UNRWA health centers. For more representativeness and accuracy, the study was conducted at all UNRWA health centers distributed across the Gaza Strip (21 centers at the time of the study).

3.3 Study population

The study population consisted of three groups:

The first one, consisted of the health care providers, totaled 387 (127 physicians, 180 nurses and 80 midwives) working in UNRWA Health centers in the Gaza Strip. This number was derived through field interviews with the senior medical officer of each health center prior to the data collection stage.

The second group was the higher managerial level within UNRWA health program in the Gaza Strip. It consists of 21 senior medical officers and 12 senior managers who are grade 17-20.

The third group was records review for checking the quality of healthcare documentation in 2015, with total number of 3162969 records (UNRWA, 2016). The abstracted records included the four services provided by UNRWA health centers (Curative, NCD, Child health and Maternal health), and it was tested for availability and completeness of 37 parameters. The researcher selected these parameters according to its availability in the three documentation systems used by UNRWA (Paper-based, electronic health information and FHT systems) at the time of designing the study.

3.4 Study period

The study was expected to consume nine months; however, it consumed more (16 months). This study was initially proposed in 2015. The research proposal has been discussed at the SPH assigned committee in December 2015. The research proposal described the entire process, provided information and highlighted the preliminary designs for the data collection, data analysis methods and tools. Upon the approval, the researcher developed the required tools by himself benefiting from the literature as a starting point. The researcher consulted a group of thirteen experts at the validation stage before the finalization of the tool. Nine of the experts responded and participated in the validation process (Annex 2). The validation stage lasted for four weeks including refining of tools in the light of reviewers and the academic supervisor's feedback. Construction of the tool took about 8 weeks in total, starting on February and the tool became ready to be used at the end of March, 2016. Piloting took place

at Beach health center on 20th of April, 2016. Actual data collection started on 30th of April through 18th of May, 2016. The researcher collected the data himself though group administration of the questionnaire in the 21 health centers. Moreover, records review and its abstraction started at the beginning of June and ended at the middle of the same month.

Initial analysis of quantitative data was done between August and October 2016 prior to the last stage of data collection and validation which took place in December 2016 and January 2017 (Qualitative data collection stage). Compiling results and reporting started before and in parallel to qualitative data collection. The researcher extracted findings, created descriptive tables and performed inferential statistical analysis, and then explained findings through linking them to relevant pieces of the literature and inputs obtained during the in-depth interviews. The drafted report has been frequently enriched and edited by the research's academic supervisor. The final draft for defense was handed in April 2017.

3.5 Eligibility criteria

Inclusion criteria

- For the health care provider, this category included all fixed term contracted physicians, nurses and midwives who were employed for at least six months in UNRWA health centers.
- For the medical record, this category included all the records that were used during the year 2015.

Exclusion criteria

- For the heath care provider, the researcher excluded all health care providers with a contract other than the fixed term contract, newly employed fixed tem (less than six months) and all volunteers.
- For the medical records, any record that was not used in the year 2015 was excluded from the study.

3.6 Sampling process and calculation

The first sample in this study is the health care providers (physician, Nurses and midwives) who were assigned to fill in the study questionnaire. The researcher used the OpenEpi, Version 3 software to calculate the sample size of the healthcare providers using the following parameters:

- Target population 387.

- Hypothesized percentage of dependent variable in the population 50%.

- Confidence level 95%.

- Confidence interval 5%.

The suggested sample size by the software was 194.

The researcher increased the sample up to 210 providers to cover for possible non respondents and to increase statistical power. Those providers were proportionally selected from health centers through a systematic sampling method. Annex 3 shows the healthcare provider sample size calculation.

Again, the researcher used the OpenEpi, Version 3 software to calculate the sample size of the medical records to be reviewed, which is the second sample in the study, using the following parameters:

- Target population 3162969.

- Hypothesized percentage of dependent variable in the population 50%.

- Confidence level 95%.

- Confidence interval 5%.

The suggested sample size by the software was 385.

The researcher increased the sample up to 408 medical records. These records were distributed as 304 EMRs and 104 paper-based medical records. The electronic records were selected from the 19 health centers that are using an EMR system (16 records from each), through systematic random sampling technique. The paper-based medical records were selected from the only two health centers that were using the paper-based records at the time of the study (Beit Hanon and

Magazi). The number of records was 104, and it was selected from the two health centers equally; again, through systematic random sampling technique. Annex 4 shows medical records sample size and its calculation.

The last sample was purposively selected key informants, who were interviewed about the quality of healthcare documentation at UNRWA health centers. Annex 5 shows the names of the key informants.

3.7 Ethical and administrative considerations

In order to launch this study the following measures were carried out:

- The proposal was submitted to Al-Quds University-School of Public Health for discussion and academic approval.
- An administrative approval was obtained from the Chief of UNRWA Health program (Annex 6).
- The Modified International Code of Ethics Principles (1975), known as the Declaration of Helsinki, which is adopted by the World Medical Assembly were followed and an official letter of approval to conduct the research was obtained from the Helsinki Committee in Gaza (Annex 7).
- In accordance with the Principles of the Helsinki Ethical Declaration, every participant in the study received a complete explanation of the research purposes, program, and confidentiality (Annex 8).
- Every participant in the study knew that participation in the research is optional. In addition, a verbal consent was obtained from the employees who participated in the study.
- Formal permission for taking notes and tape recording of the interviews were obtained.
- To increase the responses credibility, the researcher maintained adherence to the Ethical Code Principles, through providing and maintaining anonymity and confidentiality. The researcher assumed that other ethical rights were protected through respect for people and respect for truth.

3.8 Study instruments

Quantitative part

To collect the quantitative data, the researcher used two instruments. The first one is a questionnaire that was filled in by the healthcare providers through group administration. The questionnaire consisted of 98 questions (Annex 8). The questionnaire consists of eight parts that cover the research questions, and these parts are:

- The first part is the demographic and work related characteristics. The participants were asked to respond to questions related to their personal data such as age, gender, profession, level of education, work station, working in secondary health care, years of working experience and training on healthcare documentation.
- Parts two to five of the questionnaire cover four domains which consist of 76 questions measured on 5 point Likert's type scale, ranging from 1 (strongly disagree) to 5 (strongly agree). These domains are: participants' knowledge and perception about healthcare documentation, documentation practicalities, managerial factors affecting documentation and barriers to documentation practices.
- Part number six consists of a number of errors that could be encountered in any medical record during the daily practice. The participants were asked to answer how frequent they face such errors. The errors included are: wrong drug name or dose, Inconsistent diagnosis, Spelling or grammatical errors and the participant was given the way to add any other error by an open part.
- The seventh part is an independent question about the participants' level of satisfaction about the healthcare documentation at UNRWA. The participants were asked to rate their satisfaction though five points rating scale (very unsatisfied to very satisfied).
- The last part of the questionnaire is open ended, left for the participants to suggest any idea to improve the quality of medical records at UNRWA.

The second tool that was used for quantitative data collection is abstraction forms for records review. The researcher used four forms to abstract the data from the four types of record that are used at UNRWA (outpatient, NCD, child health and maternal health records). The number of parameters that were tested is 37. These parameters are distributed as follow: 7 parameters for the outpatient record, 6 for the NCD assessment record, 8 for the child health record and

16 parameters for the maternal health record. Annex 9 shows the detailed structure of the abstraction forms.

Qualitative Part

For the qualitative data the researcher used open ended semi-structured questions. Those questions were phrased as semi structure and asked by the researcher within in-depth interviews with seven key informants at UNRWA in the Gaza Strip. Annex 10 shows the schedule of the key informant interview.

3.9 Pilot study

For quantitative part, a pilot study on 11 employees (5% of the sample) was done to explore the appropriateness of the study instruments and let the researcher train for data collection and check for the clarity of meanings, scales, time taken to fill the questionnaire and for expecting response rate. As a result of this stage few rephrasing and explanation were added to some questions with elimination of another two questions. The researcher discarded the first 11 questionnaire due to the modification done. After filling around 40 questionnaires which were also regarded as a second stage pilot, reliability analysis was performed and results were reassuring (Cronbach's Alpha= 0.766); therefore, these questionnaires were included in the final set of data.

For qualitative part, a pilot interview was done with one interviewee, which allow for further improvement of the study validity and reliability. On the light of the result of this stage; the questions were ordered and the way of asking the questions was improved to be more deeply.

3.10 Data collection

In this part the researcher will describe the process of data collection.

Quantitative part

After the piloting was done, the researcher started the field work of data collection. The quantitative data was collected by the researcher through group administered questionnaire. The eligible health care providers, for the study, were met inside each health care center. With

coordination with top management of the health program, meetings with study participants were arranged to avoid disruption of the daily work of participants and to assure suitable environment that enable realistic responses of participant. The participants were gathered in a room where disruption is minimal. The room was the senior medical officer's room when the manager was selected to participate in the study or the meeting room of the health center when the manager was not participating. After gathering all the participants, the researcher explained to the participants the ethical and administrative consideration in conducting the study. Then, he was reading the questions one by one and gave the time to the participants to respond accordingly. Each group took about 25 minutes to complete filling in the questionnaire. Thereafter, the researcher skimmed through the questionnaires to ensure that all questions have been answered.

For the record review, 408 medical records were extracted from the 21 health centers to be evaluated later on. The researcher had approval, from the chief of UNRWA health program (Annex 6), to have a privilege of reviewing the medical records in all the health centers which is supported by E-mail to the involved personnel (area health officers and senior medical officers).

The EMRs were reviewed remotely; where16 records were extracted from the 19 health centers that are using an electronic record system, with total number of 304 electronic records. The 16 records were divided by four records for each service (general, NCD, maternal and child health record). Moreover, the researcher visited the two health centers that were using the paper-based records (Beit Hanon and Magazi) four times on the ground, in order to review the rest of the records (104). These records were divided equally between the two centers, and 13 records for each service.

It is noteworthy to mention that records confidentiality and client privacy were assured by the researcher throughout the process of records abstraction for review.

Qualitative part

After the end of quantitative data collection and analysis, Interviews were conducted. The qualitative part of data collection was in the form of in-depth interviews with seven key personnel, working at UNRWA health department and from different level of managerial position, through semi structured questions. The interviews were held in the informants' office

as agreed upon with each of them and each interview lasted for about one hour. During the interview, the researcher started with thanking the participants for giving him their time. Then, the researcher introduced the study objectives in a short while after the first question in order not to influence the primer thoughts of the participants. The first question was made to explore initial thoughts about medical record in general. Notes were taken throughout the interviews and recorded to allow further capturing of information. Before ending the interview, the researcher expressed his thanks and gratitude to the participant for her / his time and valuable inputs to the study. To the possible extent, the researcher tried to ensure that everyone's inputs were expressed and that gestures and tones are noticed. Thereafter, prolonged engagement and probing techniques were used to make sure that ideas are reasonably reflected.

3.11 Response rate

Burns and Grove (2007) mentioned that the group administration of questionnaires usually results in higher response rate. For the healthcare provider survey, the response rate was 97.1% (204 out of the 210). In addition, all interviewees who were invited to participate in this study had positively responded.

3.12 Scientific rigor

Quantitative part (questionnaire)

Validity

Singh (2007) defines validity as the ability of tool to measure the thing it was designed to measure. Validity is of two types. The first one is the face validity which is defined as the extent to which the tool appears appealing. And to examine this, the questionnaire was nicely formatted. The pilot provided a forum to assess respondents' perceptions about the questionnaire as it showed how the healthcare providers respond to the questionnaire and how they understand it. This has enhanced the validity of the questionnaire after modifying it to be better understood, before starting the actual stage of data collection. The second type of validity is the content validity which is defined by Burns & Grove (2007) as the extent to which the instrument includes all major elements relevant to the construct being measured.

Thearfore, the questionnaire was evaluated by 9 public health and medical experts to assess its content validity, and their comments were taken in consideration.

Reliability

Bhattacherjee (2012) defines reliability as the ability of a measurement instrument to measure the same thing each time it is used. For this reason, group administration of the questionnaire assured its standardization. Then, the data entry was in the same day of the data collection, which allowed possible interventions to check the data quality or to refill the questionnaire when required. Furthermore, reentry of 5% of the data after finishing data entry assured correct entry procedure and decreased entry errors. In addition, the reliability of the questions was tested using the reliability coefficient (Cronbach's alpha test). The result of Cronbach's alpha test is shown in Table 3.1

Table 3.1: result of Cronbach's alpha test

Domain	Number of questions	Cronbach's Alpha
Knowledge	6	0.568
Perspectives	19	0.800
Documentation practicalities	16	0.866
Management factors	24	0.787
Barriers	11	0.719
Total scale reliability	**76**	**0.890**

Qualitative part (key informant interviews)

To assure the trustworthiness of the qualitative part of the study, the following was done:

First, a peer check was done to revise the in-depth interview questions to assure that they cover all the required dimensions. Then, a member check was done to assure accuracy and transparency of the transcripts during the interviews. Prolonged engagement was done as the researcher tried to probe for answers and cover all the interview dimensions properly. In addition, recording the interviews enhanced tracking up facts and re-checks the accuracy of the transcripts. Finally, all the transcripts and recordings were kept for tracking the information by others at any time.

3.13 Data entry and analysis

Quantitative part

First of all, data checking and verifying by over viewing of the questionnaire was performed. This was followed by designing an entry model using the Statistical Package of Social Science (SPSS) program, version 20, for data entry and analysis. Then, the data was entered into the model on the same day of data collection, to allow possible interventions to check the data quality or to refill the questionnaire when required. After that, data cleaning was done by taking random questionnaires and make sure it is correctly entered. This was followed by statistical examination in the form of descriptive statistical testing through frequencies distribution and central tendency calculation. The measures of central tendency were used according to the type of variables presented: the mode for nominal variable, the median for ordinal variables or skewed interval/ratios and finally the mean for not skewed interval/ratio variables. Moreover, cross tabulation for main findings and advanced statistical tests such as Chi square test to compare categorical variables, t test to compare two means of independent variables or one way Analysis of Variance (ANOVA) test to compare means of one independent variable with more than two categories were done when required to analyze the questionnaires and the abstraction forms data.

Qualitative part

Debriefing report for each interview was done immediately after the end of each one. Also objective consideration of non-prompted intimation and non-verbal cues were noted and considered. Open coding thematic analysis method was used to analyze the transcripts of the key informant interviews. The researcher obtained the main findings from the transcripts of the interviews. Then, categorization of related ideas, and comparison and integration between the quantitative and the qualitative findings was done to create rich items for discussion and representation.

3.14 Study limitations

Among the main limitations of the study that it included only UNRWA health centers, while other providers were not included such as MOH, NGO or private sector. Also, the study

focused on Gaza UNRWA field. Including others UNRWA field operations in other places might give more accurate estimation of the documentation status at UNRWA. Another main limitation was that the study focused on physician, nurses and midwives; meanwhile, it excluded dentist, pharmacist, physiotherapists and laboratory technicians. Adding to that, time burden, logistic issues and frequent cutout of electricity affected the study greatly.

Chapter IV: Results and discussion

The results of this study were consolidated from the quantitative and qualitative responses of the study participants. Verification was done through key informant interviews with purposefully selected individuals who are holding high managerial positions at UNRWA field office. Simultaneously, the researcher reviewed medical records from all the health centers belong to UNRWA in the Gaza Strip.

The following sections provide an overview of demographic characteristics, work related characteristics of the study sample, in addition to their knowledge, perspectives about the quality healthcare documentation. Altogether, with the documentation practicalities at UNRWA and the managerial factors those influence this practice. As the reader moves on, more analytical results show up to describe the subjective status of the quality of the medical records at UNRWA health centers.

4.1 Findings derived from the surveyed questionnaire

4.1.1 Descriptive statistics

4.1.1.1 Demographic characteristics

The total number of participants was 204. Those participants were physicians, nurses and the midwives working in the UNRWA health centers in the Gaza strip. As shown in Table 4.1, female participants have dominated the sample as they represented 64.7% of the participants, while the male participants represented 35.3% only. This difference could be attributed to the nature of the provided services at UNRWA health centers, which are mainly maternal and child health services. In 2008, UNRWA has adopted the Health Gender Mainstreaming Strategy to address the prevailing gender gap in the workforce at that time. Since then, UNRWA encouraged the recruitment of female staff while remaining attentive of the need for a competitive and transparent selection process (UNRWA, 2015) which resulted in the recruitment of more females now than before. The gender distribution among the participants of this study came in consistency with El Shaer (2016) who found that the majority of UNRWA healthcare providers were females 61.9%, while males were 38.1%.

Table 4.1: Distribution of respondents by demographic characteristics

Item	Category		N		%
Gender	Male		72		35.3
	Female		132		64.7
Age group	<30		34		16.7
	31-40		82		40.2
	41-50		54		26.5
	>50		34		16.7
	Mean= 40.2 SD= 9.4				
Area	North area and Gaza city		75		36.8
	Middle area		63		30.9
	South area		66		32.4
Profession	Doctor	Female	35	69	33.8
		Male	34		
	Nurse	Female	68	105	51.5
		Male	37		
	Midwife		30		14.7
Level of education	Diploma		64		31.4
	Bachelor		118		57.8
	Master		22		10.8
Place of graduation	Gaza		146		71.6
	West Bank		14		6.9
	Arab country		29		14.2
	Others		15		7.4

On the contrary, the gender distribution among employees working in the MOH in the Gaza Strip was different, 64.7% males and 35.3% females as reported by Radwan (2012). The researcher found that the percentage of female physicians was 50.7% out of their 33.8% of the total, and the percentage of female nurses was 64.8% out of their 51.5% of the total. These numbers are away from the numbers of PCBS (2016d) which reported that percentage of female physicians and female nurses in the Gaza Strip is 12.4% and 40.9% respectively.

Regarding the age, the researcher found that the mean age for the participants was 40.2 years. The majority of employees are in the age group 31-40 year old, which represented 40.2% of the participants, followed by the age group 41-50 year old representing 26.5%. The rest of participants are equally distributed between the age groups less than 30 and more than 50 year old by 16.7% for each. By summing the age groups together, the researcher noted that 83.4% (the majority) of the participants are above the age of 30, and this could be attributed to high retention rates of UNRWA employees. Adding to that, 56.9% of the participants are below the

age of 40 who are able to adapt more quickly to the major changes in the service as one of the senior medical officer stated *"the younger employee adapted more quickly than older employees to the shift from paper-based documentation to the electronic system".*

With regard to the geographical distribution of the participants, the researcher found that the participants were almost equally distributed among the three geographical areas (North with Gaza, middle and south area). North and Gaza area was in the lead, and it represented 36.8% of the participants. For the south area the percentage of participants was 32.4%, while for the middle area it was 30.9%. This equal distribution could reflect a fair allocation of the manpower across the Gaza Strip, where the highest population density is in the North and Gaza area.

