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Assessment of Physicians' Compliance with the Essential Drug List at Governmental Hospitals - Gaza Governorates

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Dedication

To my mother and father to whom I owe my life and success
To my dear wife who has been a great source of motivation and inspiration.
*To my little princes; **Lana** for here encouraging smiles*
To my brothers and sister
To my friends
To my colleagues
And
To everyone who contributed to make this study a reality

Ahmed Abdelmajed Saleh Al-Khodary

Declaration

I certify that this thesis submitted for the degree of master is the result of my own research, except where otherwise acknowledged, and that this thesis or any of its parts has not been submitted for higher degree to any other university or institution.

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Abstract

Physician's compliance with Essential Drug List (EDL) is defined as the extent to which their prescribing behavior matches the recommendations of the Palestinian Ministry of Health. Improper prescribing behavior of physicians has a negative impact on medical resources leading to serious financial overload, as well as undesired health impacts on patients. Promoting appropriate use of drugs, including compliance with EDL could save up to 5% of countries health expenditures. The WHO defines the Essential Drugs as those that satisfy the priority health care needs of the population.

The overall aim of the study was to assess physicians' compliance with EDL at governmental hospitals in the GG. The design of this study is a cross section: quantitative analytical design. The quantitative data were collected using 2 tools: First tool was a well-structured questionnaire which was used to collect data on physicians' knowledge and attitude toward EDL. The other tools are three checklists that were used to collect data on Physicians' compliance with EDL. The first checklist was used to extract data from the in-patient medication sheets (admitted cases); the second checklist was used to extract data from the emergency department reports-discharge sheet of emergency rooms; and the third checklist was used to extract data from the in-patient discharge reports, discharge certificate in the study settings. In total, 296 questionnaires were collected, 1098 in-patient medication sheets, 1595 emergency department reports, and 1226 in-patient discharge reports from the study settings. Analysis of data was conducted using SPSS program; the analysis involved conducting frequency distributions, cross tabulation, mean percentages, one-way Anova, and Chi-square.

Findings of the study have showed that the average total number of drugs prescribed in the in-patient medication sheet in the study settings was 5.21 drugs per sheet; the majority of the collected in-patient medication sheets (78%) were fully compliant with EDL. The average total number of drugs prescribed in the emergency department reports among the study settings was 2.17 drugs per emergency department report; only one third of the collected emergency department reports (31%) were fully compliant with EDL. The average total number of drugs prescribed in the in-patient discharge reports among the study settings was 3 drugs per report; nearly one third of the collected in-patient discharge reports (31%) were fully compliant with EDL. The findings of the study have also shown that knowledge of the study participants about the MoH-EDL, hospital EDL and its updating process is not high. However, there is a positive attitude among physicians about the EDL and its benefits. The majority of the study participants agreed on the importance and necessity of EDL for: provision of equitable health services; provision of quality health services; reduction of wasting in financial resources; reducing patient harm; and on the fact that the listed drugs in the EDL are selected on scientific bases. The majority of the study participants neither communicated with hospital pharmacists properly nor responded to pharmacists' recommendations in prescribing drugs from EDL. The study findings revealed that hospital management does not efficiently exercising its role in encouraging physicians to be compliant with EDL.

There is a need to implement a continuous education and training programs for healthcare staff concerning EDL and treatment protocols; to disseminate printed and softcopies copies of the EDL and hospital EDL; to activate the monitoring role of auditing system to improve physicians' compliance with EDL; to update the MoH EDL and hospital EDL. There is a need to conduct more research studies, including both qualitative and quantitative studies to deeply understand all the relevant factors that might affect physicians' compliance with EDL. There is also a need to conduct similar research studies in specialized and private hospitals.

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List of Abbreviations

CDS	Central Drug Stores
EDL	Essential Drug List
EDRs	Emergency department reports
EGH	European Gaza Hospital
GDP	Gross Domestic Product
GG	Gaza Governorates
GNP	Gross National Product
GS	Gaza Strip
IPDRs	In-patient discharge reports
MDGs	Millennium Developmental Goals
MoH	Ministry of Health
NEDL	Non Essential Drug List
NGOs	Non Governmental Organizations
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
PCBS	Palestinian Central Bureau of Statistics
PHC	Primary Health Care
PLO	Palestinian Liberation Organization
PNA	Palestinian National Authority
PNF	Palestinian National Drug Formulary
P & T committee	Pharmacy and Therapeutics committee
RUD	Rational Use of Drugs
RUM	Rational Use of Medicine
SPSS	Statistical Package of Social Sciences
STGs	standard clinical treatment guidelines
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
WB	West Bank
WHO	World Health Organization

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Chapter (1)

Introduction

1.1. Background

Access to health care is a fundamental human right and the attainment of the highest possible level of health is one of the most important world-wide social goals (Declaration of Alma Ata, 1978). Health systems are considered the corner stones in preventing and treating diseases. According to World Health Organization (WHO), a well-functioning healthcare system should improve the health status of the population, defend them against what threatens their health, protect against the financial consequences of illnesses, provide equitable access, and make it possible for people to participate in decisions affecting their health (WHO, 2010a).

Health system is composed of six building blocks: leadership and governance, health information system, health financing, human resource for health, service delivery, and affordable essential medical products (WHO, 2010a). According to WHO, medical products should have a regulatory system, national essential lists, treatment protocols, a good supply and distribution system, a drug availability and price monitoring system, and a rational use promoting programs (WHO, 2010a). According to WHO, the proportion of health dollars spent on pharmaceuticals is about 20% in developed countries, 15 to 30% in transitional countries, and 25 to 66% in developing countries (WHO, 2013a). Economically, spending on drugs is the largest public expenditure on health after personnel costs in low income countries (WHO, 2013a)

Horne (2005) defined compliance as the extent to which behavior matches the recommendations. Barriers for good compliance include lack of enough time and physicians' lack of knowledge, awareness, or disagreement with specific guidelines (Sequist et al., 2005). According to Fisher (2012), there is no universal compliance program that could fit all systems. Fisher (2012) has proposed seven basic core elements for effective compliance program including: adoption of written guidelines and policies; identification and appointment of compliance officer; establishment of anonymous reporting systems; presence of effective education and training programs; presence of auditing systems; presence of mechanisms to

enforce the compliance program requirements; and presence of an ongoing system of program modification based upon audit, feedback and experience (Fisher, 2012).

More than 50% of all drugs worldwide are prescribed, dispensed, or sold inappropriately, while 50% of patients fail to take them correctly (WHO, 2013a). Moreover, about one third of the world's population lacks access to essential drugs (WHO, 2013a). These essential drugs are selected not only with due regard to their public health relevance; evidence of efficacy, safety, and comparative cost–effectiveness; but also with regard to many factors, such as the pattern of prevalent diseases, treatment facilities, training and experience of available personnel, financial resources, genetic, demographic, and environmental factors (WHO, 2013b). The public health relevance criteria of a drug include incidence and prevalence of the disease, burden of disease, region-specific needs, evidence of potential impact or high effectiveness and potential political impact of identifying a drug as essential for advocacy purposes (WHO, 2013b).

EDL is intended to include drugs that are available within the context of functioning health systems at all times in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price the individual and the community can afford (Kar et al., 2010). As a general concept, EDL is intended to be flexible and adaptable to many different situations; adding items to it or deleting items from it remains a national responsibility (Kar et al., 2010). Careful selection of a limited range of essential drugs results in a higher quality of care, better drug chain management (including improved quality of prescribed drugs), and a more cost-effective use of available health care resources (Kar et al., 2010; WHO, 2002b).

1.2. Importance of the study

As aforementioned, health expenditure represents one of the largest portions of expenditure, globally it is about 5.3 trillion US$ (WHO, 2010b). At a conservative estimate, 20–40% of health resources are being wasted (WHO, 2010c). Medicines account for three of the most common causes of inefficiency. Inefficiencies can sometimes be due to insufficient, rather than too much, spending on health (WHO, 2010c). Improper prescribing behavior of physicians has a negative impact on medical resources leading to serious financial overload, as well as undesired health impacts on patients. Promoting appropriate use of drugs, could save up to 5% of countries health expenditure (WHO, 2010c).

Within the context of Palestine, in 2014, the Palestinian Central Bureau of Statistics (PCBS) (2016) demonstrated that the Palestinian National Authority (PNA) spent about 11% of the Gross Domestic Product (GDP) on health. Low level of physicians' compliance to the Essential Drug List (EDL) will affect directly resource allocation and utilization through overuse of some items and overstock of others leading to interruption of these services. Few studies are conducted internationally to assess the compliance of physicians with EDL.

Physician's compliance to EDL is an indicator for maximization of the use of current resources and decreasing waste (Khan and Ara, 2011). Physician's compliance with EDL would save resources and improve the efficiency and effectiveness of drugs use.

1.3. Justification of the study

During the last five years, the General Directorate of Hospitals in the GG has received many complaint letters from different hospitals concerning drug use. Some of the complaints were justified by shortage of EDL drugs despite their availability in Central Drug Stores. Others included requests for new drugs that are out of EDL despite the presence of alternative drugs in EDL. The magnitude of these complaints is not well known, although they come from different hospitals and different specialties.

The General Directorate of Hospitals also noticed through patient complaining letters that some prescribed drugs are absent in hospitals as well as in private market. In the absence of commitment to prescribe drugs included in EDL, physicians write two different prescriptions to the same patient; the first is directed to the hospital pharmacy to dispense EDL drugs, the second one containing NEDL drugs to purchase it from the private market. Writing the medications in two different prescriptions makes it impossible for pharmacists to practice clinical pharmaceutical interventions about the dose, indication, drug interactions, making it more susceptible for presence of drug interactions. Some of these drug interactions may be significantly harmful. Harmful interactions may cause irreversible effects including organ damage as renal or hepatic failure. Also prescribing NEDL drugs pushes the patients to buy drugs out of their pocket, hence increasing the financial burden on the patients and their families and decreasing financial protection and satisfaction with health care services.

Moreover, poor patients cannot buy medicine out of their pocket which eventually leads to the deterioration in their health status.

To the best of the researcher's knowledge, no previous research studies have been carried out concerning physicians' compliance with EDL in governmental hospitals in GG. Thus, this study will provide signals that could help identify best ways to promote rational use of drugs through assessing physician's compliance with EDL and identify influencing factors. Improving physician's compliance with EDL would improve the efficiency of available drugs, maximize the utilization of available drugs, and prevent wastage of the limited resources.

1.4. Aim of the Study

The study aims to assess physicians' compliance with EDL at governmental hospitals in the GG. The study will propose recommendation to improve physicians' prescribing practice.

1.5. Objectives

More specially, the study aims to address the following objectives:

1. Assess the level of physicians' compliance with and commitment to EDL
2. Examine physicians' current level of knowledge, attitude and practice concerning EDL at governmental hospitals
3. Explore factors that might hinder physicians' compliance with EDL
4. Propose recommendations that could improve physicians compliance with EDL

1.6. Research questions

This study will answer the following questions:

1. Are physicians aware of the concept of EDL?
2. Have physicians participated in updating EDL?
3. To what degree physicians comply with EDL at governmental Hospitals in the GG?
4. What are the prescribing trends of physicians concerning trade vs scientific names, and language of writing?
5. What are the main factors affecting physicians' compliance with EDL?
6. Does the MoH implement effective EDL orientation programs for the medical staff?

7. Do hospital pharmacists play their roles in improving physician compliance with EDL?

8. Do we have variations in physician's compliance among different hospitals and different medical forms?

9. Were the MoH management efforts enough in this field?

1.7. Geographic Context

The State of Palestine **(Annex 1)** is located in the west of Asia; it lies between longitudes 33' 15'' and 29' 30''; and between latitudes 35' 40'' and 34' 15''. The entire area of Palestine is about 27,009 Km^2, stretching from Ras Al-Nakoura in the north to Ommerreshrash in the south. Palestine is bordered by Lebanon in the north with a border length of 79 Km; Syria with border length of 70 Km, and Jordan with a border length of 360 Km from the east. To the south, Palestine is bordered by Egypt with a total length of 240 Km border. Mediterranean Sea limits Palestine from the west with a coast length of 224 Km. Palestine also overlooks the Gulf of Aqaba with a coast length of 10.5 Km (Dabbagh, 1997). Nowadays, PNA is limited to two geographically separated areas, Gaza governorates (also called southern governorates, Gaza strip, GS), and West Bank governorates (also called northern governorates, WB), with a total area of 6020 km^2 which represents 22% of historical state of Palestine (PCBS, 2013a).

GG **(Annex 2)** is a small narrow band of land; it is 45 km long and 6-12 km wide, located in the southern area of the historical state of Palestine on the coast of Mediterranean with an area of 365 km^2 (Dabbagh, 1997). It is divided into five governorates: North Gaza, Gaza, Mid Zone, Khan Younis, and Rafah (PCBS, 2013a). The total land boundaries of GG are 62 Km: Egypt 11 Km, and Israel 51 Km (PCBS, 2014).

1.8. Palestinian health care system

The Palestinian health care system is a complex one; it covers wide range of Primary Health Care (PHC), secondary health care, and tertiary health care. There are four main health care providers: MoH, United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), Non-Governmental health Organizations (NGOs), and private for-profit health service providers (MoH, 2014). MoH is the main health care provider in PNA; it provides primary, secondary, and tertiary health care services. It purchases advanced medical

services through referring patients to the neighboring countries and other private and NGOs health care facilities (MoH, 2014). UNRWA provides basic primary health care services and some secondary care services to the Palestinian refugees (MoH, 2014).

1.9. Demography context

According to PCBS (2015), the total estimated population of the PNA at mid-2015 was about 4.68 million; 2.38 million males and 2.3 million females. The total estimated population of the GG was 1.82 million. Data revealed that the population of the PNA is a young population; as the percentage of individuals aged 0 to 14 constituted 39.4% of the total population at mid-2015, of which 37.2% are in WB and 43.0% in GG. The elderly population aged 65 years and over constituted 2.9% of the total population of which 3.2% are in WB and 2.4% in GG at mid-2015. Population density is generally high in GG; reaching 4,986 persons/km^2, as per PCBS (2015). The average household size in PNA was 5.2 in 2014: 4.9 in WB and 5.7 in GG. The natural rate of increase of the population was 2.9% in 2015; 2.6% in WB and 3.4% in GG (PCBS, 2015).

In 2012, Palestinian refugees constituted 42.1% of the total population: 27.0% in WB and 67.0 % in GG. In 2015, life expectancy at birth in PNA was 73.5: 72 years for males and 75 years for females (PCBS, 2015).

1.10. Socio-Economic Context

The ongoing blockade, current occupation, frequent wars have weakened the Palestinian economy to unprecedented level. In the year 2012, the estimated per capita GDP was 1679.3$: 2093.3$ in WB and 1074.5$ in GG (PCBS, 2013b).

Labor force participation rate in 2015 was 45.6%, distributed as 71.7% for males and 18.8% for females (PCBS, 2015). In 2015, Out of the total rate of employment: full employment rate was 70.8%, underemployment rate was 3.6%, and unemployment rate was 25.6% (PCBS, 2015). According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA,2014), the current poverty and unemployment rates are very high; In GG, unemployment rate has increased dramatically since mid-2013, following halt of the illegal tunnel trade with Egypt, soaring from 28% in the third quarter of 2013 to 45% in the second

quarter of 2014; almost 70% of the youth aged 20-24 were unemployed in GG in the second quarter of 2014 and further deterioration is highly expected (OCHA, 2014).

The total diffusion rate of poverty among Palestinian individuals was 25.8% in 2011: 17.8% in the WB and 38.8% in the GG. In 2014, the poverty rate in the GG has increased to 39% (World Bank, 2014). In 2014, the literacy rate was 96.9% in the GG (98.4% for males versus 95.3% for females) (PCBS, 2015).

1.11. Political context of GG

After the beginning of Al-Aqsa intifada (2000), Israeli siege and closure of crossings was imposed on the GG. The Israeli authorities implemented a collective punishment to all Palestinians in the GG by tightening the siege more intensively after the Palestinian legislative elections in 2006 and the election of Hamas Islamic movement. Intensity of the sieges and continuous blockade of borders were dramatically increased after the political rift in 2007. Israel's punitive closure of the GG, particularly the near-total blocking of exports, continued to have severe consequences on the Palestinian population. The allowed imports to GG amounted to less than half of the 2006 pre-closure levels (Human Rights Watch, 2014). In 2013, deterioration of the health status has increased due to bad economic situation after the closure of the illegal tunnels with Egypt, which was considered in certain period of time as a sole source of all goods needed for GG. The MoH became hardly able to provide all operational needs of the health services including drugs, medical disposables, medical equipment, lab materials, and others. Additionally, services are frequently interrupted by electricity blackouts and insufficient supplies of drugs and disposables and limited training opportunities for medical staff. This further threatens the health of the population, which is already at increasing risk (UNRWA, 2014; OCHA, 2014). Following the establishment of the reconciliation government, there is a void in local leadership at ministerial levels and insufficient cash flow causing an imminent threat of a breakdown in key public health services. This comes on top of an already severely strained situation caused by ten years of Israeli siege on GG (UNRWA, 2014).

Not only the political conflict led to deterioration in the health status in the GG, but also frequent and repeated Israeli wars and attacks, where GG were exposed to three major and

devastating wars in the last 7 years: Al Forqan war 2008, Hejarat Al Sejjeel war 2012, and Al Asf Al Maakool war 2014. As a result of the last Israeli 51days war on the GG in 2014, several health facilities had been closed throughout the hostilities. Some of them have been re-opened while others have not (OCHA, 2014). In GG, 50 PHCs and 17 hospitals were either partially or totally damaged (OCHA, 2014). During the last war, some of 485,000 people – 28% of GG population – were internally displaced (OCHA, 2014).

1.12. Palestinian Ministry of Health

After the Oslo Accords (1994) between the Israeli government and Palestinian Liberation Organization (PLO), PNA was established on the GG, in addition to Jericho city, which was known as the first phase of the Convention: Gaza-Jericho phase. Health care provision, supervision, regulation, licensure, and control of all health services were transferred to the Palestinian MoH in 1994 (Abed, 2007). Despite aid assistance by international donors, health sector has been suffering from chronic financial crises due to increased demand on health services which resulted from ongoing increase in the population growth, frequent wars, and political rift between GG and WB (Palestinian Non Governmental Organizations Network, 2009; Abed, 2007).

The MoH is composed mainly of main general directorates including hospitals, primary health care, pharmacy, human resources development, health finance and management, inspection and control, international cooperation, engineering and maintenance, and legal affairs. It also includes many units such as insurance, nurses, laboratories and blood banks, referral abroad, rehabilitation, health information center, Information and technology, strategic planning, psychiatric health, emergency services, and accreditation and licensing. Hospitals are a key component for effective performance of the Palestinian health care system (MoH, 2013).

1.13. Health indicators

In 2015, the crude birth rate was 31.9 per 1000 population (29 in WB, and 36.3 in GG) and the crude death rate was 3.6 per 1000 population (3.7 in WB, and 3.4 in GG) (PCBS, 2015).

The overall number of hospital beds in PNA is 5,414 beds distributed over 79 hospitals; 49 are in WB with 3,163 beds hospital beds, 30 hospitals with 2,251 beds in GG (MoH, 2013). In the year 2012, Bed occupancy rate was 82.7% with an average of 2.4 days residency in hospital (PCBS, 2013b).

1.14. Governmental hospitals in GG:

In GG, there are 12 governmental hospitals, the total number of governmental hospital beds in 2015 was 1639 for inpatients. Bed occupancy rate was 84.43% with an average of 3.89 days residency in hospital (MoH, 2015).

1.15. Pharmacy and Therapeutics committee

According to WHO (2003), Pharmacy and Therapeutics committee (P & T committee), also called Drug and Therapeutics Committee (DTC) in some countries is considered as an integral element in the development of rational guidelines, following Evidence-based medicine approaches, aims for implementation of appropriate medicine policies to ensure that patients are provided with the best possible care at a high quality and a cost effective manner through selecting what medicines will be available, at what cost, and how they will be used. P & T committee became a main bone for the exchange of ideas and knowledge among physicians, clinical pharmacologists and pharmacists (Hoffmann, 2013). According to the American Society of Health System Pharmacists, P&T committee should serve in an evaluative, educational, and advisory capacity to the medical staff as well as in organizational administration in all matters that pertain to the use of medications (Tyler et al., 2008)

In the Palestinian context, P & T committee is considered as advisory group composed of experts. It has two levels: a central committee concerned with national drug decisions between alternatives and composed mainly of physicians and pharmacists of different specialties, while hospital level committee composed primarily of physicians, pharmacists, and may include nurse and lab technicians. In hospitals, P & T committee serves as the communication link between the medical staff and the pharmacy department. Its primary goal is cost containment, and priority setting in case of drug shortage.

1.16. Operational definitions of terms

Essential Drug List: is the list of drugs that satisfy the priority health care needs of the population (WHO, 2013b).

Drugs: Any material acknowledged registered in the pharmacopeia, also any material which is used to diagnose, or cure, or treat or to help any human or animal disease, or any non-food material intended to impact the human body or an animal with respect to environment or vital functions of any of them (Public Health Law, 2004).

Key drugs: A short list of specific drugs (less than 15) those are essential to treat common health problems in specific countries (WHO, 1993).

Physicians Compliance: the extent to which physician's behavior matches the recommendations

Chapter (2)

Literature review

This Chapter starts by presenting the conceptual framework guiding this study; then, it highlights the essential drugs concept, selection criteria, process and update, rational drug use and ways to promote the rational drug use and causes of irrational drug use. Finally, it reviews the history and current status of the Palestinian EDL.

2.1 Conceptual framework

The guiding conceptual framework in the study is shown in **Figure (2.1).** Two major groups of factors were included in the research framework: physicians and health facility related factors. Another third group of factors related to the MoH high level management. All these factors are relevant and affect the compliance of physicians working in MoH hospitals.

The first major group of factors is related to physician's characteristics. This group is divided into five sub divisions. Firstly, socioeconomic characters of the study participants such as marital status, gender, age, and residency. Secondly, work related characteristics of the study participants such as specialty, place of work, academic qualifications, years of work experience, and managerial position. Thirdly, the study participants knowledge about the essential drugs list contents, EDL concept, EDL selection criteria, and benefits. Fourthly, the study participants attitude towards the essential drugs list, EDL concept, EDL selection criteria, and benefits. Fifthly, other factors including private work and medical representatives of pharmaceutical companies influence.

The second major group of factors is related to the health facility characteristic. This group is divided into four sub divisions. Firstly, activities related to the pharmacy and therapeutics committee in the hospital. Secondly, activities related to the hospital Monitoring and Evaluation system and its feedback. Thirdly, the availability of EDL drugs in the study settings. Fourthly, the hospital pharmacy related activities.

The third major group of factors is related to MoH high level management. This group is divided into three sub divisions. Firstly, issues related to guidelines, policies, and procedures establishment and dissemination efforts. Secondly, MoH training programs issues. Thirdly, actions related to the MoH Audit system activities.

Figure (2.1): Conceptual framework

Self-developed
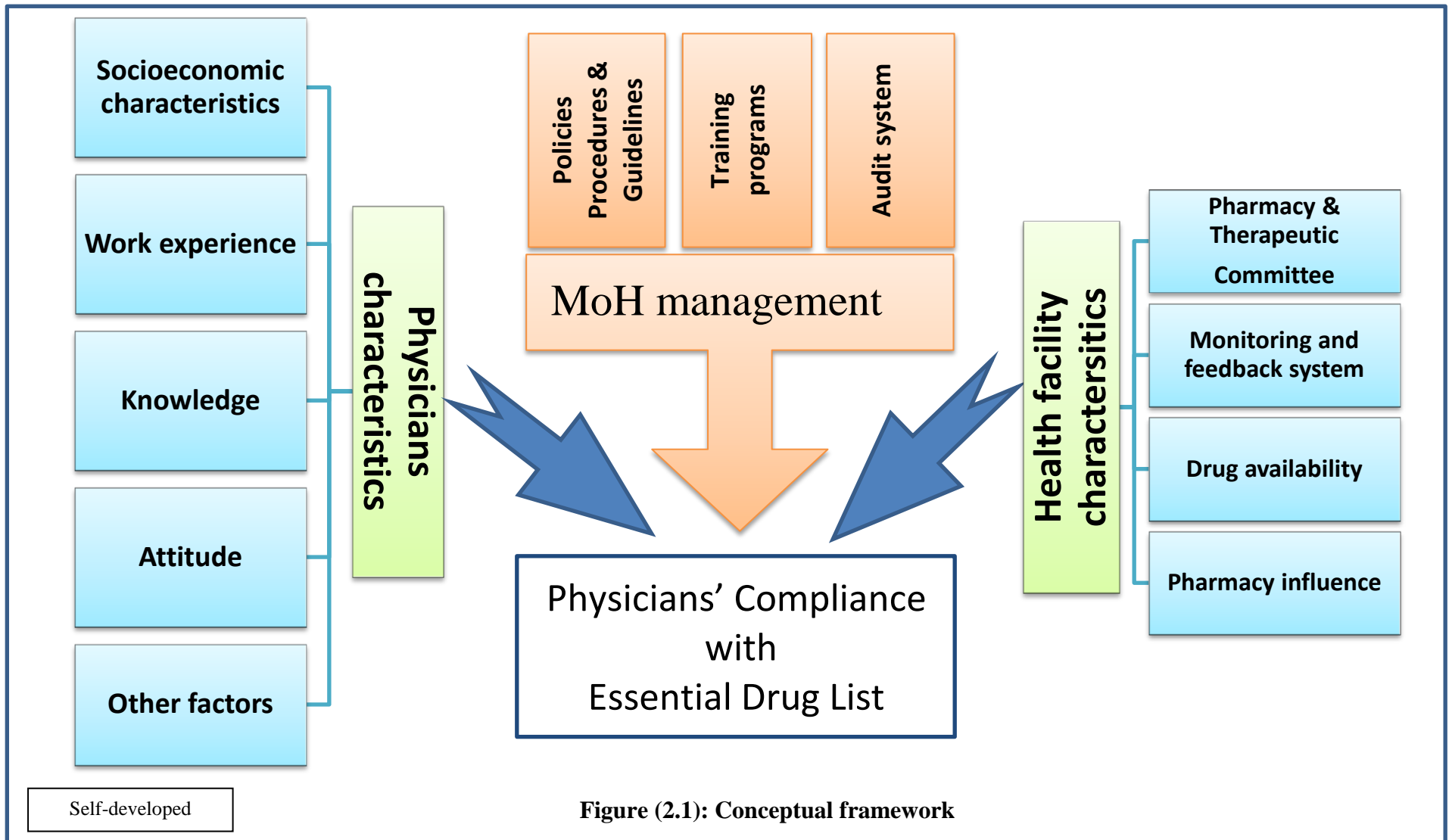
2.1.1 Physician's characteristics

Physician's characteristic includes socioeconomic characteristics, years of work experience, work attitude, and knowledge. Socioeconomic characteristics includes: age, gender, place of permanent residency, place of work, managerial positions gained during his work, and type of medical specialty.

In relation to the physician's knowledge and attitude, according to WHO guidelines, the medical staff should have adequate knowledge and training in the health care service they provide. The medical staff attitude towards prescribing drugs from the EDL will affect their compliance with it and the service they provide. Compliance with EDL needs a specialized medical staff who believes that EDL will improve the services more than other drugs (WHO, 2002a).

2.1.2 Health facility related factors

Health facility related factors will include the availability of policy and procedures, guidelines and protocols, Pharmacy and Therapeutic committee (P & T committee), monitoring system, drug availability system, training system, feedback system, and hospital pharmacy influence.

Compliance is established effectively and efficiently in the presence of policies and guidelines (WHO, 2003). Pharmacy and therapeutic committee (also known as Drug and therapeutic committee; P & T committee) have brought pharmacists into closer formal working relationships with other hospital medical specialists to devise hospital policies. Its main objective is to ensure the efficiency and quality of hospital services through optimal use of drugs (MoH, 2008; WHO, 2003).

Hospital pharmacy influence: Pharmacists are the main professionals dealing with drugs; they are considered as the sole drugs experts at the hospitals (MoH, 2013). Pharmacists have a strong influence on physicians compliance through direct and continuous communication with physicians and induction of compliance with EDL. Expanding the role of hospital pharmacist has improved the medication use process in a high-risk population through improvements in medication overuse, medication underuse, dosing, medication reconciliation, patient education, and health care provider education (Reilly et al., 2012).

The availability of drugs in health care facility is so crucial that no health care services can be provided without such availability. It represents one of the main building blocks of a sound health care system (WHO, 2010a).

2.1.3 MoH management

MoH management has an important role in increasing the physician's compliance with the EDL through exercising efforts related to establishment and updating of the MoH EDL, dissemination of knowledge related to the EDL as well as printing copies of the list, Monitoring and evaluation system, and drug supply efforts.

2.2 Literature review

2.2.1 Essential Drug List Concept

In 1977, the first WHO`s EDL was drafted; the concept was to promote rational use of drugs (RUD). Selection of essential drugs is linked to the approved treatment guidelines, it has a significant effect on promoting health professionals and consumers RUD and increases the access to health care services generally (WHO, 2002b). EDL is used as a powerful tool for promoting health equity in order to address the gap in access to drugs between citizens of high income countries and those of low income countries (Millar et al., 2011). In establishing a local country EDL, the WHO`s EDL represents an important key element in which it serves as a model for public supply and reimbursement (Millar et al., 2011).

On the other hand, some argue that, following the EDL list principle delays the inclusion of new medicines, harm the research and development activities since sponsors won′t be afraid about new medicine's market potential (Bansal & Purohit, 2013). Moreover, following the EDL list principle has many challenges; the most common challenges are: to regularly update the EDL in the light of new therapeutic options; changing therapeutic needs according to epidemiological profile of the population; the need to ensure drug quality; the need for emerging diseases drugs and drugs for coping with changing resistance patterns (Bansal & Purohit, 2013).

2.2.2 Selection criteria, process and update of EDL

Essential drugs selection process is critical, and it is so important that the process should be consultative and transparent. Selection criteria should be explicit and be linked to evidence-based standard clinical guidelines (Kar et al., 2010; WHO, 2002b). Those clinical guidelines should be agreed on and accepted by the health care professionals and the system as a reference for treatment. Both of the treatment guidelines and EDL are regularly reviewed and updated at least every two year; their use and impact should be monitored (Kar et al., 2010; WHO, 2002b).

The selection of Essential Drugs represents one of the core principles of a national drug policy (WHO, 2002b). Countries apply the EDL concept to achieve the best possible health outcomes within available resources (WHO, 2002b).

The selection of Essential Drugs is a two-step process, the first of which is market approval of a pharmaceutical product and the second is an evaluation process based on comparison among various drug products on considerations of effectiveness and cost (WHO, 2002b).

