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Assessment of Drug Use in Bethlehem District Public Primary Health Care Clinics

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Assessment of Drug Use in Bethlehem District Public Primary Health Care Clinics

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Dedication

To the spirit of my dear mother, God bless her.

To my lovely husband Mousa

To my father and brothers Sami, Nader, Adeeb, Basheer and their families, to all whom I love I dedicate this work.

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 part of the same material-has not been submitted for a higher degree to any other university or institution.

Signed:

Liana S. Hadweh Haddad

Date: 22-5-2010

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Abstract

This is a cross-sectional prospective study of drug use that was conducted in 10 Ministry of Health primary health care facilities in the year 2009 at Bethlehem PHC district area.

The aim of the study was to assess essential drugs availability, prescribing and dispensing processes as practiced at governmental primary health care facilities at Bethlehem district.

A quantitative approach using the “WHO drug use indicators” in a form of standardized structured WHO indicator forms was employed for collecting the sought data.

In Bethlehem district, there are 17 governmental primary care facilities. Five of them are clinics shared with other non-governmental health provider, and two of them are mobile clinics. These shared and mobiles clinics were excluded from the study. The remaining 10 governmental primary clinics were the population of the study .In each the health facilities, 30 prescribing encounter forms were prospectively selected and 30 patients care forms were prospectively obtained ,except for the central clinic, the Al-Markazia clinic which is the major primary clinic in Bethlehem district, where 60 prospectively selected prescribing encounter forms and 60 patients care forms were obtained. In total 330 client/provider encounters were studied. The distributions of the participants by sex were (60%) females and (40%) were males.

The results of the study showed that average number of drugs prescribed per encounter was tow drugs; all drugs were prescribed by brand names; the percentage of encounter with an antibiotic prescription was relatively high (34 %) especially for children under 5 years of age; the percentage of encounters with an injection prescribed was rather low (3 %); but the percentage of drugs prescribed from essential drugs list was very high (100%).

Average consultation time was (3.9) minutes; the average dispensing time was very short (65) seconds; the percentage of drugs actually dispensed was high (90%); percentage of drugs adequately labeled was only (27%); and patients` knowledge of correct dosage was high (92%).

Availability of a copy of Essential Drugs List in the studied clinics was (70%); and a high availability of key drugs (95%).

As for the physical conditions of the pharmacies in the studied clinics; the percentage of pharmacies with adequate space was (40%); the percentage of pharmacies with adequate shelves was (40%); only one of the clinics had adequate cooling (air-conditioning) system; none of the pharmacies had drug stores; and only in (30%) of the health facilities, the drug dispenser is a pharmacist.

The study recommends improving rational drug and antibiotic uses; improve using the generic names of drugs through guidelines and proper training for health personal, more education for patients on rational drug use. The study also recommends improving the physical setting of the health facilities as well as using computerized drugs management system and link that system with the central stores in order to improve the availability and the efficiency of drugs. The study suggests that clinic pharmacies should have separate and independent space with adequate drug storage and handling conditions, and pharmacies should be managed by a responsible pharmacist only.

Finally, the study suggests conducting similar studies at the other districts or other sectors/providers and also in Gaza, to allow for comparison studies between the districts and between areas.

ملخص الدراسة

هذه الدراسة طبقية منظورة للنمط الحالي لاستعمال الأدوية في القطاع الصحي الحكومي في محافظة بيت لحم، وقد اجريت هذه الدراسة في عشرة مرافق من مرافق الرعاية الصحية الأولية الحكومية في العام 2009.

الهدف من الدراسة كان تقييم توفر الأدوية الحيوية، وتقييم قواعد وتطبيقات وصف وصرف الأدوية في تلك المرافق. وقد وظفت مؤشرات منظمة الصحة العالمية لأستخدام الأدوية "الأستمارات المعيارية لأستخدام الأدوية الصادرة عن منظمة الصحة العالمية" لجمع البيانات في هذه الدراسة الكمية المقاربة.

يوجد في محافظة بيت لحم سبعة عشر عيادة صحة اولية حكومية وقد تم استثناء خمسة عيادات منها بسبب مشاركتها مع جهات صحية اخرى غير حكومية وكذلك عيادتين متنقلتين. العيادات العشرة الباقية كانت هي عينة الدراسة. لقد تم اخذ عينة منظورة تتكون من 30 مراجع و30 وصفة طبية من كل عيادة أولية في تسعة من العيادات ألأولية واما العيادة العاشرة وهي العيادة الأولية المركزية في مدينة بيت لحم والتي تعد العيادة الأولية الأساسية في المحافظة فقد أخذت منها عينة منظورة تتكون من 60 مراجع و 60 وصفة طبية, وبذلك يكون مجموع عدد العينات في هذه الدراسة 330 مراجع و330 وصفة، وكان التوزيع الديموغرافي للعينة المدروسة (40%) من الذكور و (60%) من الأناث.

وأظهرت نتائج الدراسة أن متوسط عدد الأدوية الموصوفة للمرضى في الدراسة دوائين، وكل ألأدوية الموصوفة كانت بالأسم التجاري، وكانت النسبة المئوية للمضادات الحيوية الموصوفة عالية نسبيا (34%) و خاصة للأطفال تحت عمر الخمس سنوات و كان معدل الأدوية الموصوفة على شكل حقن منخفضا (3%)، وأما نسبة الأدوية الموصوفة من قائمة الأدوية الأساسية الحكومية فقد كانت مرتفعة جدا و قد قاربت (100%) .

ان متوسط الزمن الذي تستغرقه استشارة المريض للطبيب كان (3.9 دقيقة)، وكان المعدل الزمني لصرف الدواء للمريض في الصيدلية قصيرا جدا (65 ثانية)، وكانت النسبة المئوية للأدوية المصروفة للمرضى والتي تم تسليمها لهم فعليا مقارنة بالأدوية التي تم وصفها بمعدل عام (90%). وبلغت نسبة الأدوية التي دون على غلافها المعلومات اللازمه للمريض فقط (27%) من نسبة جميع الأدوية المصروفة، اما معلومات المرضى عن الجرعة الدوائية المعطاة فقد كانت عالية في الدراسة التي اجريت حيث بلغ معدل هذه النسبة (92%) من مجمل عدد المرضى .

وقد توافرت قائمة الأدوية الأساسية في العيادات التي تمت فيها الدراسة بنسبة (70%) وكذلك كانت نسبة توفر الأدوية الأساسية في هذه العيادات مرتفعة (95%)، وبالنسبة لأوضاع الصيدليات في العيادات المدروسة فقد كانت نسبة الصيدليات ذات المساحة المناسبة (40%) ونسبة الصيدليات التي بها رفوف مناسبة (40%) وفقط صيدلية واحده كان بها التكييف المناسب، و أن كل الصيدليات تعاني من عدم توفر مساحة ملائمة لتخزين الأدوية داخل المراكز الصحية. وعند دراسة مؤهلات العاملين في الصيدليات وجد ان (30%) فقط كانوا صيادلة.

وقد أوصت الدراسة على ضرورة ترشيد استعمال الأدوية و المضادات الحيوية وتحسين استعمال الأسماء العلمية للأدوية من خلال التعليمات و التدريب الملائم للعاملين الصحيين و زيادة ثقافة المرضى حول ترشيد استعمال الادوية. وأوصت الدراسة كذلك الى ضرورة تحسين وضع أبنية المراكز الصحية وكذلك استعمال نظام محوسب لأدارة ألأدوية وربط هذا النظام مع المخازن المركزية من اجل تحسين توفرالأدوية وكفاءة النظام وتقترح الدراسة ان تكون صيدليات العيادات ذات مساحات مستقلة مناسبة مع ضرورة توفر مخازن مناسبة للأدوية وأن تدار هذه الصيدليات من قبل صيادلة .

وأوصت الدراسة الى ضرورة عمل دراسات حول استعمال الأدوية و تقييمها في مختلف المرافق الصحية العاملة في فلسطين وعمل دراسات مقارنة فيما بينها.

Table of Contents

CHAPTER TWO: Literature Review

CHAPTER THREE: Conceptual Frame work

CHAPTER FOUR: Methodology

CHAPTER FIVE: Results

CHAPTER SIX: Discussion

List of Tables

List of figures

List of Abbreviations

BHD	Bethlehem Health Department
GB	General Practitioner
GS	Gaza Strip
HIS	Health Information System
HR	Human Resources
INRUD	International Network for the Rational Use of
MCH	Mother and Child Health
MOF	Ministry of Finance
NEML	National Essential Medicines List
NGO	Non-governmental Organization
NIS	New Israeli Shekel
ORS	Oral Rehydration Salts
PCBS	Palestinian Central Bureau of Statistics
PH	Public Health
PHC	Primary Health Care
PKU	Phenylketoneurea
PMoH	Palestinian Ministry of Health
RTI	Respiratory Tract Infection
RUM	Rational Use of Medicines
SD	Standard Deviation
SPSS	Scientific Packages for Social Sciences
UAE	United Arab Emirates
UNRWA	United Nation Relief and Works Agency
USD	United State Dollar
WB	West Bank
WHO	The World Health Organization

List of annexes

Chapter one

Introduction

1.1 Introduction

A health system can be defined as a structured set of resources, actors and institutions related to the financing, regulation and provision of health actions that provide health care to a given population. Health action is conceived as any set of activities whose primary intent is to improve or maintain health. The overall objective of a health system is to optimize the health status of an entire population throughout the life cycle, while taking account of both premature mortality and disability, (Murray & Frenk, 2001).

Health systems aim to achieve three fundamental objectives.

• Improved health (for instance, better health status and reduced health inequalities).

• Enhanced responsiveness to the expectations of the population, encompassing: respect for the individual (including dignity, confidentiality and autonomy); client orientation (including prompt attention, access to services, and quality of basic amenities and choice of provider).

• Guaranteed financial fairness (including households paying a fair share of the national health bill; and protection from financial risks resulting from health care) (WHR, 2000)

Primary health care is that level of a health system that provides entry into the system for all new needs and problems, provides person-focused (not disease-oriented) care over time,

provides care for all but very uncommon or unusual conditions, and coordinates or integrates care provided elsewhere or by others (Starfield,1998) **.**

Primary health care (PHC) is the principles of accessible, comprehensive, continuous and coordinated personal health care in the context of family and community .PHC is the bases of the health care system, as it provides the essential and the initial health care as the majority of the population seeks primary health care yearly. Also it provides diagnostic and preventive health care at early stages.

The ultimate goal of PHC is better health for all, WHO has identified five key elements to achieving that goal:

- Reducing exclusion and social disparities in health (universal coverage reforms);
- Organizing health services around people's needs and expectations (service delivery reforms);
- Integrating health into all sectors (public policy reforms);
- Pursuing collaborative models of policy dialogue (leadership reforms); and
- Increasing stakeholder participation (WHO, 2009).

Since the declaration of Alma-Ata in 1978 which was the first international declaration advocating primary health care as the main strategy for achieving WHO's goal of "health for all". Many health improvements had been achieved such as immunization coverage and access to safe water and hygiene. On the other hand, such equitable accesses to essential health care are still under expectation in many countries. People are increasingly impatient with the inability of health services to deliver levels of national coverage that meet stated demands and changing needs and with their failure to provide services in ways that correspond to their expectations (WHR, 2008).