Concerning the profession of the participants, the researcher found 51.5% were nurses, 33.8% were doctors and 14.7% of the participants were midwives. These findings are close to the findings of Maghari (2009) during her study of the mental health among healthcare providers in UNRWA clinics. She found that 26.8% of the respondents were doctors, 47.1% were nurses and 26.1% of them were paramedics. Furthermore, these results differ than what was reported by MOH (2015). The report stated that nurses and midwives constituted 26% of the medical staff at MOH, while doctors were 23% in the second rank after the nurses.

In connection with the profession, the researcher found that 57.8% of the participants have Bachelor degree, 31.4% of them are holding Diploma and 10.8% have Master degree. The researcher compares these results with previous studies (Maghari, 2009; Ramadan, 2010; El Shaer, 2016) and finds it almost identical with these studies. These percentages could be attributed the fact that the majority of nurses and doctors are holding a Bachelor degree, while the majority of midwives with little number of the nurses are carrying a Diploma. The Master degree is the least among the educational level as small number of the employees is holding it as an advantage to have some managerial positions.

Regarding the place of graduation, 71.6% of the participants graduated from colleges located in the Gaza Strip due to the high concentration of health related colleges in Gaza. Some like nursing colleges which are functioning in Gaza since 1954 and the faculties of medicine are functioning since 1999. In addition, the socio-cultural factors restrain females from travelling abroad for study. The researcher found in relation to this that14.2% of participants graduated

in Arab countries and more than half of them have been graduated from Egypt which reflects the geographical and political relation between the Gaza Strip and Egypt. The findings in this regard come in consistency with the results of Ramadan (2010) who found 65.1% of his participants had their qualification in Palestine and 18.7% of them from Arab countries.

4.1.1.2 Work related characteristics

Table 4.2: Distribution of responses by work related characteristics

Item	Category		N	%
Years of experience	Inside Gaza (N=204)	<10	95	46.6
		11-20	57	27.9
		>20	52	25.5
	Mean= 14.2 years SD= 8.7			
	Outside Gaza (N= 26)	<10	22	84.6
		11-20	1	3.8
		>20	3	11.5
	Mean= years 6.8 SD= 8.05			
	Total years of experience (N=204)	<10	86	42.2
		11-20	61	29.9
		>20	57	27.9
	Mean= 15.1 years SD= 9.2			
Work in secondary care	Yes		96	47.1
	No		108	52.9
Duration of work in secondary care (N=96)	1-5		69	33.8
	6-10		21	10.3
	>10		6	2.9
	Mean= 4.9 years SD= 5.4			
Work station	Family doctor		63	30.9
	well baby		40	19.6
	NCD		33	16.2
	maternity		30	14.7
	Senior Staff Nurse		16	7.8
	Senior Medical Officer		7	3.4
	Others		15	7.4
Training	Received training	Yes	66	32.4
		No	138	67.6
	Name of training (N=66)	E-health training	57	84.8
		MCH reporting	5	7.6
		Others	4	6.1
	Duration (N=66)	0-5 Days	24	36.4
		6-10 Days	19	28.8
		>10 Days	23	34.8
		Mean = 8.1 SD = 5.6		

As shown in Table 4.2, the researcher found that 42.2% of the participants have less than 10 years of experience working in the healthcare services both inside and outside the Gaza Strip, which is consistent with previous studies (Radwan, 2012; Bal'awi, 2013).

One of the senior managers reflected on this number during a key informant interview saying *"The trend of incomplete documentation has changed with the employment of a new generation, who was enthusiastic, had a good experience of working in hospital and they were aware of the documentation requirements".* The rest of the participants are divided almost equally between work experience 11-20 year and more than 20 years of experience. The average year of experience was 15.4 year. Regarding work experience outside Gaza Strip, only 20% of the participants worked outside the Gaza strip. About 90% of them had worked for less than 10 years. The mean of years of experience outside the Gaza Strip is 4.3 year. The percentage of having experience outside Gaza considered relatively low. This is due to the strict siege for the movement of personnel from the Gaza Strip; in addition to the lack of opportunities for the Gazans to work outside even if they are well qualified. For this reason, there should be arrangements between the higher authorities in the Palestinian government and the related bodies in the Arab and foreign countries. This is in order to polarize the skilled Palestinian professionals, especially the younger one, for human capacity building and as a solution for the unemployment problem.

Regarding the distribution of the participants according to work station, the researcher found that 30.9% of the respondents are working as family doctors and 14.7% are midwives who are working in the maternity station. Furthermore, nurses who are working in the well-baby station represented 19.6% of the participants, while those who are working in the NCD station were 16.2%. Moreover, 18.6% of the respondents are distributed among other work stations such as senior staff nurses and senior medical officers. The researcher considers this distribution is unequal, as each FHT at UNRWA health centers consists of three doctors, two nurses and one midwife. Therefore, staff distribution should be considered carefully, in order to avoid the problem of high work load and to provide high quality medical services, including the healthcare documentation.

Regarding training, the result in Table 4.2 demonstrates that 32.4% of the participants received training on healthcare documentation. In congruence with this number, Isoardi, et al. (2013) found that only 25% of the physicians had formal healthcare documentation training. About this, echoing one of the senior managers *"Training is important to improve the completeness and the quality of the medical records".* Another senior manager surprisingly said *"We trained all the staff about the electronic system, how could this number happen!"*

This finding has a different explanation by two senior managers. *"The employees might not consider the in service training they had a real training, they might mean the training to be outside the health center"* as cited by a senior manager. Moreover, the researcher found that 84.8% of the training was about E-health system which was adopted by UNRWA on 2012 as part of its reform to catch up with the global advancement in the EMRs. The duration of training was ranging from one to 21 working days, with a mean of 8.1 days. According to the aforementioned results, the researcher requests for training the staff about healthcare documentation and to reconsider the way of the training, in order to improve the quality of the medical records at UNRWA health centers.

After describing the participants' characteristics (demographic and work related), the researcher will describe and discuss the domains contributing to the quality of healthcare documentation, or the domains constituting quality documentation. These are knowledge, perspectives, documentation practicalities, management issues, barriers and healthcare documentation errors that are encountered during the daily practice.

4.1.1.3 Participants' knowledge about healthcare documentation

Table 4.3: Distribution of responses by Participants' knowledge about documentation

Statement		Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	%
Having high level of knowledge about documentation standards	**N**	3	25	34	98	44	3.76	75.2
	%	1.5	12.3	16.7	48	21.6		
Having the required knowledge about characters of quality documentation	**N**	6	13	42	106	37	3.76	75.2
	%	2.9	6.4	20.6	52	18.1		
Lack of knowledge about defects of documentation practice *	**N**	41	63	46	44	10	3.40	68.0
	%	20.1	30.9	22.5	21.6	4.9		
Having enough knowledge about the purpose of documentation	**N**	6	4	19	122	53	4.04	80.8
	%	2.9	2	9.3	59.8	26		
Lack of Awareness about standardized documentation languages *	**N**	35	66	46	40	17	3.30	66.0
	%	17.2	32.4	22.5	19.6	8.3		
Having enough knowledge about the e-health system functions	**N**	9	14	30	98	53	3.84	76.9
	%	4.4	6.9	14.7	48	26		
Mean of knowledge domain= 3.68 (73.6%)								

* Question reversed.

Findings in Table 4.3 demonstrate that the level of knowledge about healthcare documentation by the participants is moderate, where the mean percentage of knowledge was 73.6%. This percentage is considered high when compared with the results of Siamian, Ghafar & Aligolband (2008) who found about 22% of the participants had knowledge about medical records documentation. In questioning one of the senior managers during the key informant interviews about how to improve the medical records, he spoke confidently*" documentation will not improve unless the provider has the will to document and the knowledge about healthcare documentation".*

The highest score were for knowledge about the purpose of healthcare documentation, the e-health system functions, quality characteristics of documentation practices and knowledge about documentation standards with mean percentages of 80.8%, 76.9%, 75.2% and 75.2%

respectively. Regarding the knowledge about the purpose of healthcare documentation, the key informants during the interviews elaborately talked about it. One of them reported *"If you have a doctor who documents more than another doctor, you have to be sure that the former has higher knowledge and awareness about the importance of the medical record".* Another senior manager said *"the medical records contain data which is important for research and programs audit".*

The statement that contributed less to the overall of the knowledge domain was the awareness about the standardized documentation languages with mean percentage of 66%. This number comes in congruent with the results of Yearous (2011) who found that 73.3% of the respondents reported they have knowledge about standardized documentation languages. In addition, the researcher found that about 50% of the participants are disagreed and strongly disagreed about having knowledge of the defects of documentation practices.

In addition, the researcher noted, from the responses in the open ended question at the end of the questionnaire, that 70.6% of the participants reported they need training about healthcare documentation to increase their knowledge about this issue. This percentage comes in consistency with what was reported by 67.6% of the participants, who did not receive training about documentation, as shown in Table 4.2.

It is worth to mention that more that 85% of the respondents agree and strongly agree on having enough knowledge about the purpose of documentation, which should be translated during the daily practice in improving the quality of healthcare documentation. In addition, about three quarters of the participants agree and strongly agree on knowing the functions of the electronic health systems, while about 15% of them still uncertain and the rest denied having such knowledge. This should encourage the training of the healthcare providers about the e-health systems and all its functions.

For testing the knowledge of the participants about the quality characteristics of the healthcare documentation, the researcher made a list of 8 characters, where some of them related to good quality of documentation and others are not. The participants were given the chance to answer by either yes, no or do not know. The responses to this part are shown in Table 4.4.

Table 4.4: Distribution of responses regarding the knowledge of quality characteristics of healthcare documentation

Item	Yes		No		DK		Total	
	N	%	N	%	N	%	N	%
Accurate	196	96.1	3	1.5	5	2.5	204	100
Disordered	30	14.7	156	76.5	18	8.8	204	100
Complete	175	85.8	23	11.3	6	2.9	204	100
Subjective	152	74.5	39	19.1	13	6.4	204	100
Consistent	186	91.2	13	6.4	5	2.5	204	100
Concise	131	64.2	62	30.4	11	5.4	204	100
Ordinary	124	60.8	58	28.4	22	10.8	204	100
Legible	176	86.3	19	9.3	9	4.4	204	100

The result in Table 4.4 shows that almost all (96.1%) the participants agree that "Accurate" is one of the quality characteristics of healthcare documentation, which is true as described by WHO (2007). Furthermore, the researcher found that 74.5% of the participants failed to answer correctly about the subjectivity of the record. The character "Subjective" is not amnog the quality characteristics of healthcare documentation as mentioned by Potter & Perry (1993), because subjective information can be missleading and error in content can occure if it is not supported by objective information.

During the analysis of this part, the researcher found that only 9 participants (4.4%) managed to have correct answers for the 8 characters, while the rest of responses were ranging from 2 to 7 correct answers, as shown in Figure 4.1. Some quality characterestics were added by the participants in the open question of this part, where the character "Confidential" was added by one participant, "Legal/ethical" by one participant, "Timely" by two participants and the character " Up to date" was added by two participants out of the 204. These characters were mentioned in many studies (Potter & Perry, 1993; Ning, 2012 and Burke, et al., 2014). In this regard, during the key informant interviews one of the senior managers described the quality medical record *"The record that makes you feel that you are sitting with the patient when you*

read it"."Quality record for me, is the containment of the record to complete, valid, correct, accurate information that is directly related to the condition and to be legible and understandable, and then to be used by other parties", echoed by another senior manager.

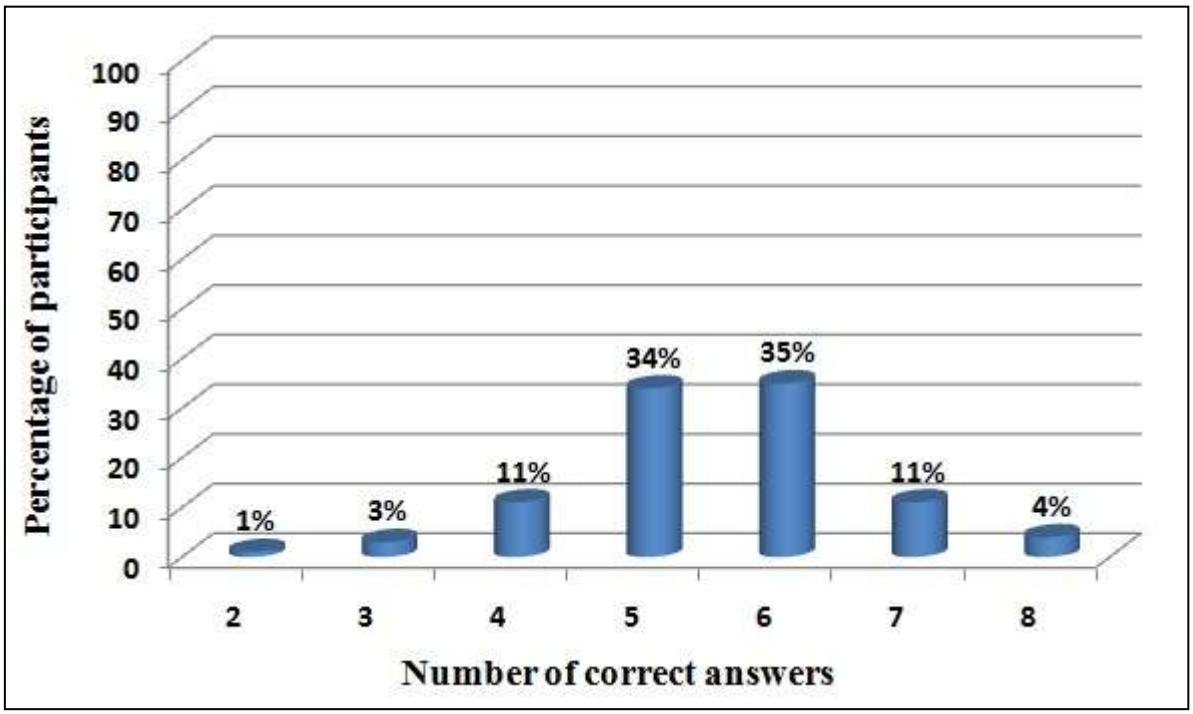

Figure 4.1: Distribution of participants according to correct answers about quality characteristics

As a conclusion for this domain, the percieved knowledge abouth healthcare documentation is high. However, there is a gap in the real knowledge about the charechterestics of quality healthcare documentation. This knowledge can be aquired through education with training and can be consolidated by supervison for the documentation practice.

4.1.1.4 Participants' perspectives about healthcare documentation

As illustrated in Table 4.5, the researcher found that the overall mean percentage of the respondents' perceptions about quality healthcare documentation was 81.4%. This number reflects that employees at UNRWA health centers have positive perceptions about the importance of a quality medical record.

Table 4.5: Distribution of responses by participants' perceptions about documentation

Statement		Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	%
Quality documentation promotes continuity of patient care	N	3	1	3	92	105	4.45	88.9
	%	1.5	0.5	1.5	45.1	51.5		
Quality documentation improves communication among healthcare providers	N	3	4	9	86	102	4.37	87.5
	%	1.5	2	4.4	42.2	50		
No role of quality documentation in improving communication among healthcare providers *	N	83	75	12	26	8	3.98	79.5
	%	40.7	36.8	5.9	12.7	3.9		
There is no value for quality documentation in routine work *	N	43	55	45	49	12	3.33	66.7
	%	21.1	27	22.1	24	5.9		
Quality documentation is an important factor in ensuring client safety	N	3	4	13	84	100	4.34	86.9
	%	1.5	2	6.4	41.2	49		
Quality documentation reduces the errors in providing services for clients	N	5	1	14	92	92	4.30	86.0
	%	2.5	0.5	6.9	45.1	45.1		
Quality documentation has a lot of organizational benefits	N	3	3	6	84	108	4.43	88.5
	%	1.5	1.5	2.9	41.2	52.9		
Quality documentation reduces the rate of repeated tests and treatment	N	1	11	11	83	98	4.30	86.1
	%	0.5	5.4	5.4	40.7	48		
Quality documentation increases client satisfaction	N	4	8	28	91	73	4.08	81.7
	%	2	3.9	13.7	44.6	35.8		
Quality documentation saves time during clinical encounter	N	4	8	15	104	73	4.15	82.9
	%	2	3.9	7.4	51	35.8		
There is a need to improve documentation practices	N	10	19	33	106	36	3.68	73.6
	%	4.9	9.3	16.2	52	17.6		
Quality documentation increases the work burden on the healthcare provider	N	32	43	43	61	25	3.02	60.4
	%	15.7	21.1	21.1	29.9	12.3		
The medical records at UNRWA are of high quality	N	7	15	44	83	55	3.80	76.1
	%	3.4	7.4	21.6	40.7	27		
It is not important to have a quality medical record*	N	102	71	16	6	9	4.23	84.6
	%	50	34.8	7.8	2.9	4.4		
Quality documentation protect health provider legally	N	4	3	5	79	113	4.44	88.8
	%	2	1.5	2.5	38.7	55.4		
The e-health record is superior to the paper-based record	N	2	6	30	73	93	4.22	84.4
	%	1	2.9	14.7	35.8	45.6		
Errors are more common in the paper-based record than the e-health record	N	2	13	42	69	78	4.02	80.4
	%	1	6.4	20.6	33.8	38.2		
E-health is better than the paper-based record in saving time	N	10	13	25	68	88	4.03	80.7
	%	4.9	6.4	12.3	33.3	43.1		
The paper-based record is more preferable for use than UNRWA's e-health system*	N	105	53	18	14	14	4.08	81.6
	%	51.5	26	8.8	6.9	6.9		
Mean of perception domain= 4.07 (81.4%)								

* Question reversed.

The researcher found that about 97% of the respondents agree and strongly agree on the statement that says quality healthcare documentation promotes continuity of patient care. In support of this result, there was agreement among the key informants about the importance of the medical records in following up the patients in the future *"The records are important for patient follow up and continuity of care",* as echoed by a senior medical officer. In addition, this finding is moving with Kripalani, et al. (2007) who found the low availability of discharge summary from hospitals is affecting the quality and continuity of care in approximately 25% of follow-up visits and contributing to primary care physician dissatisfaction.

Adding to that, 92.2% (agree and strongly agree) of the participants acknowledged that quality healthcare documentation improves communication among healthcare providers. This result comes in concordance with Ammenwerth, et al. (2001) who found in the interviews that both nurses and physicians expressed an improvement in the communication due to improved availability and legibility (quality) of documentation. The researcher found the mean percentage for this item is around 80%, even when the question was asked in the opposite direction in the questionnaire. . One of the senior managers was not surprised about this result, and she said *"Off course, the medical record is a communication tool among the providers inside the same health center and with other providers outside the health center".*

Findings in Table 4.5 also show 90.2% of the participants agree or strongly agree that quality healthcare documentation is important in ensuring client safety. A study conducted by McGuire, et al.(2013) mentioned a similar Figure. They found that 85.4% of their participants believed improvement of documentation quality after the application of EMRleads to improve patient safety and care.

Although, Ammenwerth & Spötl (2009) found that the time spent by physicians for documentation tasks was equal to the time spent for direct patient care. The researcher found 51% of the participants agree and 35.8% of them strongly agree on that quality healthcare documentation can save time during the clinical encounter. This finding is congruent with what were found in multiple studies (Minda & Brundage, 1993; Hakes & Whittington, 2008) who pointed out a reduction in the time spent in documentation rather than the patient care in the presence of quality medical record.