The WHO expert committee (2002) recommended and used the following criteria for selection and use of Essential Drugs: (1) only drugs for which sound and adequate evidence of efficacy and safety in a variety of settings is available should be selected; (2) relative cost-effectiveness is a major consideration for choosing drugs within the same therapeutic category. In comparisons between drugs, the total cost of the treatment – not only the unit cost of the drugs – must be considered, and be compared with its efficacy; (3) in some cases, the choice may also be influenced by other factors such as pharmacokinetic properties or by local considerations such as the availability of facilities for manufacture or storage; (4) each drug selected must be available in a form in which adequate quality, including bioavailability, can be ensured; its stability under the anticipated conditions of storage and use must be determined; (5) most essential drugs should be formulated as single compounds. Fixed dose combination products are selected only when the combination has a proven advantage in therapeutic effect, safety, and adherence or in decreasing the emergence of drug resistance. The WHO essential medicines policies are associated with improved quality use of medicine, particularly in low-income countries (Holloway & Henry, 2014).

2.2.3 Rational Use of Drug (RUD)

The selection of Essential Drugs is only one step towards the improvement of the quality of health care services; selection needs to be followed by an appropriate use. Each individual should receive the right drug, in an adequate dose for an adequate duration, with an appropriate information and follow-up treatment, and at an affordable cost (Kar et al., 2010). RUD (also called rational use of medicine RUM) is defined as "Patients receive drugs appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community" (WHO, 2002a). According to WHO, not only the irrational (also called inappropriate) use of drugs for chronic and infectious diseases is widespread, costly and extremely harmful to both the individual and populations as a whole, but also it increases the incidence of adverse drug events and resistance. Moreover, WHO classified the common types of irrational drug use to be: (1) the use of too many drugs per patient (poly-pharmacy prescriptions); (2) inappropriate use of antimicrobials, often in inadequate dosage, for non-bacterial infections; (3) over-use of injectable when oral formulations would be more appropriate; (4) failure to prescribe in accordance with standard clinical treatment guidelines (STGs); (5) inappropriate self-medication, often of prescription only medicines (WHO, 2002a).

Causes of irrational use of drugs include lack of knowledge, lack of skills or independent information, unrestricted availability of drugs, overwork of health personnel, inappropriate promotion of drugs and profit motives from medical and selling representatives of private drug companies (WHO, 2002a).

2.2.4 Promotion of RUD

Promoting RUD will result in improved quality, increased accessibility, and better quality of life for the community (Khan & Ara, 2011). Moreover, rational prescribers should attempt to maximize clinical effectiveness, minimize harms, avoid wasting limited healthcare resources, and respect patient's choice (Khan & Ara, 2011). Due to limited resources of healthcare systems and the rapidly increasing cost of drugs, prescribers are forced to consider cost effectiveness as an important factor in drug selection; selecting a generic rather than a branded drug from the same therapeutic class represents an example of cost effective prescribing (Khan & Ara, 2011).

The WHO (2002) recommended twelve useful and effective core interventions to promote RUD. However, when these activities are being implemented, care is necessary to ensure success. These twelve core interventions include: (1) a mandated multi-disciplinary national body to coordinate drug use policies; (2) standard clinical treatment guidelines (STGs); (3) EDL based on treatments of choice; (4) drug and therapeutic committees in districts and hospitals (also called Pharmacy and Therapeutic committees, P&T committee); (5) problem-based pharmacotherapy training in undergraduate curricula; (6) continuing in-service medical education as a licensure requirement; (7) supervision, audit and feedback; (8) independent information on drugs; (9) public education about drugs; (10) avoidance of perverse financial incentives; (11) appropriate and enforced regulation; and (12) sufficient government expenditure to ensure availability of drugs and staff.

Addressing the irrational prescribing, dispensing and patient use of drugs should be regularly monitored in terms of: (1) types of irrational use; (2) amount of irrational use; and (3) reasons why drugs are used irrationally (WHO, 2002a).

2.2.5 Palestinian EDL

In the year 2000, MoH adopted its first EDL. A national committee was established of highly qualified members of all medical specialties including physicians, pharmacists, nurses, public health experts, financing experts. The committee included health services representative of the MoH, NGOs, private sector, educational institutions, military medical services, and international organizations working in the PNA. It also considered the membership of both GG as well as WB. The process was guided by the WHO recommendations for selection and update of EDL. As a consequence, MoH established the Palestinian National Drug Formulary (PNF) in the year 2002 which is considered as the guiding formulary for the use of essential drugs for all medical staff working at MoH facilities. PNF was printed as a Note book and disseminated; training courses were implemented among the majority of governmental health care staff during the period from 2002 to 2004. Later to this date, EDL was updated several times; the last of which was in 2013.

The total number of updated Palestinian EDL items is 480 which are categorized in the PNF (2013) into twenty nine categories: (1) anesthetics; (2) analgesics, antipyretics, non-steroidal anti-inflammatory; (3) antiallergics and medicines used in anaphylaxis; (4) antidotes and other

substances used in poisonings; (5) anticonvulsants/antiepileptics; (6) anti-infective medicines; (7) antimigraine medicines; (8) antineoplastic, immunosuppressives and medicines used in palliative care; (9) antiparkinsonism medicines; (10) medicines affecting the blood; (11) blood products and plasma substitutes; (12) cardiovascular medicines; (13) dermatological medicines (topical); (14) diagnostic agents; (15) disinfectants and antiseptics; (16) diuretics; (17) gastrointestinal medicines; (18) hormones, other endocrine medicines and contraceptives; (19) immunologicals; (20) muscle relaxants (peripherally-acting) and cholinesterase inhibitors; (21) ophthalmological preparations; (22) oxytocics and antioxytocics; (23) dialysis solution; (24) medicines for mental and behavioral disorders; (25) medicines acting on the respiratory tract; (26) solutions correcting water, electrolyte and acid –base; (27) vitamins, minerals and other nutritional supplements; (28) ear, nose and throat; (29) specific medicines for neonatal care.

PNF (2013) also included more 10 items categorized as complementary drugs. Currently, in the study settings, the total number of drugs that are dealt with is 432 drugs: 350 drug items in Al-Shifa Medical complex, 301 drug items in Nasser Medical complex, 359 drug items in European Gaza Hospital, 272 drug items in Al-Aqsa Martyrs hospital, and183 drug items in Kamal Odwan hospital (MoH, 2013).

2.2.6 Factors affecting physicians' compliance with EDL

2.2.6.1 Physicians' knowledge about EDL

According to a Dutch study conducted by Karbach and Colleagues (2011), 40% of the physicians know the guidelines adequately; however, the study concluded that physicians' knowledge of guidelines does not in itself lead to better guideline implementation. Moreover, Ossoff and Thomason (2011) found that there is no one compliance program model to fit every organization, so there is no one educational model that could fit every organization. There are key factors to consider when determining how to approach an educational program for any organization.

According to Oba and Collogues (2006), three factors were identified as being significantly associated with physician compliance status: (1) prior participation in clinical trials; (2) physician opinion that the support system for case registration and follow-up was well

organized; and (3) number of patients treated. Another study conducted by Gustafsson and Colleagues (2011), Swedish researchers, revealed that no comprehensive model exists for selecting and communicating essential drug recommendations to all physicians to enhance adherence and there is a great need for local adaptation of these programs to be more effective. Gustafsson study also showed that adherence to the EDL was 77% by substance in 2009. A French study conducted by Sellier and Colleagues (2009) found that adherence to recommendations with an infectious disease specialist for inpatients was as high as 88% for antimicrobial therapy and was associated with a higher prevalence of early clinical improvement and a shorter median length of hospital stay.

With regard to demographic characteristic of physicians, Sherman (2011) found that no significant demographic differences were reported between different American physician groups, including age, sex, and race, and concluded that Physician-specific factors have no impact on medication prescribing compliance with treatment and clinical outcomes.

Within the Palestinian context, Fattouh and Abu Hamad (2010) studied the physicians' compliance with the Palestinian EDL at the governmental PHC centers in GG. The study showed that, the vast majority of the study participants (97.2%) were not involved in the establishment of the EDL, 67.4% of the respondents reported currently using the EDL and 51.2% of the respondents faced many problems in using the EDL. More importantly, the study showed that the percentage of drugs prescribed from the EDL was 97.85%, the percentage of drugs prescribed by generic names was 5.47%, the availability of a copy of EDL at the surveyed clinics was 28.3% and the availability of key drugs was 82.6% .The majority of the study participants (79.4%) had a copy of the standard treatment guidelines, 70.1% of the study participants reported having copy of EDL, most of the study participants (94.3%) were knowledgeable about the essential drugs concept, and around two thirds (65.5%) of the study participants did not attend any training courses on EDL. Moreover, Fattouh and Abuhamad (2010) found that, only 25.9% of the study participants reported having an evaluation for their prescribing practice at their facilities, while 56.6% of the study participants did not receive any feedback. (Fattouh & Abu Hamad, 2010).

 A more recent study was conducted to assess physicians' exposure and attitudes towards the marketing practices of pharmaceutical companies in GG (Ammar, 2015) in which the researcher found that MoH hospitals' physicians are highly exposed to the marketing practices

of the pharmaceutical companies, as 95.1% of them are exposed to 10 marketing practices used by pharmaceutical companies. Moreover, Ammar (2015) found that MoH hospitals' physicians have positive attitude towards the marketing practices and the information provided by pharmaceutical companies through marketing practices, and they consider such information important and credible. Ammar also found that MoH hospitals' physicians are aware of the regulation of the marketing practices in general (Ammar, 2015).

De Ferrari and Colleagues (2014), who studied the attitudes and relationship between physicians and the pharmaceutical industry in a public general hospital in Peru, found that 94.5% of attending physicians reported ongoing encounters with pharmaceutical representatives. Ammar (2015) mentioned that the Palestinian status is suffering from poor regulatory process for pharmaceutical companies. Promotional materials may not always be compliant with current evidence-based and ethical standards (Olivier et al., 2015)

Physician's knowledge:

According to Mariam and Colleagues (2015), a study conducted in a Southern Ethiopian hospital, 72.2% of physicians were aware of the existence of the EDL. While, Mulwa and Colleagues (2015) found that 80% of the study Participants at the Alexandrian primary health care centers informed that they have copies of EDL. According to Gupta and Colleagues (2015), a study conducted at tertiary care teaching hospital in South India, 75.3% of physicians agreed that generic drugs are as safe as innovator drugs, 64.4% of physicians agree that generic drugs are as effective as brand-name drugs, 63% of physicians said that they prescribe generic drugs, and 89% of physicians agreed that that there should be training programs to increase the awareness regarding generic drugs among doctors. According to Hettihawa and Jayarathna (2010), who studied the Knowledge in core Policies of EDL among medical practitioners in comparison with medical students in Sri Lanka, only 54% of the study participants have true Knowledge on core policies of EDL, physicians level of knowledge on time frame for revision of EDL was very low (17%), the level of knowledge of physicians on contents of EDL was 63%, the knowledge of physicians about the criteria for selection of EDL was 83%. According to Khan and Colleagues (2011), who studied the rational prescribing among medical practitioners in Bangladesh, 58.6% of the physicians reported that they did not have any clinical practice guidelines in their clinics.

Physicians practice:

According to Mariam and Colleagues (2015), a study conducted in a Southern Ethiopian hospital, the majority of the prescriptions (67.7%) contained two to three drugs, the average number of drugs was 2.3 drugs per prescription, drugs prescribed in Generic names constituted 96.8% of the prescriptions, and 88.7% of the prescribed drugs were from the Ethiopian EDL (Mariam et al., 2015). According to Chedi and Colleagues (2015), a study conducted in Northern Nigerian provinces, the mean number of drugs prescribed was 2.97 drugs per prescription in hospitals, while it was 3.62 drugs per prescription in the primary health care facilities. Prescribing drugs by Generic names constituted 61% of the hospital prescriptions, while it was 55% of the primary health care facilities prescriptions. The percentage of drugs prescribed from the Nigerian EDL was 89.8% among the primary health care facilities compared to 91.8% in the hospitals (Chedi et al., 2015). According to Ingle and Colleagues (2015), an Indian study, the average number of drugs prescribed was 3.5 per prescription. The overall percentage of drugs prescribed from India's EDL was 51.05%.

According to Prasad and Colleagues (2015), another study conducted in India at a secondary care referral hospital, the average number of drugs per prescription was 2.7 drugs, 42.9% of the prescribed drugs were in Generic names, and 95.6% of the prescribed drugs were from the India EDL (Prasad et al., 2015). According to Goel and Colleagues (2015), an Indian study conducted in tertiary care teaching hospital in Ghaziabad, only 38.83% of the drugs were prescribed by Generic names, and 41% of the prescribed drugs were from the EDL. According to Ndukwe (2013), a study conducted in Nigerian teaching hospital, the average number of drugs per prescription was 3 drugs, 70.2% of the prescribed drugs were by Generic names, and the drugs prescribed from the hospital formulary constituted 88% of the total number of prescribed drugs. According to Afriyie and Colleagues (2014), a study conducted in Ghanian military hospital, the average number of drugs per prescription was 3.7 drugs, 62.6% of the prescribed drugs were by Generic names, and the drugs prescribed from the hospital formulary constituted 53.6% of the total number of prescribed drugs.

According to Adibi and Colleagues (2012), an Indian study conducted in tertiary care teaching hospital, the average number of drugs per prescription was 4.22 drugs, only 3.8% of the prescribed drugs were in Generic names, and 53.3% of the prescribed drugs were from the India EDL. According to Mulwa and Colleagues (2015), a study conducted in Kenyan referral

hospital, the mean number of prescribed drugs was 2.48 drugs per the in-patient prescription, while it was 2.7 drugs per the out-patient prescription. Prescribing drugs by Generic names constituted 45% of the in-patient prescriptions, while it was 47.6% of the out-patient prescriptions. The percentage of drugs prescribed from the EDL was 90.6% among the in-patient prescriptions compared to 82.8% among the out-patient prescriptions. According to Akl and Colleagues (2014), an Egyptian study conducted among the primary health care centers at Alexandria province, the average number of drugs per prescription was 2.5 drugs, 95.4% of the drugs were prescribed by Generic names, and 95.4% of the drugs were prescribed from the Egyptian EDL. According to El-Mahalli (2012), a Saudi Arabian study conducted among the primary health care centers of the eastern province, the average number of drugs per prescription was 2.4 drugs, 61.2% of the drugs were prescribed by Generic names, and 99.2% of the drugs were prescribed from the Saudi Arabia EDL.

Drug information sources

According to Zeidan (2015), the majority of the study participants (65%) used internet for searching medical information through PubMed as a favored Medline search engine, while García and Colleagues (2011) found that the internet sources were considered useful by nearly two thirds (62%) of participants. Kamal and Colleagues (2014), showed that physicians obtained drug related information from many sources; the most common are: drug information sheets (drug package leaflet) (25.6%), text books (20.4%), scientific journals (8.5%), while only 9% of the study participants obtained their information from medical representatives of drug companies. Thriemer and Colleagues (2013) found that the sources of information for the physicians who participated in the study were: pharmaceutical companies (76.9%), treatment guidelines (62.8%), the internet (51.3%), and university courses (37.2%). Kargar and Colleagues (2016) found that the main source of physician information was the colleagues. Quet and Colleagues (2015) revealed that 86.5% of the doctors obtained information from national guidelines, 85.1% of the doctors obtained information from peer advice, 82.6% of the doctors obtained information from older colleagues, 76.9% of the doctors obtained information from representatives of pharmaceutical drug companies, while the internet as a source of information represented 73.9% for physicians.

Educational intervention

Imparting the knowledge and awareness among the health care professionals by means of learning initiatives and continuous educational intervention would bring updated knowledge and attitude of practice for drug safety (Kargar et al., 2016; Ingle et al., 2015; Asadpour et al., 2015; Kamal et al., 2014; Palaian et al., 2011; Rajesh et al., 2011). These continuing education programs give a chance to health care field specialists to acquire new knowledge, skills and competences and to refresh the existing professional skills (Puķīte, 2015). Moreover, to increase physicians compliance with EDL, these educational interventions have to include information about local EDL concepts and benefits, the importance of renewing public confidence in the quality of locally available EDL, and the revision and dissemination of local guidelines (García et al., 2011). Delivery of these training courses should be assisted by local 'experts' who are able to customize course content to meet local requirements and the requirements of different staff groups (Brand, 2015). Frequent appraisal of the EDL concepts and amendment can make the EDL concept more familiar to physicians (Hettihawa & Jayarathna, 2010).

Regarding the presence of feedback system for physician's compliance, several studies found that an effective feedback should be an integral part of clinical practice of physicians and it should be part of a broader quality improvement initiative (Sullivan et al., 2016; Kaye et al., 2014). Senior leaders and stakeholders of the health care system must be involved in the development of the feedback process (Sullivan et al., 2016; Kaye et al., 2014). Those senior leaders and stakeholders should be properly trained on how best to give constructive, supportive feedback without fear of an antagonistic reaction from the recipient (Kaye et al., 2014). Feedback is best when it detects problems early; provides information in real time; and focuses on goal-oriented behavior (Kaye et al., 2014). Feedback is more readily embraced and embedded within the health facility culture when viewed as part of physicians' lifelong learning (Kaye et al., 2014). Moreover, direct provider feedback on medication prescribing errors does not require significant time investment; it can be performed in a non-punitive manner; and may decrease the incidence of prescribing errors (Sullivan et al., 2013). On the other hand, Jamtvedt and Colleagues (2010), a study conducted to detect the Audit and Feedback effects on professional practice of physicians, found that Audit and feedback generally leads to small but potentially important improvements in professional practice. The

study concluded that the effectiveness of the Audit and feedback system seems to depend on baseline performance and how the feedback is provided. According to Hinchcliffe and Wales (2010), the quality of pharmacist's recommendations to physicians increases when pharmacists have more medical information about the patients. Good working relationship between the physician and pharmacist is crucial for good impact of pharmacist recommendations and acceptance by physicians (Adams et al., 2015; Blenkinsopp et al., 2012; Hinchcliffe & Wales, 2010; Holland et al., 2008). Moreover, written recommendations from the pharmacists to the physicians, in the absence of other forms of communication, have limited effect on physicians compliance; the studies also found that Pharmacist medication review of patient files can lead to reduction in inappropriate prescribing behavior of physicians; reductions in all prescribed items; and consequently lower treatment costs (Blenkinsopp et al., 2012; Hinchcliffe & Wales, 2010). Finally, pharmacist interventions and recommendations to physicians are effective when this intervention and recommendation has similar components (Holland et al., 2008).

According to Kenefick and Colleagues (2008), the main barriers to physician guideline adherence include: lack of sufficient financial incentives for physicians to change their behavior; lack of information technology systems that provide sufficient access to guidelines at the point of care; physician culture, beliefs and habits that resulted from failure of providing physicians with comparative feedback on their performance; the development of treatment guidelines. Moreover, Cabana and Colleagues (1999) mentioned that, barriers to guideline adherence include: lack of physician's knowledge as the most frequently barrier; low self-efficacy and negative outcome expectancy beliefs on the part of physicians; patient barriers; environmental barriers such as lack of time and insufficient staff support.

Chapter (3)

Methodology

This chapter illustrates the research methodology of this study. The chapter presents the study design, study settings, period of the study, target population, sample size, data collection tools, eligibility criteria, and scientific rigor. It also presents the data collection process, response rate, data entry and statistical analysis, ethical and administrative considerations, and limitations of the study.

3.1. Study design

The design of the study is a Cross-sectional. Cross-sectional design is practical, relatively simple, cheap, easy, and enables the researcher to meet the study objectives in a short time (Martins et al., 2005).

3.2. Study Settings

This study was conducted at the five general governmental hospitals in the GG: Al-Shifa Medical complex, Nasser Medical complex (Nasser), European Gaza hospital (EGH), Al-Aqsa Martyrs hospital, and Kamal Odwan hospital which was moved to and renamed as Al-Rahma Indonisi hospital. For detailed information about the study settings, see **annexes (3&4)**.

3.3. Period of the study

The study has started after having the university's approval of the proposal and after obtaining the ethical approval from Helsinki Committee in Jul 2015. Pilot study was conducted in August 2015 then data collection began in October 2015. Data entry and cleaning were conducted in March 2016 and finally, data analysis was performed in March 2016. The study final report was completed in July 2016.

3.4. Target population

The study population included all physicians working at the five mentioned hospitals who practice prescribing drugs; either as in-patient or out-patient departments those satisfy inclusion criteria with a total number of 1,272 physicians.

3.5. Sample size

Within the context of the study, hospital is considered as a facility. Since the number of health facilities is less than 20, a minimum of 600 samples should be collected per facility to conduct the study (WHO, 1993). Sample size varies according to the data collection instrument, Physicians knowledge and attitude was assessed by using a self-administered questionnaire, while physicians practice was triangulated by assessing the data from different sources including emergency department reports, in-patient discharge reports, and in-patient medication sheet (also known as Cardex).

3.5.1. Self-administered questionnaire

According to MoH, 1272 physicians work- at the study settings: 543 physicians at Al-Shifa Medical complex, 250 physicians at Nasser Medical complex, 178 physicians at European Gaza Hospital, 189 physicians at Al-Aqsa Martyrs hospital, and 112 physicians at Kamal Odwan hospital (MOH, 2013). Sample size was calculated according to the total number of physicians working in each hospital. The following parameters were used to calculate the sample size:
   • Maximum acceptable percentage points of error 5%
   • Confidence level at 95%
   • Total population (1272).

Using a stratified proportionate sampling approach, the total estimated sample size was 300 physicians: 128 from Al-Shifa, 59 from Nasser, 42 from EGH, 44 from Al-Aqsa, and 27 from Kamal Odwan hospital. The sample of the 300 physicians took into account non respondents. The questionnaire was used to collect data on physicians' knowledge and attitude toward EDL.

Table (3.1): The total number of physicians working at the study settings and sample size calculation

No	Hospital	Current number of physicians	% of total sample	Sample size
1	Al-Shifa Medical complex	543	43 %	128
2	Nasser Medical complex	250	20 %	59
3	European Gaza Hospital	178	14 %	42
4	Al-Aqsa Martyrs hospital	189	15 %	44
5	Kamal Odwan hospital	112	9%	27
	Total	**1272**	**100 %**	**300**

3.5.2. Observational checklists:

3.5.2.1. Emergency department reports:

From each hospital, a total of 200 reports were randomly selected with a daily average of 20 reports. Reports not including drugs or not written in a clear handwriting were excluded. In total, 1595 reports were reviewed and recorded from all study locations.

3.5.2.2. In-patient discharge report:

From each hospital, a total of 200 reports were randomly selected with a daily average of 20 reports. Reports not including drugs or not written in a clear handwriting were excluded. In total, 1226 discharge summary reports were reviewed and recorded from all study locations.

3.5.2.3. In-patient medication sheets:

From each hospital, a total of 200 reports were randomly selected with a daily average of 20 reports. Sample was taken from the medical records after discharge of patients to ensure that all medical management was fully done to the patient. In total, 1098 sheets were reviewed and recorded from all study locations. The three checklists were used to collect data on Physicians' compliance with EDL.

3.6. Data collection tools

Data were collected in two different ways:

3.6.1. Questionnaire

Data were collected through well-structured self-administered questionnaire **(Annex 5)**. The questionnaire was designed with reference to those concepts mentioned in the conceptual framework.

The questionnaire comprised 80 multiple choice and Likert scale questions related to knowledge and attitude of physicians. They were grouped into 10 domains. The first nine domains addressed: (i) professional profile; (ii) awareness of EDL concept and process; (iii) attitude to EDL; (iv) knowledge and attitude toward standard treatment guidelines; (v) knowledge and attitude toward governmental monitoring and audit system; (vi) the selection criteria of essential drugs; (vii) attitude toward hospital management, hospital pharmacy, and pharmacy & therapeutics committee role and practice; (viii) role of medical representatives of pharmaceutical companies; and (ix) socio-demographic questions were placed at the end of the questionnaire to avoid influencing physicians` mode during filling the questionnaire and to decrease rejection due to demographic characteristics.

Additionally, the questionnaire included two other questions; the first was for drugs suggested by participants to be added to the EDL, and an open question at the end of the questionnaire asking for reasons that might lead physicians to prescribe NEDL, intended for further probing. Questions used to measure the knowledge and practice was designed as multiple choice questions consisting of two to six choice answers. Likert scale questions used to measure the attitude were based on statements and physicians were asked to indicate the extent to which they agree with those statements, on a pre-determined scale (strongly disagree, disagree, uncertain, agree, strongly agree).

Finally, the questionnaire included few continuous variable questions about, years of work experience, age, frequency, and duration of pharmaceutical company's medical representatives visits.

3.6.2. Checklist

Observational checklists were used to collect data from the inpatient discharge summary, emergency department presenting report, and inpatient medication sheet. In order to increase research findings value and credibility, triangulation for physicians prescribing behavior was done by recording three different source forms of prescriptions (**Annex 6**). The initial checklist consisted of the hospital name, document type, date of collection, name and serial number for each document which was supposed to be recorded by the research assistants. Moreover, the checklist also contained data coding keys as continuous variables: total number of drugs prescribed in each document, number of drugs belonging to EDL, number of drugs out of EDL, number of drugs written in trade names, number of drugs written in scientific names, number of drugs written in English language, and number of drugs not written in English language. Each document type data was entered in a separate SPSS file, analyzed, and interpreted alone.

The following Figure explains the data collection process.
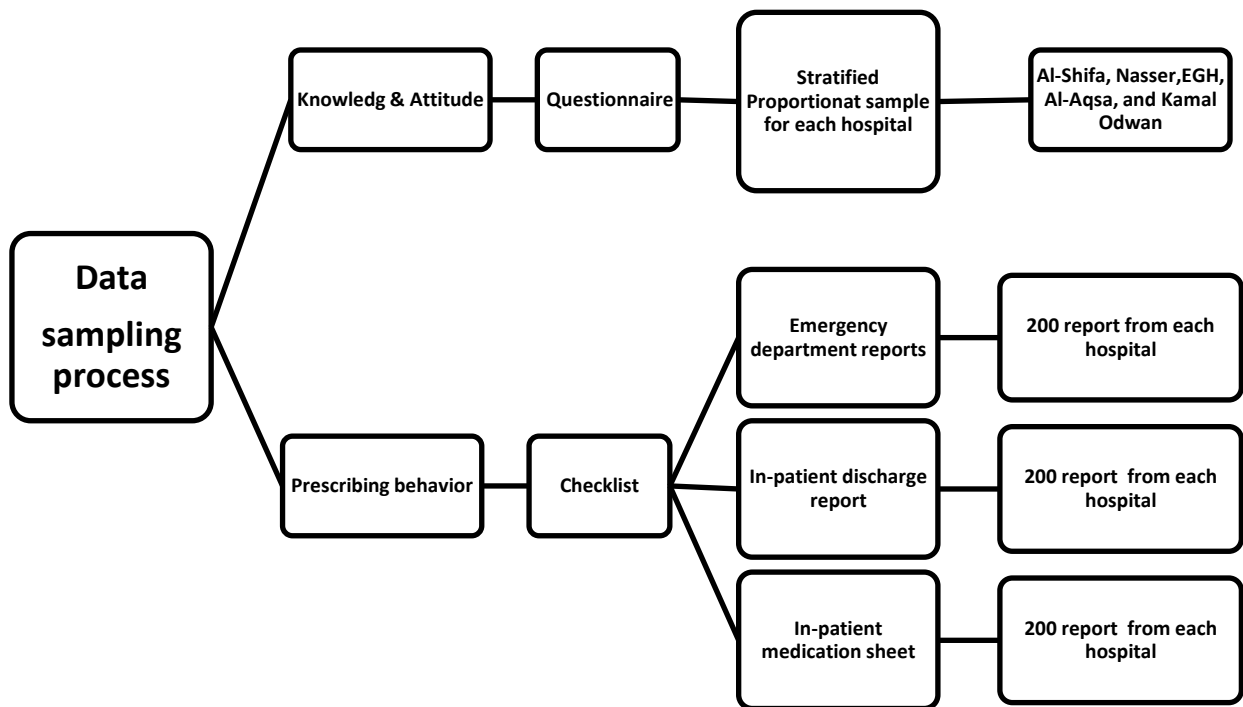
Figure (3.1): Sampling process for data collection tools.

3.7.   Eligibility criteria

3.7.1.   Inclusion criteria

3.7.1.1. Physicians

All physicians working in the emergency departments, out-patient clinics, in-patient departments and practicing prescribing drugs for patients in the study settings were included in the sample.

3.7.1.2. Prescribing forms

All forms; emergency department reports, in-patient discharge reports, and in-patient medication sheets including prescribed drugs with a clear handwriting were included in the sample.

3.7.2. Exclusion criteria

3.7.2.1. Physicians

- Managerial and administrative level physicians who do not practice prescribing drugs.
- External contract consultants.
- Histopathology physicians.
- Radiologists.
- Forensic physicians (autopsy).
- Newly moved physicians to the hospitals from managerial or administrative directorates of MoH.

3.7.2.2. Prescribing forms

- Forms not including drug management.
- Forms not written in a clear handwriting.

3.8. Scientific rigor

Reliability, face validity, content validity, and pilot study were discussed in this section.

3.8.1. Reliability

Before the start of the data collection process, the researcher asked colleagues in hospital pharmacies for help. The researcher made a field visit to the study settings to understand the flow process of all paper forms included in the study and to determine the suitable point at which data can be collected easily without affecting the process of work in these hospitals. The researcher organized meetings with patient representative officers in each hospital and

made all the arrangements necessary to facilitate data collection process and detected the optimal time for data collection: from patient files, in-patient medication sheets and discharge reports optimal time was optimally collected at 12:30 PM for in-patients discharged in the same day, emergency department forms of the previous day was optimally collected and recorded at 9 AM.

Then the researcher implemented on the job training for twelve volunteer data collectors to make sure the data collection is done properly and being reliable. The researcher has trained the assistants on how to fill data in checklist. Many difficulties faced the data collectors during the data collection process. The pilot phase revealed a problem related to the time required to fill in the checklist. It was found that the checklist requires a long writing time which was so difficult to complete in the current flow process of work in hospitals without interrupting the work. The researcher found it a must to make some modification in the process of data collection while maintaining the same quality and value of the collected data itself.

The researcher found that, the problem can be resolved by skipping the step of manual data recording on paper checklists through getting photos for these original documents and completing the process of data entry directly on software file later at home. This solution was applicable only by using the android smart phones application **Whatsapp**®, based upon, instead of manual data recording on papers, the assistants became able to capture photos for these documents easily and send it to the researchers phone, the researcher then moved it from his phone to computer. Away from hospitals rush hours the researcher archived the data in his computer properly according to the date of receiving, document type, and hospital name. One of the benefits gained through applying this process was to decrease the possibility of data transcription errors between the data collector and the data entry process by deleting unnecessary steps and reducing recording time. The researcher trained the data collectors on the new process of work which took no more than 10-15 minutes per day compared to the previous process that used to take more than 40 minutes a day. The researcher used to call data collectors daily to follow up and overcome obstacles and difficulties they faced during data collection process. The researcher used to check and review all the entire data sent by the data collectors day-by-day. In addition, the researcher entered the data into SPSS by himself. After finishing the data entry process and finalizing the study analysis, all photographic images were deleted from the researcher's computer.