In Palestine PHC is considered the cornerstone of health services, and not only the major tool but also the promoting and improving mechanism to restore and sustain the well-being of the Palestinian people. Therefore, PHC has been given top priority in all national health strategies and plans in Palestine. In this aspect, all stakeholders in the health sector aim to improve the access to PHC services especially for the marginalized groups and enhance the PHC services efficiency and effectiveness (NSHP, 2008).

1.2 Provision of PHC in Palestine

MoH is considered the major provider of primary health care services in Palestine, and provides services through multiple activities, (Annex 1A&1B).It operates in the West Bank 370 PHC facilities out of 542 PHC representing (68.3%) of total PHC facilities. Local NGO's operates 121 PHC clinics which represent (22.3 %), followed by UNRWA operates 35 PHC (6.5%) (MoH, 2008).

Through the public PHC the government health insurance offers a benefit package of services. There are benefits that are available for the whole population (insured or not insured). These services include vaccination, tuberculosis and epidemic diseases, MCH services, school health, chronic mental disorders, primary and secondary care for children below three years of age, blood diseases, high risk pregnancy and family planning services.

According to the National Strategic Health Plan (MoH, 2008), PHC and public health facilities are classified into four levels according to the type of services provided. There are different levels according to population size benefiting of the PHC facility, distance to nearest PHC facility, availability and type of health services in nearest facility, and the distribution of PHC centers in the West Bank (Table 1.1).

Table (1.1): Classification of MoH primary health care facilities

Level I	It is a facility with one health worker or nurse that serves a location of 2000 capita or less and provides on a daily basis the basic preventive services; mother and child health care and immunization, curative services; first aid. A general practitioner would visit the facility once or twice a week.
Level II	It is a facility where a doctor, nurse and midwife provide different services for a locality of 2001 – 6000 capita. In addition to the basic preventive services, this level also provides curative treatment and some lab tests on a daily basis.
Level III	It is a facility which provides level II services in addition to specialized medical consultation mainly for mother and child for a locality of 6001 – 12000 capita. It also provides laboratory services
Level IV	It is a "comprehensive health centre" which serves more than 12000 capita, and provides more specialized services than those provided in level III. It also provides medical consultation and psychological, dental care and radiology services mainly x –ray and ultrasound (if not present elsewhere in the service area)

Source: (NSHP, 2008)

In the West Bank there are (88) governmental PHC level I, (184) PHC level II, (76) PHC level III and (8) PHC level IV from the total (356) PHC (Table 1.2).

Table (1.2): Classification of Governmental PHC and PH facilities in Palestine by level:

Area	Level 1	Level 2	Level 3	Level 4	Total
West Bank	88	184	76	8	356
Gaza Strip	0	31	19	7	57
Total	**88**	**215**	**95**	**15**	**413**

Source: (NSHP, 2008)

In addition to the above mentioned levels of PHC run by different sectors there are mobile clinics which provide outreach service to small remote localities and to areas isolated by the Separation Wall.

1.3 Bethlehem District

Bethlehem district is situated in the south part of the West Bank and surrounded by the Separation Wall in the west, and northeast. The town of Bethlehem is the district capital and one of a major Palestinian agricultural, tourism and industrial centre.

According to Palestinian central bureau of statistics (PCBS) census 2007, the number of the total population in Bethlehem district in 2007 is amounted to(176, 235).The urban population is (123639) represent (70%)from the whole population .Rural population is (39700) which represent (22.5%),camp population is (12896) which represent (6.5%) of the whole population . Average household was (5.3), sex ratio was (103.4).

There are 3 localities types in Bethlehem district, 12 urban localities, 30 rural localities, and 3 camps localities (Annex 2).

According to 2007 population census (PCBS, 2007), Bethlehem District resembles a rapid growth and a high fertility populations with large proportion of people in the younger ages. The population pyramid is characterized by a wide base of young people under 19 years where they were (50%) from the whole population, and (3.7%) were the population over 65 years (Table1.3).

Table (1.3): Bethlehem District some population indicators

Children under 14 years	33%
Young under 19 years	50%
Adolescents (10-19)years	23%
Youth (15-24)years	20%
Women of reproductive age (15-49)years	36%
Adult above 40 years	18%
Adult above 65 years	3.7%
Mortality rate	2.9/1000

Source :(PCBS, 2007)

Education indicators show that, the illiteracy was (8.16%), and (7.7%) of the population with Bachelor degree (Census 2007).

With regards to economic conditions, about (34%) of the population is economically active and unemployment rate among the population in Bethlehem district was (6 %).In additions, (6.5%) of the total population was refugees in Bethlehem district (Census 2007).

1.3.1. Health services in Bethlehem district

In Bethlehem District there are 17 PHC MOH clinics(Table 1.4), five of them are shared with other non-governmental health provider (Beit Fajjar, Husan, Battir, Wadi Fukin and Al Khader), and two of them are mobile clinics which provide outreach services to small remote localities.

Table (1.4): Distribution of Bethlehem Governmental PHC centers by level, 2008

Level I	Level II	Level III	Total	Family Planning	Specialized Clinics	Oral Clinics	Lab
0	12	5	17	12	24	3	8

Source :(MOH, 2007)

The remaining ten public PHC clinics that was the focus of this study are distributed according to their level as follows:

1-Second level: Beit Sahur, Beit Jala, Jurt ash Shamaa, Al Shawawra, Toque`, Harmala, and AL Ubeidiya.

2-Third level: The Al-Markazia (the central clinic), Za'tara, and Nahhalin.

It worth to indicate that there is no first and forth level PHC clinics available in Bethlehem district.

A new health facility had been established in Al Ma'sara, which is located not far from Jurt ash Shamaa` health facility. This new facility had officially opened after the data collection had been finished on October 2009.

Beside MoH as the major provider of PHC, there are another two health providers (NGO, and UNRWA) of PHC (Table, 1.5).The total PHC in Bethlehem District is 36 PHC with 4,968 populations per center.

Table (1.5) Bethlehem District: Distribution of PHC centers and provides

No. of Population	Provider			Total	Pop. per Centre
	MOH	NGO`s	UNRWA		
178,853	17	17	2	36	4,968

Source: (MOH, 2007)

In Bethlehem District the total attendance per PHC government center is 8,172 people. Visit per person per year was 0.10 visits (Table1.6).We can notice reasonable numbers of visits and total attendance per clinic.

Table (1.6): Bethlehem District: Distribution of visits to governmental general clinics and type of clinic

No. of Population	No. of Visits Seen by Physicians	Visits per person per year	No. of Visits Seen by Nurses	Visits per person per year	Total attendance per center
178,853	120,463	0.7	18,460	0.10	8,172

Source: (MOH, 2007)

1.3.2. Bethlehem governmental PHC Human Resources

The health teams in the governmental PHC at Bethlehem Health Department are distributed as shown in table (1.7).

Table (1.7): Distribution HR in governmental PHC at Bethlehem Health Department

Specialty	Physician	Pharmacist	Assistance Pharmacist	Nursery	Lab Technicians	X-ray Technicians	Adm. employees	Cleaners	Total
Number	28	7	9	58	11	2	39	16	170

Source: PHC Administration Bethlehem Government Health Department, 2009

There are only 6 specialized clinics in the governmental PHC at Bethlehem district with total (17,419) visits. The other 7 specialized clinics are not available in Bethlehem district (Table 1.8).

1.3.3. PHC governmental specialized clinics

According to 2008 health status (MoH, 2008), there are 13 specialized clinics in the governmental PHC .In Bethlehem district there are only 7 specialized clinics (Table1.8).

Table (1.8): Distribution of visits to governmental specialized clinics by type of clinic, (PHC government sector), Palestine 2008

Specialized Center	No Visits
Dermatology	5,218
Diabetes	5,104
Pediatrics	2,319
High Risk Pregnancy	235
Gynecology	701
Chronic disease	407
Epidemiology disease	No data available
Total	17,419
Total attendance per Specialized center	645.1

Source: (MOH, 2007)

1.3.4. Hospitals services in Bethlehem District

In Bethlehem District there are 8 hospitals, 2 general hospitals, 2 specialize hospitals, 1 rehabilitation hospital and 3 maternity hospitals with total beds 481 bed (Table1.9).

It is worth to indicate that Bethlehem district has the highest bed per population in Palestine, and it is equal to 32.4 beds per 100.000 population .In Palestine in general this ratio is equal to12.8 beds per 100.000 population.

Table (1.9): Bethlehem District Distribution of hospitals and total beds by providers, 2008

MOH		UNRWA		NGO`s		Private		Total		Hosp per 100,000	Beds per 100,000
hosp	beds	hosp	beds	hosp	beds	hosp	beds	hosp	beds	4.5	32.4
2	317	0	0	4	235	2	72	8	481		

Source: (MOH, 2007)

1.4 Research Significance

Irrational use of medicines is a major problem world-wide. It is estimated that more than half of all medicines are prescribed, dispensed or sold inappropriately and that half of all patients fail to take them correctly(WHO,RUM). The irrational drug use can be influence by many factors such as patients, drug prescriber, drug dispenser, health facility environment and the whole health system. Examples of inappropriate use of drugs at the prescribers' level are usually noted by how prescriptions are written. Use of drugs when no drug is needed, use of wrong drug and poor prescribing habit are some of the examples noted. Poor prescribing habits may include prescribing too many drugs for a patient referred to as Polypharmacy or over prescribing at particular drug or dosage form. Prescribers tend to embark on poly

pharmacy in their attempt to treat a number of possible diseases simultaneously (Uzochukwu *et al*, 2002).

Irrational drug use from the side of the patients is very common also. Patients are the ultimate users of drugs. They make the final decision about whether or not to seek health care, where to seek it, and what medicines to actually take and at what intervals or duration. Correct prescribing does not guarantee that drugs will be properly used. Non adherence to prescription is very common (Le Grand *et al* 1999).

The irrational use of drugs is a major problem of present day medical practice and its consequences include the development of resistance to antibiotics, ineffective treatment, adverse effect and an economic burden on the patient and society. (Siddiqi *et al*., 2002). This contributes to enormous health and economic impacts both at a personal and national level (WHO MS, 2008). In most developing countries pharmaceuticals are the largest public expenditure on health after personnel costs and the largest household health expenditure (World Bank, 1994).

In Palestine, health expenditure and particularly on pharmaceuticals cost, form a significant share of the limited Palestinian economic resources. According to the MoH report on Health Status in Palestine in 2007, the annual public expenditures on health in 2007 was estimated to 1,205,000 (million NIS), (11%) of the total health expenditures was on pharmaceuticals and vaccinations.