One of the highest mean percentages measuring the perception of employees about healthcare documentation is the statement that stated quality healthcare documentation protect the provider legally. The researcher found mean percentage for this statement is 88.8% with more than half of the participants responded strongly agree. This result was also reflected during the key informant interviews, where all the interviewed managers agreed on the quality medical records will protect the provider in case of medical error happened. The researcher can interpret this agreement depending on what was mentioned by Potter & Perry (1993). They mentioned that the medical record, not the medical care, is on trial in case of lawsuit.

Talking about the change of documentation methode from the paper-based to the electronic healthcare documentation, a senior manager spoke proudly about the change to the electronic system and said *"It is one of the greatest achievements of UNRWA during the last few years".* While one of the senior medical officers described the changeas *"Revolutionary change in delivering health services",* and another senior manager described it as *"Radical and strategic change, that took us a quantum leap in the delivery of health services".* In Table 4.5, the researcher managed to find out that 51.5% of the participants strongly prefare to use the E-health system on the paper-based medicl records. This preferance wae explained by the key informants during the interviews as the electronic system saves time, decreases effort (specially for the clarks and pharmacists), prepares reports simultaneously and the records can be reached at any time easily with confedentiality. However, 13.8% of the partcipants still prefare to use the paper-based record. The main reasons for this were mentioned in the open ended question at the end of the questionnaire, which were attributed to slaw connectivity of the electronic system and recurrrent shut down of the system during the day. Furthermore, two of the key informants revealed that *"We have lost the eye to eye contact with the patient. The provider is focusing on the computer and forget looking to the patient".*This note is consistant with what was reported by McGrath, Arar& Pugh (2007). They reported during a medical interview, when providers turned away from patients to enter clinical data into the system, a natural conversation breakpoint occurred.

The statements that least to participate in the overall mean precentage of the perception domain are: the quality documentation increases the work burden on the provider followed by there is no value for quality documentation in routine work, with a mean percentage of 60.4% and 66.7% respectively. The researcher explains this results in the setting of UNRWA health

centers that writing complete medical record can actually increase the work burden on the provider, with the idea of some providers lack of confidence about thiere written expression, in addition to a tendency to submit to group norms governing healthcare documentation. This result came opposite to what was found by Diab (2011), who found paperwork is the first in the list of factors that contribute to the nurses' work overload. the In this regard, one of the senior medical officers during the interview stated in confidence *"I do not think writing a high quality medical record will increase the burden on the provider, And with the application of the Electronic system it becomes even easier".* Although, These percentages are moderately high, still there is a space for improving it through changing the attitude of the provider regarding the burden of documentation and its importance even in the routine daily work.

After discussing the first domain of factors that affect healthcare documentation (participants' knowledge and perspectives about documentation), the researcher will describe and discuss the next domain which is documentation practicalities.

4.1.1.5 Healthcare documentation realities

As shown in Table 4.6, the researcher found that the domain that covers documentation practicalities is high. The mean percentage of this domain is 78% according to the responses of the participants. Moreover, the results in the same table show that 59.8% of the participants agreed on the well organization of the records. In addition to that, 61.3% of them agreed on the records are arranged into parts that makes documentation easier. Meanwhile, about half of the respondents are agreed and strongly agreed on the need to redesign the forms. The last result is almost equal to what was found by Mohamed & El-Naif (2005). They found about two thirds of their respondents stated that the design and shape of medical record was not acceptable and need to be redesigned. For this reason, the researcher is calling for revision of the medical records at UNRWA, with participation of the healthcare providers as they are the authors of the records.

In the same table, 74.5% of the participants agreed and strongly agreed on the documentation of the provided care are complete. The last finding come opposite to the findings of Elron (2009) who found a problem in the completeness of the surgical records at Al-Shifa hospital.

Table 4.6: Distribution of responses regarding the documentation realities

Statement		Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	%
The forms are well organized	**N**	2	11	24	122	45	3.97	79.3
	%	1	5.4	11.8	59.8	22.1		
The forms are arranged into parts that make documentation easier	**N**	3	8	24	125	44	3.98	79.5
	%	1.5	3.9	11.8	61.3	21.6		
The forms' design needs to be reviewed	**N**	11	25	56	90	22	3.43	68.5
	%	5.4	12.3	27.5	44.1	10.8		
It is easy to review previous encounters	**N**	5	11	30	111	47	3.90	78
	%	2.5	5.4	14.7	54.4	23		
The records give information needed for client follow up	**N**	1	7	13	105	78	4.24	84.7
	%	0.5	3.4	6.4	51.5	38.2		
E-health has decision support functions that help in making decisions	**N**	4	14	40	104	42	3.81	76.3
	%	2	6.9	19.6	51	20.6		
Allergies and adverse drug events are clearly documented	**N**	6	16	33	112	37	3.77	75.5
	%	2.9	7.8	16.2	54.9	18.1		
The entries are legible and any provider can understand the recorded note	**N**	1	6	21	121	55	4.19	81.9
	%	0.5	2.9	10.3	59.3	27		
Documentation of the proposed treatment plan is clear	**N**	3	6	30	114	51	4	80
	%	1.5	2.9	14.7	55.9	25		
Documentation of the provided care is complete	**N**	4	15	33	115	37	3.81	76.3
	%	2	7.4	16.2	56.4	18.1		
Appointments for follow up are clearly documented	**N**	3	11	16	111	63	4.08	81.6
	%	1.5	5.4	7.8	54.4	30.9		
The results of requested diagnostic tests are documented	**N**	0	7	14	113	70	4.21	84.1
	%	0	3.4	6.9	55.4	34.3		
Method of taking the medicines is clearly documented	**N**	3	18	29	97	57	3.92	78.3
	%	1.5	8.8	14.2	47.5	27.9		
Any unusual squeals to treatment are documented	**N**	5	21	50	97	31	3.63	72.6
	%	2.5	10.3	24.5	47.5	15.2		
The referrals made and their feedbacks are documented	**N**	9	43	47	72	33	3.38	67.6
	%	4.4	21.1	23	35.3	16.2		
No follow up appointments are mentioned in the record *	**N**	88	58	20	27	11	3.91	78.1
	%	43.1	28.4	9.8	13.2	5.4		
Mean of documentation practicalities domain = 3.9 (78%)								

* Question reversed.

The highest elicited score in this domain was 84.7% for the statement that says the records provide information needed for clints follow up. This result is consistent with the result of Burke, et al., (2014) who found 19% improvement in the follow up information after the application of EMR in managing type 2 diabetic patients.

In addition, 84.1% of the participants reported that the records contain the results of the requested diagnostic tests. This can be explained by the application of the E-health system at UNRWA, so, the results are always documented as a routine work by the laboratory staff.

"The labaratory results are available at any time and it is easy to retrieve it whenever we want", as mentioned by One of the senior medical officers during the interview while she was talking about the benifets of the electronic system.

The researcher found that the documentaion of the referrals and its feedback is the weakest point in this domain, with a mean percentage of 67.6%. This result may come from two directions, the healthcare providers side and client side. From the privider side, as shown by Olsen, Hellzén, & Enmarker (2013) it is due to the lack of writing a note in the client's record by the primary healthcare provider about the refferal, and the lack of a feedback from the secondary healthcare provider. The same study indicated that one third of the patients went home after discharge without contacting their primary healthcare provider, which explains the role of the client in the lack of refferal feedback. Regarding the referral and its feedback, a senior medical officer explained this low percentage by:

> *"There is a problem from our side, which is the lack of knowledge about how to write a refferal letter. Another problem from the hospital side, which is the lack of unified system of working with our refferals which I think also deppending on who receives the referral in the first instance".*

Another statement that contributed less to the overall score of the documentation practicalities, is the need to review the forms' design, with elicited score of 68.5% which is inconsistent with the findings of Sittig, Kuperman & Fiskio (1999) who found 72.2% of physicians were satisfied with the screen design and layout of the EMR system. Still, the researcher found the result regarding the forms' design is not highly decisive, as more than quarter (27.5%) of the participants are uncertain whether to review the forms or not. About the forms' design there were a lot of ideas coming from the interviews with the key informants. *"The medical records*

that are used by UNRWA are excellent in terms of forms design,it follows the WHO standards", echoed by a senior manager. Another key informant mentioned *"The way of displaying the information lead to the success or failure of writing a complete medical note. All information should be displayed in one page in a clear way to the healthcare provider".* While another informant suggested a minor changes in the forms with removal of duplicated items. On the light of these findings, the researcher suggests to review the forms' design in a way that helps making the medical records to be complete. Adding to that, the providers should be participated in the reviewing process, as they are the authors of the records.

In the following section, the researcher is going to talk about three managarial factors that contribute in the quality of healthcare documentation. These factors are: protocol availability with its use, supervision and organizational culture.

4.1.1.6 Managing healthcare documentation

The researcher divided these factors into three main categories which are: protocols availability and use, supervision and organizational culture variables. The researcher found the overall elicited mean for this domain is 3.69 out of 5 and weighted percentage of 73.8%. The three categories of this domain have almost equal contribution to the overall score of this domain according to the participants' responses. The highest category was the organizational culture with an elicited score of 74.8%, followed closely by protocols availability and use with a weighted mean of 74.6% and the least category contributed to the overall score was the supervision by 72.4%.

In Table 4.7, the researcher found that 91.2% of the participants agree and strongly agree that employee satisfaction helps in improving the quality of healthcare documentation, with a score of 84.8% for this statement. Employee satisfaction may lead to employee commitment to the organization, which in turn will improve the quality of healthcare documentation as the researcher found in the responses of 88.8% of the participants. This explanation was supported by two of the interviewed managers. *"Commitment to the place and organization will improve the quality of the medical records",* one of the senior managers said in confidence.

Table 4.7: Distribution of responses according to managerial factors affecting healthcare documentation.

Category	Item		Strongly disagree	Disagree	Uncertain	Agree	Strongly agree	Mean	%
Protocol	There is clear protocol to guide documentation practice.	N	3	21	38	98	44	3.78	75.6
		%	1.5	10.3	18.6	48	21.6		
	There are formal instructions in order to implement protocols.	N	3	14	40	100	47	3.85	77
		%	1.5	6.9	19.6	49	23		
	The protocol is followed during daily practice.	N	4	13	40	103	44	3.83	76.6
		%	2	6.4	19.6	50.5	21.6		
	The protocol is updated every few years.	N	7	26	61	80	30	3.49	69.8
		%	3.4	12.7	29.9	39.2	14.7		
	The protocol is consistent with international protocols.	N	4	20	51	86	43	3.71	74.2
		%	2	9.8	25	42.2	21.1		
Mean of the category "protocol" = 3.73 (74.6%)									
Supervision	There is regular supervision on the application of the protocol.	N	2	23	37	104	38	3.75	75
		%	1	11.3	18.1	51	18.6		
	The supervisor encourages reflection on the daily practice.	N	9	17	35	114	29	3.67	73.4
		%	4.4	8.3	17.2	55.9	14.2		
	The supervisor links theory and clinical practice well.	N	3	21	38	113	29	3.71	74.2
		%	1.5	10.3	18.6	55.4	14.2		
	The supervisor facilitates informative discussions during supervision.	N	7	32	49	90	26	3.47	69.4
		%	3.4	15.7	24	44.1	12.7		
	The supervisor's feedback on performance is constructive.	N	6	20	40	105	33	3.68	73.6
		%	2.9	9.8	19.6	51.5	16.2		
	The supervisor gives practical support.	N	5	25	34	115	25	3.64	72.8
		%	2.5	12.3	16.7	56.4	12.3		
	The supervisor helps identify learning needs.	N	11	29	40	107	17	3.44	68.8
		%	5.4	14.2	19.6	52.5	8.3		
	The supervisor gives regular feedback on the performance.	N	3	28	35	119	19	3.6	72
		%	1.5	13.7	17.2	58.3	9.3		
Mean of the category "supervision" = 3.62 (72.4%)									
Organizational culture	Employee satisfaction helps improving quality of documentation.	N	1	2	15	116	70	4.24	84.8
		%	0.5	1	7.4	56.9	34.3		
	Commitment to organization improves quality of documentation.	N	0	3	20	115	66	4.2	84
		%	0	1.5	9.8	56.4	32.4		
	Documentation practice depends on the level of healthcare center.	N	9	14	27	122	32	3.75	75
		%	4.4	6.9	13.2	59.8	15.7		
	The type of provided services affects documentation practice.	N	3	8	20	135	38	3.97	79.4
		%	1.5	3.9	9.8	66.2	18.6		
	Station of work affects documentation practice.	N	4	18	22	116	44	3.87	77.4
		%	2	8.8	10.8	56.9	21.6		
	The number of employees available is enough for quality documentation.	N	36	53	50	51	14	3.23	64.6
		%	17.6	26	24.5	25	6.9		
	Workload strongly impacts documentation practice.	N	9	10	16	76	93	4.15	83
		%	4.4	4.9	7.8	37.3	45.6		
	The time available is enough to write a complete medical note.	N	27	65	43	62	7	3.21	64.2
		%	13.2	31.9	21.1	30.4	3.4		
	Writing a complete note increase the work burden on the employee.	N	14	19	24	96	51	3.74	74.8
		%	6.9	9.3	11.8	47.1	25		
	Learning about documentation was provided at college.	N	30	52	26	68	28	3.06	61.2
		%	14.7	25.5	12.7	33.3	13.7		
	On job training is needed to improve the skills in documentation.	N	13	20	22	102	47	3.74	74.8
		%	6.4	9.8	10.8	50	23		
Mean of the category "organizational culture" = 3.74 (74.8%)									
Overall mean of managerial factors domain= 3.69 (73.8%)									

UNRWA health centers in the Gaza Strip are characterized by high workload, as reported by UNRWA (2016), where the average daily medical consultation per doctor in the year 2015 was 87. The researcher found this overload is clearly reflected in the participants' responses where the statement "Workload strongly impacts documentation practice" scored 83% weighted mean. About this, five of the key informants admitted that the high workload at UNRWA health centers prevents to have high quality medical reports. *"Work overload is the main obstacle for complete documentation",* one of the senior manager said. Another manager added *"High workload is the reason for the lack of documentation, but this is not an excuse for not documenting in the patient's file".* On the other side, one of the senior managers said loudly *"Everybody attributes the lack of documentation to the work overload, but I do not think this is true as the workload is less than the past".*

The researcher attributed the work overload to the high number of consultations per day, in addition to the shortage of the man power. The shortage of man power is reflected in the study responses as a factor that decrease the quality of healthcare documentation, where 43.6% of the responses were agree and strongly agree to the statement "The available number of employees is not enough for performing quality documentation", and 24.5% of them uncertain about this statement. In addition, these responses are reflected in the open ended question where 23.5% of the responses to this question suggested increasing the number of employee to decrease the work overload and improve the quality of documentation.

Another factor that is shown in Table 4.7 which has an obvious effect on documentation practice is the time availability. The researcher found that 13.2% of the responses strongly disagree and 31.9% of them disagree on the time available for writing a high quality document is enough, with 21.1% uncertain responses and about one third agree or strongly agree on that. The lack of available time for documentation is considered an expected result of the work overload. Regarding the time constrain, Blair & Smith (2012) reported that the time taken for documentation could be better managed by documenting what should be done, what has been done and the outcomes of that care. Anyhow, one of the senior mangers during the key informant interview expressed his concern and said *"The work overload and lack of time do not deny the availability and completeness of the medical record".* This result guides the researcher to ask the higher management to find solutions for the work overload to increase

the time available for providing quality services in general and writing high quality medical notes in particular.

The second category in the managerial factors that could affect the quality of the medical records is protocols that guide documentation practice. As shown in Table 4.7, this part has weighted mean of 74.6%, which is lower than what was found by (Karami & Arani, 2010). They found that the overall availability and use of documentation standards was 88.5%, during their evaluation of the healthcare documentation at university hospital.

The researcher noticed in this category that there is high degree of uncertainty in the responses to the questions covering it, ranging from 18.6% to 29.9% of the participants were uncertain about their responses. Still the majority agreed and strongly agreed to the questions that have been asked. About the importance of the protocols, one of the senior medical officers emphasized on that and she said *"It can lead to a unified system of documentation and improve accountability and responsibility". "It is the minimum requirement that has to be done, after that you can add whatever you want",* as mentioned by another senior manager.

In this category, the researcher found the statement "there are formal instructions in order to implement protocols" has a weighted mean 77% and 72% of the respondents agree and strongly agree on that. In this regard, a senior manager said while he was expressing distress *"We have our protocols and it is not followed dramatically, and this needs to be improved".* For this reason, the researcher calls for any step that could lead to improve the application of available protocols in order to find a unified documentation system in all UNRWA health centers.

The least score in this category was 69.8%, which is for the updating of the protocols every few years, where 53.9% of the respondents agree and strongly agree on that, while only 16.1% of them said that the protocols are not updated every few years. This result comes opposite to what is found by Elron (2009), who reported that the protocols at the surgical department in Al- Shifa hospital are old and not revise or reformed from a long time.

As a conclusion for this category, the researcher finds the availability of protocols at UNRWA health centers is high and these protocols are followed by the providers in their daily practices. Meanwhile, these protocols need to be updated every few years to keep with the least international protocols.

Table 4.7 shows the least category that contributes in the overall managerial factors domain, which is the supervision for the documentation practice. This category is reasonably moderately acceptable as the weighted mean for supervision is 72.4%. This percentage is congruent with what was mentioned by Elron (2009) who attributed the poor availability and completeness of the medical records to many factors, the poor supervision is the first of them. Still in this category, about 20 % of the participants were uncertain in their responses to the questions that cover this category. The resoan for this can be explained as the supervision issue is a ssnsitive one in UNRWA, and a lot of employees refrain talking about it or talk positively about it. This result is far awy from the finding of Karami & Arani (2010), who found that the score of the supervision category was about 90%. The researcher attributed this discrepancy in the results due to the differences in the study settings and the contex of both study.During the key informant interview, we should see the exclamation marks on the face of a senior manager who was talking about the concept of the supervision. He said *"Our perception about the supervisor is false. We consider the supervisor a person who tries to find defects in our work".* Another manager support this idea and stated *"Supervision is not a nitpick, but rather to support me and help me to work correctly".* However, the highest score in this category was 75% , where 69.6% of the respondents agree to strongly agree on the presence of regular supervision for the application of the protocols that control documentation. The qualitative study showed a lot of debate about this issue. One of the senior medical officers reported *"supervision is not done on regular basis. It depends on the work priorities for the supervisor and the time available".* Another senior manager commented *"Today, supervision on the medical records is done on regular basis, specially with the application of the electronic system".* Another key informant added *"during the last period, the supervision on the medical records was weak".* He attributed this weakness to*"The records were divided between paper-based, HIS and FHT. This results in confusion of the supervisior in follow up the records and to do the required supervision"*, as he said.