3.8.2. Face validity

Face validity is the degree to which the general appearance of certain test is sensationally consistent with and providing relevant answers to its purpose of measurement. The questionnaire was structured in an organized way to allow easy and smooth data collection and entry. During the validation process, the questionnaire lay out was reviewed and formatted several times until a final version looked elegant.

3.8.3. Content validity

To ensure that the content of the questionnaire is valid and provide an adequate representativeness of what researcher need to measure, because of that content validity usually depends on the judgment of experts in the fields. Thirteen experts with different backgrounds participated valuably in the questionnaire and checklists evaluation and validation process **(Annex 7)**. The content validation aimed to assess the relevance of each domain, the importance of each particular item, and to check if the contents of the questionnaire seem appropriate to its intended purpose and overall aim, moreover, to ensure the statistical consistency and capability to analyze data properly. Additionally, the researcher considered all experts' feedback and comments. Thus, the final version of the questionnaire and checklists incorporated all the experts' feedback. Modifications were done including rephrasing questions, changing the order of some questions, adding new questions, and removing irrelevant questions.

3.8.4. Pilot study

A pilot study was conducted before the actual data collection started, with an aim of exploring the appropriateness and reliability of the questionnaire, piloting also aimed to have an idea of what obstacles might face the researcher during the data collection, such as the accessibility to participants or records, and to minimize the non-response rate. The pilot study was conducted on 10% of the main study sample. The pilot study sample consisted of 32 physicians; 18 physicians distributed at Al-Shifa hospital, and 14 physicians at EGH.

3.9. Data Collection process

Data were collected by the researcher and the volunteer data collectors from physicians and observational checklist for in-patient medication sheets, in-patient discharge reports, and emergency departments reports. The data collectors were trained on how to capture and send photos of the documents mentioned above, and how to distribute and collect questionnaires. Along with receiving training on how to collect data, data collectors also have received full information about the purpose, the objectives, and the methodology of the study. All participated physicians and documents were selected randomly through simple random technique. After receiving full information about the study purposes and objectives, physicians were informed that their participation is optional and they have the right not to answer any question.

3.10. Response rate

To increase study strength 360 questionnaires were distributed. 290 questionnaires were returned. Therefore, the response rate was 80.5 %.

3.11. Data entry and statistical analysis

The researcher used the Statistical Package of Social Science (windows version 20, SPSS, Chicago, USA) program to run descriptive and inferential statistics. The researcher has developed database for data entry, the variables were coded then entered into the computer. Data cleaning was conducted to check for any missing or error in data entry (through running frequency analysis). All suspected or missed values were checked by revising the available data collection forms. The collected data (questionnaires and drugs prescribing forms) were organized and analyzed based on the objectives of the study. To detect the differences and assess the significant relationships among variables, the following analysis methods were performed:

1. Frequency distribution,
2. Cross tabulation,
3. General scores,
4. Mean percentages,

5. Chi-square test,
6. Anova and Post-Hoc test

The researcher determines the P value to be (<0. 05%) with 95% confidence level.

3.12. Ethical and administrative considerations

During all stages, the researcher was committed to all ethical consideration required to conduct the study. Ethical approval (Helsinki committee approval) was obtained from the Palestinian health Research Council in Gaza **(Annex 8)**. In addition, an official approval was obtained from the MoH relevant authorities: General Directorate of Human Resource, General Directorates of Hospitals, and Hospitals management **(Annex 9)**. Every participant in the study received a complete explanation about the research purposes and confidentiality and about the optional participation in the study. All the ethical considerations were observed. Respect for people and human rights, respect for truth, and confidentiality were maintained.

3.13. Limitations of the Study

The researcher reported the following constraints:
1. Probability of improper reporting in the official documents in hospital.
2. Current instability of the health care system due to political and economic conditions.
3. All the questions in the questionnaire are closed-ended which may hinder some important points on knowledge and practice of the participating physicians.

3.14. Obstacles faced the researcher

1. Limited availability of up-to-date journals and books about the title relevant to the country context and situation.
2. Time factor.
3. Lack of funding. The study is self-funded.
4. The problem of electricity blackouts which limited the access hours to the internet.
5. The use of smart phones camera instead of using professional cameras led to the existence of some poor quality images.

6. It was observed that some physicians used to record medications in places other than places specified for that, as well as to record other medical data in designated places for drugs.

Chapter (4)

Findings

This chapter presents the main findings of the statistical analysis of the data and the interpretation of the main results. It begins by outlining the main descriptive and statistical findings of the semi-structured questionnaires followed by the findings from the three checklists. The first checklist was used to extract data from in-patient medication sheets (admitted cases); the second checklist was used to extract data from emergency department reports-discharge sheet of emergency rooms; and the third checklist was used to extract data from in-patient discharge reports (IPDRs).

4.1. Descriptive findings of the questionnaires

Out of the total number of collected 296 questionnaires, 111 questionnaires were collected from Al-Shifa hospital, which represents 37.5% of the total sample, 69 questionnaires were collected from Nasser hospital, which represents 23.3% of the total sample, 45 questionnaires were collected from EGH hospital, which represents 15.2% of the total sample, 31 questionnaires were collected from Kamal Odwan hospital, which represents 10.4% of the total sample, and 40 questionnaires were collected from Al-Aqsa hospital, which represents 13.5% of the total sample.

4.1.1. Participants characteristics

4.1.1.1. Socio-demographic characteristics of the study participants

Table (4. 1): Distribution of study participants by selected socio-demographic characteristics

Characteristic	No.	%
1- Marital status of participants		
Single	16	5.4
Married	269	90.9
Others	11	3.7
Total	**296**	**100.0**
2- Age groups of participants		
22 - 35 years	56	18.9
36 - 50 years	207	69.9
Older than 50 years	33	11.1
Total	**296**	**100.0**
Mean: 41.8	**SD: 7.613**	
3- Residency Governorate of participants		
North	39	13.2
Gaza	108	36.5
Middle	51	17.2
KhanYonis	74	25.0
Rafah	24	8.1
Total	**296**	**100.0**

Regarding the marital status of the study participants, as shown in the **Table (4.1)**, the majority of study participants (90.9%) were married at the time of data collection and only 5.4% of the study participants were single at the time of data collection, while divorced or widowed physicians represented 3.7% of the study participants at the time of data collection.

Regarding the age of the study participants, as shown in the **Table (4.1)**, the overall mean age of the study participants was 41.8 years with (SD: 7.613, Range: 36), the most common age group was 36-50 years old. About 19 % of the study participants were younger than 35 years old, while 11.1% of the study participants were older than 50 years old. Regarding the residency of the study participants, **Table (4.1)** showed that 36.5% of the study participants

were residents of Gaza governorate; 25% were residents of Khan Younis governorate, 17.2% were residents of Middle region governorates, 13.2% were residents of North Gaza governorates, and 8.1% were residents of Rafah governorate.

Figure (4.1) Distribution of the study participants by Gender
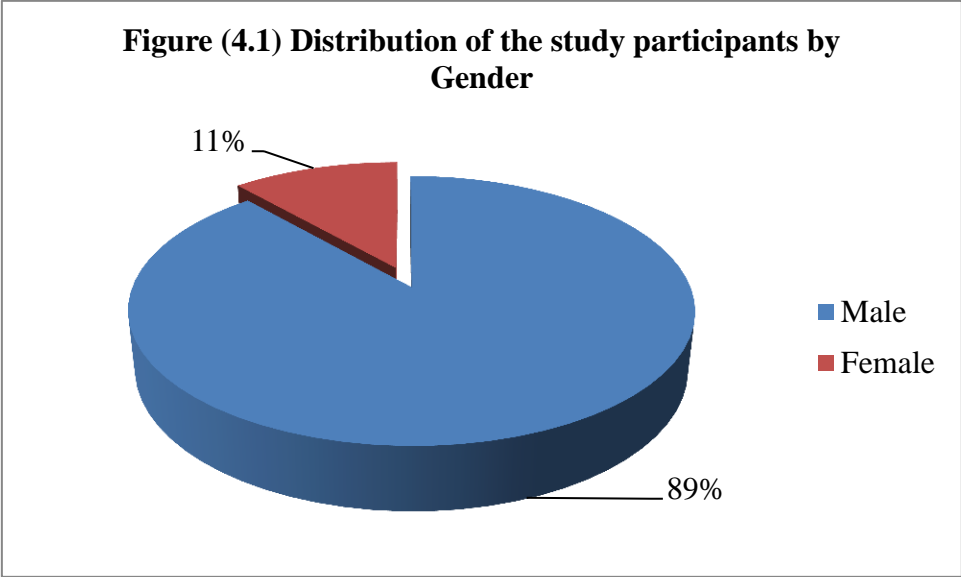
With regard to the gender of the study participants, out of the 296 participants, 262 were male physicians (89%), while 34 (11%) were female physicians **Figure (4.1).**

4.1.1.2. Work characteristics of the study participants

Figure (4.2) Distribution of participants by academic qualifications
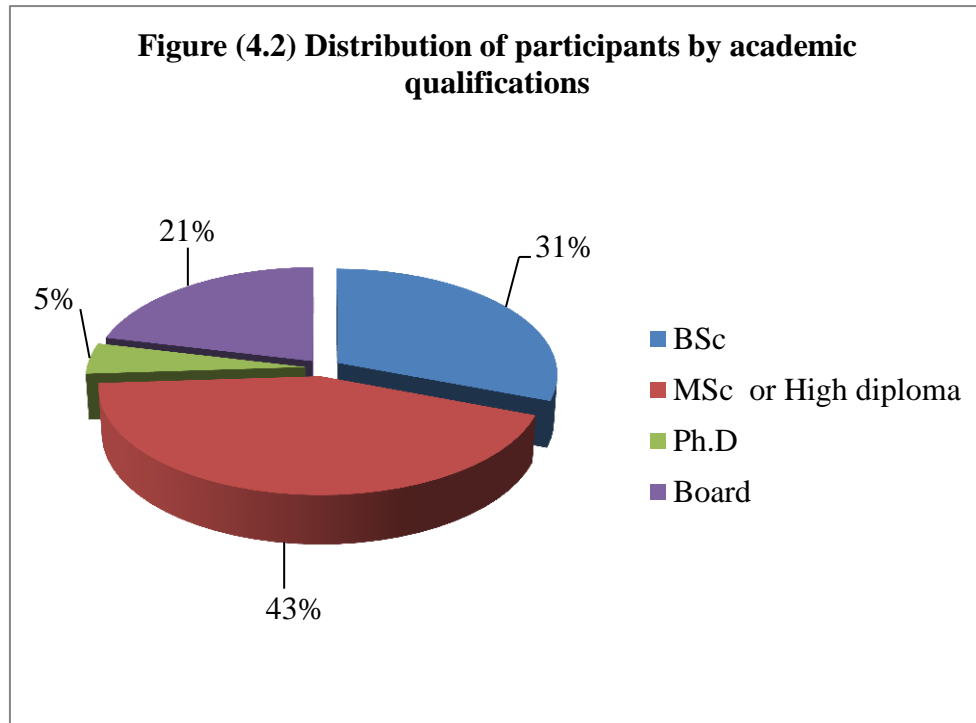
Regarding to the academic qualifications of the study participants, as shown in the **Figure (4.2)**, nearly one third of the study participants (31%) had a Bachelor degree (BSc), 43% of the study participants had master's degree or high specialized diploma, 21% of the study participants had Board of Residency programs, and only 5% of the study participants had Doctor of Philosophy degree (Ph.D.).

Figure (4.3) Distribution of participants by specialty
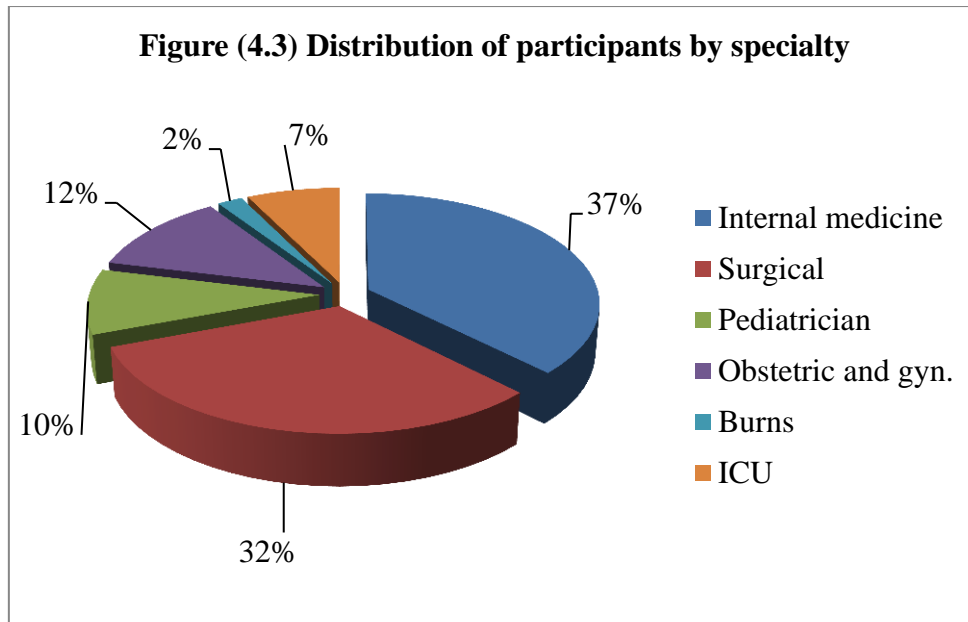
As shown in the **Figure (4.3)**, nearly one third of the study participants (37%) had an internal medicine specialty, another one third of the study participants (32%) had a specialty in surgical field, 10% of the study participants had specialty in pediatric field, 12% of the study participants had specialty in Obstetrics and Gynecology field, 7% of the study participants had specialty in the intensive care units (ICU) field, and only 2% of the study participants had specialty in burns management field.

Table (4.2): Years of work experience of the study participants

Variable	Mean	Mode	SD	Minimum	Maximum
Governmental work experience	13.3	15	6.407	2	35
Private work experience	8	5	6.032	0	34

Regarding the total years of work experience of the study participants in the governmental hospitals, as shown in the **Table (4.2)**, the average years of work experience of the study participants in the governmental hospitals was 13.3 years (with a minimum of 2 years and

maximum of 35 years, SD:6.407). The average years of private work experience of the study participants was 8 years (with a minimum of zero years and maximum of 34 years, SD: 6.032).

Figure (4.4) Distribution of participants by managerial positions
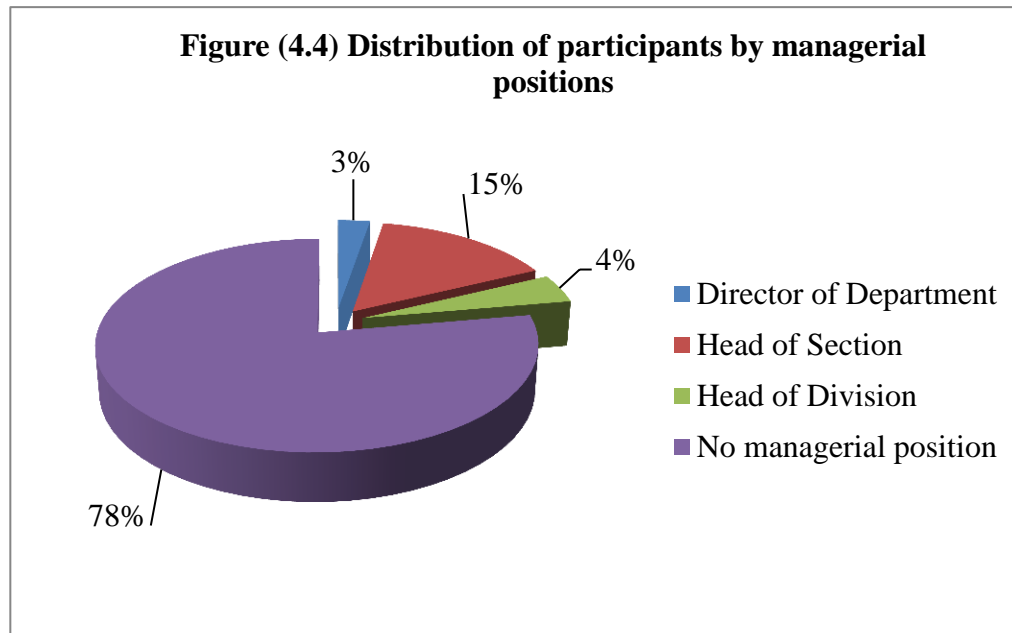
Concerning the hospital managerial position of the study participants, **Figure (4.4)** showed that 78% of the study participants had no managerial positions, 4% of the study participants had a head of division managerial position, 15% of study participants had a head of section managerial position, and only 3% of the study participants had a head of department managerial position.

4.1.1.3. Other characteristics of the study participants

Figure (4.5) Distribution of participants by private work types

- Private Clinic
- NGO Clinics
- Academic Teaching
- More than one work
- Others
- Non

28%
45%
2%
4%
2%
19%
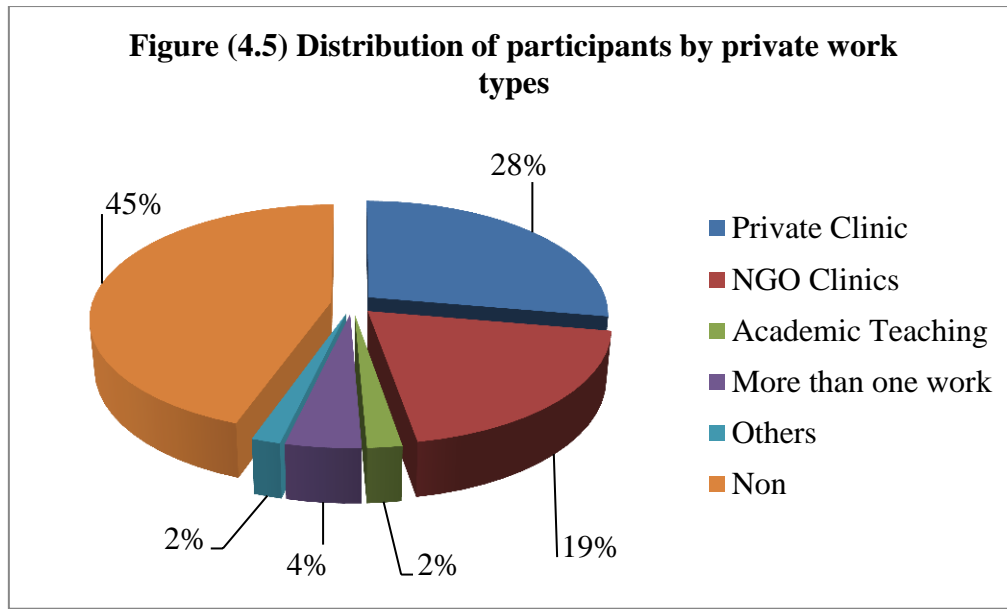
Concerning the private work of the study participants, more than half of the study participants (55%) had private work, as shown in the **Figure (4.5)**, 28% of study the participants had private clinics, 19% of the study participants work in NGO clinics, 2% of the study participants work in academic institutions, 2% of the study participants work in other institutions, and 4% of the study participants had more than one type of the mentioned private work types at the same time.

From the researcher perspective, the percentage of physicians who had a private work in addition to the governmental work is high. The main reason for such high percentage could be due to the lack of laws that regulate the work of the governmental physicians in the private sector. Another reason could be the halt in salary payments due the Palestinian political rift which led physicians to look for alternative sources of incomes.

The work of the physician in the private sector may have negative impact on the quality of the provided health services; the work of the physician in more than one job may lead to high level of stress and fatigue. Moreover, physicians working in the private sectors are more likely

to be exposed to the promotional activities of pharmaceutical drug companies. Eventually, this may reduce physicians' compliance with the EDL.

Figure (4.6) Medical representatives visits to the study participants at work
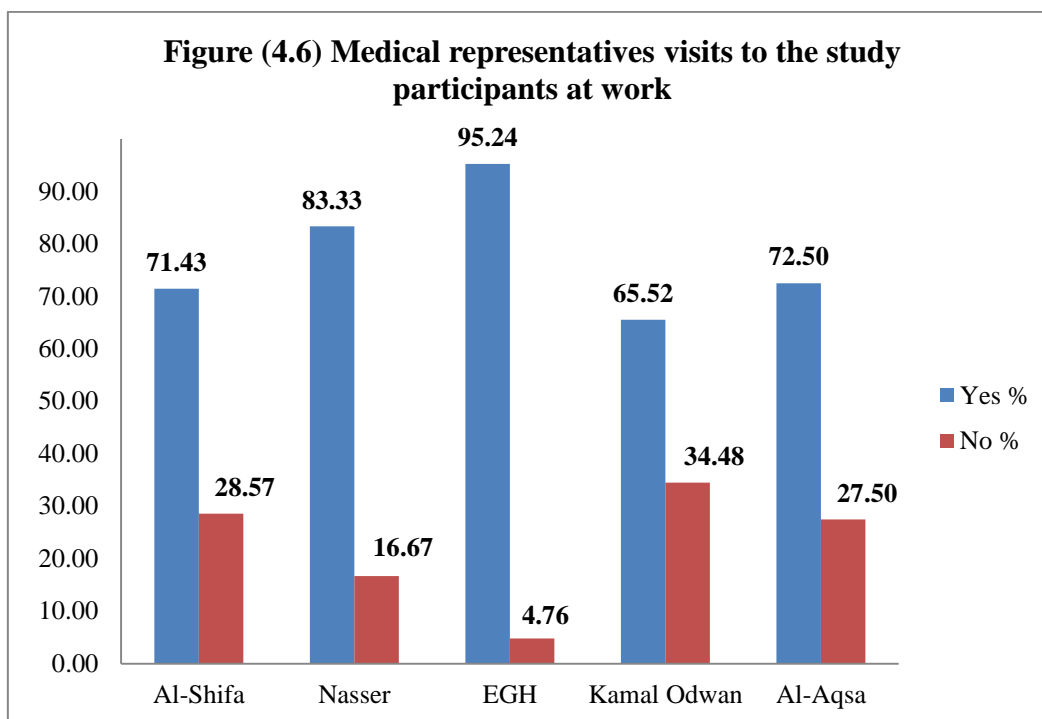
Concerning the exposure of the study participant's to the advertisement activities from medical representatives of pharmaceutical drug companies, as shown in the **Figure (4.6)**, the study found that physicians at the study settings are heavily exposed to medical representative activities from pharmaceutical drug companies. 77% of the study participants were exposed to medical representative activities within the study settings. The highest percentage of exposure was reported at EGH hospital, as indicated by 95% of the hospital participants. The lowest percentage of exposure was reported at Kamal Odwan Hospital, as indicated by 65.5% of the hospital participants.

Despite the MoH decisions and orders that restrict the presence of representatives of pharmaceutical drug companies in the MoH hospitals, from the researcher point of view the

high percentage of private medical representative's activity in the governmental hospitals could be caused by the limited role that the hospitals management, the General Directorate of Monitoring and Evaluation as well as the Licensing and Accreditation unit have been playing in monitoring and following up the activities of medical representative's within hospitals. It is worth mentioning that the General Directorate of Pharmacy does not revise the publications used by medical representatives in the promotional activities to assure their scientific value and credibility as being unbiased source of information.

4.1.1.4. Knowledge of the study participants about EDL

This part discusses the findings related to the knowledge of study participant's about EDL.

Table (4.3): Knowledge of the study participants about the EDL

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- Knowledge about the presence MoH-EDL							
Yes	No.	68	50	36	20	27	201
	%	61.8%	73.5%	80.0%	66.7%	69.2%	68.8%
No	No.	15	6	3	4	1	29
	%	13.6%	8.8%	6.7%	13.3%	2.6%	9.9%
Don't Know	No.	27	12	6	6	11	62
	%	24.5%	17.6%	13.3%	20.0%	28.2%	21.2%
Total	No.	110	68	45	30	39	292
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Knowledge about the presence of hospital EDL							
Yes	No.	46	29	26	14	22	137
	%	41.8%	42.6%	59.1%	45.2%	57.9%	47.1%
No	No.	23	18	8	7	6	62
	%	20.9%	26.5%	18.2%	22.6%	15.8%	21.3%
Don't Know	No.	41	21	10	10	10	92
	%	37.3%	30.9%	22.7%	32.3%	26.3%	31.6%
Total	No.	110	68	44	31	38	291
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3- MoH-EDL is updated routinely							
Yes	No.	31	27	18	12	8	96
	%	28.2%	39.1%	40.0%	38.7%	20.0%	32.5%
No	No.	18	10	10	5	7	50
	%	16.4%	14.5%	22.2%	16.1%	17.5%	16.9%
Don't Know	No.	61	32	17	14	25	149
	%	55.5%	46.4%	37.8%	45.2%	62.5%	50.5%
Total	No.	110	69	45	31	40	295
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Regarding the study participants knowledge about the existence of MoH-EDL, as shown in the

Table (4.3), only 68.8% of the study participants are aware of the existence of EDL in the

MoH. The highest percent of knowledge about the existence of MoH-EDL was observed at

EGH hospital, as indicated by 80% of the hospital participants, while the lowest was observed at Al-Shifa hospital, as indicated by 61.8% of the hospital participants. The finding of the study is consistent with the findings of Mariam and Colleagues (2015).

With regard to the study participant's knowledge about the existence of hospital EDL, as shown in the **Table (4.3)**, physician's knowledge about the existence of hospital EDL was not high, as less than half of the study participants (47.1%) are aware of the existence of hospital EDL. The highest percent of knowledge about the existence of hospital EDL was observed at EGH hospital, as indicated by 59.1% of the hospital participants, while the lowest was observed at Al-Shifa hospital, as indicated by 41.8% of the hospital participants. From the researcher's perspective, this finding may result from the lack of EDL training programs in the MoH for newly employed physicians as well as the absence of continuous education programs for all employees in general.

Regarding the knowledge of the study participants about MoH-EDL updating process, as shown in the **Table (4.3)**, only one third of the study participants (32.5%) know that MoH-EDL is regularly updated. The highest percentage of knowledge about MoH-EDL updating process was observed at EGH hospital, as indicated by 40% of the hospital participants, while lowest percentage of knowledge was observed at Al-Aqsa hospital, as indicated by 20% of the hospital participants.

The main reasons that could explain limited physicians knowledge about the MoH-EDL and hospital EDL are: (1). MoH did not implement training programs for physicians on the concept and content of the EDL for 13 consecutive years; (2). EDL and other related topics are not included in the educational curriculum of the faculties of medicine in the Palestinian universities; (3). The absence of EDL related topics in the training programs for newly recruited physicians; and (4). The limited availability hard copies of the EDL within hospitals.

Table (4.4): Knowledge of the study participants about the EDL updating and training process

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- Participants receive training on EDL contents							
Yes	No.	17	9	4	3	3	36
	%	15.7%	13.2%	9.1%	10.0%	7.5%	12.4%
No	No.	91	59	40	27	37	254
	%	84.3%	86.8%	90.9%	90.0%	92.5%	87.6%
Total	No.	108	68	44	30	40	290
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Entity responsible for setting up hospital EDL							
Central P&T Committee	No.	21	8	5	2	8	44
	%	19.4%	11.6%	11.4%	6.5%	20.0%	15.1%
Hospital P&T Committee	No.	18	12	7	3	7	47
	%	16.7%	17.4%	15.9%	9.7%	17.5%	16.1%
Hospital Manager	No.	3	1	0	1	0	5
	%	2.8%	1.4%	0.0%	3.2%	0.0%	1.7%
Hospital Pharmacy	No.	6	8	2	6	5	27
	%	5.6%	11.6%	4.5%	19.4%	12.5%	9.2%
Don't Know	No.	60	40	30	19	20	169
	%	55.6%	58.0%	68.2%	61.3%	50.0%	57.9%
Total	No.	108	69	44	31	40	292
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3- Attendance to refreshing lectures on the EDL							
Always	No.	9	0	1	4	0	14
	%	8.4%	0.0%	2.3%	13.8%	0.0%	4.9%
Rarely	No.	30	25	16	5	10	86
	%	28.0%	37.9%	36.4%	17.2%	25.0%	30.1%
No	No.	68	41	27	20	30	186
	%	63.6%	62.1%	61.4%	69.0%	75.0%	65.0%
Total	No.	107	66	44	29	40	286
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

With respect to the training process on EDL, **Table (4.4)** shows that only 12.4% of the study participants received training on EDL while, the majority of the study participants (87.6%) did

not receive any training on EDL. The highest percentage of participants who received training on EDL was observed at Al-Shifa hospital, as indicated by 15.7% of the hospital participants. The lowest percent of the study participants who received training on EDL was observed at Al-Aqsa hospital, as indicated by 7.5% of the hospital participants.

 According to **Table (4.4)**, the study participants were confused about the entity responsible for developing of hospital EDL. Only 16.1% of the study participants chose correctly the Hospital P & T Committee. The highest percentage of knowledge about the entity responsible for developing of hospital EDL was observed at Al-Aqsa hospital, as indicated by 17.5% of the hospital participants. The lowest percentage of knowledge about the entity responsible for developing of hospital EDL was observed at Kamal Odwan hospital, as indicated by 9.7% of the hospital participants. On the contrary, more than half of the study participants (57.9%) denied knowledge about the entity responsible for setting up hospital EDL, The highest percentage of lack of knowledge was observed at EGH hospital, as indicated by 68.2% of the hospital participants.

With regard to the study participants' attendance to the EDL refreshing lectures at the hospitals, **Table (4.4)** shows that around two thirds (65%) of the study participants have never attended any EDL refreshing lectures at all. The highest percentage of non-attendant participants was observed at Al-Aqsa hospital, as indicated by 75% of the hospital participants, while the lowest percentage of non-attendants was observed at EGH hospital, as indicated by 61.4% of the hospital participants.

4.1.1.5. Participant's practices and attitude towards EDL

The findings in this part reflect the attitude of study participant's about EDL.

Table (4.5): Participant's practices and attitude toward EDL

Variable	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Mean	Mean % of positive responses
1- EDL is necessary for provision of equitable health services							
No.	12	13	23	166	81	3.99	79.8
%	4.1	4.4	7.8	56.3	27.5		
2- EDL is necessary for provision of quality health services							
No.	7	12	35	145	95	4.05	81
%	2.4	4.1	11.9	49.3	32.3		
3- EDL is necessary to reduce wasting of health care resources							
No.	5	21	35	163	67	3.91	78.2
%	1.7	7.2	12.0	56.0	23.0		
4- EDL is necessary to prevent patient harm							
No.	7	25	55	148	58	3.77	75.4
%	2.4	8.5	18.8	50.5	19.8		
5- EDL selection criteria are scientifically based							
No.	10	15	85	131	50	3.67	73.4
%	3.4	5.2	29.2	45.0	17.2		
6- EDL must include all drugs that patient needs							
No.	3	12	23	145	109	4.18	83.6
%	1.0	4.1	7.9	49.7	37.3		
7- EDL contain the majority of needed drugs							
No.	11	52	84	107	35	3.36	67.2
%	3.8	18.0	29.1	37.0	12.1		
8- Prescribe drugs out of hospital EDL in the work							
No.	3	20	35	169	65	3.93	78.6
%	1.0	6.8	12.0	57.9	22.3		
9- Always advise patients to buy drugs that are not listed in the EDL							
No.	54	120	46	57	11	2.48	49.6
%	18.8	41.7	16.0	19.8	3.8		
10- Advise patient to buy drugs from the market when it is out of stock in the hospital							
No.	8	21	24	188	45	3.84	76.8
%	2.8	7.3	8.4	65.7	15.7		
Mean: 76.85 %			**SD: 3.247**				

As shown in **Table (4.5)**, there was a positive attitude about the EDL, the overall mean of the study participant's positive attitude about EDL was 76.85% (SD: 3.247).