Table (1.10): Distribution of pharmaceuticals and medical supplies in MOH by region, 2007 (USD)

Item	Gaza Strip (USD)	West Bank (USD)	Palestine (USD)
Pharmaceuticals and vaccinations	16,270,376	18,918,919	35,189,295.41
Medical supplies	4,363685	4,864,865	9,228,550.27
Laboratory materials, equipment and supplies	1,645234	2,162162	3,807,396.22

Source: (MOH, 2007)

All studies conducted about drug use in Palestine found that irrational drug use is very common in Palestine, (Khatib *et al*, 2000; 2003 and 2004; Hilo, 2008; Sawalha, 2007; Obeidallah *et al*, 2000 and 2005). According to the studies conducted in UNRWA and NGO`s primary health care clinics, the researchers found that irrational drug use is one of the major problem at studied clinics. However, there is a lack of studies on the drug use in the public sector, in specific the governmental PHC in the field of prescribing, dispensing and drug use.

This study focuses on the assessment of drug use in PHC system. The focus is on PHC because most of the health care services usually people need are those provided at the PHC level. In Palestine, the number of people utilizing governmental health services has increased dramatically as a result of widening the governmental health insurance scheme coverage after

the second Intifada. This has resulted in considerable increase in public spending on health in general and on pharmaceuticals in specific. This brings the need to rationalize drug use to the attention. The study will provide decision makers with evidence on the drugs prescribing, dispensing practices at one PHC district. Although the results cannot be generalized to whole public sector, however, it can provide an indicative to the situation in the public.

1.5 Problem Statement and Justification of the study

The consumption of drugs in the Palestinian health system is high in comparison with other developing and developed countries. We believe that there is irrational use of drugs, tendency to over drug prescription, and patient easy acquisition of drugs from different health providers. Moreover, studies show misuse of drugs, perception of bad prescribing and dispensing practices remain evident (Obeidallah *et al*, 2000; Khatib *et al*, 2004; Hilo, 2008).

In the public services the problem of irrational drug use could be intensified by short time of consulting and dispensing due to the large number of patients referring to the public clinics and high work load of health personnel coupled by insufficient number of qualified human resources.

In Palestine, there is no adequate assessment of drug prescribing and dispensing process at MoH primary health care clinics and the need emerge to conduct assessments studies at the public sector, with aims to assess drugs availability, prescribing and dispensing process in the MoH health care clinics in one of the West Bank districts.

The study can provide evidence and recommendations to decision makers to improve the management of the drug use and dispense, and to minimize the irrational use of drugs in the public sector. Also this and earlier studies can contribute in supporting development of a national drug policy, bridging the gap in the knowledge, and identifying the problems as so consequently suggesting recommendations for solutions.

1.6 Aim and objectives of the study

The aim of the study is to assess drugs availability, prescribing and dispensing processes in MoH Primary Health Care clinics in Bethlehem district using WHO recommended set of indicators.

The Specific Objectives:

1-To assess availability of essential drugs at the public PHC clinics in Bethlehem district.

2-To assess drug prescribing practices at the public PHC clinics in Bethlehem district.

3-To assess drug dispensing practices at the public PHC clinics in Bethlehem district.

4-To assess patient knowledge about drugs they get at the public PHC clinics in Bethlehem district.

1.7 Study limitations

1-The study results are limited to Bethlehem district due to lack of resources and cannot be generalized to all MoH services.

2-Only MoH clinics were studied, 5 clinics in Bethlehem district were left outside the study since they were shared clinics with other providers.

1.8 Study Assumptions

1. There have no change in the behavior of health personnel during the observation and data collection.

2. The used WHO developed tools for data collection can yields reliable and valid results.
3. Data provided by participants are valid and reliable.
4. The period of data collection reflect the whole year pattern.

1.9 Summary

This study was designed to assess drugs availability, prescribing and dispensing processes in MoH primary health care clinics in Bethlehem district using WHO recommended set of indicators. Baseline information is gathered for the purpose of identifying potential deficiencies. This chapter provides an introductory overview of the whole study.

Chapter two

Literature Review

2.1 Introduction

This chapter presents the concept of Essential Drugs, the framework for analysis and the contextualization addressing drug use context as investigated and researched globally, regionally and locally.

2.2 Essential Drugs

The World Health Organization (WHO) defines essential medicines as the limited number of medicines that satisfy the needs of the majority of the population and that should be available at all times. Countries often publish a national essential medicines list (NEML) that identifies the medicines considered to be most important and relevant for the public health needs of that population (WHO, 2007).

In Palestine in the last few years the situation of the pharmaceutical sector has improved in some aspects. The Essential Drugs List was developed and revised many times with WHO support; the last revision was issued in January 2008. In addition, ten standard treatment guidelines had been developed and many physicians and doctors were trained to use the Essential Drug List (NSHP, 2008). Providing health sectors by essential drugs with a good quality and at a low cost is a very important request since it enables the primary health care to perform its duties (MOH, 2003) .

The concept of essential medicines has proved itself sound, fair and necessary. However, there remain many challenges, the most important being to improve equitable access to those who still suffer unnecessarily for want of essential health care and medicines. PHC together with essential medicines continues to be the most relevant approach to organize and deliver reliable, sustainable and credible health care services in the 21st century (Mirza, 2008).

The rational use of drugs means that patients receive medicines appropriate for their clinical needs, in doses that meet their individual requirements, for an adequate period of time, and at the lowest cost to them and their community, (WHO, 1988) .The promotion of rational use of medicines (RUM) is a core component of the World Health Organization's (WHO) policy that all countries need to address (Khatib *et al*., 2004).

Even people who have access to drugs may not receive the right medicine in the right dosage when they need it. Many people buy, or are prescribed and dispensed, drugs that are not appropriate for their needs. Some use several drugs when one drug would do. Others use drugs that carry unnecessary risks. The irrational use of drugs may unnecessarily prolong or even cause ill-health and suffering, and results in a waste of limited resources (WHO, 1988).

Irrational drug use has often been thought to be entirely due to health workers lacking information and training; thereby irrational drug use could be solved by providing such information and training. Although lack of information and training are indeed major factors, out dated prescribing practices, heavy patient load, pressure from peers and patients together with those factors at international such as drug promotion, national such as economic factors and health system level such as lack of diagnostic equipment too affect the effectiveness of prescribers in ensuring the rational use of drugs (Kutyabami, 1996).

2.3 Framework for analysis

There are three broad categories of interventions to improve drug use. These have been classified as educational approaches, managerial approaches and regulatory approaches (Quick, Laing&Ross-Degnan, 1991; Ross-Deganan *et al*, 1992; Laing, 1997; Management Science, 1997).

Educational approaches attempt to inform or persuade prescribers, dispensers, or patients to use drugs in the proper, rational and efficient way. There are many types of this approach such as in-service training, face-to-face education, small group discussions, seminars, workshops and printed education materials (Kafle *et al*, 1992).

Managerial strategies attempt to improve drug decision-making by a variety of techniques including use of specific processes, forms, packages and monetary incentives. The interventions using this approach include developing and implementing Essential Drug Lists or Drug Formularies, Standard Treatment Guidelines, implementing drug supply kit system, monitoring and feedback, establishing representative Pharmacy and Therapeutics Committees, establishing structured drug prescribing form, providing cost information, and set-up financing (Management Science, 1997; Ross-Deganan *et al*, 1992; Ross-Deganan *et al,* 1997).

Regulatory approaches attempt to restrict allowable decisions by placing absolute limits on availability of drugs. These strategies rely on rules or regulations to change behavior. Interventions using this approach are limiting or banning registration, changing product registration status as well as prescribing and dispensing controls (Management Science, 1997; Ross-Deganan *et al*, 1992; Ross-Deganan *et al*, 1997).

Multiple Interventions, In general combining interventions is likely to have a synergistic effect. A study from Indonesia showed that disseminating leaflets combined with face-to-face education reduced antibiotic use and increase ORS use in diarrhea at health centers (Gani *et al,* 1999).

This study adopts a managerial approach for measuring and consequently improving drug use at governmental PHC in Bethlehem district field using a combination of specific forms suggested in a WHO developed and implemented technique in light of the Essential Drug List as internationally employed in the "Drug Use Indicators". The WHO Action Programme on Essential Drugs (WHO/DAP) published a manual on how to investigate drug use in health facilities in response to the increased awareness of the problems impeding the rational use of drugs (WHO, 1993a).

The main purpose of the study is to define a limited number of objective measures and assessments, "Drug Use Indicators" , which can describe drugs use pattern and prescribing behaviors ; and the drug use situation in the district. It was commenced with a thorough review of background information of WHO Session Guide on drug use evaluation and previous drug use studies. In addition the study made use of the manual "How to investigate drug use in health facilities" which published by the WHO Action Programme on Essential Drugs (WHO/DAP) in response to the increased awareness of the problems impeding the rational use of drugs (WHO, 1993a).

2.4 Contextualization

2.4.1. Global context

Assessment of drug use at primary public and private health care facilities has been carried out in many countries worldwide. The WHO published a fact book (WHO/EMP/MAR/2009.3), about the results from studies reported between 1990 and 2006 about medicines use in primary care in developing and transitional countries. The aim was to provide a picture of medicines use in developing and transitional countries, and the impact of interventions, during the last 20 years. It was concluded that the inappropriate use of medicines continues to be a widespread problem in developing countries. Prescribing and patient care practices did not exhibit much improvement. Since most studies included in this review were conducted in the public sector where use of medicines is generally thought to be better than the private sector, it is likely that the overall situation is worse than reported (WHO, 2009).

One study to assess drug use in PHC was conducted by Slobodan *et al*, in Serbia in the city Kragujevac, in 1999. The research was an analysis of drug use indicators in primary care health facilities. The aim of the study was measurement and analysis of drug use in 5 state pharmacies, 4 general practice outpatient health facilities and 4 specialist outpatient health facilities. In each health facility a sample of 100 patient-visits was investigated. The study showed that average consultation time had been too short. The average number of drugs per encounter was between (1 - 2.8) drugs; percentage of drugs prescribed by generic name was between (16% - 39%); percentage of encounters with an antibiotic prescribed was between (29% -45%). Injections were prescribed rationally, but percentage of drugs prescribed from essential drugs list was between (21% - 65%). Average dispensing time was about 24 seconds .This time was too short for proper interaction between pharmacist and patient.

There was significant variations in percentage of drugs actually dispensed (from 39% to 68%), which points to unbalanced supply of pharmacies. Serious negligence exists when labeling of dispensed drugs is concerned: name of the patient was written on the dispensed

drug in only a few cases. Patients' knowledge of correct dosage was observed in high percentages, but validity of this finding is doubtful, since the patients were not willing to fully cooperate with investigators. Very good characteristic of pharmacies in Kragujevac was high availability of key drugs, much higher than in other countries.

The results of the study suggested the need for educational intervention in primary care health facilities operating in city of Kragujevac (Slobodan *et al*, 1999).

A comparative study between public and private health facilities was conducted by Siddiqi *et. al,* in 2002.The aim of the study was to study the prescription practices of public and private health care providers in Attock district of Pakistan. Prescriptions were collected from 60 public and 48 private health facilities .The mean number of drugs was (4.1) drugs for the private, (2.7) drugs for the public providers. One antibiotic at least prescribed by the GP in the private was (62%) and (54%) in public providers. Over (48%) of GPs prescriptions had at least one injectable drug compared with (22%) in the public sector.