The lowest score in this category was for the ability of the supervisor to help the employee in identefying her/his learning needs, with a mean percentage 68.8%. this is could be due to the lacke of resources that is directed to employees' training and career development; in addition to the weak relation between the employees and the supervisors. Meanwhile, the researcher found that 68.7% of the participants agree to strongly agree that the supervisor gives them

practical support. This percent is away from what was found by El Shaer (2016) on his study about the relation between UNRWA staff and their managers. He found in this regard that 94% of the participants perceive the supervisors' support to range from somewhat to very supportive. In this regard, we have to feel the speech of a senior manager who underlined the supervisor support. He said *"If you don't have a close and effective supervision you will not achieve".*

Despite the best efforts, medical errors remain an unavoidable reality in the field of medicine, and bring with them sensitive and often-challenging communication issues. This is particularly significant in overloaded environment, like that of UNRWA health centers, where health care providers must listen to, diagnose, and treat patients very quickly, all while establishing rapport and developing trust with the patient and family. In the following section of the study, the researcher will focus the light on some off the most frequently encountered errors in documentation during the daily practice.

4.1.1.7 Errors of healthcare documentation

In this part of the study, the researcher will try to describe the most frequently encountered errors in documentation during the daily practice. As shown in Table 4.8, the researcher divided the errors into: errors of prescribing, laboratory service errors, mismatching between treatment and diagnosis and finally spelling errors. These errors were reported by a senior medical officer, who said *"We have spelling errors, the treatment sometimes is a way from the diagnosis and sometimes the laboratory results are written incorrectly by the laboratory technician".*

Table 4.8: Distribution of responses according to encountered errors

Error	No errors		1 out of 100 files (low)		1 out of 50 files (medium)		1 out of 10 files (high)	
	N	%	N	%	N	%	N	%
Prescribing errors	87	42.6	55	27.0	30	14.7	32	15.7
Wrong lab value	62	30.4	65	31.9	49	24.0	28	13.7
Inconsistent diagnosis	74	36.3	52	25.5	41	20.1	37	18.1
Spelling errors	53	26.0	39	19.1	46	22.5	66	32.4

In relation to prescribing errors, which consisted of both medication name and its dose, about half of the participants (42.6%) denied encountering such errors. Furthermore, about quarter of them (27%) said they face prescribing errors in a low frequency during their daily practice. The last quarter of the participants divided equally between the answers medium and high occurrence of prescribing errors during their practice. Our qualitative study indicated almost similar findings when a senior manager said *"Drug dosage was a problem in the paper-based; however, it becomes better with the electronic system today".* Comparing this result with a study that was done in America, this result differs from what is found by Barker, et al. (2002). They found prescribing error occurred in 37.1% of the 105 medication documentation errors during the review of 1934 prescribed agent.

Table 4.8 shows that about one thirds (32.4%) of the participants indicated they come across spelling or grammatical errors in the records they are dealing with. This percentage was expected to be much higher due to the overloaded working hours with the shortage of staff in UNRWA health centers. On the other hand, about one quarter (26%) of the participants denied facing such errors in their daily practice.Moreover, some participants added some of the spelling errors in the open ended part of the question. They added: exchanging letters due to adjecency, inserting additional letter and the se of unknown abbreviations. About this type of error, Siklósi, Novák & Prószéky (2016) reported that medical records are usually created in a rush without proofreading, thus the number of spelling errors is very high and a wide variety of error types can occur. The same source reported the most frequent types of errors, which are similar to the errors added by the participants of our study, they reported: mistyping, accidentally swapping letters, inserting extra letters or just missing some and grammatical errors, in addition to abbreviations, which usually do not correspond to any standard.

For the above mentioned reasons the healthcare providers should take all the time needed to generate the record without facing such errors of documentation.

4.1.1.8 Barriers for documentation practices

This domain consists of 11 items that reflect the barriers to documentation practices. The respondents were allowed to choose wheather they agree or disagree in considering each item as a barrier for healthcare documentation, on a five point likert's scale. The higher the scores of an item makes it a strong barrier to documentation practices. Meantime, the item with a low

scores is not percieved as a strong barrier. The overall mean score for this domain was 3.59 out of 5 (71.8%). This finding is consistent with Abu Dagga (2014), which revealed a high mean score of 72.2%, which indicates barriers are considered as high hindering factor toward effective discharge.

Table 4.9: Distribution of responses according to barriers of documentation

Item		**Strongly disagree**	**Disagree**	**Uncertain**	**Agree**	**Strongly agree**	**Mean**	**%**
Shortage of staff	N	6	5	10	68	115	4.38	87.6
	%	2.9	2.5	4.9	33.3	56.4		
Work over load	N	4	2	2	76	120	4.5	90
	%	2	1	1	37.3	58.8		
Negative attitude	N	7	24	30	92	51	3.76	75.2
	%	3.4	11.8	14.7	45.1	25		
Inadequate knowledge regarding standards	N	9	24	31	98	42	3.69	73.8
	%	4.4	11.8	15.2	48	20.6		
Lack of commitment to work	N	14	26	24	103	37	3.6	72
	%	6.9	12.7	11.8	50.5	18.1		
Presence of written guidelines	N	32	51	39	58	24	2.96	59.2
	%	15.7	25	19.1	28.4	11.8		
No training	N	7	24	18	93	62	3.88	77.6
	%	3.4	11.8	8.8	45.6	30.4		
Managerial supervision	N	18	41	37	83	25	3.27	65.4
	%	8.8	20.1	18.1	40.7	12.3		
Forms are not users friendly	N	17	51	51	65	20	3.1	62
	%	8.3	25	25	31.9	9.8		
Forms are long	N	13	47	38	82	24	3.28	65.6
	%	6.4	23	18.6	40.2	11.8		
lack of adequate utilization	N	18	55	39	66	26	3.13	62.6
	%	8.8	27	19.1	32.4	12.7		
Mean of the barriers of documentation practices= 3.59 (71.8%)								

Findings in Table 4.9 shows that 90%, 87.6% and 77.6% of the participants agree and strongly agree that work overload, shortage of working staff and lack of training respectively, are the main barriers to quality documentation practice. These findings are consistent with the findings of Elron (2009) and Blair & Smith (2012) findings.They mentioned increasing workload and shortage of nursing staff among the barriers of effective healthcare documentation. Furthermore, our qualitative study showed a consensus among the interviewed

managers that work overload and lack of training in among the barriers of healthcare documentation. *"Work overload is the main obstacle for complete documentation",* a senior medical officer said while she was sighing. At the same time, no one of them mentioned shortage of staff to be a barrier, and this raises questions as 89.7% of the participants in the questionnaire agree and strongly agree that shortage of staff is a barrier for documentation.

Uncommonly, the researcher found 40.2% of the participants agree and strongly agree that presence of written guidelines is among the barriers to quality documentation. The result of our qualitative study may explain this finding *"Technical instructions that rapidly changing every now and then are among the barriers. It makes documentation difficult as you are not familiar with the instruction yet, but later on it helps"*, as mentioned by a senior medical officer. This result comes in contrary to the result of Elron (2009) and Blair & Smith (2012) who indicated that lack of clear guidelines is a factor that leads to incomplete filling in the patients' records, adding to that about three quarters of Abu Dagga (2014) participants agree and strongly agree lack of clear policy is a strong barrier to documentation in the discharge papers.

Another unexpected result revealed in Table 4.9, that 40.7% of the participants agree on that the managerial supervision is among the barriers for documentation. Supporting this number, one of the senior managers spoke wistfully *"We have to make our employees feel that we are supporting them, not catching their mistakes".* This result makes us question the relation between the supervisors and the employees.

The key informants enumerated multiple barriers to healthcare documentation during the interviews. They counted: working under stress of personal and work related factors, logistic issues which leads to slowness of the electronic system (slow connectivity and electric cut out), lack of employees' knowledge and awareness about the importance of the healthcare documentation, the trend which is running among the employees that it is not important to document the patient complaints, and finally the public acceptance to the use of electronic system in delivering the service. *"Frustration of the provider who is working under stress and lack of training and career development which lead to burnout of the provider",* one of the senior managers summarized. Therefore, the decision makers need to target their efforts in

dissolving all of these barriers and to take the right steps toward improving the quality of patient care including their medical records.

4.1.1.9 The overall quality of healthcare documentation:

As shown in Figure 4.2, the overall quality of healthcare documentation is moderately high. It has elicited score of 77%. The researcher assumed that the first four domains (knowledge, perspectives, realities and managing factors) are affecting the overall quality of healthcare documentation in a positive direction. Meanwhile, the barriers and errors are affecting it in the negative direction. This result is similar to what was fond by Ridyard & Street (2015). They found that the quality of the medical documentation to be 75%, during their evaluation of the standard of medical documentation at university teaching hospital. Anyhow, the researcher found this Figure still could be improved by finding solutions for the barriers, mainly the work overload, shortage of staff and lack of training. In addition, improvement in the managerial factors, especially supervision, can move the quality of the healthcare documentation a quantum leap in the right direction.

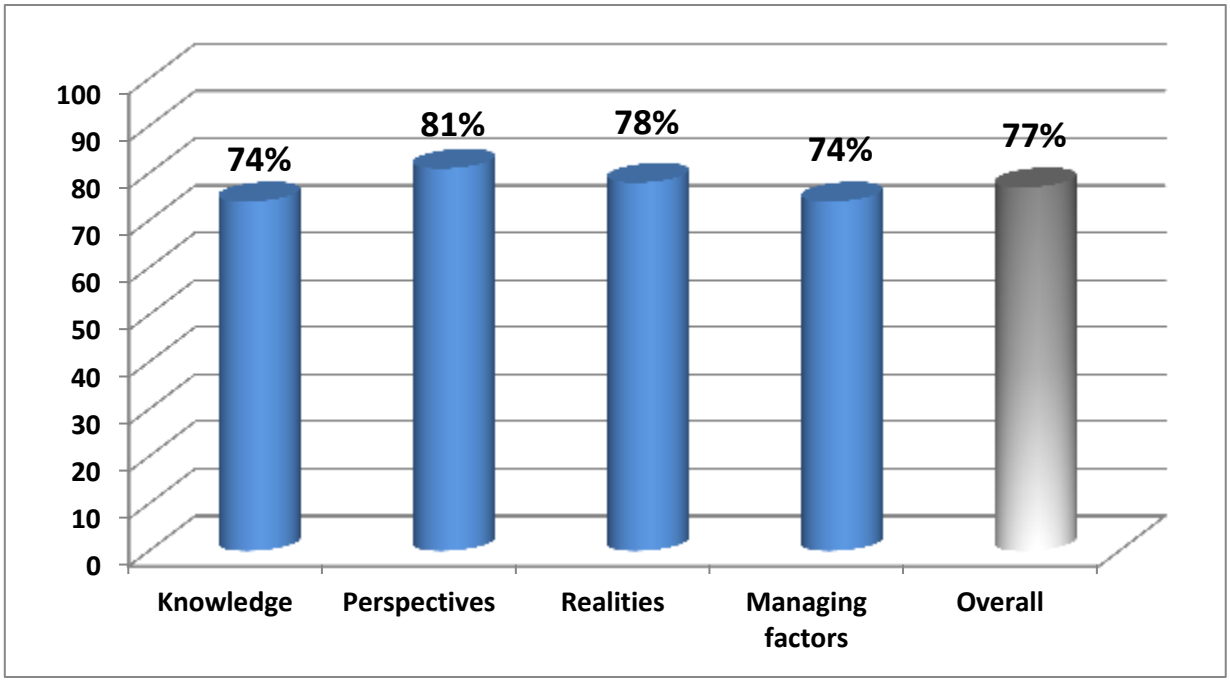

Figure 4.2: The overall quality of healthcare documentation at UNRWA

4.1.1.10 Level of satisfaction about documentation at UNRWA health centers

In response to a direct question, the level of participants' satisfaction about documentation practices is considered slightly high, with a mean score of 3.89 out of 5 (77.8%), where 86.8% of the participants were satisfied and very satisfied. Meanwhile, the result of our qualitative study showed the level of satisfaction of the interviewed managers is ranging from 70% to 90%. *"It did not reach the point of perfection, but I think it is good and better than the files of other organization. I am 85% satisfied about the medical records at UNRWA*", one of the senior managers echoed. The researcher found this result to be much higher than what is found by Abu Dagga (2014). She found that 48.7% of her participants were satisfied and very satisfied.

These results indicate a high level of providers' satisfaction regarding documentation practices, which in turn, might be reflected in their daily practice at work.

4.1.2 Inferential analysis of the findings of the surveyed questionnaire

To determine whether variances in quality of healthcare documentation among groups of respondents do exist or not, and whether it is related to participants' characteristics such as gender, level of education, geographical distribution, years of experience, etc, t-test, ANOVA and Chi square tests have been applied. ANOVA was used to compare means of one independent variable with more than two categories; t-test was used to compare two means of independent variables, while Chi square was used to compare categorical variables.

The researcher presents the overall result of the scale to reflect the overall documentation status and compare it with the participants' characteristics in order to be more clearly and easy to compare it with other similar studies within and outside the Gaza Strip. The overall result of the scale is calculated by taking the average of the four domains (knowledge, perspectives, practices and managerial factors). Moreover, explanation and interpretation of these findings are presented in the following sections.

4.1.2.1 Differences in quality of documentation in reference to demographic characteristics

As shown in Table 4.10, there are minimal differences in the overall quality of documentation among gender, different age groups and geographical distribution of the participants.

Table 4.10: Differences in documentation in reference to demographic characteristics

Independent Variable		N	Mean	Factor	Value	Sig.
Gender	Male	72	3.77	t	-1.954	0.053
	Female	132	3.89			
Age	<30	34	3.78	F	0.814	0.488
	31-40	82	3.84			
	41-50	54	3.91			
	>50	34	3.86			
Area	Northern area and Gaza	75	3.78	F	2.626	0.075
	Middle area	63	3.86			
	Southern area	66	3.92			
Profession	Doctor	69	3.75	F	5.167	0.006
	Nurse	105	3.88			
	Midwife	30	3.98			
Level of education	Diploma	64	3.97	F	5.244	0.006
	Bachelor	118	3.79			
	Master	22	3.82			
Place of graduation	Gaza	146	3.88	F	1.370	0.253
	West Bank	14	3.79			
	Arab country	29	3.73			
	Others	15	3.86			

With regard to the gender of the participants, females had higher scores than males in the overall quality of documentation (mean 3.89 and 3.77 respectively). Although, these differences did not reach a statistically significant level, but it was about to be statistically significant (P value= 0.053). *"Females are writing and talking more than males, but I think there are other factors that control documentation such as work overload and the personality of the employee",* a senior manager said. This result is consistent with the findings of Soto, Kleinman, & Simon (2002) who found that female internists are more likely to document medical history than male colleagues.

The overall quality of documentation was higher among the age group 41-50 with a mean 3.91, followed by the age group >50 which scored 3.86. Both results were not statistically significant (P value= 0.488), according to ANOVA test. It is not strange to see such results

regarding the age group, as older people get more knowledge and practice more with advancing in age more than the younger people. This result comes in the opposite of what a senior medical officer said about the relation between the age and documentation. She said *"The younger employees have better records than the older employees, especially if they have computer skills. Adding to that, the memory factor may favor the youngest"*. *"The older employees are slow in typing, so they will not write a complete medical note"*, a senior manager added. Another manager stated *"The younger employees were very comfortable to deal with the system, as they are better in using new technologies".*

Furthermore, the result in Table 4.10 indicated that there are differences in the overall quality of documentation among different profession. Midwives had the highest scores, followed by nurses then by doctors (mean 3.98, 3.88 and 3.75 respectively). These differences are statistically significant, P value= 0.006, according to ANOVA test. The Least Significant Difference (LSD) post hoc test, as illustrated in Annex 11, shows a significant differences in the overall quality of documentation mainly between the midwives and the physicians on one hand, and between the nurses and the physicians on the other hand. Meanwhile the differences between midwives and nurses were not significant, according to the same test. These results are congruent with the finding of Jensdóttir, et al. (2008) who found that nurses to be superior in documenting geriatric issues in acute care setting than the doctors.

In addition, the managers who were interviewed expected our result. *"The midwives and nurses are documenting more than the doctors as the way of their thinking is well suited to the subject of documentation. Even during their study at school, they have a course about nursing and midwifery notes which is not present for doctors",* as mentioned by a senior manager. Another one explained why the midwives are documenting more. He said *"They have less workload, more contact time with clients and the design of the maternal file helps them to do so".* The same manager emphasized on the importance of the doctor's note, and said firmly *"The doctors should master documentation in all the records because they are the decision makers".* Another senior manager clarified the reasons making doctors documenting less. He reported *"Time factor and high workload prevent the doctors from documenting in the desired way".* The same manger added *"The diversity and multiplicity of services of the family doctor reduce the interest of the doctor in good documentation of the data".* In the same area, a

senior medical officer attributed these differences to the employees' personality and not to their profession.

Another difference in documentation in reference to demographic characteristics was found in the respondents' level of education. The researcher found that diploma holders had the highest mean, 3.97, followed by master degree holders who scored 3.82 and then by bachelor degree holders with 3.79. These differences were statistically significant (P value= 0.006), according to ANOVA. At the same time, LSD post hoc test (Annex 12) shows that the mean difference is significant between diploma holders and bachelor degree holders only, with no significance between bachelor degree holders and master degree holders, or between diploma and master degree holders.

4.1.2.2 Differences in quality of documentation in reference to work related characteristics

Table 4.11: Differences in documentation in reference to work related characteristics

Independent Variables		N	Mean	Factor	Value	Sig.
Total years of experience	<10	86	3.81	F	0.768	0.465
	11-20	61	3.86			
	>20	57	3.89			
Work in secondary care	Yes	96	3.80	t	-1.688	0.093
	No	108	3.89			
Duration of work in secondary care	1-5	69	3.79	F	0.058	0.944
	6-10	21	3.83			
	>10	6	3.82			
Workstation	Family doctor	63	3.72	F	3.882	0.001
	well baby	40	3.94			
	NCD	33	3.91			
	maternity	30	4.00			
	Senior Staff Nurse	16	3.85			
	Senior Medical Officer	7	3.97			
	Others*	15	3.65			
Training received	Yes	66	3.98	t	3.748	0.001
	No	138	3.79			
Duration of Training	0-5 Days	24	3.96	F	4.669	0.013
	6-10 Days	19	3.86			
	>10 Days	23	4.12			

Table 4.11 shows that there is gradual increment in the quality of documentation in relation to the number of experience years. However, these differences are not statistically significant among different groups, but it is similar to what is reported by Soto, Kleinman & Simon (2002). Although those who had more than 20 year of experience scored higher means than others.

Another result shown in Table 4.11 is the relationships between the quality of healthcare documentation and the work in the secondary healthcare or not, using the independent samples t test. The researcher found that the quality of documentation is higher for those participants who did not work in secondary care (mean = 3.89) than those participants who worked in secondary care (mean = 3.80). Still, the variance did not reach statistically significant level (P value= 0.093).