As shown in the **Table (4.5)**, the majority of the study participants (83.8%) agreed or strongly agreed on the value and necessity of EDL for provision of equitable health services within hospitals. Only 16.2% of the study participants were either uncertain or disagreed on the benefits of using EDL drugs for achieving equitable health services. The mean percentage was 79.8%. Additionally, as shown in the **Table (4.5)**, the majority of the study participants (81.6%) agreed or strongly agreed on the necessity of EDL for provision of quality health services. Only 6.5% of the study participants disagreed on the benefits of using EDL for achievement of quality health services. The mean percentage was 81%.

As shown in the **Table (4.5)**, more than two thirds of the study participants (79%) agreed or strongly agreed that the use of EDL reduces wasting of health care resources. While, only 8.9% of the study participants disagreed on the importance of EDL in reducing wasting of health care resources. The mean percentage was 78.2%. Furthermore, as shown in the **Table (4.5)**, 70.3% of the study participants agreed or strongly agreed that the use of EDL prevents patient harm, while 10.9% of the study participants disagreed on that. The mean percentage was 75.4%.

Regarding the general perception of the study participants about the EDL selection criteria, as shown in the **Table (4.5)**, two thirds of the study participants (62.2%) agreed or strongly agreed that the listed drugs in the EDL are selected on scientific bases, while 29.2% of the study participants were uncertain. The mean percentage was 73.4%. Moreover and unexpectedly, as shown in the **Table (4.5)**, most of the study participants (87%) revealed that they were not aware of the real EDL selection criteria and agreed or strongly agreed that EDL must include all drugs needed to treat admitted patients. The mean percentage was 83.6%. On

the other hand, as shown in the **Table (4.5)**, around one half of the study participants (50.9%) were either uncertain or disagreed that EDL contain the majority of needed drugs for treatment of admitted patients in the hospital. The mean percentage was 67.2%.

Furthermore, as shown in the **Table (4.5)**, on practical basis, the majority of the study participants (80.2%) revealed that they prescribe drugs not included in the EDL during their work in the hospitals. The mean percentage was 76.8%. These drugs were minimal, only 23.6% of the study participants agreed that they always advise patients to buy drugs from the market instead of hospital EDL drugs. The mean percentage was 49.6%. Finally, **Table (4.5)** shows that, the majority of the study participants (81.4%) agreed or strongly agreed on telling patients to buy drugs from the private market when it is out of stock in the hospital, while 8.4% of the study participants were uncertain of doing that. The mean percentage was 76.8%.

4.1.1.6. Physicians interaction with hospitals' pharmacies

Table (4.6): Participants communication with hospital Pharmacy

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- Physicians' communication with pharmacists							
Always	No.	17	17	8	6	14	62
	%	15.7%	25.0%	17.8%	20.0%	35.9%	21.4%
Rarely	No.	51	35	16	16	18	136
	%	47.2%	51.5%	35.6%	53.3%	46.2%	46.9%
Don't	No.	40	16	21	8	7	92
	%	37.0%	23.5%	46.7%	26.7%	17.9%	31.7%
Total	No.	108	68	45	30	39	290
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Physicians' response to pharmacists recommendations in prescribing EDL							
Always	No.	40	18	9	8	17	92
	%	37.4%	27.7%	21.4%	27.6%	42.5%	32.5%
Rarely or Do not	No.	67	47	33	21	23	191
	%	62.6%	72.3%	78.6%	72.4%	57.5%	67.5%
Total	No.	107	65	42	29	40	283
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3- Participants sources of drugs information							
Hospital Pharmacist	No.	34	16	14	11	4	79
	%	31.5%	24.6%	32.6%	37.9%	10.8%	28.0%
Medical Representative	No.	9	1	3	2	0	15
	%	8.3%	1.5%	7.0%	6.9%	0.0%	5.3%
Colleague	No.	7	3	2	3	1	16
	%	6.5%	4.6%	4.7%	10.3%	2.7%	5.7%
A text book	No.	18	11	10	1	3	43
	%	16.7%	16.9%	23.3%	3.4%	8.1%	15.2%
Internet	No.	19	16	5	6	13	59
	%	17.6%	24.6%	11.6%	20.7%	35.1%	20.9%
More than one source	No.	21	18	9	6	16	70
	%	19.4%	27.7%	20.9%	20.7%	43.2%	24.8%
Total	No.	108	65	43	29	37	282
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

With regard to the Physicians' communication with hospital pharmacists, **Table (4.6)** shows that, the majority of the study participants (78.6%) do not communicate with pharmacists properly or regularly. The highest percentage of communication was observed at Al-Aqsa hospital, as indicated by 35.9% of the hospital participants. The lowest percentage of communication was observed at Al-Shifa hospital, as indicated by 15.7% of the hospital participants.

Table (4.6) revealed that physicians do not respond to pharmacists' recommendations as more than two thirds of the study participants (67.5%) said that they do not respond to pharmacists' recommendations in prescribing drugs from EDL. The highest percentage of participants' response to pharmacists' recommendations to prescribe EDL drugs was observed at Al-Aqsa hospital, as indicated by 42.5% of the hospital participants. The lowest percentage of participants' response to hospital pharmacist recommendations was observed at EGH hospital, as indicated by 21.4% of the hospital participants.

4.1.1.7. Participant's sources of drugs information

Finally, regarding study participants sources of drug information, **Table (4.6)** reveals that the study participants do not have a particular source of drug information. Unexpectedly, the most common drug information source was the hospital pharmacists as indicated by 28% of the study participants. The highest percentage of the study participants who recognized the hospital pharmacists as their drug information source was observed at Kamal Odwan hospital, as indicated by 37.9% of the hospital participants. The lowest percentage was observed at Al-Aqsa hospital, as indicated by 10.8% of the hospital participants. This finding is inconsistent

with several studies in other countries (Zeidan, 2015; García et al., 2011; Kamal et al., 2014; Thriemer et al., 2013; Kargar et al., 2016; Quet et al., 2015). It implies that hospital pharmacists within the Palestinian context are more recognized by the physicians as a trusted source of drug information.

4.1.2. Health facility characteristics

4.1.2.1. Hospital management

This part highlights the important aspects related to EDL updating and dissemination process.

Table (4.7): Participants opinions about aspects related to EDL updating & dissemination

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- Participants receive hospitals EDL updates							
Seasonal	No.	2	7	0	1	2	12
	%	1.9%	10.4%	0.0%	3.3%	5.1%	4.2%
Annually	No.	10	10	2	5	4	31
	%	9.3%	14.9%	4.4%	16.7%	10.3%	10.7%
Every two- years	No.	7	1	0	1	0	9
	%	6.5%	1.5%	0.0%	3.3%	0.0%	3.1%
Don't receive updates	No.	89	49	43	23	33	237
	%	82.4%	73.1%	95.6%	76.7%	84.6%	82.0%
Total	No.	108	67	45	30	39	289
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Participants receive MoH- EDL updates							
Seasonal	No.	0	3	0	1	1	5
	%	0.0%	4.3%	0.0%	3.4%	2.5%	1.7%
Annually	No.	8	9	2	6	5	30
	%	7.5%	13.0%	4.4%	20.7%	12.5%	10.4%
Every -two years	No.	5	0	0	0	1	6
	%	4.7%	0.0%	0.0%	0.0%	2.5%	2.1%
Don't receive updates	No.	93	57	43	22	33	248
	%	87.7%	82.6%	95.6%	75.9%	82.5%	85.8%
Total	No.	106	69	45	29	40	289
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3- Participants have copy of hospital EDL							
Paper	No.	7	8	3	3	7	28
	%	8.0%	15.7%	7.9%	12.5%	25.0%	12.2%
Electronic	No.	3	0	0	0	0	3
	%	3.4%	0.0%	0.0%	0.0%	0.0%	1.3%
Paper & Electronic	No.	4	2	0	0	1	7
	%	4.5%	3.9%	0.0%	0.0%	3.6%	3.1%
Do not have any copy	No.	74	41	35	21	20	191
	%	84.1%	80.4%	92.1%	87.5%	71.4%	83.4%
Total	No.	88	51	38	24	28	229
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

With regard to the relationship between study participants and their hospital management, **Table (4.7)** shows that the majority of the study participants (82%) did not received any hospital EDL updates. The highest percentage of the study participants who did not receive any updates was observed at EGH hospital, as indicated by 95.6% of the hospital participants. The lowest percentage of the study participants who did not receive any updates was observed at Nasser hospital, as indicated by 73.1% of the hospital participants.

In addition, **Table (4.7)** revealed that there was a communication gap between the study participants and the management (MoH management and hospital management) in the field of disseminating MoH-EDL updates. **Table (4.7)** shows that the majority of the study participants (85.8%) did not received any MoH-EDL updates. The highest percentage of the study participants who did not received any MoH-EDL updates was observed at EGH hospital, as indicated by 95.6% of the hospital participants. The lowest percentage of the study participants who did not received any MoH-EDL updates were observed at Kamal Odwan hospital, as indicated by 75.9% of the hospital participants.

Moreover, regarding to the presence of hospital EDL copies available to the study participants at work, as shown in the **Table (4.7)**, the majority of the study participants (83.4%) do not have hard or soft copies of hospital EDL at work. The highest percentage of the study participants who do not have any copy of hospital EDL was observed at EGH hospital, as indicated by 92.1% of the hospital participants. The lowest percentage of participants who do not have any copy of hospital EDL was observed at Al-Aqsa hospital, as indicated by 71.4% of the hospital participants.

This finding is inconsistent with Fattouh and Abu Hamad study (1010) that showed that copies of EDL are less available in the hospitals when compared to primary health care centers.

From the researcher's perspective, the limited role of the hospital Pharmacy and Therapeutics Committee in carrying out the tasks entrusted to it is probably the main reason for physicians not to get the hospital EDL updates. As a result of these committees ineffectiveness mainly, copies of both lists are not available to the physicians working at the hospital.

Table (4.8): Participants opinions about hospital management efforts related to EDL

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- Hospital management encourages physicians to be compliant with EDL							
Always	No.	17	15	1	4	10	47
	%	15.9%	22.4%	2.4%	13.8%	25.0%	16.5%
Rarely or Do not	No.	90	52	41	25	30	238
	%	84.1%	77.6%	97.6%	86.2%	75.0%	83.5%
Total	No.	107	67	42	29	40	285
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Hospital organizes EDL refreshing lectures							
Yes	No.	8	6	7	3	1	25
	%	7.5%	9.2%	15.9%	10.3%	2.5%	8.8%
No	No.	67	43	31	21	23	185
	%	62.6%	66.2%	70.5%	72.4%	57.5%	64.9%
Don't Know	No.	32	16	6	5	16	75
	%	29.9%	24.6%	13.6%	17.2%	40.0%	26.3%
Total	No.	107	65	44	29	40	285
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table (4.8) reveals that hospital management do not take their role in encouraging physicians adequately to be compliant with EDL. **Table (4.8)** showed that most of the study participants (83.5%) felt that they were not encouraged properly by hospital management to be compliant with EDL drugs. The highest percent of the study participants who felt that they were not

encouraged properly by hospital management was observed at EGH hospital, as indicated by 97.6% of the hospital participants. The lowest percent of the study participants who felt that they were not encouraged properly by hospital management was observed at Al-Aqsa hospital, as indicated by 75% of the hospital participants. Regarding the hospital management role in human resource development, **Table (4.8)** reveals that hospitals managements in the study setting are not doing their assigned role in organizing EDL awareness and training sessions to encourage physicians to prescribe EDL drugs. **Table (4.8)** showed that more than two thirds of the study participants (64.9%) confirmed that hospital management does not arrange any EDL refreshing lectures or sessions. The highest percentage of the study participants who have indicated not having any EDL refreshing lectures was observed at Kamal Odwan hospital, as indicated by 72.4% of the hospital participants. The lowest percentage of the study participants who have indicated not having any EDL refreshing lectures was observed at Al-Aqsa hospital, as indicated by 57.5% of the hospital participants. Based on the results of these answers, we can strongly conclude that the hospital management does not completely perform its assigned role in promoting physicians compliance with the EDL. This is probably due to several reasons, including frequent changes in hospital management; irregularities of salaries; limited incentives; and the absence of training activities.

4.1.2.2.   Pharmacy & Therapeutics committee

This part reflects the study participant's impressions about the hospital pharmacy and therapeutics committee.

Table (4.9): Participants knowledge about treatment protocols in the hospital

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- There are treatment protocols in the hospital							
Yes	No.	39	29	13	13	15	109
	%	37.1%	43.3%	29.5%	41.9%	38.5%	38.1%
No	No.	36	20	12	16	13	97
	%	34.3%	29.9%	27.3%	51.6%	33.3%	33.9%
Don't Know	No.	30	18	19	2	11	80
	%	28.6%	26.9%	43.2%	6.5%	28.2%	28.0%
Total	No.	105	67	44	31	39	286
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Treatment protocols location							
Hospital Library	No.	1	0	0	0	0	1
	%	0.9%	0.0%	0.0%	0.0%	0.0%	0.3%
Hospital ward	No.	24	28	4	7	11	74
	%	22.0%	41.2%	8.9%	22.6%	28.2%	25.3%
Pharmacy	No.	17	11	11	6	6	51
	%	15.6%	16.2%	24.4%	19.4%	15.4%	17.5%
Don't Know	No.	65	29	29	18	22	163
	%	59.6%	42.6%	64.4%	58.1%	56.4%	55.8%
Other places	No.	2	0	1	0	0	3
	%	1.8%	0.0%	2.2%	0.0%	0.0%	1.0%
Total	No.	109	68	45	31	39	292
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Regarding the participants' knowledge about the presence of treatment protocols, **Table (4.9)** shows that only one third of the study participants (38.1%) confirmed the presence of treatment protocols in the hospital. The highest percentage of the study participants who confirmed the presence of treatment protocols in the hospital was observed at Nasser hospital,

as indicated by 43.3% of the hospital participants. The lowest percentage of the study participants who confirmed the presence of treatment protocols in the hospital was observed at EGH hospital, as indicated by 29.5% of the hospital participants. This finding is consistent with Fattouh and Abuhamad study (2010) as well as the Bangladesh study conducted by Khan and Colleagues (2011). Moreover, **Table (4.9)** shows that more than half of the study participants (55.8%) do not know the location of the treatment protocols in the hospital. The highest percentage of the study participants who do not know the location of the treatment protocols in the hospital was observed at EGH hospital, as indicated by 64.4% of the hospital participants. The lowest percentage of the study participants who do not know the location of the treatment protocols in the hospital was observed at Nasser hospital, as indicated by 42.6% of the hospital participants.

Table (4.10): Participants knowledge about the role of Pharmacy &Therapeutics committee in the hospital

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- There is Pharmacy &Therapeutics committee in the hospital							
Yes	No.	34	38	21	10	20	123
	%	31.5%	56.7%	47.7%	34.5%	50.0%	42.7%
No	No.	16	1	0	4	2	23
	%	14.8%	1.5%	0.0%	13.8%	5.0%	8.0%
Don't Know	No.	58	28	23	15	18	142
	%	53.7%	41.8%	52.3%	51.7%	45.0%	49.3%
Total	No.	108	67	44	29	40	288
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Participants receive protocols from Pharmacy &Therapeutics committee							
Always	No.	8	2	3	1	3	17
	%	7.5%	3.0%	6.8%	3.4%	7.5%	5.9%
Rarely	No.	39	28	16	14	15	112
	%	36.4%	42.4%	36.4%	48.3%	37.5%	39.2%
Do not	No.	60	36	25	14	22	157
	%	56.1%	54.5%	56.8%	48.3%	55.0%	54.9%
Total	No.	107	66	44	29	40	286
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3- Pharmacy &Therapeutics committee arrange training program on EDL							
Always	No.	11	3	2	2	2	20
	%	10.1%	4.6%	4.5%	7.1%	5.0%	7.0%
Rarely	No.	29	11	12	8	10	70
	%	26.6%	16.9%	27.3%	28.6%	25.0%	24.5%
No	No.	69	51	30	18	28	196
	%	63.3%	78.5%	68.2%	64.3%	70.0%	68.5%
Total	No.	109	65	44	28	40	286
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
4- Pharmacy &Therapeutics committee gives feedback about physicians compliance with EDL							
Always	No.	13	6	4	3	5	31
	%	12.3%	9.2%	9.3%	10.3%	12.8%	11.0%
Rarely	No.	43	29	22	14	16	124
	%	40.6%	44.6%	51.2%	48.3%	41.0%	44.0%
No	No.	50	30	17	12	18	127
	%	47.2%	46.2%	39.5%	41.4%	46.2%	45.0%
Total	No.	106	65	43	29	39	282
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

As shown in the **Table (4.10)**, there was no adequate knowledge of physicians about the Hospital Pharmacy & Therapeutics committee (Hospital P&T committee). **Table (4.10)** revealed that only 42.7% of the study participants confirmed the presence of P&T committee at their hospitals. The highest percent of the study participants who confirmed the presence of Hospital P&T committee was observed at Nasser hospital, as indicated by 56.7% of the hospital participants. The lowest percent of the study participants who confirmed the presence of Hospital P&T committee was observed at Al-Shifa hospital, as indicated by 31.5% of the hospital participants. With regard to the communication between the Hospital P&T committee and the study participants, findings in the **Table (4.10)** revealed that, more than half of the study participants (54.9%) do not receive any treatment protocols from the Hospital P&T committee. The highest percentage of the study participants who have not received treatment protocols from the Hospital P&T committee was observed at EGH hospital, as indicated by 56.8% of the hospital participants. The lowest percentage of the study participants who have not received treatment protocols from the Hospital P&T committee was observed at Kamal Odwan hospital, as indicated by 48.3% of the hospital participants. **Table (4.10)** illustrates that two thirds of the study participants (68.5%) do not know if the Hospital P&T committee have conducted any training programs on EDL in the hospitals. The highest percentage of the study participants who do not know if Hospital P&T committee have conducted any training programs on EDL in the hospitals was observed at Nasser hospital, as indicated by 78.5% of the hospital participants. The lowest percentage of the study participants who do not know if the Hospital P&T committee has conducted any training programs on EDL in the hospitals was observed at Al-Shifa hospital, as indicated by 63.3% of the hospital participants.

Finally, **Table (4.10)** showed that, only 11% of the study participants received feedback from the Hospital P&T committee related to compliance with EDL. The highest percent of the study

participants who received feedback from the Hospital P&T committee related to compliance with EDL was observed at Al-Aqsa hospital, as indicated by 12.8% of the hospital participants. The lowest percent of the study participants who received feedback for their compliance with EDL was observed at Nasser hospital, as indicated by 9.2% of the hospital participants. These findings suggest that the study participants have limited knowledge about the activities of the Hospital P&T Committee as well as their knowledge about its assigned roles. This may be due to the fact that P&T committees was established after the Palestinian political rift in 2007 and it was not able to do its assigned role due to that political rift .

4.1.2.3. Hospital pharmacies

Table (4.11), highlights aspects related to the current relation between the study participants and hospital pharmacists.

Table (4.11): Interaction between hospital pharmacists and participants

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- Pharmacists inform physicians about the available drugs							
Daily	No.	12	8	2	6	2	30
	%	11.1%	11.8%	4.4%	19.4%	5.1%	10.3%
Weekly	No.	18	8	3	6	5	40
	%	16.7%	11.8%	6.7%	19.4%	12.8%	13.7%
Monthly	No.	6	25	12	4	18	65
	%	5.6%	36.8%	26.7%	12.9%	46.2%	22.3%
Do not Have Any	No.	72	27	28	15	14	156
	%	66.7%	39.7%	62.2%	48.4%	35.9%	53.6%
Total	No.	108	68	45	31	39	291
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Pharmacists encourage physicians to be compliant with EDL							
Always	No.	19	11	7	9	10	56
	%	17.6%	16.4%	15.9%	31.0%	25.0%	19.4%
Rarely or Do not	No.	89	56	37	20	30	232
	%	82.4%	83.6%	84.1%	69.0%	75.0%	80.6%
Total	No.	108	67	44	29	40	288
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table (4.11) reveals that, hospital pharmacists neither inform nor update physicians adequately about the available drugs; half of the study participants (53.6%) indicated that pharmacists do not update them about the available drugs in the hospital. The highest percentage of the study participants who have not received any information about the available drugs in the hospital was observed at Al-Shifa hospital, as indicated by 66.7% of the hospital participants. The lowest percent of the study participants who have not received any information about the available drugs in the hospital was observed at Al-Aqsa hospital, as

indicated by 35.9% of the hospital participants. Moreover, **Table (4.11)** reveals that the hospital pharmacists are not doing their assigned role in encouraging physicians adequately to prescribe EDL drugs. Most of the study participants (80.6%) revealed that they do not feel encouraged by hospital pharmacists to prescribe drugs from EDL. The highest percentage of the study participants who have not felt an encouragement by the hospital pharmacists to prescribe EDL drugs was observed at EGH hospital, as indicated by 84.1% of the hospital participants. The lowest percentage of the study participants who have not felt an encouragement by the hospital pharmacists to prescribe EDL drugs was observed at Kamal Odwan hospital, as indicated by 69% of the hospital participants. In spite of the existence of policies and procedures manual for hospital pharmacies (called pharmaceutical care guide in hospitals) since the year 2008 and the distribution of hard copies of this guide to each hospital pharmacist, the surveyed physicians believed that the hospital pharmacist's activity is still far below the expectations. Perhaps this is due to the lack of implementation of training activities for the hospital pharmacists on the contents of this guide. Moreover, it might be due to the fact that the old version of the mentioned guide does not contain detailed policies and procedures to deal with all the work carried out by the hospital pharmacists.

4.1.2.4. Hospital monitoring & evaluation system

Table (4.12): Participant's perception towards the current monitoring and evaluation system of the MoH

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Mean	Mean % of positive responses
1- There is a monitoring system to measure physicians compliance with EDL							
No.	30	76	113	67	5	2.8	56
%	10.3	26.1	38.8	23.0	1.7		
2- There is a monitoring system to measure physicians compliance with protocols							
No.	23	74	121	65	11	2.89	57.8
%	7.8	25.2	41.2	22.1	3.7		
3- The current hospital monitoring system is efficient and effective							
No.	25	90	116	56	8	2.77	55.4
%	8.5	30.5	39.3	19.0	2.7		
4- There are performance indicators for protocol compliance in the hospitals							
No.	20	89	129	48	7	2.77	55.4
%	6.8	30.4	44.0	16.4	2.4		
5- You receive a feedback for protocol compliance							
No.	38	103	109	41	3	2.55	51
%	12.9	35.0	37.1	13.9	1.0		
6- Compliance with protocol affect your performance appraisal							
No.	23	87	126	51	5	2.75	55
%	7.9	29.8	43.2	17.5	1.7		
7- Audit directorate monitors drugs that you prescribe							
No.	18	79	133	45	7	2.8	56
%	6.4	28.0	47.2	16.0	2.5		
Mean%: 54.37%				**SD: 3.178**			

As shown in the **Table (4.12)**, there was a negative perception about the current hospital Monitoring and Evaluation system. The overall mean percentage of the study participant's perception about the current hospital Monitoring and Evaluation system was 54.37% (SD: 3.178). As shown in the **Table (4.12)**, the majority of the study participants (75.2%) were either uncertain or declined the existence of monitoring system in the MoH to measure

physicians compliance with EDL drugs. The mean percentage was 56%. Additionally, as shown in **Table (4.12)**, 74.2% of the study participants were either uncertain or declined the presence of monitoring system to assess physicians compliance with the treatment protocols. The mean percentage was 57.8%. As shown in **Table (4.12)**, the majority of the study participants (78.3%) were either uncertain or disagreed on the effectiveness of current hospital Monitoring and Evaluation system. The mean percentage was 55.4%. Furthermore, as shown in the **Table (4.12)**, 81.2% of the study participants were either uncertain or disagreed on the existence of performance indicators on their compliance with the current treatment protocols. The mean percentage was 55.4%. Regarding the study participants perceptions about getting feedback on their compliance with the current treatment protocol, as shown in the **Table (4.12)**, the majority of the study participants (85%) were either uncertain or did not receive feedback on their compliance with the current treatment protocols. The mean percentage was 51%. **Table (4.12)** shows that the majority of the study participants (80.9%) were either uncertain or disagreed that their compliance with the treatment protocol affects the performance appraisal. The mean percentage was 55%. Finally, around half of the study participants (47.2%) were uncertain of the audit directorate monitoring roles in the hospitals. The mean percentage was 56%. This finding is consistent with Fattouh and Abu Hamad study (2010).

4.1.3. Ministry of Health management

This part highlights aspects related to the MoH management efforts to increase physician's compliance with EDL including managerial efforts and drug supply efforts.

4.1.3.1. Actions related to EDL establishment and drug supplies

Table (4.13): Participants knowledge about the EDL setting up process

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- Participation in developing up hospital or MoH-EDL							
MoH- EDL	No.	5	0	1	1	0	7
	%	4.6%	0.0%	2.2%	3.2%	0.0%	2.4%
Hospital EDL	No.	11	2	1	2	3	19
	%	10.2%	2.9%	2.2%	6.5%	7.5%	6.5%
Both EDLs	No.	5	0	0	0	1	6
	%	4.6%	0.0%	0.0%	0.0%	2.5%	2.0%
Did not participate in any	No.	87	67	43	28	36	261
	%	80.6%	97.1%	95.6%	90.3%	90.0%	89.1%
Total	No.	108	69	45	31	40	293
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Having copy of MoH-EDL							
Paper	No.	6	9	3	5	9	32
	%	5.6%	13.2%	6.7%	16.7%	22.5%	11.0%
Electronic	No.	5	2	0	0	0	7
	%	4.7%	2.9%	0.0%	0.0%	0.0%	2.4%
Paper & Electronic	No.	6	1	1	0	1	9
	%	5.6%	1.5%	2.2%	0.0%	2.5%	3.1%
Do not have any copy	No.	90	56	41	25	30	242
	%	84.1%	82.4%	91.1%	83.3%	75.0%	83.4%
Total	No.	107	68	45	30	40	290
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

With regard to the study participants involvement in the development of the MoH-EDL or hospitals EDL, **Table (4.13)** shows that the majority of the study participants (89.1%) neither participated in developing MoH-EDL, nor participated in developing hospital EDL. The

highest percentage of the study participants who neither participated in developing MoH-EDL nor participated in developing Hospital EDL was observed at Nasser hospital, as indicated by 97.1% of the hospital participants. The lowest percentage of the study participants who neither participated in developing MoH-EDL nor participated in developing hospital EDL was observed at Al-Shifa hospital, as indicated by 80.6% of the hospital participants. This finding is consistent with Fattouh and Abu Hamad study (2010). As clearly appeared from the **Table (4.13)**, the majority of the study participants (83.4%) indicated that they do not have hard or soft copies of MoH-EDL. The highest percentage of the study participants who indicated that they do not have hard or soft copies of MoH-EDL was observed at EGH hospital, as indicated by 91.1% of the hospital participants. The lowest percent of the study participants who indicated not having hard or soft copies of MoH-EDL was observed at Al-Aqsa hospital, as indicated by 75% of the hospital participants. This finding is inconsistent with Fattouh and Abu Hamad study (2010) as well as Mulwa and Colleagues study (2015).

Table (4.14): Participant's awareness about the EDL selection criteria.

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Mean	Mean % of positive responses
1- Patients opinion is important criteria for EDL selection							
No.	50	95	81	53	5	3.65	73
%	17.6	33.5	28.5	18.7	1.8		
2- Drug company influence is important criteria for EDL selection							
No.	31	91	72	74	20	3.18	63.6
%	10.8	31.6	25.0	25.7	6.9		
3- Political decisions are important criteria for EDL selection							
No.	41	78	102	54	12	3.44	68.8
%	14.3	27.2	35.5	18.8	4.2		
4- Drug cost is one of the EDL selection criteria							
No.	12	52	91	112	16	3.24	64.8
%	4.2	18.4	32.2	39.6	5.7		
5- Drug effectiveness is one of the EDL selection criteria							
No.	8	21	65	152	40	3.68	73.6
%	2.8	7.3	22.7	53.1	14.0		
6- Drug safety is one of the EDL selection criteria							
No.	4	14	71	156	41	3.76	75.2
%	1.4	4.9	24.8	54.5	14.3		
7- Drug quality is one of the EDL selection criteria							
No.	6	20	59	151	51	3.77	75.4
%	2.1	7.0	20.6	52.6	17.8		
8- Drug availability in the market is one of the EDL selection criteria							
No.	7	23	62	162	31	3.66	73.2
%	2.5	8.1	21.8	56.8	10.9		
9- One active ingredient per drug is one of the EDL selection criteria							
No.	9	46	115	92	20	3.24	64.8
%	3.2	16.3	40.8	32.6	7.1		
10- Country epidemiological profile is one of the EDL selection criteria							
No.	7	21	80	152	25	3.59	71.8
%	2.5	7.4	28.1	53.3	8.8		
Mean%: 72.84%				**SD: 9.498**			

Table (4.14) shows aspects of findings related to the study participant's knowledge about the EDL selection criteria.