This study concluded that there were deficiencies in prescription practices among all health care providers. Also that improper prescription practices will not be improved without targeted interventions that educate and empower communities regarding the hazards of inappropriate drug use and the effective implantation and strengthens the role of various agencies (Siddiqi *et.al*, 2002).

2.4.2. Regional Context

Assessment of drug use, antibiotics use and the impact of an intervention in the primary health care centers, were the aims of the study conducted by Hasan *et al*, in Sharjah (Emirates of the UAE),in 1995 (Hassan *et. al* ,1995). The study was conducted in the six PHC centers of Sharjah Medical District for investigation of the quality of health care in relation to pharmaceutical services and prescribing behavior of primary health care physicians in the six PHC centers in the Sharjah Medical District; and the impact of an intervention on the antibiotics prescribing behavior of the PHC physicians in the same centers..

The results of the study on prescribing indicators showed that the average number of drugs prescribed per encounter was (2.8) drugs before and (2.7) drugs after intervention. All drugs were prescribed by brand names, although they were included in the formulary in their generic names. It was found that (92%) of visits to the health centers resulted in a prescription before intervention and it dropped to (85%) after; the difference was statistically significant. The percentage of prescriptions for antibiotics dropped from (45%) to (35%) following intervention, which was also statistically significant. The percentage of encounters with an injection dropped from (16%) before to (14%) after intervention, a nonsignificant change. The average consultation and dispensing times were similar before and after intervention, and (96%) of the dispensed drugs were adequately labeled before intervention, which was almost the same following intervention. A current copy of the PHC formulary of drugs was always available, and (90%) to (91%) of key drugs were available during the period of the study. Half of all antibiotics prescribed in the six PHC centers studied were for patients with upper respiratory tract infections and diarrhoea. The effectiveness of antibiotics in many cases of upper respiratory infection is questionable.

These results indicate that a high standard has been maintained in several areas in these PHC centers. However, the average number of drugs per encounter, the percentage of encounters with an antibiotic prescribed and the percentage of drugs prescribed by generic name are three areas which need further intervention to improve the quality of health care. Antibiotics use is an area where physicians in the PHC centers can coordinate with a multidisciplinary team, including other health professionals such as pharmacists and microbiologists, for assuring optimum drug use. This study needs to be extended and repeated over time to maintain good quality health care in the PHC centers covered by the study. Furthermore, it is essential to extend the study to cover PHC centers and hospitals in other Emirates of the UAE for investigation of drug utilization throughout the country (Hasan *et al*, 1995).

In Jordan, (Otoom *et αl*, 2002), conducted a research for evaluation of drug use in Jordan using WHO prescribing indicators. The researchers retrospectively reviewed patients' files and then evaluated pharmaceutical drug prescribing practices in 21 selected primary health care facilities

in Irbid governorate, northern Jordan using WHO recommended core indicators .The mean age of the patients was (27.1) years. Overall the mean number of drugs prescribed per encounter was (2.3 ± 0.9) drugs. The mean percentage of drugs prescribed by generic name was (5.1%); the percentage of prescriptions involving antibiotics was (60.9%); the percentage of prescriptions involving injections was (1.2%) and the percentage of EDL drugs prescribed was (93%).

The authors conclude that the prescribing and use of drugs in Jordan requires rationalization, particularly the over-prescribing of antibiotics and the under-prescribing of generic drugs.

The authors believe that it can be of great value to health authorities seeking to promote more discriminating drug use. And the believe that health professional and consumer awareness of the problems associated with overprescribing and overconsumption can be increased through training workshops, group discussions, health centre promotional activities and media advertising (Otoom *et al*, 2002).

Another study was conducted in 2006 to examine the most common problems of irrational use of drugs and their causes in two Middle East countries – Jordan and Syria, (Otoom, Sequeira, 2006).

Ninety senior participants from Jordan (50–15 physicians and 35 pharmacists) and from Syria (40–12 physicians and 28 pharmacists) were enrolled in this study. The participants were asked to fill two questionnaires that deal with the problems and causes of irrational use of drugs in their country. Additionally, the participants were asked to perform a prescription analysis using WHO prescribing indicators on 40 prescriptions taken randomly from a comprehensive health centre in their country (Otoom, Sequeira, 2006).

Researchers found that average number of drugs per prescription was (2.8) drugs in Jordan, and (2.5) in Syria. Percentage of drugs prescribed by generic name were (17.5%) in Jordan, and (0%) in Syria. Percentage of encounters with an antibiotic prescribed were (55%) in Jordan and (45%) in Syria .Percentage of encounters with an injection prescribed were (15%) in Jordan and (25%) in Syria .Percentage of drugs prescribed from the essential drug list was (82.5%) in Jordan and EDL in Syria was unavailable at that time (Otoom, Sequeira, 2006).

The authors concluded that the main drug use problems identified in the two countries were almost the same. However they vary in the percentage of occurrence and include excessive use of antibiotics and antidiarrhoeals, overprescribing of nonsteroidal anti-inflammatory drugs, prescribing by trade name, excessive use of antibiotics to treat minor upper respiratory infections and self-medication by the public. The main causes of irrational use of drugs were poor medical records, lack of patient education about illnesses and drugs, no family doctor system, lack of standard treatment guidelines and lack of continuing medical education for physicians and pharmacists (Otoom, Sequeira, 2006).

The authors suggested that the results of this study are important for decision-makers to utilize when putting policies and strategies to improve the use of drugs in both countries (Otoom, Sequeira, 2006).

2.4.3. Local context

In Palestine two studies have been conducted for assessment and evaluation of drug use in PHC services. The first one was conducted by Khatib *et al*, (2004), in 41 selected NGO PHCs in the west Bank (GS). A prospective cross-sectional survey of prescribing practices based on medical records of 6032 patients with acute symptoms. Direct observation of consultation and dispensing practices and times in a sub-group of patients was completed utilizing special forms.

The researchers found that respiratory tract infections were the most commonly occurring conditions. On average, (1.9) drugs were prescribed per encounter and antibiotics were the most commonly prescribed medications, followed by analgesics and NSAIDs accounting for (46%) and (20%) of the total medications expenditures, respectively. Injections and combined medications use per encounter was (16 %) and (8%), respectively. Most commonly prescribed medications were of local production. Consultation (4.6-6.4 minutes) and dispensing times (1.6-.5 minutes) were short with inadequate labeling. Provision of reference sources and treatment guidelines implementation were also inadequate (Khatib *et al*, 2004).

The authors suggest that prescribing practices could be improved through wider implementation of treatment guidelines, a review of antibiotic prescribing, and increased time spent with patients to promote concordance. Strategies aimed at improving prescribing and dispensing practices should be addressed through new innovative capacity building models based on problem solving and feedback mechanisms (Khatib *et al*, 2004).

The second local study conducted by Hilo in United Nations Relief and Works Agency for Palestine Refugees in the Near East PHC clinics in the West Bank, (Hilo, 2008). A cross-sectional study of drug use was conducted in 11 selected UNRWA primary health facilities in the West Bank field. The study found that overall average of consulting time in the studied health facilities was (1.07) minutes and ranged between (0.47 -1.75) minutes. The results showed variations in the average dispensing time by clinic ranging between (28.7- 65) seconds with overall average (44.76) seconds. The overall average number of drugs prescribed per encounter was (2.17) items. The percentage of drugs actually dispensed as a proportion of total drugs prescribed in the studied UNRWA health clinics ranged between (83.3% -100%), with an overall average of (93.86%). The percentage of drugs adequately labeled was (80.1%) of all drugs dispensed. This percentage varied among the studied health facilities, ranging between (35.8% - 100%).The patient knowledge of the correct dosage was relatively high in the studied clinics with a mean percentage of (76.63%) of the total patients who received drugs at the clinics.

The study indicated the need for similar assessment of drug availability and use of drugs in MoH clinics as the MoH is the major provider of PHC services in the country (Hilo, 2008).

Antibiotics overuse is one facet of the irrational drug use problems, many studies worldwide had studied this problem, In Palestine few studies have been conducted .One of these was a study conducted by Sweileh *et al*, 2005 at Al-Watani nonsurgical governmental hospital in Nablus, (Sweileh *et al*, 2005). During the thirty days of the study, 442 patients were admitted to the internal ward; 193 females (43.7%) and 249 males (56.3%). One hundred and forty four patients were prescribed a single antibiotic, 36 patients were prescribed two anti-

infective agents, 8 patients were prescribed three anti-infective agents and one patient was prescribed four anti-infective agents.

The results highlighted the needed for rationing antibiotic use at hospitals, due the fact that irrational use can resulted in bacterial resistance and consequent increase in the health expenditures. Many countries including developing countries can reduce the cost of dugs use without detriment to patient care by changing of prescribing and dispensing habits, and by controlling the volume of prescribing, more appropriate use for expensive drugs and products and by increasing generic prescribing (Sweileh *et al*,2005).

Another study (Khatib *et al*, 2000) was conducted in Ramallah district in Palestine about treatment of infection. A prospective cross-sectional survey of antibiotic drug utilization was conducted over 3 months (February–May 2000) of patients diagnosed with infection, conducted through questionnaires to treating physicians (n = 25) and patients (n = 575).

The major findings of the study were that infection associated with the respiratory tract was the most common type of infection diagnosed, accounting for over (80%) of all infections, followed by urinary tract infection and otitis media (14% and 10%, respectively). Amoxicillin was the antibiotic prescribed most often, prescribed for (44%) of all patients and for infection of all types and across all age groups. A wide variety of other antibiotics was prescribed, and in the private sector there was more use of newer, more expensive antibiotics. Antibiotic use was rated as appropriate in only (35%) of patients, with inappropriate prescribing largely resulting from inappropriate indication (73%) and to a lesser extent choice of drug (17%) or cost (9%).

The authors concluded that there was a considerable evidence of inappropriate use of antibiotics, including prescribing for likely self-limiting or non-bacterial infection and failure to specify duration of therapy. A number of patients failed to complete the course. Strategies to promote optimal antibiotic use should be targeted initially to respiratory tract infection, and both physicians and patients require educational input. The community pharmacist can

play a lead role on account of both drug expertise and ability to advise health professionals and patients (Khatib *et al*, 2000).

Self-medication is one form of the irrational drug use, and in Palestine few studies available on the current status of self-medication practice. One study was conducted by Sawalha (2007) to assess the extent of self-medication practice among a random sample of An-Najah National University students. The method used was a cross-sectional, survey and included 1581 students of different academic levels enrolled at different faculties at An-Najah National University. The mean age of respondents was (19.9) years. Ninety-eight percent of respondents reported practicing self-medication. The average number of medications reported by self-medication practitioners was (2.63 ± 1.38) medications per respondent. Analgesics, decongestants, herbal remedies, and antibiotics were the most common classes reported in self-medication. Headache, sore throat, flu, and dysmenorrhea were the most common ailments for which respondents seek self-medication (Sawalha, 2007).

The author concluded that self-medication is very common among An-Najah students. This practice is common for treating clinical conditions that are either simple or previously experienced. Although, no significant predictors of self-medication did exist among the studied group, levels of self-care orientation and medication knowledge can be of value in analyzing the types of medications employed by self-medication practices. (Sawalha ,2007).