In regard the workstation, the researcher found the quality of documentation is higher in the maternity station, those who are senior medical officers then in the well-baby station (mean = 4, 3.97 and 3.94 respectively), and the differences are statistically significant (P value= 0.001).

The quality of the documents in the maternity station is attributed to the close supervision from the higher management due to the sensitivity of the service provided specially the antenatal care services. *"The midwives are working in a critical station, for this reason as a protection she will write everything",* a senior medical officer commented. Furthermore, a senior manager explained why documentation is higher in the maternity station, and said *"in maternal station there was no way for the file to be incomplete, as the items are arranged in a way that makes documentation easy".* In addition, a senior medical officer referred these differences to close supervision, and she stated *"Some stations have closed supervision more than other stations".* Meanwhile, a senior manager talked about different factor that improve documentation in some stations which is the stability in the same working station. He mentioned *"Belonging to the place is important, and the absence of stability in one work station has a negative effect on documentation".* This factor appears clearly for nurses who are working in the well baby station for a period of time and another period in the NCD station. Adding to them, none fixed term doctors (JCP) who are covering the absence of the fixed term doctors. For more details about the differences among different stations see the LSD post hoc test (Annex13).

In the same table, the researcher found that the participants who received training about healthcare documentation demonstrate higher level of documentation (mean =3.98) than those who did not receive training (mean =3.79) and the differences between the two groups were statistically significant (P value= 0.001). Isoardi, et al. (2013) indicted the lack of formal training is a barrier to the production of a high quality medical record by emergency department physicians which is compatible with the results of this study. In addition, it was found that the longer the duration of the training, the higher the quality of documentation, and these differences are statistically significant (P value= 0.013) using the ANOVA and LSD post hoc tests (Annex14). These findings are naturally occurring, as training with longer duration will increase the knowledge and practices about the subject being trained on.

During the in-depth interviews, the ideas that appeared were diverse. A senior medical officer expressed disappointment when she talked about training. She said *"I think the training we had was not enough".* The disappointment was expressed by another senior manager, when he said *"The high level management wanted to apply the system in all clinics in a short period of time to feel the achievement. We were training under the pressure of time limit, which makes the training to be imperfect".* Another senior medical officer had some objections about the place and the way of training. She said *"If the training was done outside the working place, the results would be better. By this way we train our employees, entertain them and motivate them to work".* About the way of training, she reported *"In service training is good when you want to train a single person, not the whole staff of the clinic". "Differences in employees' capabilities were not taken into account",* she talked about computer skills. Adding to these ideas, a senior manager stated *"Training on the system is endless. Every day we face some problems. It is important to focus the training on one person in every center, let's say the supervisor, to be quite familiar with every single detail of the system".*

4.1.2.3 Differences in errors of documentation in reference to participants' characteristics

Table 4.12 displays a relation between participants' profession, level of education and station of work in one hand, and the frequency of documentation errors that could happen during the daily practice in the other hand. The frequency of the encountered errors was calculated by

asking the participants how many times the listed errors (prescribing errors, wrong laboratory value, inconsistent diagnosis and spelling errors) are encountered during their practice?.

Table 4.12: Differences in encountered errors of documentation in reference to participants' characteristics

Independent Variable		N	Mean	Factor	Value	Sig.
Profession	Doctor	69	2.61	F	7.843	0.001
	Nurse	105	2.12			
	Midwife	30	2.57			
Level of education	Diploma	64	2.29	F	0.327	0.722
	Bachelor	118	2.36			
	Master	22	2.46			
Station of work	Family doctor	63	2.66	F	4.357	0.001
	well baby station	40	1.99			
	NCD	33	2.16			
	Maternity	30	2.55			
	Senior staff nurse	16	2.61			
	Senior medical officer	7	2.20			
	Others	15	1.87			

The researcher found that doctors are encountering documentation errors more than midwives and nurses (mean =2.61, 2.57 and 2.12 respectively). This can be explained as the doctors usually are the end authors of the medical record, and they are playing a leader role in the team inside the health centers. Despite being a weak relation between profession and errors of documentation, this relation is statistically significant (P value= 0.001). For more details on the differences among different profession see Annex 15.

Another result that is displayed in Table 4.12, which is statistically significant (P value= 0.001) by ANOVA test, is the variation in the faced errors during daily practice and the station of work. Participants who are working as a doctor scored 2.66 which is the highest elicited mean, followed by senior staff nurse who scored 2.61, then by those who are working in the maternity stations with a score 2.55. The result of the LSD post hoc test is attached as Annex16.

Regarding the variation in the faced errors according to the level of education, the researcher found that Master holders elicited 2.46 which is the highest mean, followed by the Bachelor degree holders who scored 2.36 and then by Diploma holder who had 2.29. This result is a logic one, as advancement in education makes people more knowledgeable and to be able to

critique the work of others. Yet, this variation did not reach a statistically significant level (P value= 0.722)

4.1.2.4 Differences in barriers in reference to demographic and work related characteristics

To examine differences in relation to demographic and work characteristic variables in regard of the barriers of documentation practices, ANOVA and independent samples t test were used. Statistically, no significant differences were found (Annex17).

4.1.2.5 Satisfaction of healthcare providers with current documentation practices

In response to a direct question, as shown in Table 4.13, 86.8% of healthcare providers were satisfied with current documentation practices at UNRWA health centers. This result came opposite to what was found by Abu Dagga (2014), who indicated that less than half of her participants were satisfied and very satisfied with the discharge practices at the governmental hospitals.

Table 4.13: Satisfaction of health care provider with current documentation practices

Level of satisfaction	Physician		Nurse		Total		Chi	P
	N	%	N	%	N	%		
Unsatisfied	8	8.1	5	4.8	13	6.4	2.616	0.270
Uncertain	9	9.1	5	4.8	14	6.9		
Satisfied	82	82.8	95	90.5	177	86.8		
total	**99**	**100**	**105**	**100**	**204**	**100**		

In addition, there are some differences among healthcare providers regarding their satisfaction levels. Nurses and midwives elicited higher level of satisfaction (90.5% satisfied) than the physicians (82.8% satisfied). Although, these differences did not reach a statistical significant level, where P-value= 0.270 according to the Chi square test. These findings came in consistency with the findings of Abu Dagga (2014) where the nurses showed higher level of satisfaction than the doctors. The results of this study show a high level of satisfaction of the healthcare providers about documentation practices, which in turn, might affect positively their practice at daily work.

4.2 Findings derived from the record review

In this part, the researcher presents the findings of the parameters that were focused on in the patients' medical records. The number of the parameters differs according to the services provided, and it is divided as: 7 for the outpatient general record, 8 for the child health record, 16 for the maternal health record and 6 for the NCD record. These parameters were selected to be applicable, as much as possible, in the three documentation systems that are used at UNRWA health centers which are the paper-based, health information system and the family team system. A random sample of 408 medical records was reviewed for availability of the documented items and completeness of the available ones. This sample is covering the four services equally and selected from the 21 health centers that belong to UNRWA. The data was complied and organized using an abstraction sheets (Annex 9). The researcher means by available is the presence of a note in the required parameter that exists in the medical record. Completeness was checked, for the available parameter, through consistency of information provided at the records in reference to the service provided.

4.2.1 Descriptive statistics

4.2.1.1 General outpatient records

As illustrated in Table 4.14, result indicates that the highest score for availability and completeness is in the general outpatient records (58.83% and 83.2% respectively). What makes this percentage high is the availability of diagnosis in 91.2% and a prescription in all the reviewed records, which makes the record a prescribing record more than a document that reflects the care that is provided to the client.

Although the services at the primary care level should depend mainly on counseling and health education, the advice and management plan parameters has the lowest score which was 10.8%, followed by 12.7% for the findings of the physical examination, and then by the patient's complaint which was 26.6%. However, when these parameters are available, it is almost complete as shown in Table 4.14. Comparing the results of the findings of the physical examination and the patient complaint, it is nearly equal to what was found by Elron (2009). He found that History & Physical examination is available in 47% of the reviewed surgical records at Al-Shifa hospital.

Table 4.14: Distribution of medical records by availability and completeness

Item			Available		Complete only for available one	
			N	%	N	%
Outpatient record	Complain		27	26.5	23	85.2
	Findings of physical exam		13	12.7	12	92.3
	Diagnosis		93	91.2	87	93.6
	Advice/Management		11	10.8	10	83.3
	Abbreviation		72	70.6	36	50
	Prescribing amount		102	100	100	98
	Prescribing frequency		102	100	81	79.4
Average percentage for outpatient record				**58.83**		**83.2**
Child health record	New born Family history (N=74)		59	79.7	58	98.3
	New born exam		82	80.4	81	98.8
	New born hospitalization (N= 74)		68	91.9	60	88.2
	New born management		82	80.4	55	67.1
	Hb test (N= 89)		77	86.5	57	73.1
	12 Month exam (N= 89)		70	78.7	55	78.6
	36 Month exam (N= 22)		9	40.9	9	100
	Nurse note		98	96.1	45	45.9
Average percentage for child health record				**79.32**		**81.25**
Maternal health record	History N=102	History (AN/FP)	81	79.4	80	98.8
		Medical history	88	86.3	82	93.2
	AN registration N= 89	Investigation	88	98.9	58	65.9
		Management	89	100	80	89.9
		Risk assessment	89	100	89	100
	AN Follow up N= 89	Nurse note	81	91.0	28	34.6
		Investigation	60	67.4	0	0
		Exam	81	91.0	77	95.1
	Referrals N= 70	Reason	67	95.7	67	100
		Findings	61	87.1	47	77.1
		Action	64	91.4	45	70.3
	Family planning N= 44	Breast exam	34	77.3	34	100
		Menstruation	36	81.8	30	83.3
		PV exam (N= 17)	11	64.7	11	100
		Findings	38	86.4	33	86.8
		Follow up	26	59.1	26	100
Average percentage for maternal health record				**84.85**		**80.93**
NCD record	Main check up		95	93.1	3	3.2
	Investigation		91	89.2	54	59.3
	Foot care (for diabetics, N=57)		35	61.4	21	60.0
	Nurse remark		69	67.6	55	79.7
	Doctor remark		38	37.3	20	52.6
	Control status		100	98.0	63	63.0
Average percentage for NCD record				**74.45**		**52.97**
Overall percentage of the reviewed records				**73.80**		**80.12**

In addition, the researcher found abbreviations were available in 70.6% of the records, and 50% of these abbreviations were complete and agreed upon by the providers. This makes the other 50% Incomprehensible by other providers.

Through the key informants' interviews, a senior manager expressed his disaffection and angry with these numbers, when he said *"These numbers are very low and considered a failure. It can be explained as the doctors did not counsel the patient".* Another senior manager blamed the senior medical officers and said *"The senior officers don't make regular assessment for these records".* The same manager added *"During the training on using the system, it was mentioned that some parts are not important and could be left blank".* One of the senior medical officers explained *"Instead of documenting the complaints, they write the diagnosis, as they feel that writing takes time from them".*

Another senior medical officer raised her voice *"This is disrespect. Everybody has to write all information that benefits the patient care".*

All these findings call for quick actions to find the real causes behind it, and how such numbers could be improved in seek of the client benefit.

4.2.1.2 Child health records

Table 4.14 shows that the average availability of the tested items in the child health records is 79.23%, of which 81.25% were complete. Regarding the new born family history where N= 74, as this item is not available in the family team system in the child part itself, this item is absent in about 20% of the reviewed records, with 98.3% of the available one is complete. Adding to that, the researcher found that the new born exam is absent in about 20% of the records, but it is present and almost complete (98.8%) in the rest of the records. This percentage (20% absence) is a critical one, as the examination of the new born baby at this period of life is important in discovering congenital diseases that is not discovered at hospital. One of the senior medical officers explained wistfully *"This is bad. I think it is due to the disinterest of some medical officers in pediatric, in addition to the absence of records review by the supervisors".*

Regarding the HB testing which started at the first birthday of the baby, the researcher found that this service is completed in only 73.1% out of the 86.5% available records. This reflects

discontinuity of the care for the anemic children, who are considered a priority target of the services provided by UNRWA.

The lowest percentage of availability was found in the examination of the children at 36 month age, which was found only in 40.9% of the applicable records (N= 22), but it is totally completed in the available one. This percentage is low as there are no vaccines for children at this age, and they are picked up when they came for another curative service. Through the key informant interviews, they agree and support our result and explain this finding. *"It is due to the end of vaccination schedule. But it is better than a previous Figure due to improvement in the health education and counseling and the main role in this is for the healthcare providers", one of the senior managers explained.*

Another low percentage was found in the completeness of the nurse note (45.9% out of the 96.1% available one), as it is not reflecting the real service provided and depending mostly on the drop down list of the system. *"Some data is written as a stamp due to the use of the drop list. Apparently the file is complete, but the content is not reliable and is not related to the condition",* one of the senior managers commented. This result is not consistent with the finding of Abu Sada (2012) who found the nurse note was available in 86% of the review records at the European Gaza Hospital, and all the available note were complete.

4.2.1.3 Maternal health records

The researcher found that the tested item is available in 84.85% of the records and complete in 80.93% of the available one. Findings in Table 4.14 indicate that the investigation is complete in 65.9% of the records in the antenatal registration document. The gap in this item was found in the results of the subsequent investigations (at 24th week gestation) which were not being documented. In addition, result in Table 4.14 shows that the investigations in the antenatal follow up are available in 67.4% of the reviewed records and totally in complete in the available records. These percentages may question the continuity of care for such a sensitive service, when the notes are not available in about 35% of the encounters and incomplete in the rest.

In the family planning records, the breast exam is available and complete in 77.3% of the reviewed records. The researcher found this percent is relatively high; still we are losing about quarter of the ladies, who came to this station, in screening of breast cancer. Moreover, the

researcher found that PV exam is available and complete in 64.7% of the reviewed records. This number is relatively low for this sensitive service; in addition, we are losing the screening for cervical problems (infection and neoplasm). Finally the researcher found that the family planning follow up is available and complete in 59.1% of the records, which may dispute the continuity of care in such service. About the last number, one of the senior manager commented with astonishment while he was shaking his head *"It is an eternal problem. The midwives write the note in a place other than the specified place".*

4.2.1.4 NCD records

Table 4.14 displays that NCD records have the least percentage of availability and completeness of the tested items (74.5% and 52.9% respectively). The researcher found that the availability percentages is high in the items that should be done routinely for every client, such as the main check up, investigations and the control status which have the score of 93%, 89.2% and 98% respectively.

The lowest scores appeared in the doctor remarks, foot care for diabetic patients and the nurse remark (37.3%, 61.4% and 67.6% respectively). These items considered critical items in drawing the care for the patient and to illustrate why the provider acted in such way. These Figures are much lower than what was found by Abu Sada (2012) during his assessment of the quality of healthcare documentation at the European Gaza Hospital. He found that availability of doctors' documentation in the clinical notes was 70% and 90% of the available notes were complete, while the nurses' documentation was 86% available and 100% complete.

In addition, the researcher found that completeness is low in all of the tested items, but it is strikingly low in the available main checkup, with only 3.2% completeness. This can be explained as the measurements (blood pressure, sugar tests and weight) are not done at each visit, depending on the technical instruction and on the thinking of the provider during the encounter itself.

Commenting on these numbers, one of the senior managers said *"The nurse and doctor remarks are usually empty as not all the patients have a remark. The remark is written to those who have a noteworthy change in their condition".* At the same time, a senior medical officer attributed these Figures to *"There is no supervision from the staff nurse and a lot of the doctors are not interested in this service".* And as a solution *"Accountability should be*

activated. NCD patients are susceptible to complications and even death", a senior manager suggested.

The above Figures should draw the attention of the policy makers to wonder about the reasons of such low levels, and call for urgent interventions to encourage the providers for increasing the availability and completeness of all items in the NCD records.

4.2.1.5 Overall availability and completeness of the reviewed records

As shown in Figure 4.3, there is 26% of the items were absent during the records review, and 20% of the available parameters were incomplete. These results came similar to the findings of Abu Dagga (2014) during her review to the discharge papers at MOH hospitals. For this reason and as mentioned in the literature, not written not done, the researcher derives that the UNRWA health centers need a system of follow up and monitoring of the documentation process and increase training of the healthcare providers in this regard to increase the availability and completeness of all parameters in the records.

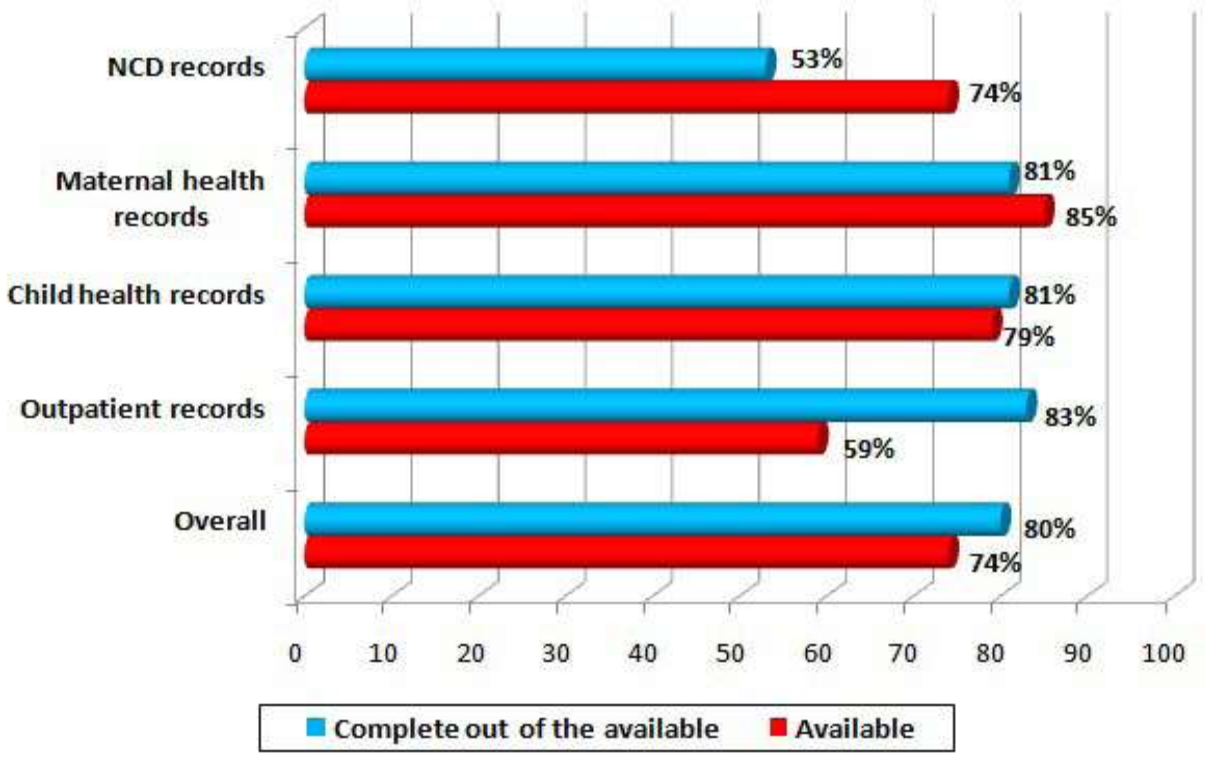

Figure 4.3: The overall percentage of availability of items documented and completeness of the reviewed records

4.2.2 Inferential statistic for the records review

As aforementioned, the researcher reviewed 408 medical records covering the four services, NCD, General, Maternal and child health services, in all health centers belong to UNRWA. The records were reviewed for the availability and completeness of number of parameters that are almost available in the three documentation system used by UNRWA (paper-based, health information and FHT systems). The abstracted data was entered to SPSS entry model designed by the researcher, where each set of records has been entered to its health center and the documentation system used at that time. The mean percentage of parameters' availability was calculated as a percentage of the number of available parameters found during the records review, to the total number of parameters which is 37 (for the four services). Then the mean percentage of completed parameters was calculated as the number of completed parameters to the number of available ones. After that, t -test and ANOVA were used to compare the availability and completeness means with the available variables, which are geographical area, level of health center and the documentation system used. The results of the inferential tests are shown in Table 4.15.