As shown in the **Table (4.14)**, there was a good level of knowledge about the scientific selection criteria of the EDL, the overall mean percentage of the study participant's level of knowledge about EDL selection criteria was 72.84% (SD: 9.498). **Table (4.14)** shows that, only half of the study participants (51.1%) disagreed that the patient's opinion is an important EDL selection criterion. The mean percentage was 50.8%. As specified previously, it is well-known that patient's opinion is not a scientific EDL selection criterion. As shown in **Table (4.14)**, only 42.4% of the study participants disagreed that the pharmaceutical drug companies' influence could be included in the selection of EDL drugs. The mean percentage was 57.2%. As specified previously, it is well-known that pharmaceutical drug companies should not have an influence in the selection of EDL drugs. As shown in **Table (4.14)**, 41.5% of the study participants disagreed that the political decisions are factors that could influence the selection of EDL drugs. The mean percentage was 54.2%. As specified previously, it is well-known that political decisions should not be considered in the selection of EDL drugs. As shown in the **Table (4.14)**, 45.3% of the study participants agreed that the drug cost is an EDL selection criterion, while, 32.2% of the study participants were uncertain of that. The mean percentage was 64.8%. Generally, as specified previously, drug cost is one of the main factors in the selection of EDL drugs. Regarding the drug effectiveness as a selection criterion of EDL drugs, as shown in the **Table (4.14)**, 67.1% of the study participants considered the drug effectiveness as an EDL selection criterion, while 22.7% of the study participants were uncertain of that. The mean percentage was 73.6%. As specified previously, it is well-known that drug effectiveness is a scientific EDL selection criterion. Moreover, as shown in the **Table (4.14)**, around two thirds of the study participants (68.8%) considered the drug safety as

an EDL selection criterion while, 24.8% of the study participants were uncertain of that. The mean percentage was 75.2%. As specified previously, it is well-known that drug safety is a scientific EDL selection criterion. Additionally, more than two thirds of the study participants (70.4%) considered the drug quality as an EDL selection criterion while, 20.6% of the study participants were uncertain of that. The mean percentage was 75.4%. As specified previously, it is well-known that the drug quality is a scientific EDL selection criterion. Furthermore, as shown in the **Table (4.14)**, around two thirds of the study participants (67.7%) considered the drug availability in the local market as an EDL selection criterion while, 21.8% of the study participants were uncertain of that. The mean percentage was 73.2%. As specified previously, it is well-known that the availability of drugs in the local market is a scientific EDL selection criterion. As shown in the **Table (4.14)**, nearly one third of the study participants (39.7%) considered having one active ingredient per dosage form of drug as one of the selection criteria for EDL while, 40.8% of the study participants were uncertain of that. The mean percentage was 64.8%. As specified previously, it is well-known that one active ingredient per drug is a scientific EDL selection criterion. Finally, as shown in the **Table (4.14)**, 62.1% of the study participants considered country epidemiological profile as an EDL selection criterion, while 28.1% of the study participants were uncertain of that. The mean percentage was 71.8%. As specified previously, it is well-known that country epidemiological profile is a scientific EDL selection criterion. This finding showed less knowledge of the study participants about the EDL selection criteria than that observed in the primary health care centers as showed by Fattouh and Abu Hamad study (2010) as well as Hettihawa and Jayarathna study (2010).

The researcher believes that the level of knowledge of the study participants about the selection criteria of the EDL is inadequate and significant efforts must be made to increase

that level of knowledge. The main reason for this level of knowledge is the lack of implementation of training sessions for physicians as mentioned above. Additionally, this low level of knowledge about the selection criteria of the EDL can be attributed to the lack of activity conducted by the concerned entities in the MoH or ineffectiveness of its activities.

4.1.3.2. Drug supply efforts

This part reflects study participants knowledge about the Ministry of Health management efforts for drug supply.

Table (4.15): Participants knowledge about the available drugs in the hospitals

Variable		Al-Shifa	Nasser	EGH	Kamal Odwan	Al-Aqsa	Total
1- EDL drugs are available at hospital pharmacy all the time							
Always	No.	22	16	4	5	10	57
	%	20.2%	24.2%	9.1%	17.2%	25.0%	19.8%
Rarely	No.	76	47	34	21	27	205
	%	69.7%	71.2%	77.3%	72.4%	67.5%	71.2%
Not Available	No.	11	3	6	3	3	26
	%	10.1%	4.5%	13.6%	10.3%	7.5%	9.0%
Total	No.	109	66	44	29	40	288
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
2- Quantity of EDL drugs at hospital pharmacy are enough							
All Drugs	No.	16	13	1	5	9	44
	%	14.8%	19.7%	2.3%	17.2%	22.5%	15.3%
Some Drugs	No.	88	52	42	24	30	236
	%	81.5%	78.8%	95.5%	82.8%	75.0%	82.2%
None of The Drugs	No.	4	1	1	0	1	7
	%	3.7%	1.5%	2.3%	0.0%	2.5%	2.4%
Total	No.	108	66	44	29	40	287
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
3- Drugs at the hospital pharmacy are of high quality							
Always	No.	22	19	4	5	15	65
	%	20.2%	28.4%	9.1%	17.2%	37.5%	22.5%
Rarely	No.	71	44	36	20	19	190
	%	65.1%	65.7%	81.8%	69.0%	47.5%	65.7%
Not	No.	16	4	4	4	6	34
	%	14.7%	6.0%	9.1%	13.8%	15.0%	11.8%
Total	No.	109	67	44	29	40	289
	%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Regarding the study participants perception about the availability of EDL drugs at the study settings, as in shown the **Table (4.15)**, only 19.8% of the study participants acknowledged that EDL drugs are available all the time in the hospital. The highest percentage of the study participants who informed that EDL drugs are available all the time in the hospital was observed at Al-Aqsa hospital, as indicated by 25% of the hospital participants. The lowest

percentage of the study participants who acknowledged that EDL drugs are available all the time in the hospital was observed at EGH hospital, as indicated by 9.1% of the hospital participants.

The researcher believes that the continuous shortage of medications at the hospital pharmacies was due to: the political rift; the lack of capacity of the MoH in GG to supply all the required medicines; the destruction of the Rafah illegal tunnels; the closure of the Rafah border crossing which limited – and sometimes prevented – the humanitarian relief convoys from reaching GG. It was noted that the war in Syria had a significant impact in changing of donor trends and preferences to support Syria over Gaza because of the tragic situation there. All of the mentioned above led to extreme decline in the supply of medicine to the MoH warehouses Consequently, the central drug stores stocks declined quickly and the MoH became unable to support the stock at the appropriate time.

With regard to the study participant's perception about the quantities of EDL drugs available at the hospital, as shown in the **Table (4.15)**, only 15.3% of the study participants considered the quantities of all available drugs in the hospital are enough. The highest percent of the study participants who considered the quantities of all available drugs in the hospital enough was observed at Al-Aqsa hospital, as indicated by 22.5% of the hospital participants. The lowest percent of the study participants who considered the quantities of all available drugs in the hospital enough was observed at EGH hospital, as indicated by 2.3% of the hospital participants.

With regard to the study participant's perception about the quality of EDL drugs available at the hospitals, as shown in the **Table (4.15)**, only 22.5% of the study participants agreed that EDL drugs are of high quality all the time. The highest percent of the study participants who considered the EDL drugs of high quality all the time was observed at Al-Aqsa hospital, as

indicated by 37.5% of the hospital participants. The lowest percent of the study participants who considered the EDL drugs of high quality all the time was observed at EGH hospital, as indicated by 9.1% of the hospital participants. This finding showed low level of knowledge of the study participants about the quality of the available EDL drugs in comparison to the Indian study conducted by Gupta et al., (2015).

This low level of perception of the study participant's about the quality of EDL drugs can be attributed to their lack of access to the necessary training about the EDL contents and concept, and also to lack of knowledge about the MoH quality control steps conducted to insure the quality and safety of medicines before releasing it to hospitals. Moreover, repeated complaints concerning the quality of EDL medicines in hospitals have been reported and some drugs have been stopped due to changes in their quality in a way that made them fail to meet the drug quality standards.   In addition, the low percent of physician's perception about the quality of EDL drugs can result from the fact that some of the EDL drugs came from donations. Such drugs have no quality guarantees since donations are not stored properly during transportation to GG. As a proof of the bad quality of some donations, the department of quality control at the general directorate of Pharmacy reported many complaints on the quality of these medicines and stopped dispensing many of it. Moreover, this low perception might be due to the adoption and implementation the shelf life extension program for medicines beyond their expiration date in the MoH central drug stores. Furthermore, the medical representative activities of pharmaceutical drug companies in marketing their innovative drugs through providing physicians with studies proving the weakness of conventional medicines (a lot of them are included in the EDL) compared to innovative medicines.

4.1.3.3. Monitoring and evaluation system

Figure (4.7) reflects the relation between the MoH Monitoring and Evaluation directorate and the study participant's in terms of feedback about compliance with EDL drugs.

Figure (4.7) Participants receive feedback from Monitoring and Evaluation directorate for their compliance with EDL
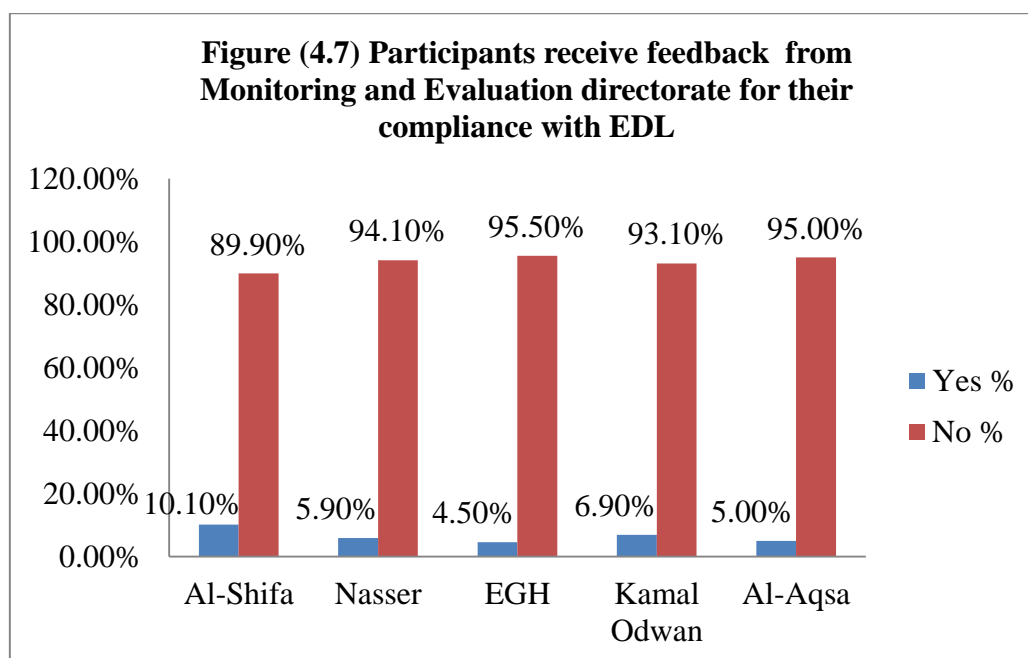
The study findings showed that physicians had negative perception about the role of the MoH Monitoring and Evaluation directorate inside the hospitals to improve compliance with EDL. As shown in the Figure (4.7), the vast majority of the study participants (92.8%) have not received any feedback from the Monitoring and Evaluation directorate about their compliance with EDL. The highest percent of the study participants who have not received any feedback from the Monitoring and Evaluation directorate about their compliance with EDL was observed at EGH hospital, as indicated by 95.5% of the hospital participants. The lowest percentage of the study participants who have not received any feedback from the Monitoring and Evaluation directorate about their compliance with EDL was observed at Al-Shifa hospital, as indicated by 89.9% of the hospital participants.

Table (4.16): Participant's attitude toward EDL drugs included in treatment protocols

	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Mean	Mean % of positive responses
1- Drugs included in the MoH treatment protocols are effective							
No.	10	58	91	126	6	3.21	64.2
%	3.4	19.9	31.3	43.3	2.1		
2- The current treatment protocols needs update							
No.	3	11	55	155	72	3.95	79
%	1.0	3.7	18.6	52.4	24.3		
3- The treatment protocols are obligatory for participants in the work							
No.	10	70	47	148	17	3.32	66.4
%	3.4	24.0	16.1	50.7	5.8		
4- Hospital pharmacy has a role in increasing compliance with treatment protocols							
No.	10	54	81	134	17	3.32	66.4
%	3.4	18.2	27.4	45.3	5.7		
5- Compliance with treatment protocols reduce total health cost							
No.	7	22	70	169	24	3.62	72.4
%	2.4	7.5	24.0	57.9	8.2		
6- EDL drugs included in the treatment protocols are less effective than others							
No.	16	87	105	78	8	2.91	58.2
%	5.4	29.6	35.7	26.5	2.7		
Mean%: 60.47%				**SD: 2.841**			

As shown in the **Table (4.16)**, there was a mixture of perception components consisting of positive and negative ones toward the MoH treatment protocols and its contents of EDL drugs, the overall mean percentage of the study participant's attitude about current protocols was 60.47% (SD:2.841). As shown in the **Table (4.16)**, only 45.4% of the study participants considered the EDL drugs included in the current protocols effective. The mean percentage was 64.2%. Additionally, as shown in **Table (4.16)**, the majority of the study participants (76.7%) agreed on the necessity for updating the current treatment protocols. The mean percentage was 79%. As shown in the **Table (4.16)**, more than half of the study participants

(56.5%) perceived that the current treatment protocols are obligatory for them in the work. The mean percentage was 66.4%. Furthermore, as shown in the **Table (4.16)**, nearly half of the study participants (51%) confirmed that the hospital pharmacy has a role in increasing their compliance with treatment protocols. The mean percentage was 66.4%. As shown in the **Table (4.16)**, two thirds of the study participants (66.1%) agreed that the compliance with treatment protocols reduces the total health cost. The mean percentage was 72.4%. Finally, as shown in the **Table (4.16)**, more than two thirds of the study participants (70.7%) were either uncertain or disagreed that EDL drugs included in the protocols are less effective than others. The mean percentage was 58.2%.

The researcher sees that the study participants have a mixed perception components consisting of positive and negative ones toward the MoH treatment protocols and its contents of EDL drugs was expected due to many reasons: the absence of the process of updating these treatment protocols over the past years; the absence of the training program and awareness sessions; and the absence of the measuring indicators used to monitor physicians compliance.

4.2. Findings from in-patients medication sheet

Out of the total number of collected 1098 in-patient medication sheets, 232 sheets (21.1%) were collected from Al-Shifa hospital, 204 sheets (18.6%) were collected from Nasser hospital, 210 sheets (19.1%) were collected from EGH hospital, 197 sheet (17.9%) were collected from Kamal Odwan hospital, and 255 sheets (23.2%) were collected from Al-Aqsa hospital. **Figure (4.8)** shows the distribution of in-patient medication sheets by hospitals.

Figure (4.8) Total number of in-patient medication sheets collected from hospitals
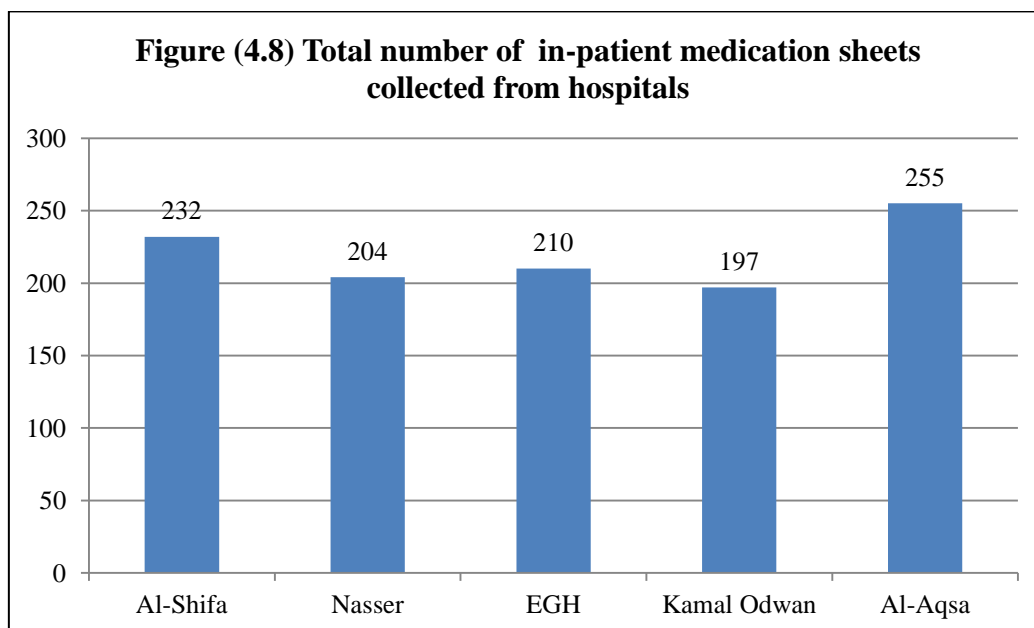
4.2.1. Descriptive analysis of in-patient medication sheet data

Table (4.17) Descriptive findings related to the in-patient medication sheets

Variable	Hospital	Mean	Std. Deviation	F value	Sig.
Total No. of prescribed drugs	Al-Shifa	5.46	2.768	2.738	0.028*
	Nasser	5.53	3.334		
	EGH	5.26	3.381		
	Kamal Odwan	5.21	2.963		
	Al-Aqsa	4.68	3.174		
	Total	5.21	3.138		
No. of prescribed drugs from the EDL	Al-Shifa	5.30	2.761	2.70	0.029*
	Nasser	5.26	3.078		
	EGH	5.14	3.323		
	Kamal Odwan	5.16	3.068		
	Al-Aqsa	4.52	2.967		
	Total	5.06	3.045		
No. of prescribed drugs out of the EDL	Al-Shifa	.32	.619	0.643	0.632
	Nasser	.29	.597		
	EGH	.32	.655		
	Kamal Odwan	.24	.494		
	Al-Aqsa	.28	.619		
	Total	.29	.601		
No. of prescribed drugs using trade names	Al-Shifa	4.37	2.298	45.280	0.000*
	Nasser	2.47	2.322		
	EGH	2.49	2.108		
	Kamal Odwan	4.04	2.451		
	Al-Aqsa	2.21	2.064		
	Total	3.10	2.418		
No. of prescribed drugs using scientific names	Al-Shifa	1.25	1.301	45.257	0.000*
	Nasser	3.09	2.168		
	EGH	2.98	2.146		
	Kamal Odwan	1.36	1.455		
	Al-Aqsa	2.59	2.307		
	Total	2.25	2.081		
No. of prescribed drugs written in English language	Al-Shifa	5.20	3.015	2.421	0.047*
	Nasser	5.51	3.309		
	EGH	5.46	3.568		
	Kamal Odwan	5.11	2.990		
	Al-Aqsa	4.70	3.165		
	Total	5.18	3.221		

* Statistically significant

As shown in **Table (4.17)**, the average total number of drugs prescribed in the in-patient medication sheet among the study settings was 5.21 drugs per sheet. The highest number of drugs prescribed was reported at Nasser hospital with an average of 5.53 drugs per sheet, while the lowest number of drugs prescribed was reported at Al-Aqsa hospital with an average of 4.68 drugs per sheet.

One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean of the total number of drugs prescribed in the in-patient medication sheets. As shown in **Table (4.17)**, there was a statistically significant difference in the mean of drugs prescribed in the in-patient medication sheet among the study settings with (F=2.738, P value=0.028). Post Hoc- Bonfirroni test has revealed a statistically significant difference between Nasser hospital and Al-Aqsa hospital (Sig. =0.038). It seems that physicians at Nasser hospital tend to prescribe more drugs in the in-patient medication sheet than physicians at Al-Aqsa hospital. This finding showed higher number of drugs prescribed at the study settings than that reported in several studies (Mariam et al., 2015; Chedi et al., 2015; Ingle et al., 2015; Prasad et al., 2015; Afriyie et al., 2014; Akl et al., 2014; Ndukwe, 2013; Adibi et al., 2012). The higher number of prescribed drugs reported in the in-patient medication sheets in this study might be due to the multispecialty of the study settings.

Concerning the No. of EDL drugs prescribed in the in-patient medication sheet, as shown in **Table (4.17)**, the overall average number of drugs prescribed from the EDL among the study settings was 5.06 drugs per sheet. The highest number of drugs prescribed from the EDL was reported at Al-Shifa hospital with an average of 5.3 drugs per sheet, while the lowest number of drugs prescribed from the EDL was reported at Al-Aqsa hospital with an average of 4.52 drugs per sheet. One way Anova test was conducted to examine the presence of statistically

significant differences among the study settings concerning the number of EDL listed drugs prescribed in the in-patient medication sheet. As shown in **Table (4.17)**, there was a statistically significant difference in the mean number of EDL listed drugs prescribed in the in-patient medication sheet among the study settings with (F=2.70, P value=0.029). Post Hoc - Bonfirroni test has revealed a statistically significant difference between Al-Shifa hospital and Al-Aqsa hospital (Sig. =0.047). It seems that physicians at Al-Shifa hospital tend to prescribe more drugs that are listed in the EDL in the in-patient medication sheet than physicians at Al-Aqsa hospital. This finding seems to be logic when we know that all complicated cases at Al-Aqsa hospital are referred to Al-Shifa medical complex.

Figure (4.9) shows the percentage of physician's compliance with EDL in the in-patient medication sheet among the study settings.

Figure (4.9) Physicians compliance with EDL in the in-patient medication sheet
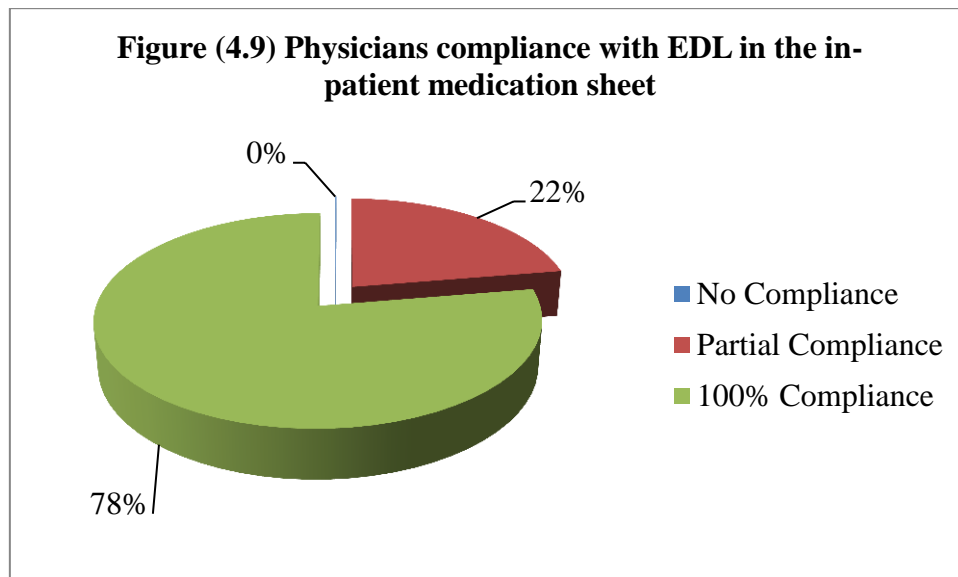
As shown in **Figure (4.9)**, the majority of the collected in-patient medication sheets (78%) are fully compliant with EDL, which means that most the prescribed drugs in the in-patient medication sheets are from the EDL. Sheets that are partially compliant with EDL (contain

EDL and NEDL drugs prescribed in the same sheet) represent 22% of the total number of collected in-patient medication sheets. Sheets that are not compliant with EDL drugs at all represent less than 1% of the total collected in-patient medication sheets. This finding showed that the number of EDL drugs prescribed at the study settings was lower than that observed in several studies (Mariam et al., 2015; Chedi et al., 2015; Prasad et al., 2015; Ndukwe, 2013), but higher than other studies (Ingle et al., 2015; Afriyie et al., 2014; Goel et al.,). This may be due to the multispecialty of the study settings.

The researcher sees that the lack of commitment of physicians to prescribe EDL drugs can be attributed to several reasons, the most important are: not all drugs are available in the hospital; drugs are not available in sufficient quantities in the hospitals due to recurrent shortages ; some NEDL drugs are provided to the hospitals in the form of donations; the ineffectiveness of hospital pharmacists role in improving physicians compliance because of lack of pharmacists participation in the morning meetings ; lack of physicians knowledge about the alternative medications available at the hospital pharmacy; the present activities of medical representatives of pharmaceutical drug companies inside hospitals; a lot of patients are chronically ill and receiving NEDL drugs before their admission to the hospital and it is not correct to change their medications into EDL drugs during their period of admission in the hospital which is probably the most important reason that led to the lack of commitment to prescribe EDL drugs for admitted patients; and the absence of any role for the General Directorate of Monitoring and Evaluation in follow-up and documentation of this phenomenon.

With regard to the No. of drugs prescribed out of the EDL (NEDL) in the in-patient medication sheets, as shown in **Table (4.17)**, the average number of NEDL drugs prescribed in the in-patient medication sheets among the study settings was 0.29 drugs per sheet, the

highest number of NEDL drugs prescribed was reported at both Al-Shifa and EGH hospitals with an average of 0.32 drugs per sheet, the lowest number of NEDL drugs prescribed was reported at Kamal Odwan hospital with an average of 0.24 drugs per sheet.

One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of NEDL drugs prescribed in the in-patient medication sheets. As shown in **Table (4.17)**, there was no statistically significant difference in the mean number of NEDL drugs prescribed in the in-patient medication sheets among the study settings with (F=0.643, P value=0.632).

Concerning the No. of drugs prescribed using trade names in the in-patient medication sheets, as shown in **Table (4.17)**, the average number of drugs prescribed by using trade names in the in-patient medication sheets among the study settings was 3.1 drugs per sheet. The highest number of drugs prescribed by using trade names was reported at Al-Shifa hospital with an average of 4.37 drugs per sheet, while the lowest number of drugs prescribed by using trade names was reported at Al-Aqsa hospital with an average of 2.21 drugs per sheet. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed by using trade names in the in-patient medication sheets. As shown in **Table (4.17)**, there was a strong statistically significant difference in the mean of drugs prescribed by using trade names in the in-patient medication sheets among the study settings with (F=45.280, P value=0.000).Post Hoc - Bonfirroni test has revealed that the a significant difference was reported between Al-Shifa hospital and the other three hospitals: Nasser hospital (Sig. = 0.000), EGH hospital (Sig. = 0.000), and Al-Aqsa hospital (Sig. = 0.000), clearly indicating that physicians at Al-Shifa hospital tend to prescribe more drugs by using trade names in the in-patient medication sheets than physicians at the other three hospitals.

Another significant difference was reported between Kamal Odwan hospital and three other hospitals: Nasser hospital (Sig. = 0.000), EGH hospital (Sig. = 0.000), and Al-Aqsa (Sig. = 0.000), indicating that physicians at Kamal Odwan hospital tends to prescribe more drugs by using trade names in the in-patient medication sheets than physicians at the other three hospitals.

With regard to the number of drugs prescribed using scientific names in the in-patient medication sheets, as shown in **Table (4.17)**, the average number of drugs prescribed by using scientific names in the in-patient medication sheets among the study settings was 2.25 drugs per sheet. The highest number of drugs prescribed by using scientific names was reported at Nasser hospital with an average of 3.09 drugs per sheet, while the lowest number of drugs prescribed by using scientific names was reported at Al-Shifa hospital with an average of 1.25 drugs per sheet.

One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed by using scientific names in the in-patient medication sheets. As shown in **Table (4.17)**. The analysis revealed a strong statistically significant difference in the mean number of drugs prescribed by using scientific names in the in-patient medication sheets among the study settings with (F=45.257, P value=0.000).

Figure (4.10) shows the percentage of physicians' compliance with scientific name prescribing of drugs in the in-patient medication sheet among the study settings

Figure (4.10) Physicians Compliance with scientific names of drugs in the in-patient medication sheets

11%   18%

71%

- No Compliance
- Partial Compliance
- 100% Compliance
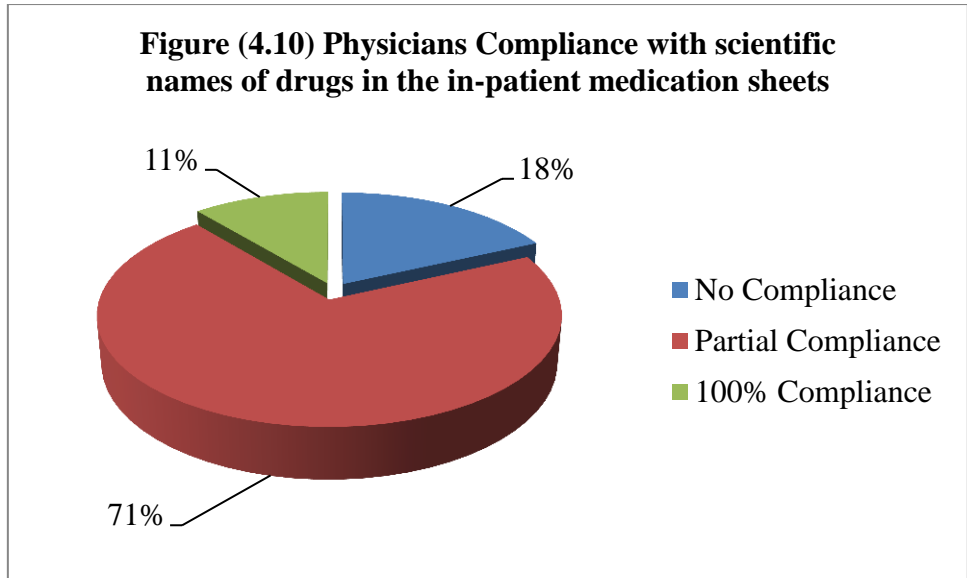
As shown in **Figure (4.10)**, only 11% of the collected in-patient medication sheets were fully prescribed by scientific name (do not contain any drug prescribed by using trades names), which means that 11% of the collected in-patient medication sheets are fully compliant with prescribing drugs by using scientific names. Sheets that are partially compliant with prescribing drugs by using scientific names (contain drugs prescribed in scientific and trade names in the same sheet) represent 71% of the total number of collected in-patient medication sheets. Sheets that contain 100% of its drugs not prescribed using scientific names (prescribed using trade names only) represent 18% of the total number of collected in-patient medication sheets.

The researcher believes that the lack of compliance of physicians to prescribe drugs by using scientific names results from: the lack of interest and support for this issue from the hospital management; the failure of the P&T Committee in promoting physicians prescribing by using scientific name of drug; the absence of indicators for measuring physicians compliance with prescribing by using scientific name; the failure of the hospital pharmacy to carry out its assigned role in improving physicians compliance through undesirable laxity in accepting and

dispensing requests prescribed by trade names of drugs; the absence of any role for the General Directorate of Monitoring and Evaluation in follow-up and documentation of this phenomenon.

With regard to the number of drugs prescribed in English language in the in-patient medication sheets, as shown in **Table (4.17)**, the average number of drugs prescribed in English language in the in-patient medication sheets among the study settings was 5.18 drugs per sheet. The highest number of drugs prescribed in English language was reported at Nasser hospital with an average of 5.51 drugs per sheet, while the lowest number of drugs prescribed in English language was reported at Al-Aqsa hospital with an average of 4.7 drugs per sheet. As shown in **Table (4.17)**, the vast majority (96.5%) of the collected in-patient medication sheets were written in English language. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed in English language in the in-patient medication sheets. As shown in **Table (4.17)**, there was a statistically significant difference in the mean of drugs prescribed in English language in the in-patient medication sheets among the study settings with (F=2.421, P value=0.047).

4.3. Findings from emergency department reports

Out of the total number of collected 1595 emergency department reports (EDRs), 386 reports (24.2%) were collected from Al-Shifa hospital, 289 reports (18.1%) were collected from Nasser hospital, 238 reports (14.9%) were collected from EGH hospital, 348 reports (21.8%) were collected from Kamal Odwan hospital, and 334 reports (20.9%) were collected from Al-Aqsa hospital. **Figure (4.11)** shows the distribution of EDRs by hospitals.