2.5 Summary

This chapter provides a theoretical background and empirical evidence of literature review. The concept of Essential Drugs, the framework for analysis and drug use context was investigated globally, regionally and locally.

Chapter Three

Conceptual Frame work

This chapter presents the conceptual framework of the study. The WHO recommended core indicators and calculation of these indicators are elaborated.

3.1 Measuring Drug Use

To understand drug use patterns, we need to measure drug use by collecting data about this use. These data can give an idea, if there are existing problems and what kind of problems. There are two approaches for measuring drug use, quantitative and qualitative methods, and the selection of method depends on the nature of the problem and the resources available. Qualitative methods are usually used to explore beliefs, feelings, motivations and attitudes. But quantitative methods are underlying specific problem using numbers and indicators.

The approach used is affected by the costs of different method. One approach may be cheaper or more feasible than another. Using routine reports is usually cheaper, but the qualities of those reports are often poor. Undertaking a survey would result in complete and accurate data but this method is expensive compared to other methods of assessment (Arustiyono, 1999).

In general, it is desirable to combine quantitative and qualitative methods. Each method used can look at different aspects of a problem. One strategy to integrate data efficiently is to conduct a synthesis meeting of everyone involved in the investigation process. This

meeting should then direct its attention to designing the intervention (Management Science, 1997).

To improve drug use practices, an essential tool is needed to measure drug use in health facilities .The best way to analyze drug use in health facilities is to study universal indicators, which are not dependent either on investigator or time of measurement (Slobodan *et al*, 1999).

The WHO had developed, on existing work internationally, a set of limited indicators, namely the Drug Use Study Indicators, to assist in the assessment of drug use. These indicators have been selected through a process of discussion, field testing, and revision, involving a wide range of people coordinated by International Network for the Rational Use of Drugs (INRUD), with support from WHO/DAP. Other indicators may be used when different needs arise (WHO, 1993).

Critics for using these indicators made to support avoiding the use of indicators in the health setting. Some believe that health care is "different" to all other endeavors and is in some way therefore not amenable to systemic performance measurement. There will be few who would argue that measuring performance in any health care setting is anything but a challenge, but increasingly a challenge met by concerted, structured, multidisciplinary programs (NSW TAG,1998).

Only a small number of basic indicators are recommended, which are referred to as the core indicators. These are highly standardized, do not need national adaption, and are recommended for inclusion in any drug use study using indicators. They do not measure all important aspects of drug utilization but a simple tool for quickly and reliably assessing a few critical aspects of pharmaceutical use in primary health care .Results with these indicators should point to particular drug use issues that need examination in more detail (WHO, 1993a).

3.2 Types of indicators

These drug use indicators were developed to be used as measures of performance in three general areas related to the rational use of drugs in primary care.

3.3 Prescribing indicator

The indicators of prescribing practices measure the performance of health care providers in several key dimensions related to the appropriate use of the drugs and it includes five indicators:

1. Average number of drugs per encounter
2. Percentage of drugs prescribed by generic name
3. Percentage of encounters with an antibiotic prescribed
4. Percentage of encounters with an injection prescribed
5. Percentage of drugs prescribed from an essential drugs list or formulary

3.4 Patient care indicators

These indicators record and summarize all data needed to measure the patient –providers' interactions. The five patients care indicators measure the minimum standards of performance in the health facility and they include:

1. Average consultation time
2. Average dispensing time
3. Percentage of drugs actually dispensed
4. Percentage of drugs adequately labeled
5. Patient's knowledge of correct dosage

3.5 Health facility indicators

The ability to prescribe drugs in a proper way is influenced also by the working environment, such as an adequate supply of essential drugs, access to information needed, the health facilities general conditions and human resources. These indicators include three indicators:

1. Availability of a copy of the essential drugs list or formulary
2. Availability of key drugs
3. Pharmacy problems
    - Adequate space
    - Adequate shelves
    - Adequate cooling
    - Adequate store
    - Drug dispenser's qualifications

3.6 Calculation of indicators

In this study the methodology recommended by the WHO was followed. Indicators were divided in three types of indicators to assess three aspects of drugs and calculated as follows:

3.7 Prescribing indicators

1. Average number of drugs per encounter = total number of drugs prescribed/total number of encounters surveyed.
2. Percentage of drugs prescribed by generic name = (number of drugs prescribed by generic name/total number of drug prescribed) x100%.
3. Percentage of encounters with an antibiotic prescribed = (number of patient encounters with an antibiotic prescribed/total number of encounters surveyed) x100%.

4. Percentage of encounters with an injection prescribed = (number of patient encounters with an injection prescribed/total number of encounters surveyed) x100%.

5. Percentage of drugs prescribed from an essential drugs list or formulary = (number of drugs prescribed from the EDL/total number of prescribed drugs) x100%.

3.8 Patient care indicators

1. Average consultation time = total time from a series of consultations/number of consultations

2. Average dispensing time = total time for dispensing drugs to a series of patients/number of patient encounters.

3. Percentage of drugs actually dispensed = (number of drugs actually dispensed /total number of drugs prescribed) x100%.

4. Percentage of drugs adequately labeled = (number of drugs or drug packages adequately labeled/ number of drugs packages dispensed) x100%.

5. Patient's knowledge of correct dosage = (number of patients who could adequately report the dosage schedule for all drugs/total number of patients interviewed) x100%.

3.9 Health facility indicators

1. Availability of a copy of the essential drugs list or formulary = yes or no

2. Availability of key drugs = (number of specified drugs in stock/total number of drugs on the checklist) x100%.

3. Adequate space= (number of health facilities have adequate space/total number of health facilities) x100%.

4. Adequate cooling = (number of health facilities have adequate cooling /total number of health facilities) x100%.
5. Adequate store = (number of health facilities have adequate store /total number of health facilities) x100%.

3.10 Summary

This chapter discussed available relevant conceptual literature review on drug use with special emphasis on WHO attempts to standardize measurements and evaluations of drug use internationally. It has covered in elaboration the adopted framework of analysis in light of WHO led works.

Chapter four

Methodology

4.1 Introduction

This study is the first attempt to assess drug use at governmental primary health care facilities in Bethlehem district. The purpose of the study is to report the current drug use in order to guide future assessments and interventions in drug use and other related fields. The main objectives of the study were to assess current patters of drug use in relation to prescribing indicators, patient care indicators and facility indicators. Also to assess essential drugs availability as well as drug prescribing and dispensing processes and practices at governmental primary health care clinics at Bethlehem district area.

4.2 Research Design

To achieve the objectives of the study a cross-sectional design was used. A prospective study of drug use was conducted in 10 governmental PHC facilities during the period from September 2009 until October 2009 at Bethlehem district area. A quantitative approach using the WHO recommended indicators in a form of standardized structural WHO indicator forms were used in the study. The reason for selecting a quantities approach in this study is the strengths of the quantitative paradigm are that its methods produce quantifiable, reliable data that are usually generalizable to some larger population (Weinreich, 1996)

4.3 The population of the study

There are 17 public primary health care facilities in Bethlehem district. Five of them are run jointly with other non-governmental health providers. Since the study focuses on the public sector, these joint clinics were excluded from the study and also the two mobiles clinics were excluded. The remaining 10 public PHC were the target of this study, 7 of them are second level and 3 of them are third level.

4.4 Sample Size

In each health facility, according to the WHO standardized method and recommendations, 30 physician-patient encounters were prospectively observed and data were recorded on the patient care forms (Annex 4). Only patients visiting general clinics and with acute symptoms were selected to maximize homogeneity among all study subjects. Patients attending specialized clinics and patients with chronic diseases were excluded from the study.

The average daily number of patients visited the GP in the public PHC clinics between 1/1/2008 and 31/12/2008 was as shown in table (4.1)

Table (4.1): Distribution of average daily GP patient's number in public PHC

Health Facility	Average daily GP patients number
Al –Markazia	100.5
Beit Sahur	35.8
Beit Jala	30.4
Al 'Ubeidiya	37.5
Al-Shawawra	31
Za'tara	49.1
Harmala	29
Tuqu'	35.8
Jurt ash Sham'a	25.4
Nahhalin	75

Source: (BHD MoH, 2009)

In Al Markazia clinic, which is considered the main public primary health facility in Bethlehem district, the sample size was 60 physician-patient encounters and 60 prescriptions were prospectively observed and the relevant data was recorded.

In total 330 encounters and 330 prescriptions were studied, and the data was recorded on forms designed according to the WHO recommendations for investigating the three core indicators (Annex3-8).

4.5 Data Collection Method

Data were collected in relation to the selected aspects of the clinical and drug dispensing procedures. Observations began at a random point in the morning between 9 - 10 am; it is worth mentioning that patients usually attend these facilities between 8 am and 12 am.

4.5.1. Patient care indicators:

- Consultation time: To measure the length of the time patients are seen in the treatment starting and ending times of these processes for each individual patient were observed and recorded in the physician examination room using a chronometry. The starting and ending times for each individual consultation between patients and physician were recorded and filled in the forms prepared for that purpose. (Annnex4).
- Dispensing time: The researcher intercepted the patients in the pharmacy using a chronometry to measure the beginning and ending times of the interactions with the drug dispenser.
- The number of drugs prescribed, the number of drugs actually dispensed, and the number of drugs adequately labeled was recorded in the drug prescribing form (Annex 4).
- Patient knowledge: Patients were interviewed as they were leaving the facilities after their drugs have been dispensed, so as not to disturb the work in the health facility. Each patient was interviewed and asked about his /her knowledge about the drugs

they actually received, in specific about when and what quantity each drug is to be used. The patient's answers were recorded for each patient on the drug prescribing form (Annex 4).

4.5.2. Prescribing indicators

- All prescriptions selected for the study were marked by the researcher with a sign (x) for further investigation. After finishing all the data collection these signed prescriptions were investigated in the pharmacy, to fill the prescribing indicators form (Annex 3).
- To compute the proportion of drugs prescribed for the patients by the generic name of drugs, the researcher used a copy of the MoH EDL, which is written only by the generic name of the drugs. Since the researcher herself is s a pharmacist, it was easy for her to recognize the generic and brand drugs names and to fill the related data.
- Patients with an antibiotic or an injection prescribed were recorded on the same form.
- The number of drugs prescribed which are listed on the MoH EDL was recorded on the same form (Annex 3).

The same process was done for the 30 selected encounters in the 9 health facilities and for 60 selected encounters in Al Markazia clinic, and the data were recorded on the patient care form (Annex 4).

4.5.3. Health facility indicators

The health facility summary form (Annex 5) was filled out through an interview with the drug dispensers and other contact persons in each health facility. A list of the key drugs was prepared, before the data collection was started, in cooperation with the manager of the pharmaceutical unit in Bethlehem District Health Department. These key drugs were chosen by the manager according to their importance and their frequency of use in Bethlehem governmental PHC .The key drugs were check listed (Annex 6) for their availability and

percentage in stock in the studied health facilities pharmacies. Data collection was carried out by the researcher herself.