Table 4.15: Differences in medical records availability and completeness in relation to level of health center and documentation system

		Available					Complete				
		N	**Mean**	**Factor**	**Value**	**Sig**	**N**	**Mean**	**Factor**	**Value**	**Sig**
Health center level	**Level3**	69	73.43	t	-0.802	0.424	69	80.47	t	1.144	0.255
	Level4	33	74.59				33	79.38			
Geographical Area	**Gaza**	37	74.47	F	2.398	0.096	37	79.41	F	0.700	0.499
	Middle	33	75.11				33	80.56			
	South	32	71.68				32	80.47			
Documentation System	**HIS**	48	74.04	F	9.237	0.000	48	78.86	F	3.777	0.026
	FHT	28	70.04				28	81.03			
	Paper-based	26	77.43				26	81.47			

Table 4.15 shows that there are no differences in the availability and completeness of the tested parameters between different health centers level (level 3 and level 4, which is not officially documented by UNRWA) and among different geographical areas. That mean the documentation practices at UNRWA health centers are unified, and the clients' care is assured across different centers.

Moreover, the researcher found there are differences between the different documentation systems that are used at UNRWA (paper-based, HIS and FHT system). These differences are statistically significant for both availability and completeness of the parameters (P value= 0.000 and 0.026 respectively), where the paper-based elicited the highest score followed by the HIS then the FHT system (mean= 77.4, 74.0 and 70.0 respectively) for the availability of the parameters. This can be explained by either the interface of the FHT system is not user friendly, which makes documentation harder on the providers , or the providers need more training on the system to become more familiar with it, as it still a new one at the time of the study. For details, LSD post hoc test is attached as Annex 18.

For the completeness of the records, the paper - based is still eliciting the highest mean, but followed by FHT system then by the HIS (mean= 81.5, 81.0 and 78.9 respectively). The improvement of the completeness score in the FHT is due to the implementation of the providers' recommendations during the development of the new system, as reported by senior manager during the interview.

At the end, it is worth to mention, these results happened during a transitional period among the three systems, and the availability of the items in the FHT was the lowest as the system was not fully installed yet. For this reasons, the researcher advises for an evaluation study for the system to be done after a period of time, preferably two years.

Chapter V: Conclusion and recommendations

5.1 Conclusion:

This study is carried out for exploring the quality of healthcare documentation at UNRWA health centers. The study explored four domains that have an effect on healthcare documentation. These domains are: knowledge, perception, practices and management factors. In addition, the study probed to find the errors of documentation and the main barriers for documentation practices. Furthermore, the study tried to find the relation between these domain and factors from one side and the demographic and work related variables of the health care providers on the other side. These quantitative results were obtained through a questionnaire that has been constructed by the researcher and then have been validated and explained by key informants at UNRWA field office. Special focus was drawn towards assessing quality status and frequency of experiencing barriers for healthcare documentation using the researcher's constructed questionnaire. The objective quality status of UNRWA medical records were assessed through records review, trying to measure the availability and completeness of numbers of parameters that are used almost in the three documentation systems at UNRWA.

Main results indicate that the overall quality of the medical records and documentation practices as perceived by the study population elicited moderate result. The providers' perception about the quality of the medical records at UNRWA (such as: continuity of care, communication among providers, client safety, saving time, legal protection and other factors) elicited the highest domain and the documentation practicalities domain elicited the second highest. Thereafter, managerial factors and knowledge about healthcare documentation scored lower levels. It is noteworthy that barriers to effective documentation practices were the domain with the least elicited score. Results suggest that almost all the participants in this study showed agreement on that the quality healthcare documentation enhance continuity of patient care, improve communication among the healthcare providers, ensure client safety and have legal implications as well. Such agreements on the importance of having a high quality medical record should be translated in the daily practices for sake of superb medical services.

Other demographic aspects such as gender, level of education, profession and place of graduation were associated with quality of healthcare documentation in different directions. Despite not reaching a statistical significant level, the females were better off than males in the overall score of documentation quality. Therefore, greater attentions are assumed to be devoted to enhance males' medical documentation through training and effective supervision.

The variance in the overall quality of medical documentation attributed to profession was statistically significant. The midwives appeared to be better than nurses and doctors. This result is similar to what is found in multiple studies and it is supported by the inputs of the key informants who attributed this advantage of the midwives due to the low work load in comparison to doctors, in addition to the educational courses about medical documentation the midwives and nurses received during their study at school. Meanwhile, statistically no variance in the overall quality of medical documentation attributed to place of graduation. Still, those participants graduated in the Gaza Strip had the highest scores. This privilege to the college in the Gaza Strip can be utilized in training of doctors and other professions for improving the quality of the medical records.

Another dimension showed significant variation among the participants was the station of work. Those who are working in the maternity station mainly the midwives again showed a higher quality of healthcare documentation, followed by the senior medical officers and those working in the well baby stations. These variations are due to the sensitivity of the services provided in the maternity station and the supervision on this station. A shocking result in this regard was found about the doctors who scored the least score in this dimension. The researcher explained this result as the doctors at UNRWA are dealing with all types of the records used by UNRWA which makes them uninterested in writing medical notes in a complete way, in addition to the above mentioned reason of not having courses on documentation at school. The doctors are the leaders of the medical teams according to the family medicine approach that is adopted by UNRWA, for this reason every effort to improve their documentation practice should be spent.

Another variation appeared between those who received training and those who did not. This result is similar to what was found by international study and congruent with the inputs from the key informants during the interviews. Although, all the healthcare providers had on the job

training about the electronic system, only one third of the participants reported that they received training on the system. This percentage opens the way to question the effectiveness of the training the participants had or at least the way they had the training with. In the same area, the results showed that the quality of healthcare documentation is better off for those who received a longer duration of training. In addition a senior manager reported that training on the system is everlasting, as problems can appear every day in the work and he recommended the training to focus on one person to be a focal point in the clinic.

Medical errors, including errors of documentation, remain an unavoidable reality in the field of medicine and bring with them sensitive and often-challenging communication issues. The documentation errors that were discussed in the study are: prescribing errors, wrong lab value, inconsistent diagnosis and spelling errors. These errors were tested on scale ranging from "No errors" to "high frequency" of occurrence of such errors. The most frequently encountered errors as reported by the participants are spelling errors, where about one third of the participants answered the spelling errors are encountered in high frequency during the daily practice. Unexpectedly, half of the participant reported there are no prescription errors in UNRWA's medical records. The results in this scope suggest that the profession has an effect on the encountered errors during daily practice, where the doctors are facing errors more than midwives and nurses. This can be explained as the doctors usually are the end authors of the medical record, and they are playing a leader role in the team inside the health centers. As well, the results suggest that there is a variance in the encountered documentation errors and the station of work. This opens the door for work in this area to reduce the errors in the stations where errors occurring more frequently.

Regarding the barriers for healthcare documentation, there were no significant differences among all participants' characteristics. In this domain, there was almost an agreement among all the participants in the surveyed questionnaire, in addition to the key informants during the interviews, that the work overload and lack of training are the leading barriers for health care documentation. Referring to the work overload, the participants answered that shortage of working staff is another barrier to documentation and a leading cause of work overload. However, no one of the key informants mentioned the issue of staff shortage to be a barrier. Meanwhile, the results showed a disagreement among the participants about considering protocol availability and use as a barrier for healthcare documentation. Those who agreed on

that were equal to those who did not agreed. In addition, a senior manager considered the protocols a barrier at the early stage of its implementation when the employees are not familiar with it, but later on it makes documentation process easier. Anyway, about three quarters of the participants reported that there are protocols guiding healthcare documentation.

Despite scoring a good overall score in the supervision category, interesting finding was revealed among the barriers of documentation which is the role of supervision in achieving a quality healthcare documentation. About half of the participant reported that supervision is a barrier for healthcare documentation with large percentage of uncertainty reported by the other respondents. This finding puts the relation between the supervisors and employees under the scope of questioning, which was perceived to be good in a recent local study (El Saher, 2016).

For measuring the objective quality of healthcare documentation at UNRWA health centers, the researcher reviewed 408 medical records distributed equally among the services provided by UNRWA (general, NCD, child health and maternal health). The quality of the reviewed records was assessed by measuring the availability and completeness of numbers of parameters that are used almost in the three documentation systems at UNRWA. The results in this part of the study showed that the overall percentage of the reviewed records are moderately high regarding the availability and high regarding the completeness of the tested parameters. The highest score was for the maternal health records in both the availability and completeness, followed by the child health, general and then by the NCD records. The key informants referred these higher scores in the maternal health records to the effective supervision and the sensitivity of the services provided at the maternity station which required the records to be of a high quality. In the general records, there was lack in the availability of the patient complain, findings of the physical exam and advice / management plan. Meanwhile, the diagnosis and prescription are almost available in the reviewed records. These results made the researcher to think that these records are prescription documents rather than a medical record for the served person. Furthermore, what made the NCD records to have the least score is the insufficiency in availability and completeness of the nurse and doctor remarks. These parameters should be complete always for such service which is delivered over long period of time to ensure continuity of the patients' care.

To close with, the level of satisfaction of the study respondents about the medical records at UNRWA is moderately high, which in turn, might be reflected in their daily practice at work.

5.2 Recommendations

Based on the study analysis, findings and conclusions, the researcher proposes the following recommendations:

- The study highlights the quality of medical records at UNRWA health centers in reference to number of domains and factors. The study findings could constitute a baseline for future improvement interventions, monitoring and evaluation.

- Participants' perspectives and documentation realities domains elicited high scores, and efforts to reinforce these domains as strong contributors to higher quality healthcare documentation are needed.

- Managerial factors and knowledge about healthcare documentation domains have elicited relatively high scores and efforts to improve them are essential especially at the level of increasing knowledge by training and supervision.

- Work overload and shortage of staff had perceived to be the main barriers for healthcare documentation. Therefore, it requires urgent measures to solve it and to mitigate its negative impacts on the daily practices in general and documentation in particular.

- Lack of training is among the main barriers for healthcare documentation. In addition, to the job training on the system was not preferred by the participants. Therefore, thinking about the way of delivering training is recommended in the future. Meanwhile, focusing the training on the supervisors inside the health centers is suggested to be the focal points.

- Males, younger, doctors, Bachelor degree holder and graduates of Arab countries elicited less quality scores and more documentation errors than their counterpart populations; therefore, these specific groups require greater attention by UNRWA's management.

- Supervision is an important factor in promoting and improvement of any practice. However, the result of this study showed supervision to be a barrier for documentation. This finding puts the relation between the supervisors and employees under the scope of questioning and the

reasons behind it need to be carefully studied and addressed. Checking documentation practices needs to be introduced as a part of supervisors' responsibilities.

- Designing and implementing a checklist for healthcare documentation as a tool for monitoring and evaluation of documentation practice, and to be a part of supervisory activities inside the health centers. Moreover, the concept of clinical audit at UNRWA health centers needs to be encouraged.

- It is recommended to reinforce the use of protocols pertaining to the documentation practices in order to standardize documentation practices in all health centers.

- Despite that participants preferred the use the electronic system than using the paper-based medical records; the participants reported that the interface of the electronic system needs upgrading. Also, it is recommended to involve the health care providers more in designing any new modalities. In addition, a built in quality control checks in the EMR should be given a priority as this might promote completeness and accuracy of the records.

- Findings from the records review indicate there are incompleteness in documenting many items mainly in the NCD and the general records. Therefore, these records require greater attention by management to fill the encountered gaps.

5.3 Recommendations for further research

The researcher would recommend conducting further research studies covering the following areas:

- A larger scale qualitative study about quality of healthcare documentation.

- In-depth study for each record type used by UNRWA (NCD, general, child and maternal)

- Assessment of the effectiveness of the electronic system used by UNRWA.

- Conduct similar studies at other UNRWA fields and at national level for different sectors (MOH, NGOs and private).

- Analysis of the personal data included in the UNRWA's medical records.

- Measurement of the effect of healthcare documentation on the managerial reports and the quality of the managerial reports.

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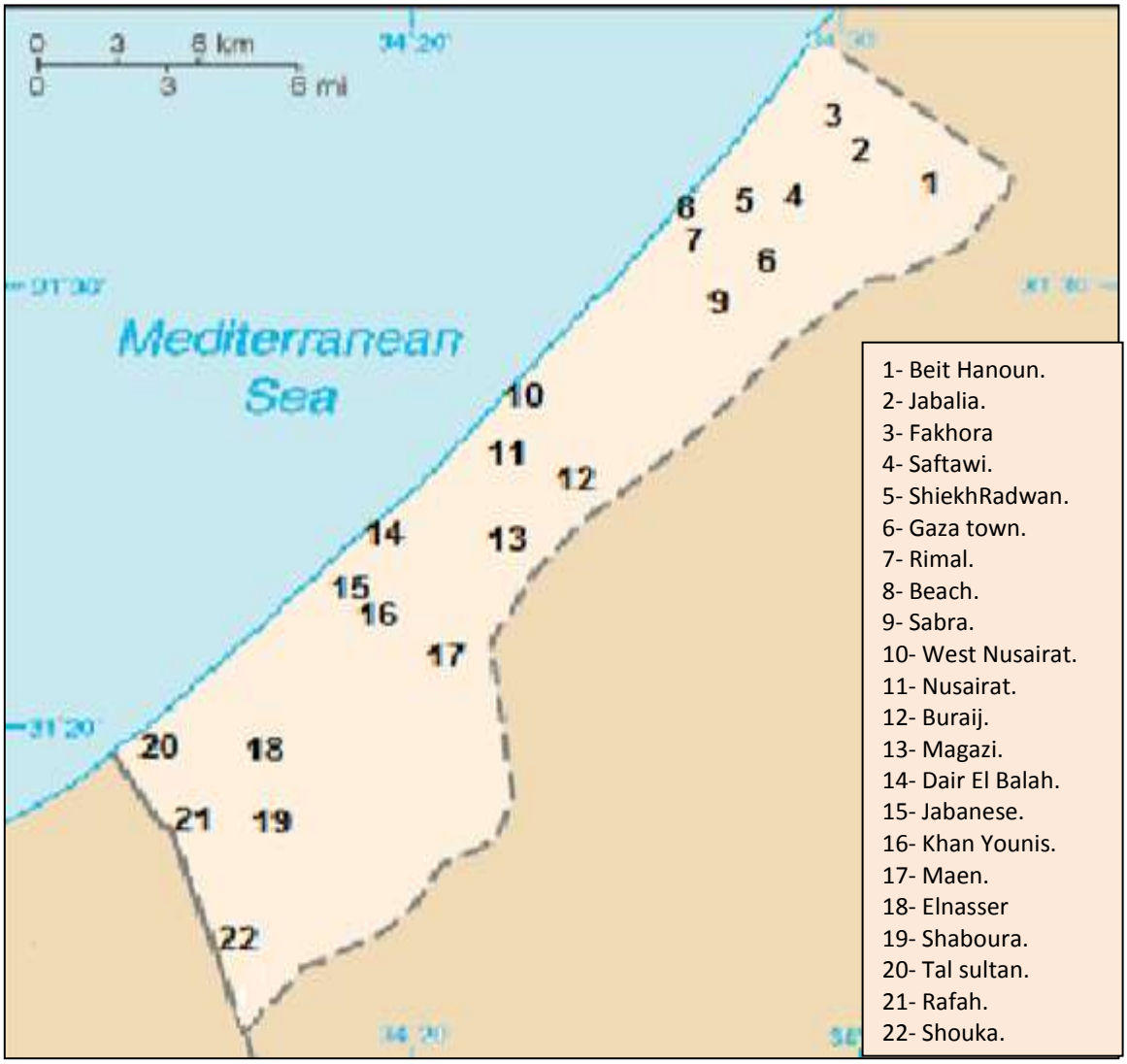
Annexes

Annex (1): Distribution of the UNRWA health centers across the Gaza Strip



Source (UNRWA, 2015)

Annex (2): List of Arbitrators

Mr. Alaa AlShurafa

Mrs. Iman Abu Hamra

Dr. Kefah AlNajjar

Dr. Khitam Abu Hamad

Mr. Mahmoud AlKhlout

Dr. Methqal Hassona

Dr. Mohammed Abu Hashesh

Dr. Mohammed AlMaqadma

Dr. Yehia Abed

Annex (3): Healthcare providers sample size calculation

Sample Size for Frequency in a Population

Population size(for finite population correction factor or fpc)(*N*):	387
Hypothesized % frequency of outcome factor in the population (*p*):	50%+/-5
Confidence limits as % of 100(absolute +/- %)(*d*):	5%
Design effect (for cluster surveys-*DEFF*):	1

Sample Size(*n*) for Various Confidence Levels

ConfidenceLevel(%)	Sample Size
95%	194
80%	116
90%	160
97%	213
99%	245
99.9%	286
99.99%	309

Equation

Sample size $n = [DEFF*Np(1-p)]/ [(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$

Results from OpenEpi, Version 3, open source calculator--SSPropor

Annex (4): Medical records sample size calculation

Sample Size for Frequency in a Population

Population size(for finite population correction factor or fpc)(*N*):	3163969
Hypothesized % frequency of outcome factor in the population (*p*):	50%+/-5
Confidence limits as % of 100(absolute +/- %)(*d*):	5%
Design effect (for cluster surveys-*DEFF*):	1