Figure (4.11) Total number of ED reports collected from hospitals
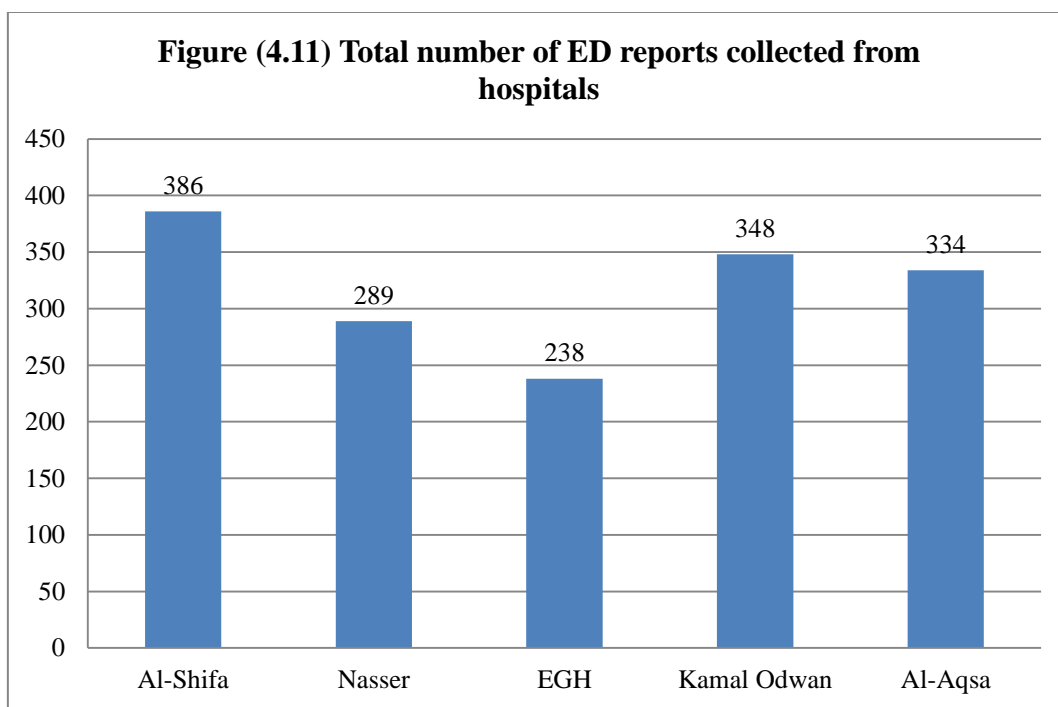
4.3.1. Descriptive analysis of the emergency department reports

Table (4.18) descriptive findings related to the emergency department reports

Variable	Hospital	Mean	Std. Deviation	F value	Sig.
Total No. of prescribed drugs	Al-Shifa	2.03	.815	7.605	0.000*
	Nasser	2.22	.753		
	EGH	2.11	.740		
	Kamal Odwan	2.17	.718		
	Al-Aqsa	2.33	.767		
	Total	2.17	.769		
No. of prescribed drugs from the EDL	Al-Shifa	0.97	.815	14.951	0.000*
	Nasser	1.06	.840		
	EGH	1.48	.967		
	Kamal Odwan	1.12	.880		
	Al-Aqsa	1.01	.856		
	Total	1.10	.881		
No. of prescribed drugs out of the EDL	Al-Shifa	1.06	.927	22.047	0.000*
	Nasser	1.16	.857		
	EGH	0.63	.773		
	Kamal Odwan	1.05	.927		
	Al-Aqsa	1.32	.891		
	Total	1.07	.908		
No. of prescribed drugs using trade names	Al-Shifa	1.91	.866	9.026	0.000*
	Nasser	2.13	.766		
	EGH	1.93	.809		
	Kamal Odwan	2.09	.795		
	Al-Aqsa	2.22	.778		
	Total	2.06	.814		
No. of prescribed drugs using scientific names	Al-Shifa	.12	.346	4.008	0.003*
	Nasser	.09	.282		
	EGH	.18	.417		
	Kamal Odwan	.08	.278		
	Al-Aqsa	.10	.352		
	Total	.11	.336		
No. of prescribed drugs written in English language	Al-Shifa	2.03	.815	7.396	0.000*
	Nasser	2.22	.753		
	EGH	2.10	.756		
	Kamal Odwan	2.16	.728		
	Al-Aqsa	2.33	.770		
	Total	2.17	.773		

* Statistically significant

As shown in **Table (4.18)**, the average total number of drugs prescribed in the ED reports among the study settings was 2.17 drugs per ED report. The highest number of drugs prescribed was reported at Al-Aqsa hospital with an average of 2.33 drugs per ED report, while the lowest number of drugs prescribed was reported at Al-Shifa hospital with an average of 2.03 drugs per ED report. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean of the total number of drugs prescribed in the ED reports. As shown in **Table (4.18)**, there was a statistically significant difference in the mean number of drugs prescribed in the ED reports among the study settings with (F=7.605, P value=0.000). Post Hoc - Bonfirroni test has revealed that the significant difference was reported between Al-Shifa hospital and both Nasser hospital (Sig. =0.017) and Al-Aqsa hospital (Sig. =0.000). It seems that physicians at Al-Shifa hospital tend to prescribe fewer drugs in the ED reports than physicians at the other two hospitals. Another significant difference was reported between EGH and Al-Aqsa hospitals (Sig. =0.007). It seems that physicians at Al-Aqsa hospital tend to prescribe more drugs in the ED reports than EGH physicians. Concerning the No. of EDL drugs prescribed in the EDRs, as shown in **Table (4.18)**, the overall average number of drugs prescribed from the EDL among the study settings was 1.1 drugs per ED report. The highest number of drugs prescribed from the EDL was reported at EGH hospital with an average of 1.48 drugs per ED report, while the lowest number of drugs prescribed from the EDL was reported at Al- Shifa hospital with an average of about one drug per ED report. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of EDL listed drugs prescribed in the ED reports. As shown in **Table (4.18)**, there was a strong statistically significant difference in the mean number of the drugs prescribed from the EDL in the ED reports among the study settings with (F=14.951, P

value=0.000). Post Hoc - Bonfirroni test- has revealed that the significant difference was reported between EGH hospital and all other four hospitals, clearly indicating that physicians at EGH hospital tend to prescribe more drugs that are listed in EDL in the ED reports than physicians at others four hospitals.

Figure (4.12) shows the percentage of physician's compliance with EDL in the ED reports among the study settings.

Figure (4.12) Physicians compliance with EDL in the ED reports
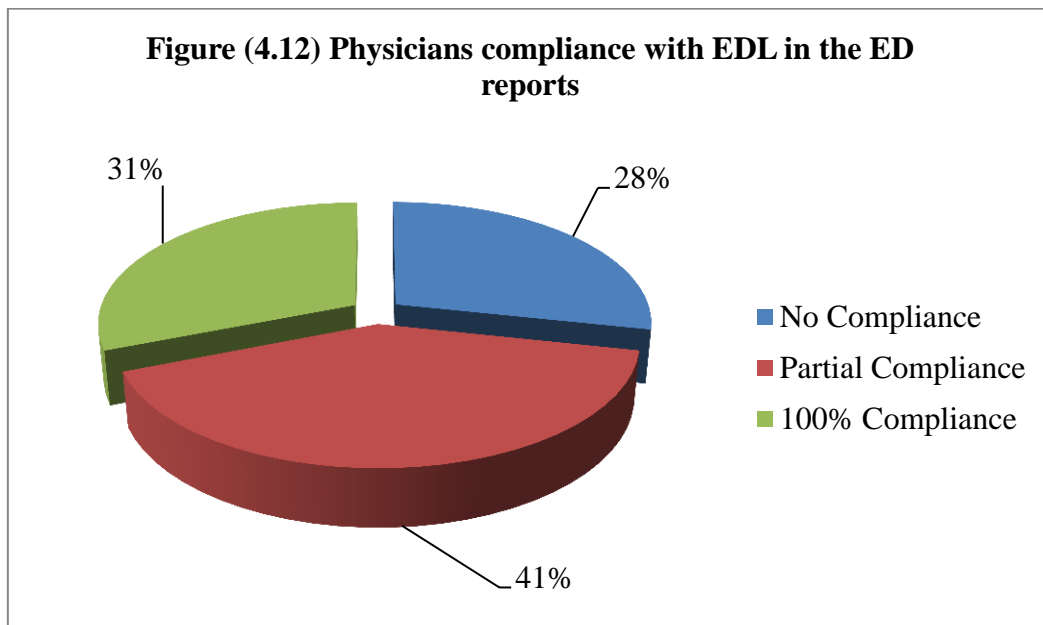
As shown in **Figure (4.12)**, only one third of the collected ED reports (31%) are fully compliant with EDL, which means that all the prescribed drugs are from the EDL. Reports those contain EDL and NEDL drugs in the same time represent 41% of the total number of collected ED reports, and reports those contain NEDL drugs and do not contain any EDL drugs represent 28% of the total number of collected ED reports, which means that around one third of the collected reports are not compliant with prescribing EDL drugs in the ED reports at all.

With regard to the No. of drugs prescribed out of the EDL (NEDL) in the EDRs, as shown in **Table (4.18)**, the average number of NEDL drugs prescribed in the ED reports among the

study settings was 1.07 drugs per ED report. The highest number of NEDL drugs prescribed was reported at Al-Aqsa hospital with an average of 1.32 drugs per ED report, while the lowest number of NEDL drugs prescribed was reported at EGH hospital with an average of 0.63 drugs per ED report. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number NEDL drugs prescribed in the ED reports. As shown in **Table (4.18)**, there was a strong statistically significant difference in the mean number of NEDL drugs prescribed in the ED reports among the study settings with (F=22.047, P value=0.000).

The researcher sees that the low level of compliance of physicians to prescribe EDL drugs in the EDRs is most likely due to several reasons, the most important are: not working of the out-patient pharmacy in the evening and night duty time. Accordingly, it is not possible to dispense prescriptions issued in the emergency departments of these hospitals from the hospital pharmacy, whereas it can be dispensed from the primary health care center pharmacies or from private pharmacies only; the absence of any role for the hospital management in the follow-up process of physicians prescribing practice in the emergency departments ; the absence of any role for the hospital pharmacist in the follow-up of prescriptions issued by the physicians in the emergency departments; the frequent presence of medical representative of pharmaceutical drug companies at the emergency departments; and the absence of any role for the General Directorate of Monitoring and Evaluation in follow-up and documentation of this phenomenon in the emergency departments. Concerning the No. of drugs prescribed using trade names in the EDRs, as shown in **Table (4.18)**, the average number of drugs prescribed by using trade names in the ED reports among the study settings was 2.06 drugs per ED report. The highest number of drugs prescribed using trade names was reported at Al-Aqsa hospital with an average of 2.22 drugs per ED report, while the lowest

number of drugs prescribed using trade names was reported at Al-Shifa hospital with an average of 1.91 drugs per ED report. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed by using trade names in the ED reports. As shown in **Table (4.18)**, there was a strong statistically significant difference in the mean number of drugs prescribed by using trade names in the ED reports among the study settings with (F=9.026, P value=0.000). Post Hoc - Bonfirroni test has revealed that the significant difference was between Al-Shifa hospital and three other hospitals: Nasser hospital (Sig. =0.003), Kamal Odwan hospital (Sig. =0.019), and Al-Aqsa hospital (Sig. =0.000), clearly indicating that physicians at Al-Shifa hospital tend to prescribe less drugs using trade names in the ED reports than physicians at the other three mentioned hospitals. Another significant difference was between EGH hospital and both Nasser (Sig. =0.049) and Al-Aqsa (Sig. =0.000) hospital, it seems that physicians at EGH hospital tend to prescribe less drugs by using trade names in the ED reports than physicians at the others two hospitals.

With regard to the number of drugs prescribed using scientific names in the EDRs, as shown in **Table (4.18)**, the average number of drugs prescribed using scientific names in the ED reports among the study settings was 0.11 drugs per ED report. The highest number of drugs prescribed using scientific names was reported at Al-Shifa hospital with an average of 0.12 drugs per ED report, while the lowest number of drugs prescribed using scientific names was reported at Kamal Odwan hospital with an average of 0.08 drug per ED report. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed by using scientific names in the ED reports. As shown in **Table (4.18)**, the analysis revealed a strong statistically

significant difference in the mean number of drugs prescribed by using scientific names in the ED reports among the study settings with (F=4.008, P value=0.003).

Figure (4.13) shows the percentage of physician's compliance with scientific name prescribing of drugs in the ED reports among the study settings.

Figure (4.13) Physicians Compliance with scientific names of drugs in ED reports
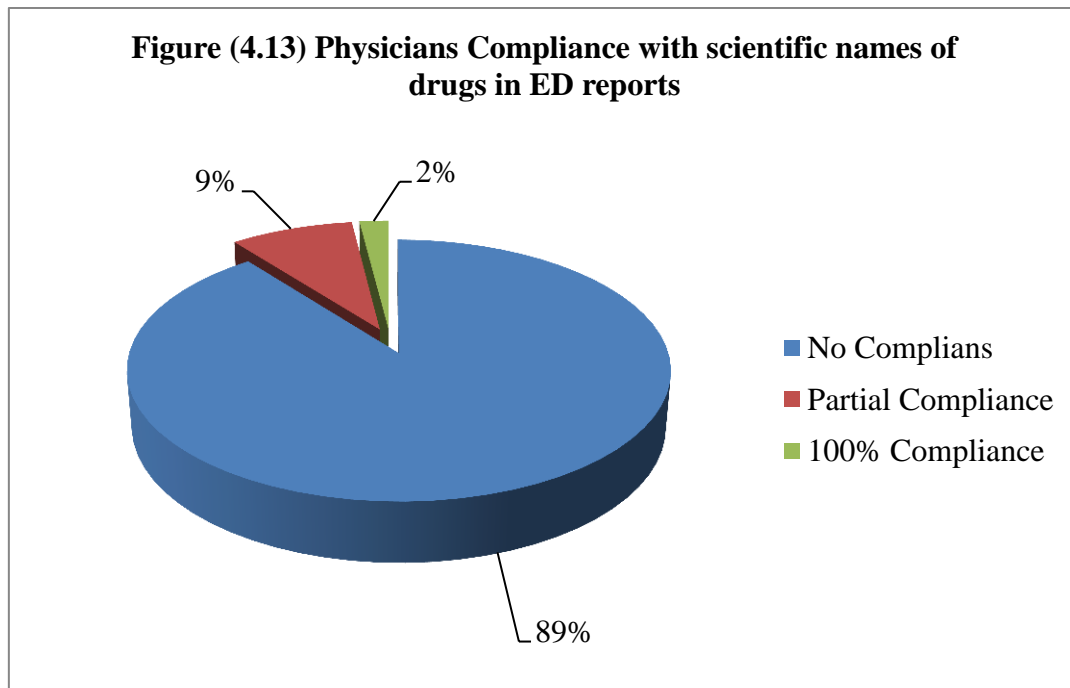
As shown in **Figure (4.13)**, the majority of the collected ED reports (89%) were fully prescribed using trade names, which means that 89% of the collected ED reports are not compliant with prescribing drugs by using scientific names at all. Reports that contain drugs prescribed using scientific and trade manes in the same time represent 9% of the total number of collected ED reports. ED reports that are not containing any drugs prescribed by using trade names at all represent 2% of the total collected ED reports, which means that physicians are poorly compliant with prescribing drugs by using scientific names in the ED reports.

The researcher sees that the low level of compliance of physicians to prescribe drugs by using scientific names in the ED reports is most likely due to several reasons, the most important

are: not working of the out-patient pharmacy in the evening and night duty time as mentioned above; the absence of any role for the hospital management in the follow-up process of physicians prescribing practice at the emergency departments; the absence of any role for the hospital pharmacist in the follow-up of prescriptions issued by the physicians in the emergency departments; the frequent presence of medical representative of pharmaceutical drug companies at the emergency departments; the absence of any role for the General Directorate of Monitoring and Evaluation in the follow-up and documentation of this phenomenon in the emergency departments; the absence of any measuring indicators to monitor the physicians practice; and the absence of any role for the hospital P&T committee in the measurement and management of this issue.

With regard to the number of drugs prescribed in English language in the ED reports, as shown in **Table (4.18)**, the average number of drugs prescribed in English language in the ED reports among the study settings was 2.17 drugs per ED report. The highest number of drugs prescribed in English language was reported at Al-Aqsa hospital with an average of 2.33 drugs per ED report, while the lowest number of drugs prescribed in English language was reported at Al-Shifa hospital with an average of 2.03 drugs per ED report. As shown in **Table (4.18)**, the vast majority (99.6%) of the collected ED report were written in English language, which means that physicians are strongly compliant with prescribing drugs by using English language in the ED reports. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed in English language in the ED reports. As shown in **Table (4.18)**, there was a strong statistically significant difference in the mean number of drugs prescribed in English language in the ED reports among the study settings with (F=7.396, P value=0.000). Post Hoc - Bonfirroni test revealed that the significant difference was between Al-Aqsa hospital and

both Al-Shifa (Sig. =0.000) and EGH hospital (Sig. =0.005), clearly indicating that physicians at Al-Aqsa hospital tend to prescribe more drugs in English language in the ED reports than physicians at the others two mentioned hospitals. Another significant difference was reported between Al-Shifa hospital and Nasser hospital (Sig. =0.018), clearly indicating that physicians at Nasser hospital tend to prescribe drugs in English language in the ED reports more than physicians at Al-Shifa hospital.

It is worth mentioning that the average number of drugs prescribed in Arabic language in the ED reports among the study settings was almost zero drug per ED report.

4.4. Findings from in-patients discharge reports

Out of the total number of collected 1226 in-patient discharge reports (IPDRs), 318 IPDRs (25.9%) were collected from Al-Shifa hospital, 231 IPDRs (18.8%) were collected from Nasser hospital, 223 IPDRs (18.2%) were collected from EGH hospital, 201 IPDRs (16.4%) were collected from Kamal Odwan hospital, and 253 IPDRs (20.6%) were collected from Al-Aqsa hospital. **Figure (4.14)** shows the distribution of IPDRs by hospitals.

Figure (4.14) Total number of IPDRs collected from the study settings
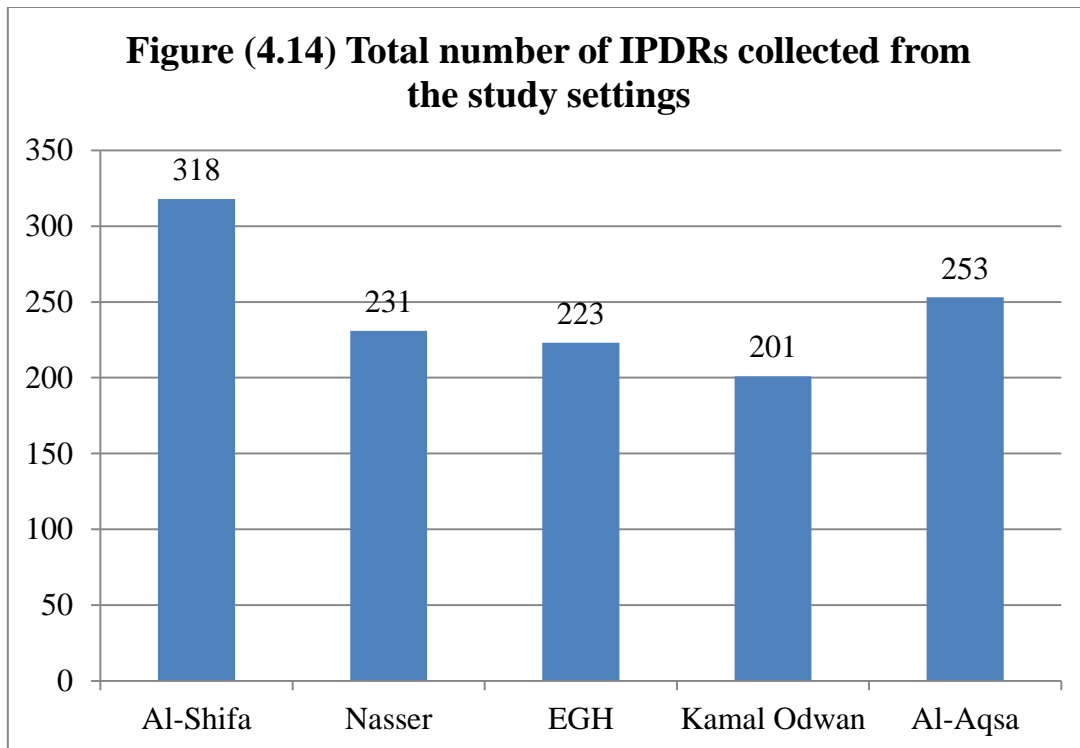
4.4.1. Descriptive analysis of the in-patients discharge reports

Table (4.19) descriptive findings related to the in-patient discharge reports

	Hospital	Mean	Std. Deviation	F value	Sig.
Total No. of prescribed drugs	Al-Shifa	3.09	1.603	1.186	0.315
	Nasser	2.97	1.663		
	EGH	2.85	1.850		
	Kamal Odwan	3.14	1.698		
	Al-Aqsa	2.92	1.720		
	Total	3.00	1.701		
No. of prescribed drugs from the EDL	Al-Shifa	1.87	1.649	3.277	0.011*
	Nasser	1.71	1.698		
	EGH	2.10	1.901		
	Kamal Odwan	2.24	1.701		
	Al-Aqsa	1.86	1.681		
	Total	1.94	1.728		
No. of prescribed drugs out of the EDL	Al-Shifa	1.22	.984	12.839	0.000*
	Nasser	1.25	.940		
	EGH	.75	.777		
	Kamal Odwan	.91	.864		
	Al-Aqsa	1.07	.967		
	Total	1.06	.936		
No. of prescribed drugs using trade names	Al-Shifa	2.71	1.333	6.611	0.000*
	Nasser	2.56	1.287		
	EGH	2.14	1.355		
	Kamal Odwan	2.69	1.306		
	Al-Aqsa	2.53	1.487		
	Total	2.54	1.370		
No. of prescribed drugs using scientific names	Al-Shifa	.38	.747	6.533	0.000*
	Nasser	.41	.812		
	EGH	.71	1.082		
	Kamal Odwan	.46	.836		
	Al-Aqsa	.38	.677		
	Total	.46	.839		
No. of prescribed drugs written in English language	Al-Shifa	2.81	1.622	1.328	0.257
	Nasser	2.97	1.663		
	EGH	2.85	1.850		
	Kamal Odwan	3.14	1.698		
	Al-Aqsa	2.89	1.688		
	Total	2.92	1.700		

* Statistically significant

As shown in **Table (4.19)**, the average total number of drugs prescribed in the IPDRs among the study settings was 3 drugs per IPD report. The highest number of drugs prescribed was reported at Kamal Odwan hospital with an average of 3.14 drugs per IPD report, while the lowest number of drugs prescribed was reported at EGH hospital with an average of 2.85 drugs per IPD report.

One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean of the total number of drugs prescribed in the IPDRs. As shown in **Table (4.19)**, there was no statistically significant difference in the mean number of drugs prescribed in the IPDRs among the study settings with (F=1.186, P value=0.315).

Concerning the No. of drugs prescribed from the EDL in the IPDRs, as shown in **Table (4.19)**, the overall average number of drugs prescribed from the EDL in the IPDRs among the study settings was 1.94 drugs per IPD report. The highest number of drugs prescribed from the EDL was reported at Kamal Odwan hospital with an average of 2.24 drugs per IPD report, while the lowest number of drugs prescribed was reported at Nasser hospital with an average of 1.71 drugs per IPD report. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of EDL listed drugs prescribed in the IPDRs. As shown in **Table (4.19)**, there was a statistically significant difference in the mean number of EDL listed drugs prescribed in the IPDRs among the study settings with (F=3.277, P value=0.011). Post Hoc – Bonfirroni- test has revealed that the significant difference was reported between Nasser hospital and Kamal Odwan hospital (Sig. =0.016). This finding clearly indicates that physicians at Kamal Odwan hospital tend to prescribe more drugs that are listed in the EDL in the IPDRs than physicians at Nasser hospital.

Figure (4.15) shows the percentage of physician's compliance with EDL in the IPDRs among the study settings.

Figure (4.15) Physicians compliance with EDL in the IPDRs

31%   16%

No Compliance
Partial Compliance
100% Compliance

53%
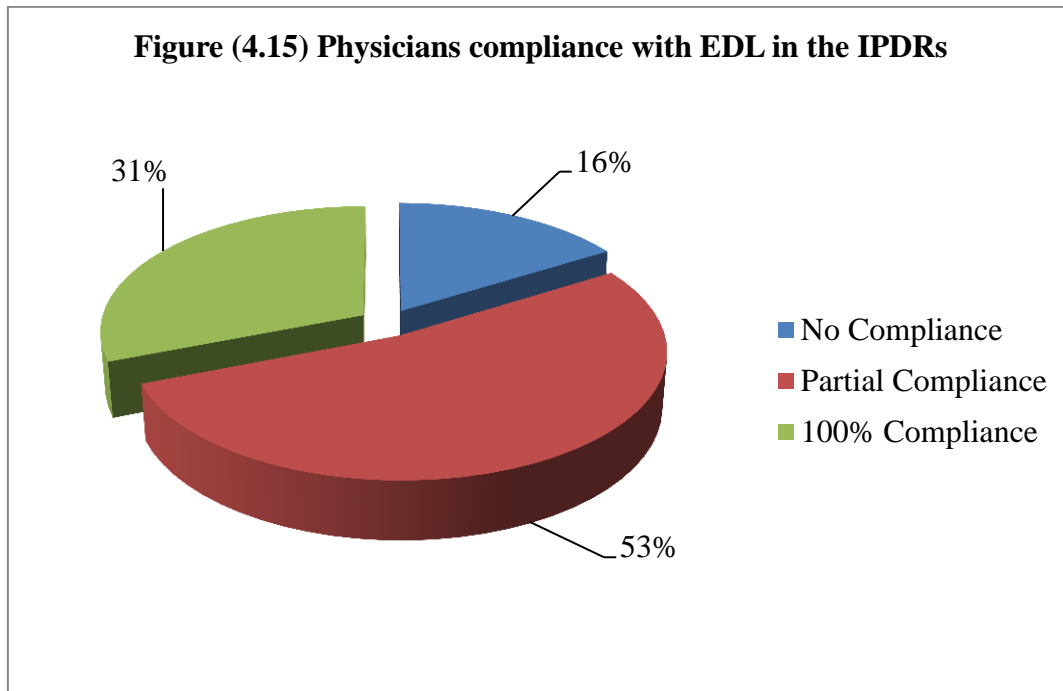
As shown in **Figure (4.15)**, nearly one third of the collected IPDRs (31%) are fully compliant with EDL, which means that all the prescribed drugs in the IPDRs are from the EDL. Reports those are partially compliant with EDL (contain EDL and NEDL drugs prescribed in the same report) represent 53% of the total number of collected IPDRs. Reports that are not compliant with EDL drugs at all represent 16% of the total collected IPDRs, which means that all the prescribed drugs in the IPDRs are out of the EDL. The researcher believes that the low level of compliance of physicians to prescribe EDL drugs in the IPDRs is most likely due to several reasons, the most important are: the limited role of the hospital management in the follow-up process of physicians prescribing practice; the limited role of the hospital pharmacist in the follow-up for drugs prescribed on the IPDRs issued by the physicians; the frequent presence of medical representative of pharmaceutical drug companies at the wards and physicians' offices;

the limited role of the General Directorate of Monitoring and Evaluation in the follow-up and documentation of this phenomenon in the wards; the limited role of the hospital P&T committee in managing this issue.

With regard to the No. of drugs prescribed out of the EDL (NEDL) in the IPDRs, as shown in **Table (4.19)**, the average number of NEDL drugs prescribed in the IPDRs among the study settings was 1.06 drugs per IPD report. The highest number of NEDL drugs prescribed in the IPDRs was reported at Nasser hospital with an average of 1.25 drugs per IPD report, while the lowest number of NEDL drugs prescribed in the IPDRs was reported at EGH hospital with an average of 0.75 drug per IPD report. One way Anova test was conducted to examine the presence of statistically significant differences among the study setting concerning the mean number of NEDL drugs prescribed in the IPDRs. As shown in **Table (4.19)**, there was a strong statistically significant difference in the mean number of NEDL drugs prescribed in the IPDRs among the study settings with (F=12.839, P value=0.000).

Concerning the No. of drugs prescribed using trade names in the IPDRs, as shown in **Table (4.19)**, the average number of drugs prescribed by using trade names in the IPDRs among the study settings was 2.54 drugs per IPD report. The highest number of drugs prescribed by using trade names was reported at Al-Shifa hospital with an average of 2.71 drugs per IPD report, while the lowest number of drugs prescribed by using trade names was reported at EGH hospital with an average of 2.14 drugs per IPD report. One way Anova test was used to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed by using trade names in the IPDRs. As shown in **Table (4.19)**, there was a statistically significant difference in the mean number of drugs prescribed by using trade names in the IPDRs among the study settings with (F=6.611, P

value=0.000). Post Hoc - Bonfirroni test has revealed a statistically significant difference between EGH hospital and the other four hospitals: Al-Shifa hospital (Sig. = 0.000), Nasser hospital (Sig. = 0.012), Kamal Odwan hospital (Sig. = 0.000), and Al-Aqsa hospital (Sig. = 0.018), clearly indicating that physicians at EGH hospital tend to prescribe less drugs by using trade names in the IPDRs than physicians at the other four hospitals.

With regard to the number of drugs prescribed using scientific names in the IPDRs, as shown in **Table (4.19)**, the average number of drugs prescribed by using scientific names in the IPDRs among the study setting was 0.46 drugs per IPD report. The highest number of drugs prescribed by using scientific names was reported at EGH hospital with an average of 0.71 drugs per IPD report, while the lowest number of drugs prescribed by using scientific names was reported at both Al-Shifa and Al-Aqsa hospitals with an average of 0.38 drugs per IPD report. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed by using scientific names in the IPDRs. As shown in **Table (4.19)**. The analysis revealed a statistically significant difference in the mean number of prescribed drugs prescribed by using scientific names in the IPDRs among the study settings with (F=6.533, P value=0.000).

Figure (4.16) shows the percentage of physicians' compliance with scientific name prescribing of drugs in the IPDRs among the study settings.