4.6 Pilot Study

Firstly a visit was done to Beit Jala clinic to get familiar with the work procedures in this health facility on the 27 of September 2009. Secondly a pilot testing was done to verify data collection instruments on the 28 of September 2009. The pre-testing was conducted on 20 patients in Al-Markazia clinics by filling the patient care, prescribing and the health facility forms. The data obtained were analyzed and unclear questions were altered. This pilot study was useful in understanding the work procedures in the clinics, which facilitated the data collection procedure later on.

4.7 Data entry and analysis

Data was numerically coded and entered in three different sets on prescribing, patient care, and health facility data .Statistical analysis and calculations using Microsoft Excel was conducted.

Data was analyzed on two levels. First, reports of the results were prepared for each individual health facility surveyed. Second, data collected from the 10 health facilities surveyed were aggregated and a combined result report was produced .Indicators were calculated for each of the facilities studied as well as an overall estimate for all the facilities results were also produced.

SPSS was used to calculate the SD (standard deviation) for the different indicators.

4.8 Ethical Consideration

A permission to conduct the study in 10 governmental PHC clinics in Bethlehem district was requested and obtained from the director of Bethlehem District Health Department. (Annex 9). The researcher informed the contact persons in Bethlehem Health Department about the schedule of the health facilities. The visits were facilitated by the Department official.

In the beginning of each visit to the clinics a verbal briefing about the aim of the study was given to health staff, as well as to the patients surveyed in those clinics. The data collection procedures and the time needed to complete the data collection were explained. Only patients who accepted to participate on voluntarily basis were selected for the study, considering his/her right to withdraw from the study at any point. The patients were assured that all information will be treated in confidence and anonymity during the full course of their participation and afterwards.

4.9 Summary

This chapter presents an overview of the methodology which was used in this research .It provided justification for the study design and description of the study setting and sample, the pilot testing of the data collection instrument and how data was collected and analyzed.

Chapter Five

Results

5.1 Introduction

This chapter presents the results and the statistical analysis of the data. Based on the WHO framework, findings on prescribing, patient care and facility indicators in the 10 studied governmental primary health care facilities in Bethlehem District are displayed.

5.2 Drugs system at clinics

The drug management system in the public health system is totally centralized .The drugs supply is done from the central MoH stores to the district PHC directorate and then distributed to the public health clinics. The studied health care facilities have a different number of medical staff, and different physical infrastructures. The health facilities in Beit Sahur, Beit Jala, Jurt ash Shamaa, Al Shawawra, Toque`, Harmala, and AL Ubeidiya are level II clinics ,four of these clinics work with one full-time practical nurse and a general physician for two days per week without laboratory services. Health facilities in Al-Markazia (the central clinic), Za'tara, and Nahhalin are level III clinics, tow of these clinics are large and new health facilities which beside the primary clinics have different medical and nonmedical staff and specialist's physicians. It worth to mention that no first and forth level clinics available in Bethlehem district.

In general the pharmacies in the studied health facilities are of a small scale and limited space for dispensing drugs. Some pharmacies share space with a kitchen or files keeping shelves.

As for the drugs management system, every two months, using a standard requests form, drug and medical supplies request is prepared and ordered by the drug dispensers based on the consumption statistics and taking into consideration the possibility of emergencies. In seasonal outbreak, the type and the amount of drugs ordered change according to the need.

5.3 Characteristics of the participating patients

A total of 330 encounters were studied: 60 patients from Al-Markazia (Central) health facility in Bethlehem as the main health facility in Bethlehem district, and 30 patients from each of the others 9 health facilities in the district. All patients contacted were willing to participate in the study with a high response rate to participate. After explaining the objectives and potential benefits of the study, their consent was obtained. The distributions of the participants by sex were (60%) females and (40%) were males.

Distribution of sex and age groups are demonstrated in figure (5.1), females percentages were the highest in the four age groups.

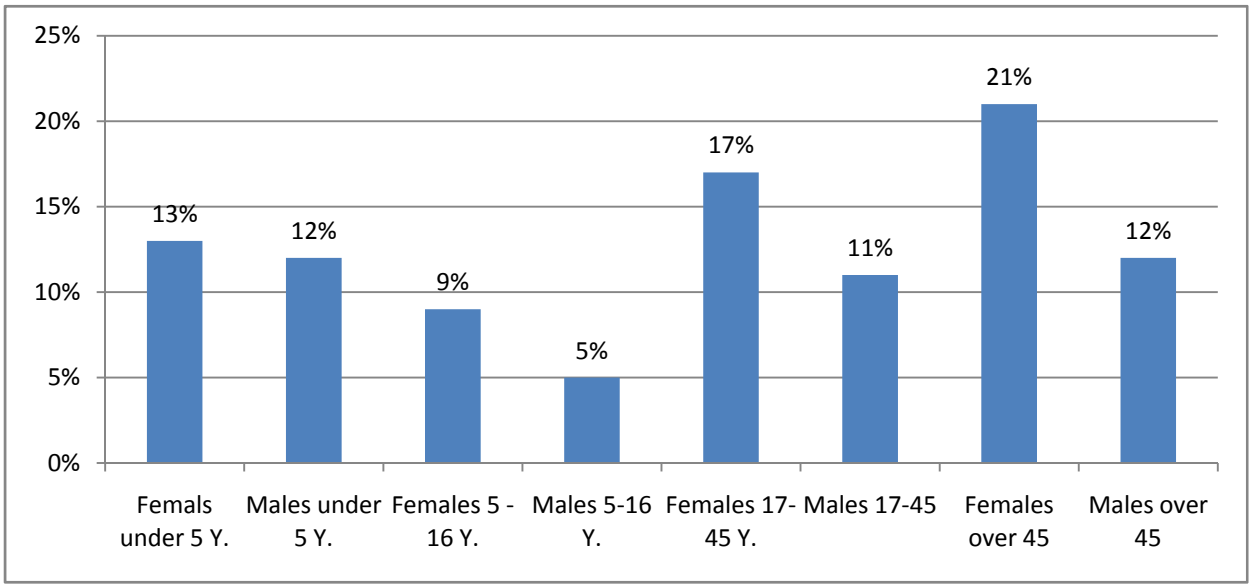

Figure (5.1): Distribution of participants by age

5.4 Patient care indicators

Patient care indicators are provided in Table 5.1. These indicators give an idea about patient care and drug prescription and dispensing processes as well as the patient knowledge about the dispensed drugs.

Table (5.1) Patient care indicators by health facility

Health care center	Average consultation time (min)	Average dispensing time (sec)	Average # drugs prescribed	Average % drugs dispensed	% Drugs adequately label	% Pat. knows dosage
Beit Jala	5.6	102	2.6	91.0	36.0	97.0
Al-Markizia	3.5	42	2.4	99.0	3.0	87.0
Beit Sahur	6.5	84	2.6	95.0	76.0	93.0
Al 'Ubeidiya	6.6	42	2.2	97.0	0.0	96.0
Za'tara	2.1	60	2	92.0	0.0	80.0
Tuqu'	1.8	54	1.7	91.0	67.0	93.0
Nahhalin	5.4	48	1.5	78.0	3.0	90.0
Jurt ash Sham'a	3.8	84	1.9	72.0	27.0	89.0
Harmala	1.5	54	1.8	96.0	4.0	97.0
Ash Shawawra	1.8	78	1.8	91.0	55.0	96.0
Overall Average	3.9	65	2	90.0	27.0	92.0

5.4.1. Consulting time

Table 5.1 shows the average consultation time per health/center as well as the overall average time for the 10 studied health facilities .The overall average consultation time is 3.9 minutes (SD=±2.03 minute) .The highest average time was in Al'Ubeidiya (6.6 min) and the lowest was in (1.5 min) in Nahhalin. Figure (5.2) below provides the pictorial presentation of these findings.

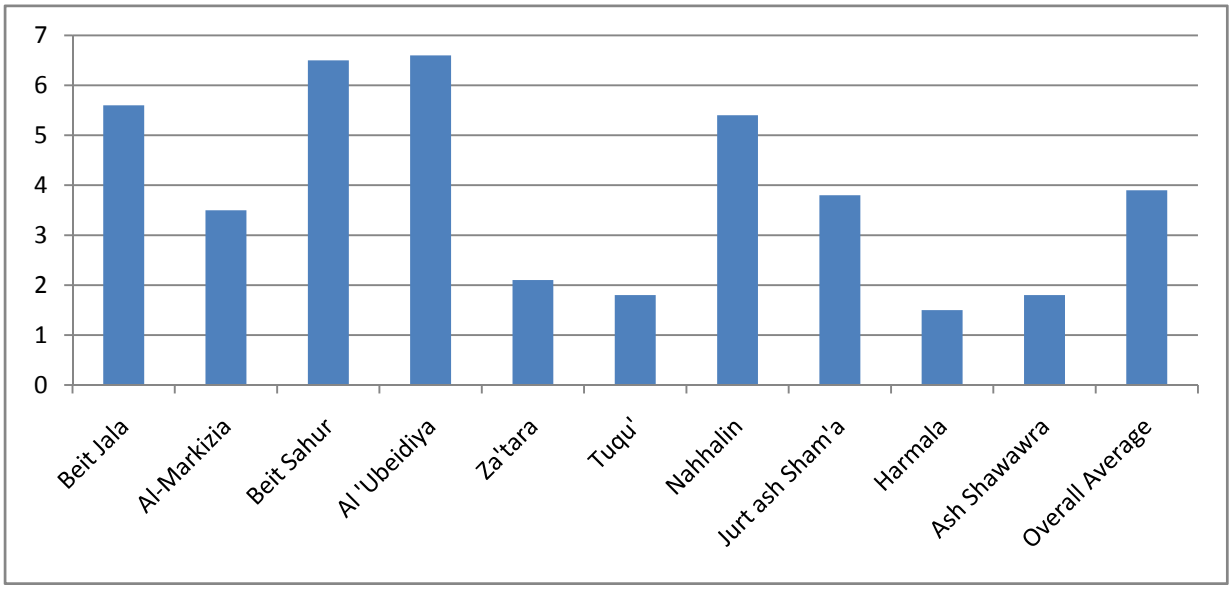

Figure (5.2): Distribution of the average consultation time (min)

5.4.2. Dispensing time

The overall average of the dispensing time in the studied clinics was 65.0 seconds (SD± 20.7).The highest average (102 sec) was in Beit Jala health clinic and the lowest (42 sec) in was Al-Markizia and Al'Ubeidiya health centers (See figure 5.3).