Sample Size(*n*) for Various Confidence Levels

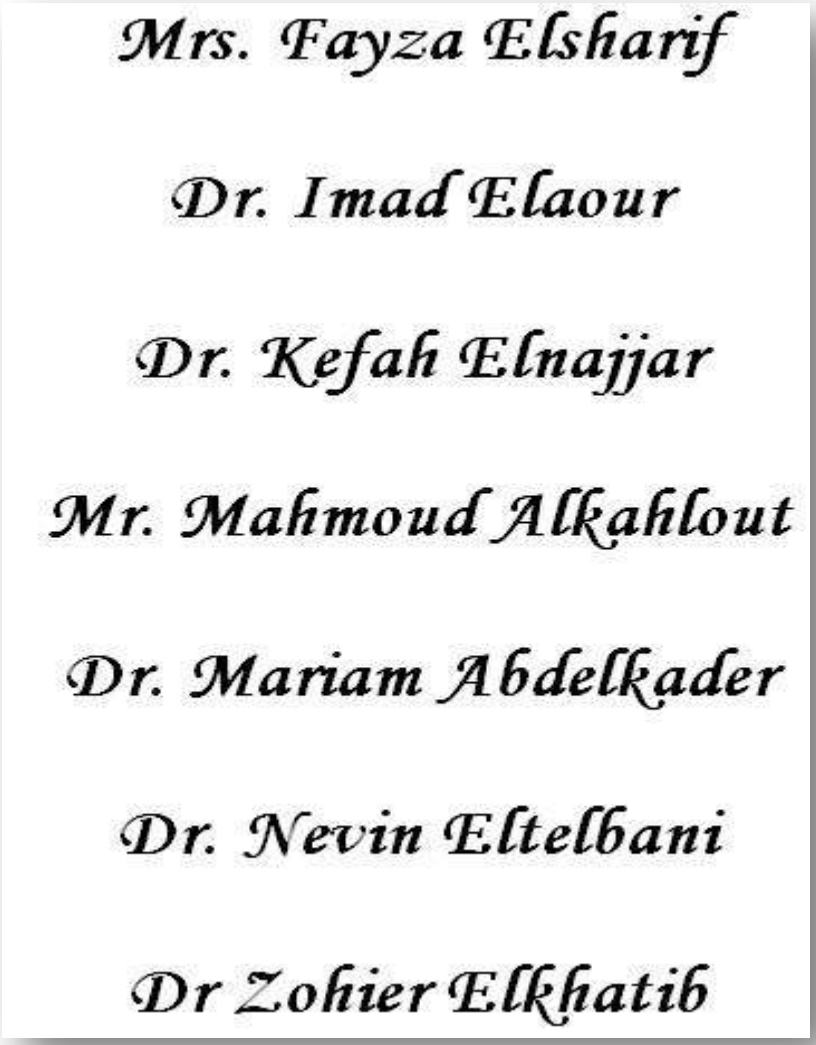
ConfidenceLevel(%)	Sample Size
95%	385
80%	165
90%	271
97%	471
99%	664
99.9%	1083
99.99%	1514

Equation

Sample size $n = [DEFF*Np(1-p)]/ [(d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$

Results from OpenEpi, Version 3, open source calculator--SSPropor

Annex (5): List of key informants



Annex (6): Official letter of approval from UNRWA health department administration

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

التاريخ:2016/4/6

Approved

حضرة الدكتورة/ غادة أبو نحلة المحترمة
مدير برامج الصحة –وكالة الغوث

تحية طيبة وبعد،،،

الموضوع:تسهيل مهمة الطالب محمد الخالدي

لديكم أطيب التمنيات ونتمنى لكم دوام التقدم والإزدهار. نرجو تكرم سيادتكم بالعلم بأن الطالب المذكور أعلاه يقوم بإجراء بحث بعنوان:

Quality of Medical Documentation at UNRWA Health Care Centers in the Gaza Governorates

كمتطلب للحصول على درجة الماجستير في الصحة العامة– إدارة صحية وعليه نرجو التكرم بالموافقة والايعاز لمن يلزم لتسهيل مهمة الطالب لجمع البيانات الخاصة ببحثه من الملفات الطبية والأخوة العاملين بمراكز الرعاية الأولية (مركز بيت حانون، مركز الرمال، مركز النصيرات، مركز دير البلح، مركز اليابانية، ومركز رفح المركزية) التابعة لإدارتكم الموقرة.

علماً بأن المعلومات ستكون متوفرة لدى الباحث والجامعة فقط وسنطلعكم على النتائج في حينها .

0599567878

و اقبلوا فائق التحية و الاحترام،،،

د. بسام أبو حمد
منسق عام برامج الصحة العامة
فرع غزة

نسخة:
- الملف

Jerusalem Branch/Telefax 02-2799234
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فرع القدس / تلفاكس 02-2799234
فرع غزة / تلفاكس 08-264420-2644210
ص.ب. 51000 القدس

Annex (7): Official letter of approval from the Helsinki committee in the Gaza Strip

المجلس الفلسطيني للبحث الصحي

Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار

"Developing the Palestinian health system through institutionalizing the use of information in decision making"

Helsinki Committee

For Ethical Approval

Date: 04/04/2016 **Number:** PHRC/HC/98/16

Name: Mohammed Alkhaldi **الاسم:** محمد الخالدي

We would like to inform you that the committee had discussed the proposal of your study about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:

Quality of healthcare documentation at unrwa healthcare centers in the gaza governorates

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/98/16 in its meeting on 04/04/2016

و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member **Member**

4/4/2016

Chairman

Genral Conditions:-

1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-

E-Mail:pal.phrc@gmail.com

Gaza - Palestine غزة - فلسطين

Annex (8): Healthcare provider questionnaire

Questionnaire to Assess the Quality of Healthcare Documentation at UNRWA Health centers

Dear colleague,

This questionnaire is part of a study conducted by Mohammed Alkhaldi as a requirement for the Master Degree in Public Health at Al-Quds University. The aim of this study is to investigate "the quality of healthcare documentation at UNRWA health centers". You have been randomly selected to participate in this study and your participation has no direct or indirect negative implications on you. This questionnaire gives you the opportunity to tell us how you perceive the documentation practices at UNRWA health centers. Findings will be reported for the entire study population as a group (aggregated) and we will not refer to your name in any part of the study. The findings and conclusions of this study may help in improving the practices of documentation.

Confidentiality will be provided and maintained. You don't need to tell your name. In addition, respect for truth, and respect for human beings will be maintained at all the stages during conducting this study. The study is self- funded; and findings will be used only for the research purposes. This study is completely independent and it has no connections with governments, authorities or official bodies.

Even though I welcome and appreciate your participation, participation is optional.Once you accept to participate, Please answer all questions as much as possible. Filling this questionnaire takes about (30) minutes of your valuable time.

If you need me to read the question again or you have any ambiguous meaning, please don't hesitate to ask for a repetition or clarification. If you are not sure about which answer to select, you may select the one better describes your feeling; mostly it is the first one comes to your mind. Keep in mind that there is no wrong and right here, the correct answer is the one you feel most reflecting your perspective.

You may feel that some questions are repeated, please try to answer them all. You have the right to stop or end filling the questionnaire at any point of time and you also have the right to skip any question.

At the end, I'd like to thank you for your assistance in this important endeavor.

Sincerely yours,
Mohammed Alkhaldi
059 9 567 878

Serial No. Date:

Part one: personal and demographic data

1	Area:	a. North with Gaza city.		b. Middle area.	c. South area.
2	Profession:	a. Physician.		b. Nurse.	c. Midwife.
3	Education level:	a. Diploma.		b. Bachelor.	c. Master.
4	Place of graduation:	a. Gaza	b. West Bank	c. Arab countries ----------	d. Other (specify) ----------
5	Station of work:				
6	Age: ……. Year.				
7	Gender: a. Male b. Female				
8	How long have you been working in health care? - Inside Gaza strip: ……. Years. - Outside Gaza Strip ……. Years. - Total years of experience: ……. Years.				
9	Did you work in a place other than the primary healthcare			Yes	No
10	If yes, please specify the place of and duration of work: Place: 1- ---------- Duration: 1- ---------- Years. 2- ---------- 2- ---------- Years.				

11 — According to your perspectives, which of the following list is (are) character (s) of quality healthcare documentation?

	Characters	Yes	No	Don't know
a	Accurate.			
b	Disordered.			
c	Complete.			
d	Subjective.			
e	Consistent.			
f	Concise.			
g	Ordinary.			
h	Legible.			
i	Other (specify):			

12	What type of medical record is your health center applying? a. Paper-based medical record. b. Electronic medical record.			
13	Have you ever received training on healthcare documentation?		Yes	No
14	If yes, please indicate:			
	Name of training	Place	Duration	Organizer
	-	-	-	-
	-	-	-	-

Part two: This part aims to identify employee's knowledge and perspectives about healthcare documentation.

Item		Strongly disagree	Disagree	Uncertain	Agree	Strongly Agree
Knowledge - How much do you agree with the following statements?						
15	You have high level of knowledge about documentation standards.	1	2	3	4	5
16	You have the required knowledge about characters of quality documentation to do your wok.	1	2	3	4	5
17	You do not know what the defects of documentation practice are.	1	2	3	4	5
18	You have enough knowledge about the purpose of documentation.	1	2	3	4	5
19	You are unaware of what are the standardized documentation languages.	1	2	3	4	5
20	You have enough knowledge about the e-health system functions.	1	2	3	4	5
Perspectives – How much do you agree with the following statements?						
21	Quality documentation promotes continuity of patient care.	1	2	3	4	5
22	Quality documentation improves communication among healthcare providers.	1	2	3	4	5
23	Routine work makes quality documentation of no value.	1	2	3	4	5
24	You think that quality documentation is an important factor in ensuring client safety.	1	2	3	4	5
25	Quality documentation has a lot of organizational benefits.	1	2	3	4	5
26	Quality documentation reduces the rate of repeated tests and treatment.	1	2	3	4	5
27	Quality documentation increases client satisfaction.	1	2	3	4	5
28	Quality documentation saves time during clinical encounter.	1	2	3	4	5
29	You think there is a need to improve your documentation practices.	1	2	3	4	5
30	Quality documentation increases the work burden on the healthcare provider.	1	2	3	4	5
31	Quality documentation has no role in improving communication among healthcare providers.	1	2	3	4	5

32	The medical records at UNRWA are of high quality.	1	2	3	4	5
33	It is not important to have a quality medical record.	1	2	3	4	5
34	Quality documentation protect health provider legally.	1	2	3	4	5
35	Quality documentation reduces the errors in providing services for clients.	1	2	3	4	5
36	The e-health record is superior to the paper-based record.	1	2	3	4	5
37	Errors are more common in the paper-based record than the e-health record.	1	2	3	4	5
38	E-health is better than the paper-based record in saving time.	1	2	3	4	5
39	You prefer to use the paper-based record instead of UNRWA's e-health system.	1	2	3	4	5

Part three: This part focuses on the practicalities of healthcare documentation at UNRWA (Answer in reference to your work place):

Item		**Strongly disagree**	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
40	The forms are well organized.	1	2	3	4	5
41	The forms are arranged into parts that make documentation easier.	1	2	3	4	5
42	The forms design needs to be reviewed.	1	2	3	4	5
43	It is easy to review previous encounters.	1	2	3	4	5
44	The records provide you with information needed for client follow up	1	2	3	4	5
45	E-health system has decision support functions that help the provider in making decisions.	1	2	3	4	5
46	Allergies and adverse drug events are clearly documented.	1	2	3	4	5
47	The entries are legible and any colleague can understand the information recorded.	1	2	3	4	5
48	The proposed treatment plan is clearly documented.	1	2	3	4	5
49	The provided care is completely documented.	1	2	3	4	5
50	Appointments for follow up are clearly documented.	1	2	3	4	5

51	The results of requested diagnostic tests are documented.	1	2	3	4	5
52	Method of taking the prescribed medicines is clearly documented.	1	2	3	4	5
53	Any complications or unusual sequelae to treatment are documented.	1	2	3	4	5
54	Referrals made and their feedbacks are documented.	1	2	3	4	5
55	No follow up appointments are mentioned in the client's record.	1	2	3	4	5

Part four: This part aims to identify the management factors that affect healthcare documentation:

Item		**Strongly disagree**	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
56	There is clear protocol to guide documentation practice.	1	2	3	4	5
57	You have formal instructions in order to implement these protocols	1	2	3	4	5
58	Protocol is followed during daily practice.	1	2	3	4	5
59	Protocol is updated every few years.	1	2	3	4	5
60	Protocol is consistent with international protocols.	1	2	3	4	5
61	There is regular supervision on the application of the protocol.	1	2	3	4	5
62	Supervisor encourages you to reflect on your practice.	1	2	3	4	5
63	The supervisor links theory and clinical practice well.	1	2	3	4	5
64	The supervisor facilitates interesting and informative discussions during supervision.	1	2	3	4	5
65	The supervisor's feedback on your performance is constructive.	1	2	3	4	5
66	The supervisor gives you practical support.	1	2	3	4	5
67	The supervisor helps you identify your own learning needs	1	2	3	4	5
68	The supervisor gives you regular feedback on your performance.	1	2	3	4	5
69	Employee satisfaction helps in improving quality of documentation.	1	2	3	4	5

70	Commitment to organization improving quality of documentation.	1	2	3	4	5
71	Documentation practice depends on the health center level.	1	2	3	4	5
72	The type of provided services has an effect on documentation practice.	1	2	3	4	5
73	Station of work has an effect on documentation practice.	1	2	3	4	5
74	The number of employees available is fair enough for performing quality documentation.	1	2	3	4	5
75	Workload has strong impact on documentation practice.	1	2	3	4	5
76	You have enough time to write a complete medical note.	1	2	3	4	5
77	Writing a complete medical note increase the work burden on the employee.	1	2	3	4	5
78	You had learned about healthcare documentation at college.	1	2	3	4	5
79	You need on job training about documentation to improve your skills	1	2	3	4	5

Part five: This part aims to identify the barriers that hinder the healthcare documentation during daily work.

Barrier		**Strongly disagree**	**Disagree**	**Uncertain**	**Agree**	**Strongly Agree**
80	Shortage of staff.	1	2	3	4	5
81	Work over load.	1	2	3	4	5
82	Negative attitude (non interested provider).	1	2	3	4	5
83	Inadequate knowledge regarding standards.	1	2	3	4	5
84	Lack of commitment to work.	1	2	3	4	5
85	Presence of written guidelines.	1	2	3	4	5
86	No training.	1	2	3	4	5
87	Managerial supervision.	1	2	3	4	5
88	Forms are not users friendly	1	2	3	4	5
89	Forms are long	1	2	3	4	5
90	lack of adequate utilization	1	2	3	4	5
91	Others (specify)					

Part six: This part aims to identify the errors that are encountered in the healthcare documentation.

How frequent do you face the following type of errors in the medical records?					
Type of error		No errors	1 out of 100 files	1 out of 50 files	1 out of 10 files
92	Wrong drug name or dose.	1	2	3	4
93	Wrong lab value.	1	2	3	4
94	Wrong test name.	1	2	3	4
95	Inconsistent diagnosis.	1	2	3	4
96	Spelling or grammatical errors.	1	2	3	4
97	Other (specify)				

Part seven: Please rate your level of satisfaction with current practice regarding healthcare documentation in your health center:

Very dissatisfied	dissatisfied	Uncertain	Satisfied	Very satisfied
☐	☐	☐	☐	☐

Part eight: Please, mention your suggestion to improve healthcare documentation.

1- ----------

2- ----------

3- ----------

4- ----------

Annex (9): Abstraction forms

Outpatient record abstraction form									
Item		**Available**		**Complete**		**Available**		**Complete**	
		Yes	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Complain									
Finding									
Diagnosis									
Advice / Management									
Abbreviation									
Prescribing	**Amount**								
	Frequency								

Maternal record abstraction form									
Item		**Available**		**Complete**		**Available**		**Complete**	
		Yes	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
History	**history (AN/FP)**								
	Medical history								
AN registration	**Investigation**								
	Management								
	Risk assessment								
AN Follow up	**Nurse note**								
	Investigation								
	Exam								
Referrals	**Reason**								
	Findings								
	Action								
Family planning	**Breast exam**								
	Menstruation								
	PV exam								
	Findings								
	Follow up								

Child record abstraction form									
Item		Available		Complete		Available		Complete	
		Yes	No	Yes	No	Yes	No	Yes	No
New born family Hx									
New born exam									
New born hospitalization									
New born management									
Hb testing									
Periodical exam	12 month								
	36 month								
Nurse note									

NCD record abstraction form								
Item	Available		Complete		Available		Complete	
	Yes	No	Yes	No	Yes	No	Yes	No
Main check up								
Investigation								
Foot care (for diabetics)								
Nurse remark								
Doctor remark								
Control status								

Annex (10): Key informant interview schedule

Welcoming and introductory statement

1. Mentioning medical records, what comes to your mind first? What about medical records at UNRWA? How far are you satisfied with documentation requirements and practices at UNRWA?

2. How do you perceive the importance of medical record? Comment on the users perspectives about its values (midwives, nurses, doctors, senior medical officers, supervisors, senior management, researchers, and policy makers)? To what extent management and supervisors empathize on the importance of documentation? May you give example about experiencing a supervisory visit or session about documentation?

3. From your perspective, what makes a medical record of high quality? What do you expect to see in a quality medical record?

4. What are the strength and weaknesses of health care documentation practices at UNRWA? May you compare it with other health care organization in the Gaza Strip?

5. Please tell me about the factors that can affect the documentation practices both positively and negatively? Reflect on requirement, forms use, time and supervisory support.

6. UNRWA has changed documentation method from the paper-based to the EMR on 2012; how do you perceive that change (positive and negative aspects)? How has this decision affected you and the documentation practices at UNRWA (positively and negatively)? Probe for things you can do now, which you were unable to do before, use of data, reporting, workload, documentation burden, accuracy.

7. Could you please comments on how the shift to electronic records has been managed (introduction of the program, training, system use, support, IT support). What has been done appropriately/inappropriately?

8. From your experience, what are the most commonly encountered documentation challenges/problems? How these challenges are being dealt with? What about documentation errors in particularly, how these are being managed (policy, protocol, reported, supervision, frequency, in which component, by which category of providers-doctors, nurses, new or experienced one), what can be done to reduce these errors?

9. Our findings showed the following: for each can you please reflect on that:
   - Training is needed to have high quality medical records.
   - There is mixed positive and negative perception about high quality medical records.
   - Documentation practicalities are moderately acceptable.
   - Protocols availability and use.
   - Supervisor's practical support and feedback.
   - Work overload and shortage of staff have clear effect on documentation practices.
   - There are differences in documentation practices among different work stations.
   - The results of the records review.

10. Suppose you are in a decision making position, what you will do, where you will start (reflect on training, supervision, protocols, culture, changing perspectives about documentation).

Thanks and closing statement

Annex (11): LSD post hoc test: Differences in documentation quality among different professions

Multiple comparisons						
Dependent variable: **Overall documentation quality** LSD post hoc: **profession**						
(I) Profession	(J) Profession	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Physician	Nurse	-.13704*	.05571	.015	-.2469	-.0272
	Midwife	-.22979*	.07862	.004	-.3848	-.0748
Nurse	Physician	.13704*	.05571	.015	.0272	.2469
	Midwife	-.09275	.07442	.214	-.2395	.0540
Midwife	Physician	.22979*	.07862	.004	.0748	.3848
	Nurse	.09275	.07442	.214	-.0540	.2395
*. The mean difference is significant at the 0.05 level.						