Figure (4.16) Physicians Compliance with scientific Names of drugs in IPDRs

- No Compliance
- Partial Compliance
- 100% Compliance

29%

2%

69%
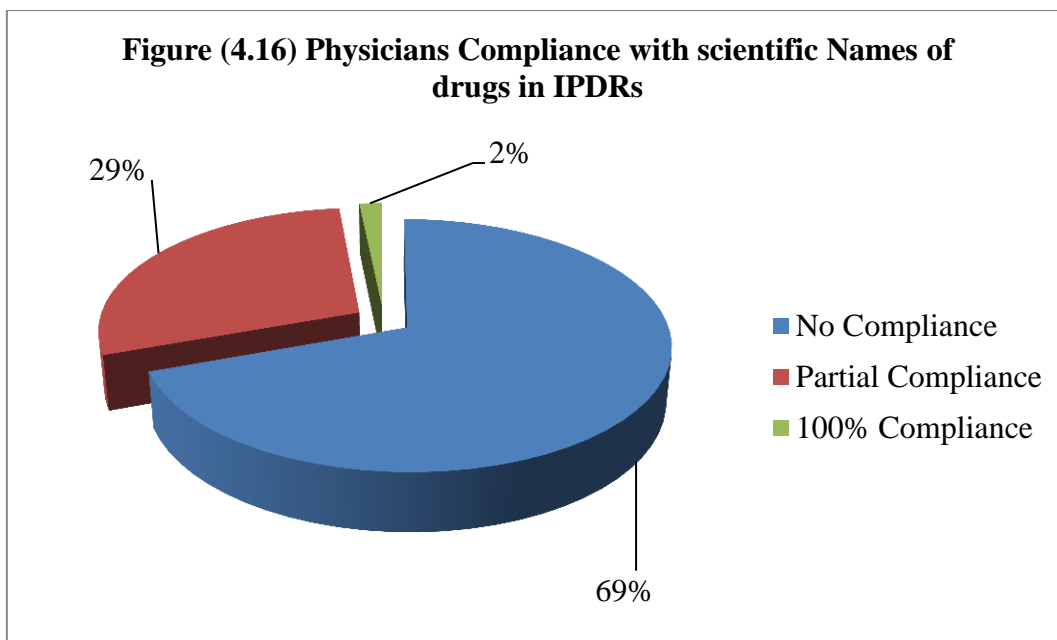
As shown in **Figure (4.16)**, the majority of the collected IPDRs (69%) were fully prescribed by trade names (do not contain any drug prescribed by using scientific names), which means that 69% of the collected IPDRs are not compliant with prescribing drugs by using scientific names at all. Reports that are partially compliant with prescribing drugs by using scientific names (contain drugs prescribed in scientific and trade names in the same report) represent 29% of the total number of collected IPDRs. Reports that contain 100% of its drugs prescribed using scientific names represent 2% of the total number of collected IPDRs, which means that full physician's compliance with scientific name prescribing of drugs in the IPDRs represent only 2% of the collected IPDRs. With regard to the number of prescribed drugs prescribed in English language in the IPDRs, as shown in **Table (4.19)**, the average number of drugs prescribed in English language in the IPDRs among the study settings was 2.92 drugs per IPD report. The highest number of drugs prescribed in English language was reported at Kamal Odwan hospital with an average of 3.14 drugs per IPD report, while the lowest number of drugs prescribed in English language was reported at Al-Shifa hospital with an average of 2.81

drugs per IPD report. As shown in **Table (4.19)**, the vast majority (98.1%) of the collected IPDRs were written in English language. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed in English language in the IPDRs. As shown in **Table (4.19)**, there was no statistically significant difference in the mean number of drugs prescribed in English language in the IPDRs among the study settings with (F=1.328, P value=0.257). With regard to the number of drugs prescribed in Arabic language in the IPDRs, as shown in **Table (4.19)**, the average number of drugs prescribed in Arabic language in the IPDRs among the study settings was 0.08 drugs per IPD report. The highest number of drugs prescribed in Arabic language was reported at Al-Shifa hospital with an average of 0.28 drugs per IPD report, while the lowest number of drugs prescribed in Arabic language was reported at EGH, Nasser, and Kamal Odwan hospitals with an average of zero drugs per IPDRs. One way Anova test was conducted to examine the presence of statistically significant differences among the study settings concerning the mean number of drugs prescribed in Arabic language in the IPDRs. As shown in **Table (4.19)**, there was a statistically significant difference in the mean number of drugs prescribed in Arabic language in the IPDRs among the study settings with (F=11.190, P value=0.000).

Chapter (5)

Conclusion and recommendations

5.1. Conclusion

Within the context of the Gaza Governorates, this study aimed to assess physicians' compliance with EDL at governmental hospitals. The findings of the study have shown that more than half of the study participants had private work in addition to their work in the MoH. The findings of the study have shown that knowledge of the study participants about the MoH-EDL, hospital EDL and its updating process is not high. However, there is a positive attitude among physicians about the EDL and it benefits. The majority of the study participants agreed on the importance and necessity of EDL for: provision of equitable health services; provision of quality health services; reduction of wasting in financial resources; reducing patient harm; and the fact that the listed drugs in the EDL are selected on scientific bases. The majority of the study participants neither communicated with hospital pharmacists properly nor responded to pharmacists' recommendations in prescribing drugs from EDL. The study findings revealed that hospital management does not efficiently exercising its role in encouraging physicians to be compliant with EDL. For example, the hospitals managements in the study settings did not organized EDL awareness and training sessions to encourage physicians to prescribe EDL drugs. additionally, the study findings have shown that the majority of the study participants did not received any hospital EDL updates (neither hard nor soft EDL copies), indicating that there is communication gap between the study participants and both the MoH management and hospital management in the field of disseminating MoH-EDL updates. The poor communication issue can clearly be seen by looking at the results showing that only one third of the study participants were knowledgeable about the presence of treatment protocols in the hospital. According to the study participants, there was no adequate knowledge of physicians

about the Hospital Pharmacy & Therapeutics committee. Moreover, the study revealed that, more than half of the study participants do not receive any treatment protocols from the Hospital P&T committee. Additionally, majority of the study participants have not received any feedback from the Hospital P&T committee related to compliance with EDL. According to the study participants, the hospital pharmacists neither inform nor update physicians adequately about the available drugs in the hospital, indicating that the hospital pharmacists are not doing their assigned role in encouraging physicians adequately to prescribe EDL drugs. This point need to be further investigated from the pharmacists working in the study settings. There is a negative perception about the effectiveness of the current hospital Monitoring and Evaluation system, as the majority of the study participants were either uncertain or even declined the existence of monitoring system in the hospital to measure physicians compliance with EDL drugs and treatment protocols. Most of the study participants have not received feedback on their compliance with the current treatment protocols. There is a good level of knowledge about the scientific selection criteria of the EDL. The majority of the study participants considered the quantities of all available drugs in the hospital are not enough. While, only one quarter of the study participants agreed that EDL drugs are of high quality all the time. The study showed that there was a mixture of perception components consisting of positive and negative ones towards the MoH treatment protocols and its contents of EDL drugs.

The findings of the study have shown that the vast majority of the collected in-patient medication sheets are fully compliant with prescribing EDL drugs. Moreover, the vast majority of the collected in-patient medication sheets were written in English language but low level compliance of prescribing drugs by using scientific names was noticed.

5.2. Recommendations

5.2.1. MoH level

1- MoH needs to implement a continuous education and training programs for healthcare staff concerning EDL and treatment protocols. MoH needs to identify training priority areas that physicians need to attain during their work.

2- As the number of hard copies of the MoH EDL is insufficient, MoH needs to disseminate printed and softcopies copies of the EDL and hospital EDL.

3- MoH has to activate the monitoring role of auditing system to improve physicians' compliance with EDL.

4- There is a need to update the MoH EDL and hospital EDL. If MoH decides to update the EDL, it is important to involve more physicians in the updating process.

5- There is a need to incorporate items related to the physicians' compliance with EDL and treatment protocols in the annual performance appraisal.

6- There is a need to improve the communication among health care providers and establish measuring indicators for this communication.

7- MoH needs to strengthen the role of the Central Pharmacy and Therapeutics committees.

8- MoH needs to improve the role of Monitoring and Evaluation directorate to improve compliance to EDL.

5.2.2. General directorate of pharmacy level

1- The General Directorate of pharmacy has to establish regulations for revising the promotional materials used by medical representatives in the promotional activities to assure their scientific credibility and value and being unbiased source of information.

2- The General Directorate of pharmacy has to implement an awareness programs about the shelf life extension program for expired drug and quality control procedures for received medications in the central drug stores for all health staff.

5.2.3. Learning institutions level

1- Academic institutions and universities have to incorporate topics related to the EDL concepts in the curriculum of health related faculties.

2- Academic institutions and universities have to incorporate topics related to quality, management, and communication skills in the curriculum of health related faculties.

5.2.4. Recommendations for further research

1- Conduct more research including both qualitative and quantitative methods to deeply understand hidden factors that might affect physicians' compliance with EDL

2- Conduct research including both qualitative and quantitative methods for specialized governmental hospitals and private hospitals in the GG to assess the physicians' compliance.

3- Conduct comparative studies to compare the physicians' compliance in the GG governmental hospitals with that in the West Bank governmental hospitals.

4- Conduct comparative studies to compare the physicians' compliance in the NGOs and private hospitals with that in the governmental hospitals.

References

Abed, Y. (2007). Joint Report on Health Sector Review (HSR), Palestine.

Abidi, A., Gupta, S., & Kansal, S. (2012). Prescription auditing and drug utilization pattern in a tertiary care teaching hospital of western UP, India. *International Journal of Basic & Clinical Pharmacology*, 1(3): 184-190.

Adams, A., Klepser, M., & Klepser, D. (2015). Physician-pharmacist collaborative practice agreements: a strategy to improve adherence to evidence-based guidelines. *Evidence-based Medicine & Public Health*, 1.

Al-Areefi, M. and Hassali, M. (2013). Physicians' perceptions of medical representative visits in Yemen: a qualitative study. *BioMed Central health services research*, *13*(1), 331. Retrieved June 15, 2016, from http://bmchealthservres.biomedcentral.com/articles/10.1186/1472-6963-13-331.

Afriyie, D. and Tetteh, R. (2014). A description of the pattern of rational drug use in Ghana Police Hospital. *International journal of Pharmacy and Pharmacology*, *3*(1), 143-148. Retrieved June 25, 2016, from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.679.8953&rep=rep1&type=pdf

Akl, O., El Mahalli, A., Elkahky, A., & Salem, A. (2014). WHO/INRUD drug use indicators at primary healthcare centers in Alexandria, Egypt. *Journal of Taibah University Medical Sciences*, *9*(1), 54-64.

Ammar, H. (2015). Exposure and Attitudes of MoH Hospitals' Physicians toward the Marketing Practices of Pharmaceutical Companies in the Gaza Strip. Master Thesis, Islamic university, Gaza.

Asadpour, M., Vazirinejad, R., Esmaeili, A., Bazyar, S., & Fallah, A. (2013). The knowledge, attitude, and practice of physicians and medical students of Rafsanjan University of Medical Sciences, Iran, regarding standard precautions. *Journal of Occupational Health and Epidemiology*, *2*(3), 107-113.

Bansal, D. and Purohit, V. (2013). Accessibility and use of essential medicines in health care: Current progress and challenges in India. *Journal of pharmacology &*

pharmacotherapeutics, 4(1), 13.

Blenkinsopp, A., Bond, C., & Raynor, D. K. (2012). Medication reviews. *British journal of clinical pharmacology*, 74(4), 573-580.

Brand, D. (2015). Attendance at NHS mandatory training sessions. *Nursing Standard*, *29*(24), 42-48.

Cabana, M., Rand, C., Powe, N., Wu, A., Wilson, M., Abboud, P., & Rubin, H. (1999). Why don't physicians follow clinical practice guidelines?: A framework for improvement. *Jama,* 282(15), 1458-1465.

Chedi, B., Abdu-Aguye, I., & Kwanashie, H. (2015). Drug use pattern in out-patient children: A comparison between primary and secondary health care facilities in Northern Nigeria. *African Journal of Pharmacy and Pharmacology*, 9(4), 74-81.

Dabbagh, M. (1997). Palestine our country. Lebanon: Dar El Huda.

De Ferrari, A., Gentille, C., Davalos, L., Huayanay, L., & Malaga, G. (2014). Attitudes and relationship between physicians and the pharmaceutical industry in a public general hospital in Lima, Peru. *PLOS one journal*, *9*(6), e100114

El Mahalli, A. (2012). WHO/INRUD drug prescribing indicators at primary health care centers in Eastern province, Saudi Arabia. *Eastern Mediterranean Health Journal*, *18*(11), 1091.

Fattouh, R. and Abu Hamad, B. (2010). Compliance of Primary health care Physicians with the Palestinian EDL. Master Thesis, Al-Quds University, Gaza.

Fisher, J. (2012). Health Care Industry Focus Group, Blue Paper Series, Mandatory Compliance Programs for Physician Practices, Steps Necessary to Implement an Effective Compliance Program 2012. Retrieved Jan 1, 2015, from http://www.healthlaw-blog.com/wp-content/uploads/2012/09/Mandatory-Compliance-Programs-Physician-Practices.pdf.

García, C., Llamocca, L., García, K., Jiménez, A., Samalvides, F., Gotuzzo, E., & Jacobs, J. (2011). Knowledge, attitudes and practice survey about antimicrobial resistance and prescribing among physicians in a hospital setting in Lima, Peru. *BioMed Central Pharmacology and Toxicology journal*, 11(1), 18. Retrieved June 20, 2016, from http://bmcclinpharma.biomedcentral.com/articles/10.1186/1472-6904-11-18.

Ghaibi, S., Ipema, H., & Gabay, M. (2015). ASHP guidelines on the pharmacist's role in

providing drug information. *The American Journal of Health System Pharmacy*, *72*(7), 573-577.

Goel, R., Bhati, Y., Dutt, H., & Chopra, V. (2013). Prescribing pattern of drugs in the outpatient department of a tertiary care teaching hospital in Ghaziabad, Uttar Pradesh. *Journal of Applied Pharmaceutical Science*, *3*(4), S48.

Gupta S., Nayak R., Vidyarthi S. (2015). A study on the knowledge, attitude, and practice of generic medicines among the doctors in a tertiary care teaching hospital in South India. National Journal of Physiology, Pharmacy and Pharmacology, 5(1):39-44. Retrieved June 22, 2016, from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.678.590&rep=rep1&type=pdf.

Gustafsson, L., Wettermark, B., Godman, B., Andersén-Karlsson, E., Bergman, U., Hasselström, J., & von Bahr, C. (2011). The 'wise list'–a comprehensive concept to select, communicate and achieve adherence to recommendations of essential drugs in ambulatory care in Stockholm. *Basic & clinical pharmacology & toxicology*, *108*(4), 224-233.

Heart, T., Parmet, Y., Pliskin, N., Zuker, A., & Pliskin, J. (2011). Investigating Physicians' Compliance with Drug Prescription Notifications. *Journal of the Association for Information Systems*, *12*(3), 235-254.

Helmons, P., Kosterink, J., & Daniels, C. (2014). Formulary compliance and pharmacy labor costs associated with systematic formulary management strategy. *American Journal of Health-System Pharmacy*, *71*(5).

Hettihewa, L. and Jayarathna, K. (2010). Comparison of the Knowledge in Core Policies of Essential Drug List Among Medical Practitioners and Medical Students in Galle, Sri Lanka. *Online Journal of Health Allied Sciences.* 9(3).

Hinchliffe, A., & Wales, N. (2010). Pharmacist-led medication review for older people in the community setting. *Public Health Wales*. Retrieved August 7, 2016, from https://www2.nphs.wales.nhs.uk/PharmaceuticalPHTDocs.nsf/61c1e930f9121fd080256f2a004937ed/f6c649ae73286dc78025779100324aaf/$FILE/Literature%20review-%20Pharmacist%20led%20medication%20review%20for%20older%20people%20in%20the%20community%20setting.pdf .

Hoffmann, M. (2013). The right drug, but from whose perspective? A framework for analyzing the structure and activities of drug and therapeutics committees. *European journal of clinical pharmacology*, *69*(1), 79-87.

Holland, R., Desborough, J., Goodyer, L., Hall, S., Wright, D., & Loke, Y. (2008). Does pharmacist-led medication review help to reduce hospital admissions and deaths in older people? A systematic review and meta-analysis. *British journal of clinical pharmacology*, 65(3), 303-316.

Holloway, K., Green, T., & World Health Organization. (2003). Drug and therapeutics committees: a practical guide. Retrieved June 20, 2016, from http://apps.who.int/iris/bitstream/10665/68553/1/WHO_EDM_PAR_2004.1.pdf.

Holloway, K., and Henry, D. (2014). WHO essential medicines policies and use in developing and transitional countries: an analysis of reported policy implementation and medicines use surveys. *PLOS one journal*, *11*(9), e1001724.

Horne, R., Weinman, J., Barber, N., Elliott, R., Morgan, M., & Cribb, A. (2005). Concordance, adherence and compliance in medicine taking. *London: NCCSDO*, 40-46.

Human rights watch, (2014).World Report 2014: Israel and Palestine. Retrieved April 7, 2014, from http://www.hrw.org/world-report/2014/country-chapters/israel-and-palestine?page=1-3.

Ingle, P., Patil, P., & Lathi, V. (2015). Study of rational prescribing and dispensing of prescriptions with nonsteroidal anti-inflammatory drugs in orthopedic outpatient department. *Asian Journal of Pharmaceutical and Clinical Research*, *8*(4), 278-281.

Jamtvedt, G., Young, J., Kristoffersen, D., O'Brien, M., & Oxman, A. (2007). Audit and feedback: effects on professional practice and health care outcomes (Review). *The Cochrane Library*, 2. Retrieved August 10, 2016, from http://apps.who.int/rhl/reviews/langs/CD000259ru.pdf.

Kaliyaperumal, K. (2004). Guideline for conducting a knowledge, attitude and practice (KAP) study. *AECS Illumination*, *4*(1), 7-9. Retrieved June 5, 2016, from http://www.birds.cornell.edu/citscitoolkit/toolkit/steps/effects/resource-folder/Guideline%20for%20Conducting%20a%20KAP%20Study%20%28PDF%29.pdf.

Kamal, N., Kamel, E., & Mahfouz, E. (2014). Adverse Drug Reactions Reporting, Knowledge, Attitude and Practice of Physicians towards it in El Minia University Hospitals.

Kar, S., Pradhan, H., & Mohanta, G. (2010). Concept of essential medicines and rational use in public health. *Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine*, *35*(1), 10.

Karbach, U., Schubert, I., Hagemeister, J., Ernstmann, N., Pfaff, H., & Höpp, H. (2011). Physicians' knowledge of and compliance with guidelines: an exploratory study in cardiovascular diseases. *Deutsches Ärzteblatt International*, *108*(5), 61.

Kargar, M., Abootalebi, M., Jahanbin, I., Sharifi, A., & Sharafi, Z. (2016). Knowledge and Attitude about Andropause Among General Physicians in Shiraz, Iran 2014. *International Journal of Community Based Nursing and Midwifery*, *4*(1), 27.

Kenefick, H., Lee, J., & Fleishman, V. (2008). Improving physician adherence to clinical practice guidelines: Barriers and strategies for change. Cambridge, *MA: New England Healthcare Institute.* Retrieved August 5, 2016, from http://www.nehi.net/publications/53- improving-physician-adherence-to-clinical-practice-guidelines/view.

Kaye, A., Okanlawon, O., & Urman, R. (2014). Clinical performance feedback and quality improvement opportunities for perioperative physicians. *Advances in medical education and practice*, 5, 115.

Khan, A., Lateef, N., Khamseen, M., Alithan, M., Khan, S., & Ibrahim, I. (2011). Knowledge, attitude and practice of ministry of health primary health care physicians in the management of type 2 diabetes mellitus: A cross sectional study in the Al Hasa District of Saudi Arabia, 2010. *Nigerian journal of clinical practice*, *14*(1).

Khan, M., & Ara, N. (2011). Promoting rational prescribing among medical practitioners. *Bangladesh Medical Journal*, *40*(2), 6-7.

Kimberlin, C., and Winterstein, A., (2008). Validity and reliability of measurement instruments used in research. *American Journal of Health-System Pharmacy*, *65*(23), 2276-2284.

Mariam, A., Raghavendra, Y., & Bobasa, E. (2015). Evaluating rational drug use with the help of World Health Organization's core indicators in Bule Hora Hospital, Southern

Ethiopia. *Gaziantep Medical Journal*, 21(2), 108-113. Retrieved June 25, 2016, from http://www.scopemed.org/fulltextpdf.php?mno=1206

Martins, S. B., Zin, A., & Zin, W. (2005). Study design in *Anaesthesia, Pain, Intensive Care and Emergency Medicine—APICE* (pp. 719-747). Springer Milan.

Meyer, J. (2004). Conceptual issues in the study of dynamic hazard warnings. *Human Factors: The Journal of the Human Factors and Ergonomics Society*, *46*(2), 196-204.

Millar, T., Wong, S., Odierna, D., & Bero, L. (2011). Applying the essential medicines concept to US preferred drug lists. *American journal of public health*, *101*(8), 1444.

Ministry of Health, (2008). Pharmaceutical care guide in hospitals. General Directorates of hospitals-Gaza.

Ministry of Health, (2012). Pharmacy Annual Report. The Palestinian Health Information System Centre, Gaza.

Ministry of Health, (2013). Annual Report of Hospitals in Gaza, the Palestinian Health Information System Centre, Gaza.

Ministry of Health, (2014). National Health Strategy 2014-2016. Ramallah.

Ministry of Health, (2015). Annual Report of Hospitals in Gaza, the Palestinian Health Information System Centre, Gaza.

Mulwa, N., Osanjo, G., Ndwigah, S., Kaburi, A., & Muriuki, G. (2015). Patterns of Prescribing Practices in Makueni County Referral Hospital, Kenya. *African Journal of Pharmacology and Therapeutics Vol*, *4*(4), 161-168.

Ndukwe, H., Ogaji, J., & Sariem, C. (2013). Drug use pattern with standard indicators in Jos University Teaching Hospital Nigeria.

Oba, K., Morita, S., Rahman, M., & Sakamoto, J. (2006). Factors associated with compliance and non-compliance by physicians in a large-scale randomized clinical trial. *Trials*, *7*(1), 26.

OCHA, (2014). The mission of the United Nations Office for the Coordination of Humanitarian Affairs, (2014). Occupied Palestinian Territory: Gaza Emergency Situation Report. Retrieved April 7, 2015, from https://www.ochaopt.org/documents/ocha_opt_sitrep_04_09_2014.pdf.

Olivier, C., Williams-Jones, B., Doize, B., & Ozdemir, V. (2010). Containing global antibiotic resistance: ethical drug promotion in the developing world. In *Antimicrobial*

resistance in developing countries (pp. 505-524). Springer, New York.

Ossoff R., Thomason, C. (2011). Physician Compliance, Compliance Education for Physicians: Balancing Risk, Benefits, and Effectiveness. *Journal of Health Care Compliance* — September – October 2011.

Palaian, S., Ibrahim, M., & Mishra, P. (2011). Health professionals' knowledge, attitude and practices towards pharmacovigilance in Nepal. *Pharmacy practice organization*, *9*(4), 228-235. Retrieved June 20, 2016, from http://scielo.isciii.es/pdf/pharmacin/v9n4/original5.pdf.

Palestinian Central Bureau of Statistics, (2013a). Statistical year Book of Palestine. Ramallah: Palestine.

Palestinian Central Bureau of Statistics (2013b). National Health Accounts 2011-2012: Main Findings, Ramallah: Palestine.

Palestinian Central Bureau of Statistics, (2014). Retrieved April 7, 2015, from http://www.pcbs.gov.ps/site/881/default.aspx.

PCBS, and MoH, (2015). Palestinian population status in Palestine: Main Findings, Ramallah, Palestine.

Palestinian Central Bureau of Statistics, (2016a). Retrieved March 23, 2016, from http://www.pcbs.gov.ps/site/lang__en/507/default.aspx#H.

PCBS and MoH (2016b), National Health Accounts 2014: Main Findings, Ramallah: Palestine.

Palestinian National Health Sector Strategic Plan-Gaza 2014-2018.

Palestinian Non Governmental Organizations Network, (2009). Priorities and Needs of Health Sector in Gaza Governorates: Consequences of the Long Siege and the Last War on Gaza, Work shop conclusions, February 2009. Gaza, Palestine.

Penm, J., Chaar, B., Dechun, J., & Moles, R. (2013). Formulary systems and pharmacy and therapeutics committees in the Western Pacific Region: exploring two Basel Statements. *American Journal of Health-System Pharmacy*, *70*(11).

Puķīte, M. (2015). Analysis of professional continuing education opportunities in health care. In *society. Integration. Education. Proceedings of the International Scientific Conference* (Vol. 3, pp. 475-483). Retrieved June 25, 2016, from http://journals.ru.lv/index.php/SIE/article/view/713/827.

Prasad, P., Rudra, J., Vasanthi, P., Sushitha, U., Sadiq, M., & Narayana, G. (2015).
Assessment of drug use pattern using World Health Organization core drug use
indicators at Secondary Care Referral Hospital of South India. *CHRISMED Journal of
Health and Research*, *2*(3), 223.

Quet, F., Vlieghe, E., Leyer, C., Buisson, Y., Newton, P., Naphayvong, P., & Jacobs, J.
(2015). Antibiotic prescription behaviours in Lao People's Democratic Republic: a
knowledge, attitude and practice survey. *Bulletin of the World Health Organization*,
93(4), 219-227.

Rajesh, R., Vidyasagar, S., & Varma, D. (2011). An Educational Intervention to assess
Knowledge Attitude Practice of pharmacovigilance among Health care professionals
in an Indian tertiary care teaching hospital. *International journal of pharmtech
research*, *3*(2), 678-692.

Reilly, T., Barile, D., & Reuben, S. (2012). Role of the pharmacist on a general medicine
acute care for the elderly unit. *The American journal of geriatric pharmacotherapy*,
10(2), 95-100.

Sellier, E., Pavese, P., Gennai, S., Stahl, J., Labarère, J., & François, P. (2009). Factors and
outcomes associated with physicians' adherence to recommendations of infectious
disease consultations for inpatients. *Journal of antimicrobial chemotherapy*, dkp406.

Sharma, S., & Gupta, M. (2013). Drug Cost Containment Impact of a Drug Policy on Cost
and Availability of Essential Medicines. *Journal of Health Management*, *15*(4), 525-
534.

Sherman, B. W., Sekili, A., Prakash, S. T., & Rausch, C. A. (2011). Physician-specific
variation in medication adherence among diabetes patients. *The American journal of
managed care*, *17*(11), 729-736.

Sullivan, K., Suh, S., Monk, H., & Chuo, J. (2013). Personalised performance feedback
reduces narcotic prescription errors in a NICU. *BMJ quality & safety*, 22(3), 256-262.

Thriemer, K., Katuala, Y., Batoko, B., Alworonga, J., Devlieger, H., Van Geet, C., & Jacobs,
J. (2013). Antibiotic prescribing in DR Congo: a knowledge, attitude and practice
survey among medical doctors and students. *PLOS One journal*, *8*(2), e55495.

Tyler, L., Cole, S., May, J., Millares, M., Valentino, M., Vermeulen, L., & Wilson, A. (2008).
ASHP guidelines on the pharmacy and therapeutics committee and the formulary

system. *American Journal of Health-System Pharmacy*, *65*(13), 1272-1283. Retrieved June 5, 2016, from

http://s3.amazonaws.com/academia.edu.documents/43203780/1272.full.pdf?AWSAcc essKeyId=AKIAJ56TQJRTWSMTNPEA&Expires=1467729312&Signature=6FZLuf 2euBiKw9OL0AK2RLAn5fY%3D&response-content-disposition=inline%3B%20filename%3DASHP_Guidelines_on_the_Pharmacy_and_ Ther.pdf.

UNRWA, (2014). Brief report to UNRWA: The Gaza Health Sector as of June 2014, Retrieved April 7, 2015, from http://www.unrwa.org/sites/default/files/final_report_-_gaza_health_sector_june-july_2014_-_mads_gilbert_2.pdf.

World Bank, (2014). Gaza: Fact Sheet August 1, 2014. Retrieved April 20, 2015, from http://www.worldbank.org/content/dam/Worldbank/gaza-fact-sheet-final140801-ECR.pdf.

World Health Organization, (1987). Declaration of Alma-Ata. In: *International Conference on Primary Health Care, Alma-Ata, USSR, 6–12 September 1978*. Retrieved June 17, 2014, from http://www.who.int/publications/almaata_declaration_en.pdf.

World Health Organization, (1986). Ottawa Charter for Health Promotion*: First International Conference on Health Promotion: Ottawa, 21 November 1986: WHO/HPR/HEP/95.1*. Retrieved April 4, 2015, from http://www.who.int/healthpromotion/conferences/previous/ottawa/en/index1.html.

World Health Organization, (1993). How to investigate Drugs Use in Health Facilities: Selected Drug Use Indicators - EDM Research Series No. 007". WHO/DAP, Geneva.

World Health Organization, (2002a). Promoting rational use of medicines: core components. WHO policy perspectives on medicines, 5, 1-6.

World Health Organization, (2002b). Policy perspectives on Medicines: *The selection of essential medicines*. Retrieved June 19, 2015, from http://whqlibdoc.who.int/hq/2002/WHO_EDM_2002.2.pdf.

World Health Organization, (2010a). Key components of a well functioning health system, Geneva.

World Health Organization, (2010b). National health accounts. Retrieved June 19, 2015, from http://www.who.int/nha.

World Health Organization, (2010c). The World Health Report: Health Systems Financing, The path to universal coverage, Geneva.

World Health Organization, (2013b). The Selection and Use of Essential Medicines Report of the WHO Expert Committee, WHO technical report series; no. 985, Geneva.

World Health Organization, (2013a). Essential medicines and health products: Essential medicines. Retrieved April 17, 2015, from http://www.who.int/medicines/services/essmedicines_def/en/.

Zeidan, Z. (2015). Knowledge Attitudes and Practices of evidence based medicine among residence doctors in Sudan.

Annex (1): Palestine state map

Annex (2): Gaza Governorates map

http://www.wafainfo.ps/pics/GazaStrip

Annex (3): The governmental hospitals in GG.

N0.	Hospital name	Location	Bed capacity
1	Al-Shifa Medical complex	Middle of Gaza city	619
2	Nasser Medical complex	Middle of Khan Younis city	322
3	European Gaza Hospital	East of Khan Younis city	246
4	Al-Aqsa Martyrs Hospital	Middle of Deir Albalah city	129
5	Al-Naser Pediatrics Hospital	West of Gaza city	132
6	Mohammed Al Najjar Hospital	Middle of Rafah city	80
7	Kamal Odwan Hospital	Middle of Beit lahya city	119
8	Beit Hanon Hospital	Middle of Beit Hanon city	45
9	Mohammed Al Dorrah hospital	East of Gaza city	91
10	Ophthalmic Hospital	Middle of Gaza city	40
11	Al-Helal Al-Emaraty Hospital	West of Rafah city	52
12	Abdelaziz Al Rantisi Hospital	West of Gaza city	55

Table number 2: the governmental hospitals in GG (Source: MoH, 2013)

Annex (4): The study settings

Al-Shifa medical complex

Al Shifa medical complex was established in the year 1946 on an area of 42 thousand meter squares. It is located in the western side of Gaza City. Al Shifa Medical complex consists of four hospitals with different medical specialties including medical, surgical, and Obstetric and genecology services with a total beds capacity of 619 beds. In 2013, the total number of admitted cases was 62046 cases; bed occupancy rate was 107%, bed residency rate was 2.9 days (MoH, 2013).

Al-Aqsa hospital

Al Aqsa Hospital was established in 2001 on an area of 4 thousand meter squares. It is located in the middle side of Deir El balah City. Al Aqsa hospital provides different medical specialties including medical, surgical and Obstetric and genecology services with a total beds capacity of 129 beds. In 2013, the total number of admitted cases was 15053 cases; bed occupancy rate was 79%, bed residency rate was 4.7days (MoH, 2013).