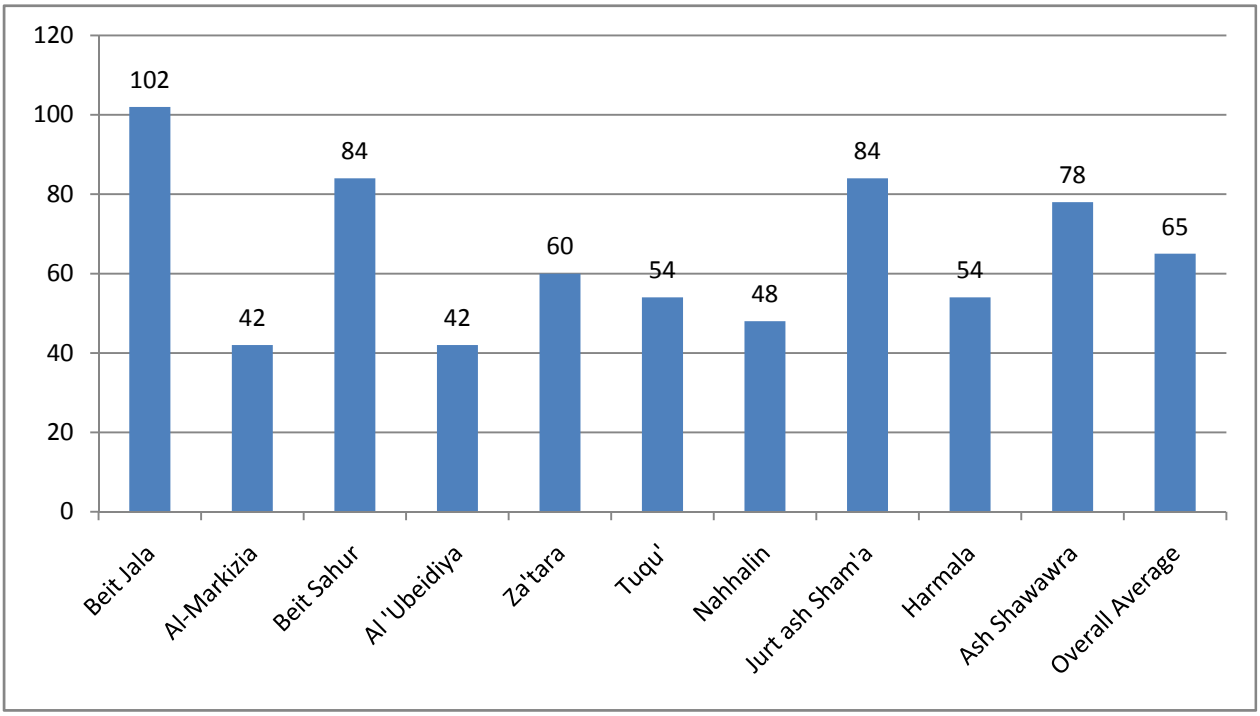

Figure (5.3): Distribution of the average dispensing time (in seconds)

5.4.3. Percentage of drugs dispensed

The percentage of drugs dispensed (Table 5.1) overall average was 90% (SD ±8.59).The highest percentage of drug dispensed was in Al Markazia Health facility and it was 99% of drug prescribed, and the lowest percentage was found in Ash Shawawra with percentage 72%, (Figure 5.4) below provides pictorial presentation of these findings.

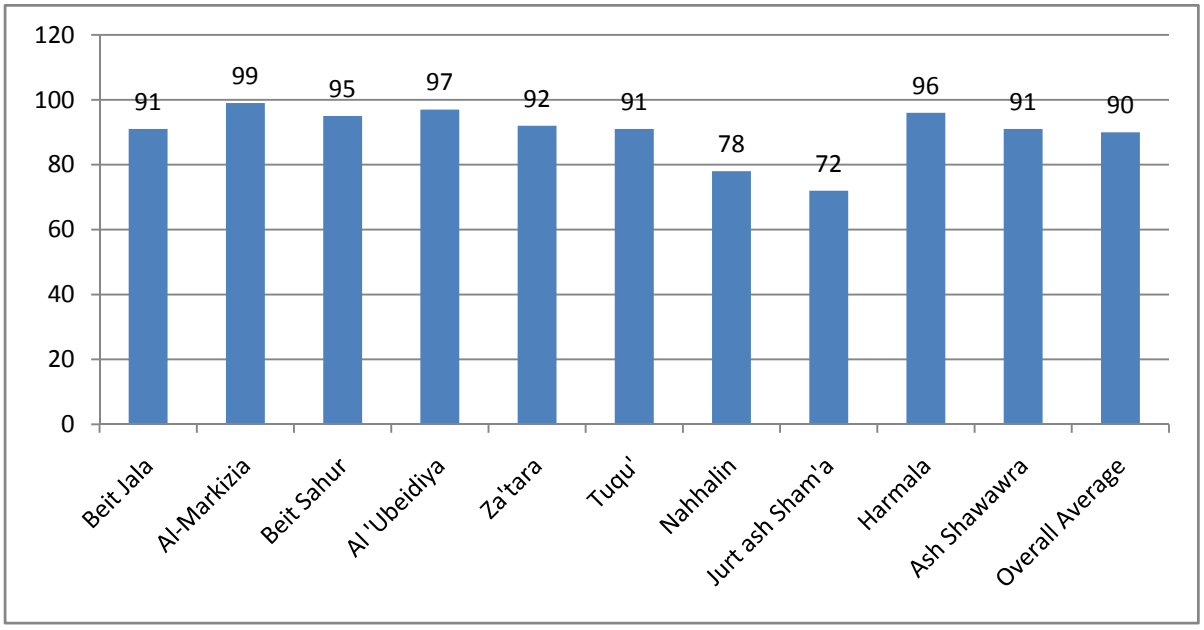

Figure (5.4): Distribution of percentage of drugs dispensed

5.4.4. Percentage of drugs adequately labeled

The percentage of the drugs adequately labeled in all health centers was 27% of the drugs dispensed (SD=±29.82). The highest percentage was in Beit Sahur with percentage 76% of dispensed drugs, and the lowest percentage were found in Al'Ubeidya and Za'tara health facilities with percentage 0.0% as can be observed in figure (5.5).

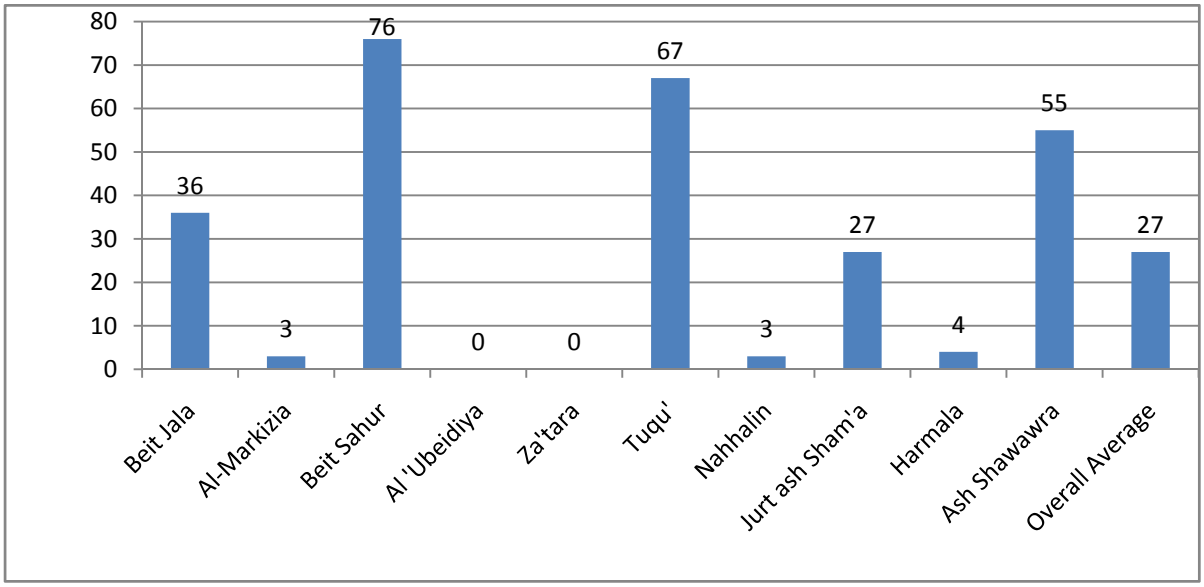

Figure (5.5): Distribution of the percentage of drugs adequately labeled

5.4.5. Percentage of patients know dosage

The average percentage of patients who know about dosage schedule for all drugs dispensed for them in the health facility was 92 %(SD=±5.43). The highest percentage was 97% in Beit Jala and in Nahhalin health facilities, and the lowest percentage was in Al'Ubeidya with percentage 80% (see figure 5.6).

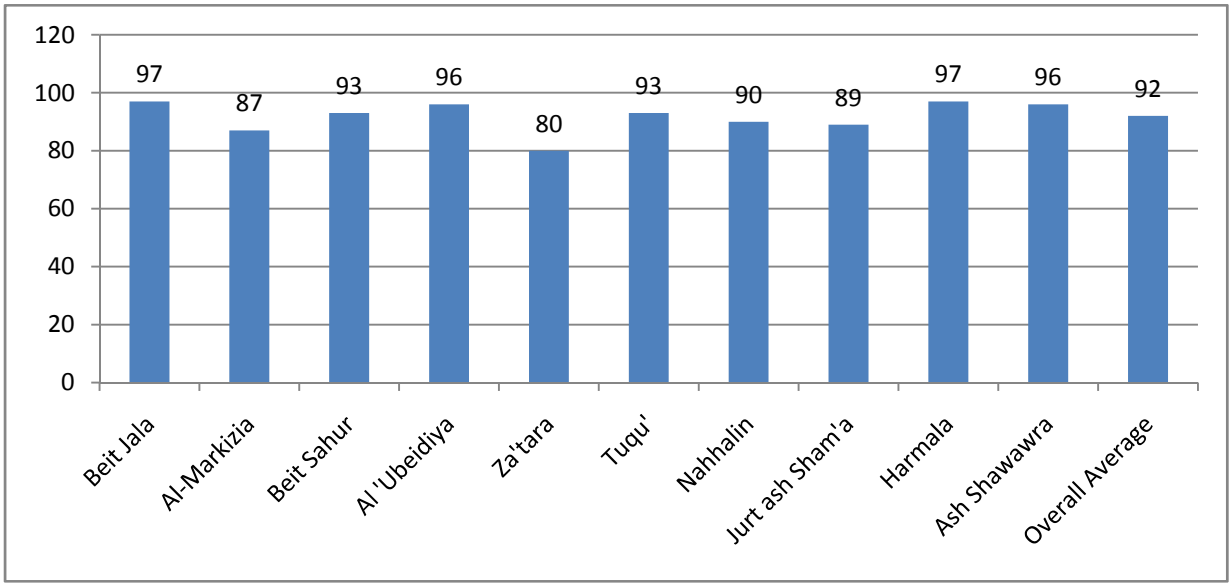

Figure (5.6): Distribution of percentage of patients know dosage

5.5 Prescribing Indicators

The results regarding the prescribing indicators in the studied public health clinics are provided in table (5.2).

Table (5.2) Prescribing indicators by health facility

Facility	Avg. #drugs prescribed	% generics	% antibiotics	% injections	% on *EDL
Beit Jala	2.6	0.0	40.0	0.0	97.0
Al-Markizia	2.4	0.0	27.0	8.0	100.0
Beit Sahur	2.6	0.0	5.0	2.5	100.0
Al 'Ubeidiya	2.2	0.0	11.0	5.0	100.0
Za'tara	2.0	0.0	57.0	10.0	100.0
Tuqu'	1.7	.0	33.0	0.0	100.0
Nahhalin	1.5	0.0	20.0	0.0	100.0
Jurt ash Sham'a	1.9	0.0	67.0	0.0	100.0
Harmala	1.8	0.0	15.0	0.0	100.0
Ash Shawawra	1.8	0.0	67.0	0.0	100.0
Indicator overall average	2	0.0	34.0	3.0	100.0

*EDL: essential drugs list

5.5.1. Average number of drugs prescribed per encounter

The overall average number of drugs prescribed in the studied clinics was 2.0 drugs (SD±0.38).The highest was 2.6 items in Beit Jala and Beit Sahur health facilities and the lowest was 1.5 items in Jurt ash Shamaa' (Figure 5.7).