Annex (12): LSD post hoc test: Differences in documentation quality among different educational levels

Multiple Comparisons						
Dependent Variable: **Overall documentation quality** LSD post hoc: **level of education**						
(I) level of education	(J) level of education	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Diploma	Bachelor	.17869*	.05579	.002	.0687	.2887
	Master	.15457	.08881	.083	-.0206	.3297
Bachelor	Diploma	-.17869*	.05579	.002	-.2887	-.0687
	Master	-.02412	.08345	.773	-.1887	.1404
Master	Diploma	-.15457	.08881	.083	-.3297	.0206
	Bachelor	.02412	.08345	.773	-.1404	.1887
*. The mean difference is significant at the 0.05 level.						

Annex (13): LSD post hoc test: Differences in documentation quality among different work stations

Dependent Variable: **Overall documentation quality**
LSD post hoc: **work station**

(I) work station	(J) work station	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Family doctor	well baby station	-.22147*	.07119	.002	-.3618	-.0811
	NCD	-.18515*	.07566	.015	-.3344	-.0359
	SMO	-.24762	.14028	.079	-.5243	.0290
	SSN	-.13223	.09857	.181	-.3266	.0622
	Maternity	-.28095*	.07811	.000	-.4350	-.1269
	Others	.07136	.10116	.481	-.1281	.2708
well baby station	Family doctor	.22147*	.07119	.002	.0811	.3618
	NCD	.03632	.08280	.661	-.1270	.1996
	SMO	-.02615	.14426	.856	-.3106	.2583
	SSN	.08923	.10415	.393	-.1162	.2946
	Maternity	-.05949	.08504	.485	-.2272	.1082
	Others	.29282*	.10661	.007	.0826	.5031
NCD	Family doctor	.18515*	.07566	.015	.0359	.3344
	well baby station	-.03632	.08280	.661	-.1996	.1270
	SMO	-.06247	.14652	.670	-.3514	.2265
	SSN	.05291	.10726	.622	-.1586	.2644
	Maternity	-.09580	.08882	.282	-.2710	.0794
	Others	.25650*	.10965	.020	.0403	.4727
SMO	Family doctor	.24762	.14028	.079	-.0290	.5243
	well baby station	.02615	.14426	.856	-.2583	.3106
	NCD	.06247	.14652	.670	-.2265	.3514
	SSN	.11538	.15956	.470	-.1993	.4301
	Maternity	-.03333	.14780	.822	-.3248	.2581
	Others	.31897*	.16117	.049	.0011	.6368
SSN	Family doctor	.13223	.09857	.181	-.0622	.3266
	well baby station	-.08923	.10415	.393	-.2946	.1162
	NCD	-.05291	.10726	.622	-.2644	.1586
	SMO	-.11538	.15956	.470	-.4301	.1993
	Maternity	-.14872	.10900	.174	-.3637	.0662
	Others	.20359	.12655	.109	-.0460	.4531
Maternity	Family doctor	.28095*	.07811	.000	.1269	.4350
	well baby station	.05949	.08504	.485	-.1082	.2272
	NCD	.09580	.08882	.282	-.0794	.2710
	SMO	.03333	.14780	.822	-.2581	.3248
	SSN	.14872	.10900	.174	-.0662	.3637
	Others	.35231*	.11135	.002	.1327	.5719
others	Family doctor	-.07136	.10116	.481	-.2708	.1281
	well baby station	-.29282*	.10661	.007	-.5031	-.0826
	NCD	-.25650*	.10965	.020	-.4727	-.0403
	SMO	-.31897*	.16117	.049	-.6368	-.0011
	SSN	-.20359	.12655	.109	-.4531	.0460
	Maternity	-.35231*	.11135	.002	-.5719	-.1327

*. The mean difference is significant at the 0.05 level.

Annex (14): LSD post hoc test: Differences in documentation quality among different training durations

Multiple Comparisons						
Dependent Variable: **Overall documentation quality** LSD post hoc: **Duration of training**						
(I) Duration	(J) Duration	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0-5 days	6-10 days	.09278	.08457	.277	-.0762	.2618
	>10 days	-.16193*	.08036	.048	-.3225	-.0013
6-10 days	0-5 days	-.09278	.08457	.277	-.2618	.0762
	>10 days	-.25471*	.08538	.004	-.4253	-.0841
>10 days	0-5 days	.16193*	.08036	.048	.0013	.3225
	6-10 days	.25471*	.08538	.004	.0841	.4253
*. The mean difference is significant at the 0.05 level.						

Annex (15): LSD post hoc test: Differences in the faced errors of documentation among different professions

Multiple Comparisons						
Dependent Variable: **Errors of documentation** LSD post hoc: **Profession**						
(I) Profession	(J) Profession	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Physician	Nurse	.48199*	.13201	.000	.2217	.7423
	Midwife	.03246	.18629	.862	-.3349	.3998
Nurse	Physician	-.48199*	.13201	.000	-.7423	-.2217
	Midwife	-.44952*	.17634	.012	-.7972	-.1018
Midwife	Physician	-.03246	.18629	.862	-.3998	.3349
	Nurse	.44952*	.17634	.012	.1018	.7972
*. The mean difference is significant at the 0.05 level.						

Annex (16): LSD post hoc test: Differences in the faced errors among different work stations

Dependent Variable: **Errors of documentation**
LSD post hoc: **work station**

(I) work station	(J) work station	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Family doctor	well baby station	.67214*	.16970	.000	.3375	1.0068
	NCD	.49351*	.18038	.007	.1378	.8492
	SMO	.45714	.33443	.173	-.2024	1.1167
	SSN	.04464	.23499	.850	-.4188	.5081
	Maternity	.10381	.18620	.578	-.2634	.4710
	Others	.79048*	.24116	.001	.3149	1.2661
well baby station	Family doctor	-.67214*	.16970	.000	-1.0068	-.3375
	NCD	-.17864	.19740	.367	-.5679	.2107
	SMO	-.21500	.34391	.533	-.8932	.4632
	SSN	-.62750*	.24830	.012	-1.1172	-.1378
	Maternity	-.56833*	.20274	.006	-.9681	-.1685
	Others	.11833	.25414	.642	-.3829	.6195
NCD	Family doctor	-.49351*	.18038	.007	-.8492	-.1378
	well baby station	.17864	.19740	.367	-.2107	.5679
	SMO	-.03636	.34930	.917	-.7252	.6525
	SSN	-.44886	.25571	.081	-.9532	.0554
	Maternity	-.38970	.21175	.067	-.8073	.0279
	Others	.29697	.26139	.257	-.2185	.8125
SMO	Family doctor	-.45714	.33443	.173	-1.1167	.2024
	well baby station	.21500	.34391	.533	-.4632	.8932
	NCD	.03636	.34930	.917	-.6525	.7252
	SSN	-.41250	.38039	.280	-1.1627	.3377
	Maternity	-.35333	.35234	.317	-1.0482	.3415
	Others	.33333	.38423	.387	-.4244	1.0911
SSN	Family doctor	-.04464	.23499	.850	-.5081	.4188
	well baby station	.62750*	.24830	.012	.1378	1.1172
	NCD	.44886	.25571	.081	-.0554	.9532
	SMO	.41250	.38039	.280	-.3377	1.1627
	Maternity	.05917	.25986	.820	-.4533	.5716
	Others	.74583*	.30168	.014	.1509	1.3408
Maternity	Family doctor	-.10381	.18620	.578	-.4710	.2634
	well baby station	.56833*	.20274	.006	.1685	.9681
	NCD	.38970	.21175	.067	-.0279	.8073
	SMO	.35333	.35234	.317	-.3415	1.0482
	SSN	-.05917	.25986	.820	-.5716	.4533
	Others	.68667*	.26544	.010	.1632	1.2101
others	Family doctor	-.79048*	.24116	.001	-1.2661	-.3149
	well baby station	-.11833	.25414	.642	-.6195	.3829
	NCD	-.29697	.26139	.257	-.8125	.2185
	SMO	-.33333	.38423	.387	-1.0911	.4244
	SSN	-.74583*	.30168	.014	-1.3408	-.1509
	Maternity	-.68667*	.26544	.010	-1.2101	-.1632

*. The mean difference is significant at the 0.05 level.

Annex (17): Differences in barriers to documentation in reference to demographic and work related characteristics

Independent Variable			N	Mean	Factor	Value	Sig.
Gender		Male	72	3.63	t	0.605	0.546
		Female	132	3.58			
Age		<30	34	3.48	F	1.641	0.181
		31-40	82	3.69			
		41-50	54	3.57			
		>50	34	3.52			
Area		North and Gaza	75	3.66	F	1.362	0.259
		Middle area	63	3.61			
		South area	66	3.51			
Profession		Doctor	69	3.55	F	0.603	0.548
		Nurse	105	3.64			
		Midwife	30	3.55			
Level of education		Diploma	64	3.58	F	0.084	0.919
		Bachelor	118	3.59			
		Master	22	3.63			
Place of graduation		Gaza	146	3.62	F	1.790	0.150
		West Bank	14	3.73			
		Arab country	29	3.39			
		Others	15	3.67			
Work in secondary care		Yes	96	3.64	t	1.100	0.273
		No	108	3.55			
Work station		Family doctor	63	3.51	F	1.121	0.351
		well baby	40	3.68			
		NCD	33	3.65			
		maternity	7	3.89			
		Senior Staff Nurse	16	3.49			
		Senior Medical Officer	30	3.51			
		Others	15	3.73			
Training received		Yes	66	3.56	t	-0.661	0.510
		No	138	3.61			
Duration of Training		0-5 Days	24	3.41	F	3.449	0.038
		6-10 Days	19	3.84			
		>10 Days	23	3.48			
Years of experience	**Inside Gaza**	<10	95	3.59	F	0.117	0.889
		11-20	57	3.62			
		>20	52	3.58			
	Total	<10	86	3.58	F	0.202	0.817
		11-20	61	3.63			
		>20	57	3.58			

Annex (18): LSD post hoc test: Differences in the availability and completeness of the parameters in the medical records among different systems

LSD post hoc: Used system							
Dependent Variable	(I) Used System	(J) Used System	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Available	HIS	FHT	3.99946*	1.50573	.009	1.0118	6.9872
		Paper-based	-3.38776*	1.54187	.030	-6.4472	-.3284
	FHT	HIS	-3.99946*	1.50573	.009	-6.9872	-1.0118
		Paper-based	-7.38722*	1.72453	.000	-10.8091	-3.9654
	Paper-based	HIS	3.38776*	1.54187	.030	.3284	6.4472
		FHT	7.38722*	1.72453	.000	3.9654	10.8091
Complete	HIS	FHT	-2.17105*	1.04942	.041	-4.2533	-.0888
		Paper-based	-2.61415*	1.07461	.017	-4.7464	-.4819
	FHT	HIS	2.17105*	1.04942	.041	.0888	4.2533
		Paper-based	-.44310	1.20192	.713	-2.8280	1.9418
	Paper-based	HIS	2.61415*	1.07461	.017	.4819	4.7464
		FHT	.44310	1.20192	.713	-1.9418	2.8280
*. The mean difference is significant at the 0.05 level.							

ملخص الدراسة

مقدمة

تلعب المعلومات دوراً حيوياُ و محورياً في مجال الطب . وفي هذا الصدد ، يعتبر السجل الطبي وسيلة مهمة لتزويد الطاقم الطبي بالمعلومات . ففي الممارسات اليومية ، وفي الوقت الذي ازدادت فيه المساءلة ، من المتوقع أن يكون مقدمي الخدمة منهجيين في تزويد الخدمة للزبائن المترددين على العيادة أو المركز الصحي ، و أن يكونوا قادرين على إصدار وثائق طبية كاملة و واضحة عن الخدمات المقدمة .عالمياً ، هناك العديد من الدراسات التي سلطت الضوء على الملفات الطبية و جودة التوثيق الطبي . لكن دراسة هذا الموضوع في المنطقة العربية بشكل عام ، و في قطاع غزة بشكل خاص ، يعتبر محدود بشكل ملحوظ . حيث لا يتجاوز جزء صغير من دراسة موضوعات اخرى . تهدف هذه الدراسة إلى تسليط الضوء على جودة الملفات الطبيةفي مراكز الرعاية الصحية التابعة للأونروا في قطاع غزة ، لتحديد و تحليل الفجوات التي يمكن أن تنشأ في الممارسات اليومية بهذا الصدد.

أهداف الدراسة

1- تقييم جودة التوثيق الطبي في مراكز الرعاية الصحية التابعة للأنروا في قطاع غزة.

2- دراسة ممارسات التوثيق في الرعاية الصحية.

3- التعرف على فروقات التوثيق الطبي بالرجوع إلى الخصائص الشخصية و التنظيمية للمشاركين.

المنهجية

تم في هذه الدراسة إستخدام نهج الأسلوب المختلط الذي تم من خلاله تثليث البيانات ما بين البيانات الكمية و الكيفية . شارك في الجزء الكمي من الدراسة مامجموعه 204 مقدم خدمة تم إختيارهم عشوائياُ بطريقة نهج المعاينة المنتظمة . و قد كان معدل الإستجابة 97٪ . كما و قد تمت مراجعة 408 ملف طبي . بالإضافة إلى ذلك ، أجريت سبع مقابلات معمقة مع مشاركين تم إختيارهم مسبقاً وهم يشغلون مناصب مختلفة ضمن هيكلية دائرة الصحة التابعة للأنروا .تم جمع البيانات الكمية أولاُمن خلال إستبيان جماعي التعبئة ومراجعة الملفات الطبية . تم إستخدام النتائج الأولية المستوحاة من الجزء الكمي للدراسة لتوجيه الباحث الى كيفية جمع البيانات الكيفية للدراسة . حيث إستخدم الباحث إستبياناً كان قد أعده بنفسه وقد تم التصديق عليه من قبل لجنة مكونة من 9 خبراء .كانت مصداقية الإستبيان عالية (0.890) . و قد تم

إستخدام برنامج الحزمة الإحصائية للعلومات الاجتماعية لإدخال البيانات الكمية و تحليلها في حين تم إستخدام تقنية الترميز لتحليل البيانات الكيفية .

من الجدير بالذكر ، أن الأداة الرئيسية في الدراسة تناولت ستة محاور ناقشت الجودة الموضوعية للتوثيق الطبي . و قد جاءت المحاور على النحو التالي : معرفة مقدمي الخدمة و وجهات نظرهم عن التوثيق الطبي ، الممارسات اليومية حول التوثيق الطبي ، العوامل الإدارية المؤثرة على جودة الملفات الطبية ، أهم المعيقات التي تواجه مقدمي الخدمة لإنتاج ملف طبي عالي الجودة ، هذا بالإضافة إلى أهم الأخطاء التي قد تتكرر أثناء العمل اليومي .

أهم النتائج

أظهرت النتائج ان 65% من المشاركين كانوا إناثاً و 35% ذكوراً . نصفهم تقريباً كانوا ممرضات والثلث كانوا من الأطباء والبقية كانوا قابلات . 32% من المشاركين تلقوا تدريباً أثناء العمل عن كيفية التوثيق الطبي . توزعت فئة التمريض المشاركة في الدراسة ما بين عيادة الأطفال بنسبة 20% و عيادة الأمراض الغير معدية بنسبة 16% ، بالإضافة إلى بعض الممرضين الذين يعملون في محطات اخرى . في حين شكلت نسبة الأطباء 30% و هم يمارسون طب الأسرة داخل المراكز الصحية .

أشارت الدراسة أن إجمالي الجودة الموضوعية للتوثيق الطبي مرتفع بشكل نسبي ، حيث بلغت النسبة 77% إجمالاً .حصلت وجهات نظر مقدمي الرعاية الصحيةعلى أعلى نتيجة فى الجودة النوعية للتوثيق الطبي ، حيث بلغت النسبة 81% ,ويليه ممارسات التوثيق الطبي بنسبة 78% , من ثم المعرفة والعوامل الإدارية بنسبة 74% لكل منهما .في حين سجلت الحواجز أوالعقبات التى تواجه التوثيق الطبي نسبة72% من النتيجة الإجمالية، و كان عبئ العمل الزائد ونقص الموظفين وإنعدام التدريب هي الحواجز الرئيسية للتوثيق الطبي في المراكز الصحية التابعة للأنروا . و من الجدير بالذكر ، و على غير المتوقع ، إعتبر ما يقارب 50% من المشاركين في الدراسة أن الإشراف الإداري يعتبر من المعيقات للتوثيق الطبي.

في الجزء المتعلق بالعوامل الإدارية المؤثرة على جودة الملفات الطبية ، أظهرت الدراسة أن متغيرات الثقافة التنظيمية للمؤسسة (مثل رضى الموظفين ، الإلتزام تجاه العمل و المؤسسة ، عدد الموظفين و ضغط العمل .... الخ) حققت أعلى نتيجة بهذا الصدد بنسبة 75% . و جاء بعد ذلك مباشرة توفر البروتوكولات و تطبيقها بنسبة 74% ، بينما جانب الإشراف جاء أخيراً بنسبة 72% .

كشفت النتائج المستخلصة من مراجعة الملفات الطبية أن توافرالمعايير المختبرة و إكتمالها بشكل عام كانت74% و 80% على التوالى ، و هي نتيجة مطابقة لنتيجة إحدى الدراسات المحلية . كما أشارت نتائج مراجعة الملفات إلى وجود فجوة في ملفات الأمراض الغير معدية ، حيث كانت نسبة التوافر و الإكتمال 74%و 53%على التوالى .بالإضافة إلى ذلك ، كانت شكاوى المريض و نتائج الفحص السريري وتوافرخطة علاجية في ملفات العيادة الخارجية منخفضة جداً. في حين كانت النتائج المستوحاة من مراجعة ملفات الأمومة و الأطفال جيدة بشكل مرتفع إجمالاً.

أظهر الإحصاء الإستددلالي أن الذكور وحديثي السن والأطباء وحاملي شهادة البكالوريس وخريجي الدول العربية قد حصلوا على أقل النسب فى الجودة الموضوعية للتوثيق الطبي وعلى أعلى النسب فى أخطاء التوثيق بالنسبة لنظائرهم .فى نفس الوقت ، لم يتم العثور على أي إختلافات متعلقة بمستوى مراكز الرعاية الصحية أو المنطقة الجغرافية خلال مراجعة الملفات الطبية للمرضى . لكن ، الملفات الطبية الورقية حصلت على أعلى نسبة مقارنة بنظام صحة اللأسرة ونظام المعلومات الصحية الإلكتروني .

الخلاصة و التوصيات

خلصت الدراسة أن الجودة الموضوعية للتوثيق الطبي في مراكز الرعاية الصحية التابعة لوكالة غوث وتشغيل اللاجئين الفلسطينيين كانت مرتفعة وإن التدخلات الهادفة لتحسين هذه الممارسات يجب أن يتم عنونتها من خلال الادارة لإستهداف الفئات المذكورة . ويجب تسليط الضوء على تعزيز التدريب فى مجال الانظمة الالكترونية ، وذلك بالإضافة إلى أهمية الإشراف الفعّال و تذليل العقبات أمام الموظفين لإنتاج ملفات طبية ذات جودة عالية .