Nasser medical complex

Nasser medical complex was established in 1960 on an area of 18.4 thousand meter squares; it is located in the western side of Khan Yonis City. Nasser Medical complex consists of three hospitals with different medical specialties including medical, surgical, and Obstetric and genecology services with a total beds capacity of 322 beds. In 2013, the total number of admitted cases was 32428 cases; bed occupancy rate was 80.4%, bed residency rate was 2.8 days (MoH, 2013).

European Gaza hospital

European Gaza Hospital (EGH) was established in 1999 on an area of 65 thousand meter squares. Located in the eastern side of Khan Yonis City, EGH provides different medical specialties including medical and surgical services with a total beds capacity of 246 beds. In 2013, the total number of admitted cases was 17648 cases; bed occupancy rate was 82.4%, bed residency rate was 4.33 days (MoH, 2013).

Kamal Odwan hospital

Kamal Odwan Hospital was established in 2002 on an area of 2.5 thousand meter squares. Located in the eastern side of Beit Lahya City, the hospital provides different medical specialties including medical, surgical, and Obstetric and genecology services with a total beds capacity of 119 beds. In 2013, the total number of admitted cases was 10866 cases; bed occupancy rate was 83%, bed residency rate was 3.2 days (MoH, 2013).

Annex (5): Self administered questionnaire

حضرة الأخ الزميل الدكتور/ .... المحترم

تحية طيبة و بعد

يطيب لي أن أتقدم لسيادتكم بجزيل الشكر و التقدير على مشاركتكم في البحث العلمي الخاص بي و يسعدني أن أضع بين ايديكم الإستبانة التي صممت بهدف جمع المعلومات اللازمة للتعرف على مدى التزام أطباء المستشفيات الحكومية في قطاع غزة بوصف قائمة الأدوية الأساسية و الذي أقوم به كمساق بحثي ضمن خطة دراستي لنيل درجة الماجستير في الإدارة الصحية من كلية الصحة العامة في جامعة القدس أبو ديس.

يحتوي كل سؤال من الإستبانة على عدة خيارات للاجابة, يرجى اختيار الاجابة التي تراها أقرب لرأيك و ممارساتك الواقعية في العمل, مع الملاحظة أنه لا توجد اجابات خاطئة و أخرى صحيحة. و أن المشاركة في هذا البحث تطوعية و لك الحق في الانسحاب متى شئت.

تستغرق تعبئة الاستبيانة من 10 الى 15 دقيقة من وقتكم الثمين و نستميح سيادتكم على هذه المدة مع التأكيد على أن المعلومات الواردة في الإستبانة تعتبر سرية و لن يكون لها أية أستخدامات أخرى خارج نطاق الدراسة و أن نتائج هذه الدراسة سوف تقدم لوزارة الصحة كمقترح لتطوير العمل بما يحقق تحسين جودة الخدمة المقدمة في وزارة الصحة.

و تفضلوا بقبول فائق الإحترام و التقدير

الباحث

أحمد عبد الماجد صالح الخضري

1.	**التاريخ:** ..../......../2015م	**رقم مسلسل:** (...................)	

2.	**المستشفي:**	□ الشفاء	□ ناصر	□ الأوروبي	□ كمال عدوان	□ الأقصى

3. الدرجة العلمية: (يمكن اختيار اكثر من واحدة)

□ طب عام (بكالوريوس) □ دبلوم عالي □ ماجستير □ دكتوراه □ بورد/ زمالة

□ اخرى حدد /.........................

4. التخصص: □ باطنة □ جراحة □ أطفال □ نساء ولادة □ حروق □ عناية مركزة

5. عدد سنوات العمل بالمستشفى: (..........) عام

6. إجمالي عدد سنوات العمل في جميع المستشفيات: (..........) عام

7. المسمى الإشرافي: □ مدير دائرة □ رئيس قسم □ رئيس شعبة □ بلا مسمى إشرافي

8. العمل الخاص خارج الوزارة:

□ عيادة خاصة □ عيادة في جمعية او مستشفي □ تدريس جامعي □ لا يوجد □ أخرى حدد/ ....

9. منذ متى تعمل في القطاع الخاص : (.................) سنة

10. حسب معرفتك هل **يوجد** في وزارة الصحة **قائمة أدوية أساسية** خاصة بالخدمات الصحية المقدمة فيها:

□ نعم □ لا □ لا أدري

11. حسب معرفتك هل **يوجد لكل مستشفي** قائمة أدوية أساسية خاصة بخدماتها الصحية: □ نعم □ لا □ لا أدري

12. هل **حصلت على تدريب** على محتويات قائمة الأدوية الاساسية خلال عملك بالوزارة: □ نعم □ لا

13. سنة الحصول على التدريب: ,إن وجد (.............) م

14. حسب معرفتك هل **يتم تحديث** قائمة الأدوية الأساسية الخاصة بالوزارة: □ نعم □ لا □ لا أدري

15. تحصل على تحديثات قائمة الأدوية الاساسية **الخاصة بالوزارة** بشكل منتظم:

□ ربع سنوي □ سنوي □ كل سنتين □ لا أحصل على تحديثات

16. تحديث قائمة الأدوية الأساسية الخاصة **بالوزارة** يتم بواسطة:

□ لجنة مركزية بالوزارة فقط □ لجنة مركزية مع لجان فرعية □ لجنة موسعة على مستوى الوطن □ لا أعرف

17. تحصل على تحديثات قائمة الأدوية الاساسية **الخاصة بالمستشفى** بشكل منتظم:

□ ربع سنوي □ سنوي □ كل سنتين □ لا أحصل على تحديثات

18. اعداد قائمة الأدوية الأساسية الخاصة **بالمستشفى** يتم بواسطة:

□ لجنة الصيدلة و العلاجيات **المركزية** □ لجنة الصيدلة و العلاجيات **بالمستشفى** □ المدير الطبي □ الصيدلية □ لا أعرف

19. تحديث قائمة الأدوية الأساسية الخاصة **بالمستشفى** يتم بواسطة:

□ لجنة الصيدلة و العلاجيات **المركزية** □ لجنة الصيدلة و العلاجيات **بالمستشفى** □ المدير الطبي □ الصيدلية □ لا أعرف

20. شاركت في **اعداد** قائمة الأدوية الأساسية الخاصة بـ: □ الوزارة □ المستشفى □ كلاهما □ لم أشارك

21. شاركت في **تحديث** قائمة الأدوية الأساسية الخاصة بـ : □ الوزارة □ المستشفى □ كلاهما □ لم أشارك

22. يوجد لديك **نسخة** من قائمة الادوية الاساسية الخاصة **بالوزارة** :

□ ورقية □ إلكترونية □ نسخة ورقية + إلكترونية □ لا يوجد

23. يوجد لديك **نسخة** من قائمة الادوية الاساسية **الخاصة بالمستشفى** :

□ ورقية □ إلكترونية □ ورقية + إلكترونية □ لا يوجد

المؤشر	معارض بشدة	معارض	لا أدري / محايد	موافق	موافق بشدة
محور قائمة الأدوية الأساسية (ما هو رأيك في الجمل التالية)					
24. وجود قائمة الأدوية الأساسية ضروري لتقديم خدمة صحية توصف بالعادلة					
25. وجود قائمة الأدوية الأساسية ضروري لتقديم خدمة صحية ذات جودة عالية					
26. وجود قائمة الأدوية الأساسية يقلل من هدر الموارد المالية المخصصة للأدوية					
27. وجود قائمة الأدوية الأساسية يقلل من الضرر الذي قد يصيب المريض					
28. معايير اختيار الأصناف ضمن قائمة الأدوية الأساسية معايير علمية و صحيحة					
29. يجب أن تشتمل قائمة الأدوية الأساسية جميع الأدوية التي قد يحتاجها المريض					
30. قائمة الأدوية الأساسية تلبي أغلب الاحتياجات اللازمة لوصف العلاج في العمل					
31. في عملي أحتاج أدوية ليست ضمن قائمة الأدوية الاساسية المتوفرة بالمستشفى					
32. دائما أنصح المريض بشراء دواء من الصيدليات الخاصة بدلا من الدواء الموجود في قائمة الأدوية الأساسية					
33. في حالة حدوث نقص في بعض الأدوية أطلب من المريض شراء الدواء					
محور البروتوكولات العلاجية للأدوية المدرجة ضمن قائمة الأدوية الاساسية (ما هو رأيك في الجمل التالية)					
34. الأدوية المذكورة في البروتوكولات العلاجية المعمول بها بالمستشفى مناسبة					
35. البروتوكولات العلاجية المعمول بها بالمستشفى تحتاج الى تحديث					
36. البروتوكولات العلاجية الموجودة بالمستشفى ملزمة لي خلال العمل					
37. تقوم الصيدلية بحث الطبيب للإلتزام بالبروتوكولات العلاجية المعتمدة بالمستشفى					
38. الإلتزام بالبروتوكولات العلاجية المعتمدة بالمستشفى يقلل من التكلفة المالية للخدمة					
39. الأدوية الموجودة في البروتوكولات العلاجية أقل فاعلية من الأدوية الأخرى					
محور التدقيق و المراقبة و المتابعة (ما هو رأيك في الجمل التالية)					
40. يوجد في المستشفى نظام متابعة و تدقيق لمعرفة مدى التزام الطبيب بوصف أصناف قائمة الأدوية الأساسية					
41. يوجد في المستشفى نظام متابعة و تدقيق لمعرفة مدى التزام الطبيب بالبروتوكولات					
42. نظام المتابعة و التدقيق الموجود بالمستشفى فعال و ذو كفاءة					
43. يوجد بالمستشفى مؤشرات لقياس مدى إلتزام الأطباء بالبروتوكولات العلاجية					
44. يتم تزويدك بتغذية راجعة عن مدى إلتزامك بالبروتوكولات العلاجية					
45. إلتزامك بوصف الأدوية حسب البروتوكولات العلاجية يؤثر على التقييم السنوي لأدائك الوظيفي					
46. تقوم إدارة الرقابة الداخلية بالوزارة بالتدقيق على الأدوية التي اقوم بوصفها للمرضى					

موافق بشدة	موافق	لا أدري / محايد	معارض	معارض بشدة	المؤشر	
					معايير إختيار أصناف الأدوية ضمن قائمة الأدوية الأساسية تشمل:	
					رأي المريض في العلاج	47.
					نشاط شركات الأدوية و مندوبي الدعاية الطبية	48.
					القرارات السياسية	49.
					تكلفة العلاج	50.
					فعالية العلاج للإستخدام	51.
					أمان العلاج للإستخدام	52.
					جودة العلاج	53.
					توفر العلاج في السوق المحلية	54.
					أن يحتوي الدواء مادة فعالة واحدة و ليس مجموعة من المواد	55.
					يعتمد على الأمراض الأكثر إنتشاراً في البلد	56.

57.	**تقوم بإبلاغ صيدلية المستشفى بقائمة الأدوية الاساسية التي تحتاجها لعلاج المرضى خلال عملك بالمستشفى:**
	□ دائما □ أحيانا □ لا أبلغ أحد
58.	**يوجد في العمل بروتوكولات علاجية معتمدة و مكتوبة:**
	□ نعم □ لا □ لا أعرف
59.	**حدد مكان وجود البروتوكولات العلاجية إن وجدت :**
	□ في مكتبة المستشفى □ في القسم □ في الصيدلية □ لا اعرف □ أخرى حدد/ ....
60.	**مصدر البروتوكولات العلاجية الموجودة بالمستشفى هو:**
	□ الوزارة □ مدير المستشفى □ لجنة الصيدلة و العلاجيات □ كتب و مراجع علمية □ لا أعرف
61.	**يتوفر لديك رقم هاتف صيدلية المستشفى:**
	□ الداخلية فقط □ الخارجية فقط □ الداخلية و الخارجية □ لا أحدا
62.	**تقوم الصيدلية بإبلاغك بالأدوية المتوفرة بالمستشفى بشكل:**
	□ يومي □ اسبوعي □ شهري □ لا أحصل على معلومات
63.	**في حالة عدم توفر بعض الأدوية تقوم الصيدلية بإبلاغك بالبدائل المتاحة لديهم:**
	□ دائما □ أحيانا □ لا
64.	**في حالة كتابتك لأدوية من خارج القائمة الأساسية تقوم الصيدلية بالإتصال بك و ذكر البدائل المتاحة:**
	□ دائما □ أحيانا □ لا
65.	**تقوم الصيدلية بحثك و تشجيعك على التقيد بوصف الأدوية المدرجة في قائمة الأدوية الأساسية:**
	□ دائما □ أحيانا □ لا
66.	**تستجيب لطلب الصيدلية بكتابة الدواء المتوفرة ضمن قائمة الأدوية الأساسية:**
	□ دائما □ أحيانا □ لا

67.	**تقوم إدارة المستشفى بحثك و تشجيعك على التقيد بوصف الأدوية المدرجة في قائمة الأدوية الأساسية:**			
	☐ دائما	☐ أحيانا	☐ لا	

68. **في حال كنت بحاجة لمعلومة دوائية مستعجلة تخص الدواء تقوم بالإستعانة بـ:**

☐ صيدلي من المستشفى   ☐ صيدلي مندوب دعاية طبية   ☐ زميل

☐ أقرأ في مرجع علمي   ☐ INTERNET   ☐ مصدر نخر حدد/...................

69. **تقوم المستشفى بتنظيم محاضرات تنشيطية خاصة بقائمة الأدوية الأساسية:**

☐ نعم   ☐ لا   ☐ لا أعرف

70. **تشارك في المحاضرات التنشيطية الخاصة بقائمة الأدوية الأساسية:**

☐ دائما   ☐ أحيانا   ☐ لا

71. **يقوم الصيادلة بمناقشتك بما يخص الدواء خلال اللقاء الصباحي:**

☐ دائما   ☐ أحيانا   ☐ لا   ☐ لا يشارك الصيادلة في اللقاء الصباحي

72. **يوجد في المستشفى لجنة صيدلة و علاجيات:**

☐ نعم   ☐ لا   ☐ لا أعرف

73. **يصلك من لجنة الصيدلة و العلاجيات بروتوكولات علاجية معتمدة و مكتوية تنسجم مع EDL الخاصة بالوزارة :**

☐ دائما   ☐ أحيانا   ☐ لا

74. **تصلك البروتوكول العلاجية بتعميمات مكتوية من الإدارة لحثك على الإلتزام بها:**

☐ نعم   ☐ لا   ☐ لا أعرف

75. **تقوم لجنة الصيدلة و العلاجيات بتنفيذ برنامج تدريب مستمر يخص قائمة الأدوية الأساسية بالمستشفى:**

☐ دائما   ☐ أحيانا   ☐ لا   ☐ لا اعرف

76. **تقوم لجنة الصيدلة و العلاجيات بمراجعتك في حالة عدم إلتزامك بوصف الأدوية المذكورة في البروتوكول العلاجي:**

☐ دائما   ☐ أحيانا   ☐ لا

77.	**يتوفر في صيدلية المستشفى الأدوية التي تقوم بوصفها:**	☐ دائما	☐ أحيانا	☐ لا
78.	**الأدوية التي توصفها للمرضى بالمستشفى تتوفر :**	☐ جميعها	☐ بعضها	☐ لا تتوفر مطلقا
79.	**الدواء المتوفر في المستشفى ذو جودة عالية:**	☐ دائما ☐ أحيانا	☐ لا	☐ لا أعرف

80. **الدواء المتوفر بالمستشفى مناسب للحالات المرضية التي تقوم بمعالجتها و متابعتها:**

☐ دائما   ☐ أحيانا   ☐ لا   ☐ لا أعرف

81. **يصلك من الرقابة الداخلية ملاحظات عن مدى إلتزامك بوصف الأدوية من ضمن قائمة الأدوية الأساسية:**

☐ نعم   ☐ لا   ☐ لا أعرف

82.	**يزورك مندوبو الدعاية الطبية أثناء العمل (بالمستشفى و خارجها):**	☐ نعم	☐ لا
83.	**عدد مرات زيارة مندوبي الدعاية الطبية لك شهريا:**	(............) زيارة	
84.	**متوسط مدة زيارة مندوبي الدعاية الطبية لك :**	(............) دقيقة	

البيانات الشخصية:	
85. **الجنس:**	☐ ذكر ☐ أنثي

86.	العمر :	(..........) سنة

87.	الحالة الإجتماعية:	□ أعزب	□ متزوج	□ ارمل	□ مطلق

88.	مكان السكن:(المحافظة)	□ شمال غزة	□ غزة	□ المحافظات الوسطى	□ خانيونس	□ رفح

89. إذكر أصناف أدوية من خارج قائمة الأدوية الأساسية تعتقد بضرورة إضافتها لها :

6-...   1-..

7-...   2-..

8-...   3-..

9-...   4-..

10-..   6-..

90. ما هي الأسباب التي تدفعك لوصف أدوية من خارج قائمة الأدوية الاساسية

1-...

2-...

3-...

4-...

5-...

مع تحيات الباحث: أحمد عبد الماجد صالح الخضري

Annex (6): Observational checklists

<div dir="rtl">

قائمة فحص نماذج المبيت و الخروج و الإستقبال و الطوارئ

التاريخ: ..../......../2015م

المستشفى:	□ الشفاء	□ ناصر	□ الأقصى	□ الأوروبي	□ عدوان
نوع النموذج:	□ Cardex		□ خروج مريض مبيت		□ إستقبال و طوارئ

رقم وصفة	الأصناف		التصنيف	
	....	....		EDL
	....	....		NEDL
	....	....		GENERIC
	....	....		NON GENERIC
	....	....		EDL
	....	....		NEDL
	....	....		GENERIC
	....	....		NON GENERIC
	....	....		EDL
	....	....		NEDL
	....	....		GENERIC
	....	....		NON GENERIC
	....	....		EDL
	....	....		NEDL
	....	....		GENERIC
	....	....		NON GENERIC
	....	....		EDL

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NEDL		…………………………………	…………………………………	
GENERIC		…………………………………	…………………………………	
NON GENERIC		…………………………………	…………………………………	
EDL		…………………………………	…………………………………	
NEDL		…………………………………	…………………………………	
GENERIC		…………………………………	…………………………………	
NON GENERIC		…………………………………	…………………………………	
EDL		…………………………………	…………………………………	
NEDL		…………………………………	…………………………………	
GENERIC		…………………………………	…………………………………	
NON GENERIC		…………………………………	…………………………………	
EDL		…………………………………	…………………………………	
NEDL		…………………………………	…………………………………	
GENERIC		…………………………………	…………………………………	
NON GENERIC		…………………………………	…………………………………	
EDL		…………………………………	…………………………………	
NEDL		…………………………………	…………………………………	
GENERIC		…………………………………	…………………………………	
NON GENERIC		…………………………………	…………………………………	
EDL		…………………………………	…………………………………	
NEDL		…………………………………	…………………………………	
GENERIC		…………………………………	…………………………………	
NON GENERIC		…………………………………	…………………………………	

EDL		....	....
NEDL		....	....
GENERIC		....	....
NON GENERIC		....	....
EDL		....	....
NEDL		....	....
GENERIC		....	....
NON GENERIC		....	....
EDL		....	....
NEDL		....	....
GENERIC		....	....
NON GENERIC		....	....
EDL		....	....
NEDL		....	....
GENERIC		....	....
NON GENERIC		....	....
EDL		....	....
NEDL		....	....
GENERIC		....	....
NON GENERIC		....	....

إسم من قام بالتعبئة: .... **ملاحظة:**

تسجل النماذج التي تحتوي على أدوية واضحة الخط فقط

Annex (7): List of experts

No.	Name	Position
1.	Dr. Bassam Abu Hamad	School of public Health Al Quds University
2.	Dr. Yahia Abed	School of public Health Al Quds University
3.	Dr. Abdleaziz Thabet	Al Quds University
4.	Dr. Lamees Abu Haloob	Ministry of health
5.	Dr. Methkal Hassona	Ministry of health
6.	Dr. Majeda Al-Kishawi	Ministry of health
7.	Dr. Na`el Skaik	Ministry of health
8.	Dr. Shereen Ayyub	Ministry of health
9.	Dr. Jehad Okashah	Ministry of health
10.	Dr. Khaled Abu Samaan	Ministry of health
11.	Dr. Abdennaser Abu Jaser	UNRWA
12.	Dr. Issa Saleh	UNRWA
13.	Dr. Sanaa Abu Dakka	Islamic University

Annex (8): Helsinki approval

المجلـس الفلسطيـني للبحـث الصحـي
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: 03\08\2015   Number: PHRC/HC/46 /15

Name: الاسم: أحمد عبد الماجد الخضري

We would like to inform you that the   نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم
committee had discussed the proposal of
your study about: حول:-

Assessment of Physicians' Compliance with Essential Drug List at Governmental Hospitals- Gaza Governorates

The committee has decided to approve   و قد قررت الموافقة على البحث المذكور عاليه
the above mentioned research.   بالرقم والتاريخ المذكوران عاليه
Approval number PHRC/HC/46 /15 in its
meeting on 03/08/2015

Signature

Member   Member

Chairman

Genral Conditions:-   Specific Conditions:-

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

The subject was approved following the World Medical Association Declaration of Helsinki-Ethical principles for medical research involving human subjects, adopted by the 18th World Medical Association General Assembly, Helsinki, Finland, June 1964 and amended by the 59th WMA General Assembly, Seoul, Korea, October 2008.

E-Mail:pal.phrc@gmail.com

Gaza - Palestine   غزة - فلسطين
                                            شارع النصر - مفترق العيون

137

Annex (9): MoH approval

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The Palestinian National Authority

Ministry of Health

Directorate General of Human Resources Development

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السـلطة الوطنية الفلسطينيـة

وزارة الصحـة

الإدارة العامـة لتنمية القـوى البشـريـة

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التاريخ:2015/07/14م

الرقم :...........

الأخ / د. عبد اللطيف الحاج

المحتـرم،،،

مدير عام المستشفيات

السلام عليكم ورحمة الله وبركاته،،،

الموضوع/ تسهيل مهمة باحث

بخصــوص الموضـوع أعــلاه، يرجـي تسـهيل مهمـة الباحـث/ <u>أحمـد عبـد المَاجـد الخضـري</u>

الملتحـق ببرنـامج ماجسـتير الصـحة العامـة– مسـار الإدارة الصـحية – جامعـة القـدس فـي

إجراء بحث بعنوان :-

"Assessment of Physicians Compliance with Essential Drug List at Governmental Hospitals – Gaza Governorates"

حيث الباحث بحاجة لتعبئة نموذج ملاحظة من الملفات الطبية للمرضى وتذاكر الاستقبال ونماذج الوصفات

الطبية، وكذلك تعبئة استبانه من عدد من الأطباء العاملين في مستشفيات قطاع غـزه الحكوميـة, بمـا لا

مصلحة العمل وضمن أخلاقيات البحث العلمي، و دون تحمل الوزارة أي أعباء أو مسئولية.

وتفضلوا بقبول التحية والتقدير،،،

د. ناصر رأفت أبو شعبان

مدير عام تنمية القوى البشرية
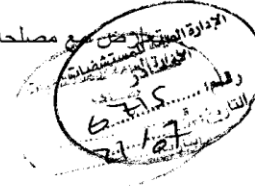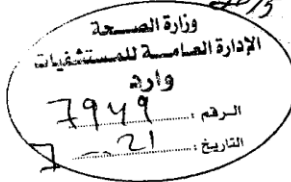
صورة لـ/

– الإدارة العامة للرقابة الداخلية

– صاحب العلاقة

Abstract in Arabic

تقييم مدى إلتزام الأطباء بوصف الأدوية المدرجة ضمن قائمة الأدوية الأساسية في المستشفيات الحكومية في محافظات قطاع غزة

اعداد الباحث / أحمد عبد الماجد صالح الخضري

اشراف/ د. ختام أبو حمد

ملخص الدراسة:

يعـرف إلتـزام الأطبـاء بوصـف قائمـة الأدويـة الأساسـية الخاصـة بالمؤسسـة الصـحية بمـدى تطـابق سـلوك الطبيـب بكتابـة الأدويـة فـي الوصـفة الطبيـة مـع توصـيات وزارة الصـحة ذات العلاقـة بقائمـة الأدويـة الأساسـية. و تشـمل موانـع الإلتـزام بوصـف أدويـة قائمـة الأدويـة الأساسـية عـدم وجـود الوقـت الكـافي للطبيـب خـلال جلسـته مـع المـريض وعـدم وجـود المعرفـة والـوعي الكـافي لـدى الأطبـاء بمحتويـات و أهميـة هـذه القائمـة بالإضافـة الـى عـدم وجـود دليـل علاجـي معتمـد مكتـوب لإرشـاد الأطبـاء. ويمثـل الإنفـاق علـى الصـحة واحـدة مـن أكبـر أجـزاء الإنفـاق عالميـا، و علـى مسـتوى العـالم يـتم إنفـاق مـا يزيـد عـن ثـلاث تريليونـات دولار أمريكـي علـى الصـحة سـنويا. و فـي أحـد التقـديرات المتحفظـة يـتم إهـدار مـا معدلـه 20-40٪ مـن المـوارد الصـحية، و تمثـل الأدويـة أحـد الثلاثـة بنـود الأكثـر شـيوعا فـي الإهـدار وعـدم كفـاءة النظـام الصـحي و قصـوره عـن تقـديم الخـدمات المطلوبـة منـه. و يمكـن أن يكـون قصـور أداء النظـام الصـحي بسـبب الإنفـاق غيـر الكـافي علـى الخـدمات الصـحية أو الإنفـاق الزائـد غيـر المبـرر. و يعتبـر سـلوك الأطبـاء فـي وصـف الأدويـة بصـورة غيـر رشـيدة لـه تـأثير سـلبي علـى المـوارد الطبيـة و يـؤدي إلـى التكـاليف الماليـة الزائـدة غيـر المبـررة، فضـلا عـن الآثـار الصـحية غيـر المرغـوب فيهـا علـى المرضـى. و يعـد تعزيـز الاسـتخدام الرشـيد للمـوارد الدوائيـة المتاحـة مـن المـداخلات التـي يمكنها توفير ما يصل الى 5٪ من إجمالي النفقات الصحية للبلدان.

ضـمن السـياق الـذي تعيشـه فلسـطين، تعتمـد السـلطة الوطنيـة الفلسـطينية اعتمـادا كليـا علـى التمويـل مـن الجهـات المانحـة و فـي نفـس الوقـت فـإن الحصـار الإسـرائيلي المسـتمر والاحـتلال قـد أضـعفا النظـام الصـحي الفلسـطيني حيـث وصـل مخـزون الأدويـة لـدى مسـتودعات الأدويـة المركزيـة بالـوزارة فـي المحافظـات الجنوبيـة الـى أدنـى مسـتوى مـن الـنقص الـذي لـم يسـبق لـه مثيـل.

الهدف من الدراسة:

الهـدف العـام مـن هـذه الدراسـة هـو تقيـيم مـدى إلتـزام الأطبـاء العـاملين فـي مستشـفيات وزارة الصـحة بوصف الأدوية من قائمة الأدوية الأساسية المعتمدة لدى الوزارة.

منهجية الدراسة:

الدراسـة عبـارة عـن دراسـة وصـفية تحليليـة شـملت البيانـات الكميـة. تـم جمـع البيانـات بإسـتخدام أربعـة أدوات أولاهـا إسـتبانة يـتم تعبئتهـا بواسـطة الأطبـاء بالإضـافة الـى ثلاثـة قـوائم فحـص تخـتص بتـدوين

الأدوية التي قام الأطباء بوصفها في تذاكر الإستقبال و الطوارئ و تذاكر المرضى المنومين و تذاكر خروج المرضى المنومين بالمستشفيات. في المجموع، تم جمع 296 استبانة ذاتية التعبئة من الأطباء، 1098 تذكرة مريض منوم و 1595 تذكرة قسم استقبال و طوارئ، و 1226 تذكرة خروج مريض منوم. تم تحليل البيانات باستخدام برنامج الحزمة الإحصائية للعلوم الاجتماعية (SPSS) حيث أجريت التوزيعات، الترددات والنسب المئوية، الجداول، كما حسبت النسب المئوية المتوسطة والعامة وجداول المتقاطعة و تم استخدام Chi-Square لإيجاد العلاقات بين المتغيرات.

أهم النتائج:

وأظهرت نتائج الدراسة أن متوسط عدد الأدوية التي توصف في تذاكر دواء المرضى المنومين بلغت معدل 5.21 دواء في كل نموذج، والغالبية العظمى من هذه النماذج (78٪) كانت متوافقة تماما مع قائمة الأدوية الأساسية الخاصة بوزارة الصحة. وبلغ متوسط عدد الأدوية التي تم وصفها في تقارير قسم الإستقبال و الطوارئ معدل 2.17 دواء لكل تقرير، و ثلث هذه التقارير (31٪) كانت متوافقة تماما مع قائمة الأدوية الأساسية الخاصة بوزارة الصحة. وبلغ متوسط عدد الأدوية التي وصفت في تقارير خروج المرضى المنومين معدل 3 أدوية لكل تقرير، و ما يقرب من ثلث هذه التقارير (31٪) كانت متوافقة تماما مع قائمة الأدوية الأساسية الخاصة بوزارة الصحة.

وقد أظهرت نتائج الدراسة أن مستوى معرفة الأطباء المشاركين فيها عن قائمة الأدوية الأساسية الخاصة بالوزارة و قائمة الأدوية الخاصة بالمستشفى وعملية تحديثهما ليست عالية. ومع ذلك، هناك موقف إيجابي بين الأطباء حول قائمة الأدوية الأساسية و فائدتها. واتفق غالبية المشاركين في الدراسة على أهمية قائمة الأدوية الأساسية لتوفير خدمات صحية عادلة، لتقديم خدمات صحية ذات جودة، للحد من هدر في الموارد المالية، للحد من حدوث ضرر للمريض، و أجمعوا على حقيقة أن اختيار الأدوية المدرجة قائمة الأدوية الأساسية يتم على أسس علمية. و قد أظهرت النتائج أن غالبية المشاركين في الدراسة ليسوا على تواصل مع صيادلة المستشفى بشكل صحيح ولا يستجيبون لتوصيات الصيادلة الخاصة بتعزيز وصف الأدوية من قائمة الأدوية الأساسية. وكشفت نتائج الدراسة أن إدارة المستشفى لا تمارس دورها بكفاءة في تشجيع الأطباء للإلتزام بوصف أدوية قائمة الأدوية الاساسية.

الخلاصة:

هناك حاجة ماسة الى إجراء المزيد من الدراسات والأبحاث، بما في ذلك الابحاث ذات الطابع الكمي بالإضافة الى الأبحاث النوعية ذات الفهم عميق لجميع العوامل ذات الصلة التي قد تؤثر على مدى إلتزام الأطباء بوصف قائمة الأدوية الاساسية. وهناك أيضا حاجة لإجراء البحوث والدراسات المماثلة في المستشفيات الحكومية أحادية التخصص و كذلك المستشفيات الخاصة.

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