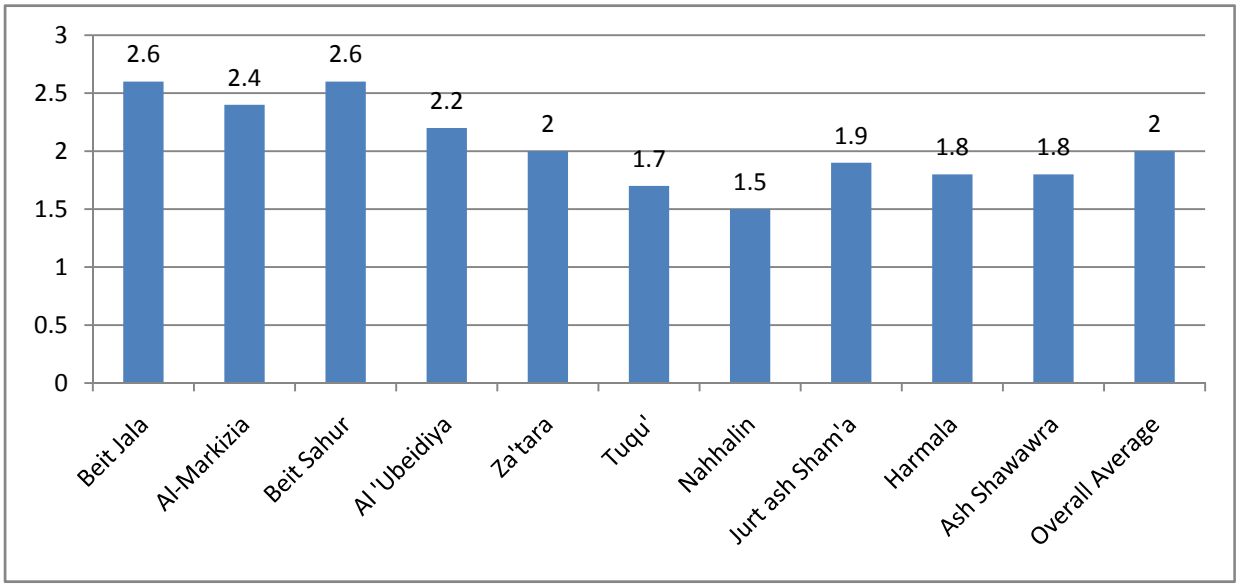

Figure (5.7): Distribution of the average number of drug prescribed

5.5.2. Percentage of drug prescribed by generic name

The prescription of drugs by generic names was not observed in any of the studied clinics (Table 5.2).

5.5.3. Percentage of antibiotics by clinic

The average percentage of patient encounter who were prescribed antibiotics was (34 %) (SD=±22.89). The highest percentage was found in Ash Shawawra and Harmala health facilities (67%), and the lowest percentage was in Beit Sahur with percentage (5%) as demonstrated in (figure 5.8).

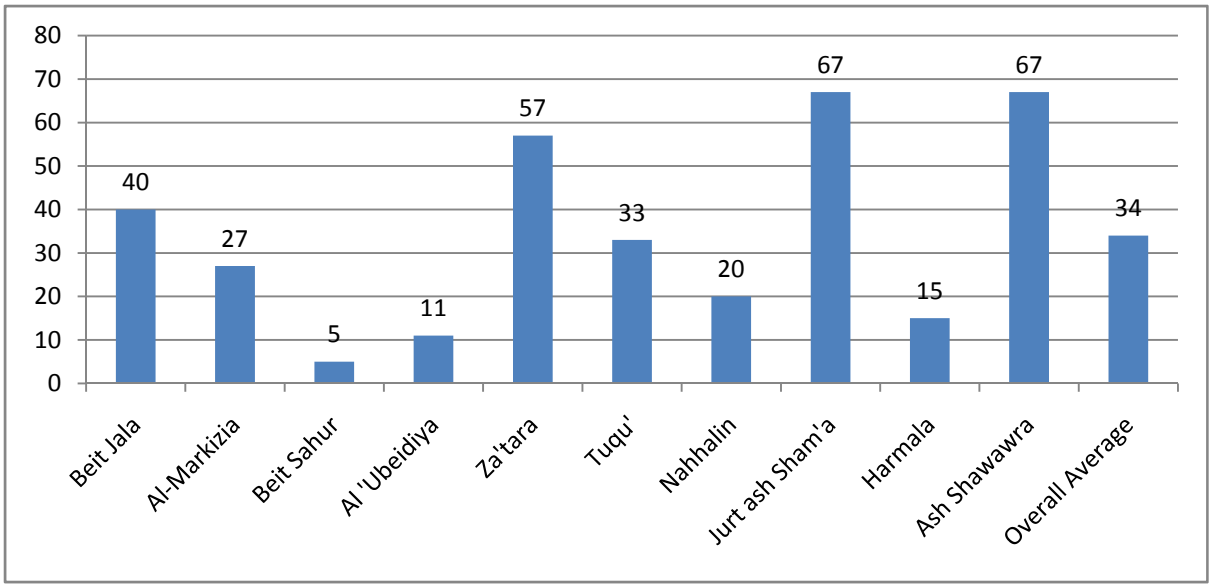

Figure (5.8): Distribution of the percentage of antibiotics prescription

5.5.4. Percentage of injections

The average percentage of patient with injection prescriptions 3.0% (SD=±3.80). Injections only prescribed in 3 health facilities, Al Markazia, Beit Sahur and Al'Ubeidiya with percentages 8%, 2.5% and 5% (figure 5.9).

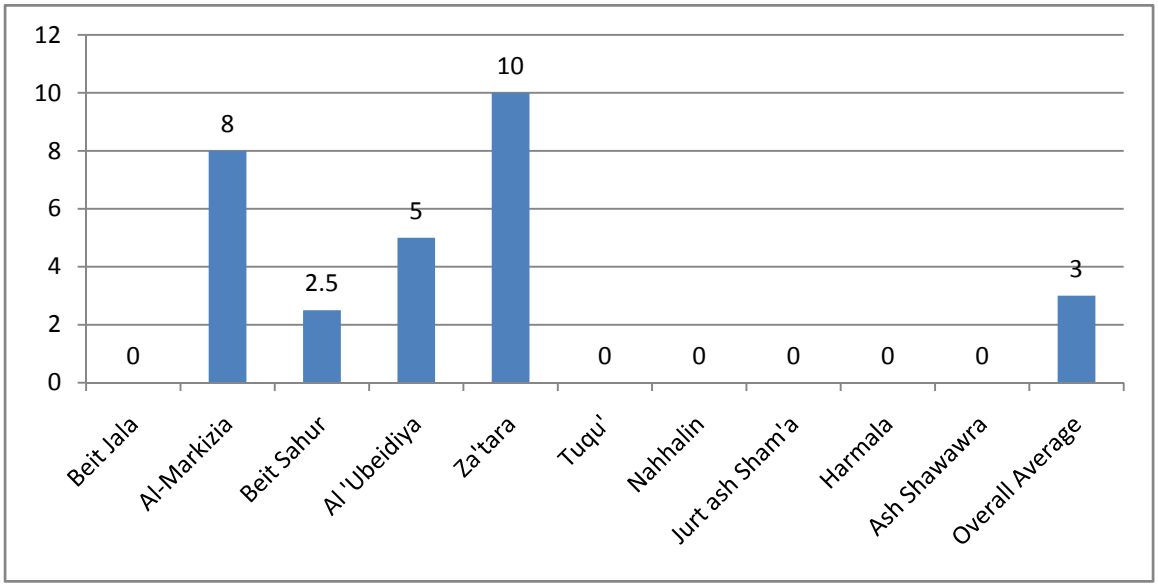

Figure (5.9): Distribution of the percentage of injections prescription

5.5.5. Percentage of drugs on the EDL

Approximately all prescribed and dispensed drugs in the studied health facilities were on 100% of drugs on the EDL. Except one health facility was 97 %(SD=±0.94), Beit Jala health facility (Figure 5.10).

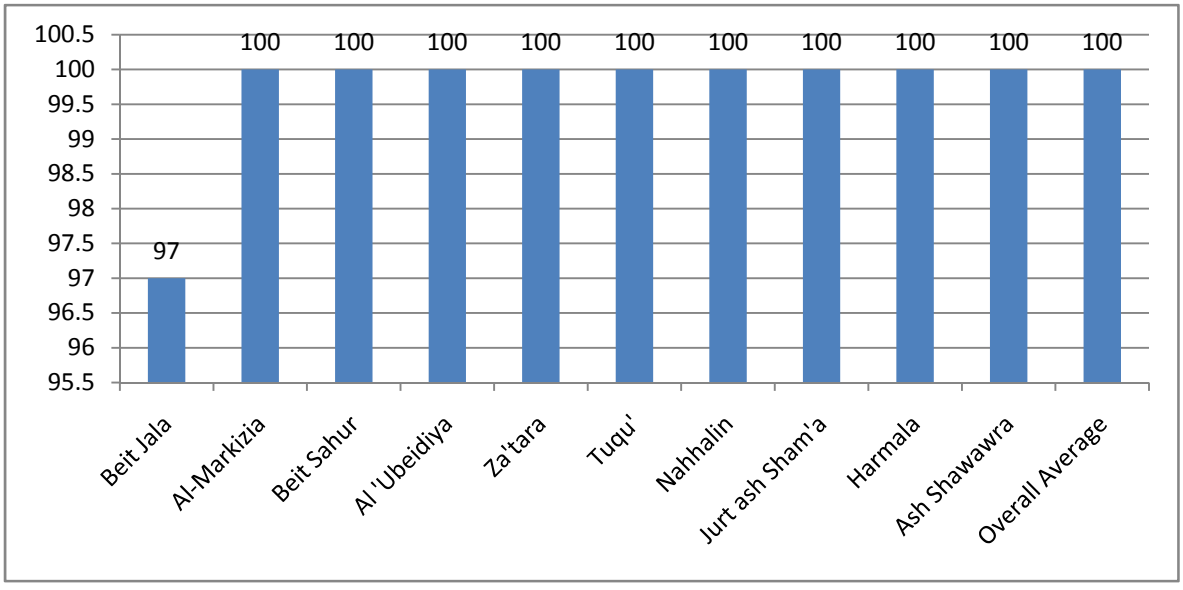

Figure (5.10): Distribution of the Percentage of Drugs on EDL

Percentage encounters not prescribed drugs

Overall percentage of the encounters that were not prescribed drugs in all facilities was 3.6 %(SD=±5.85).The rang was between 0.0% in six facilities and (see Figure 5.11), and 13% in Jurt ash Sham'a.

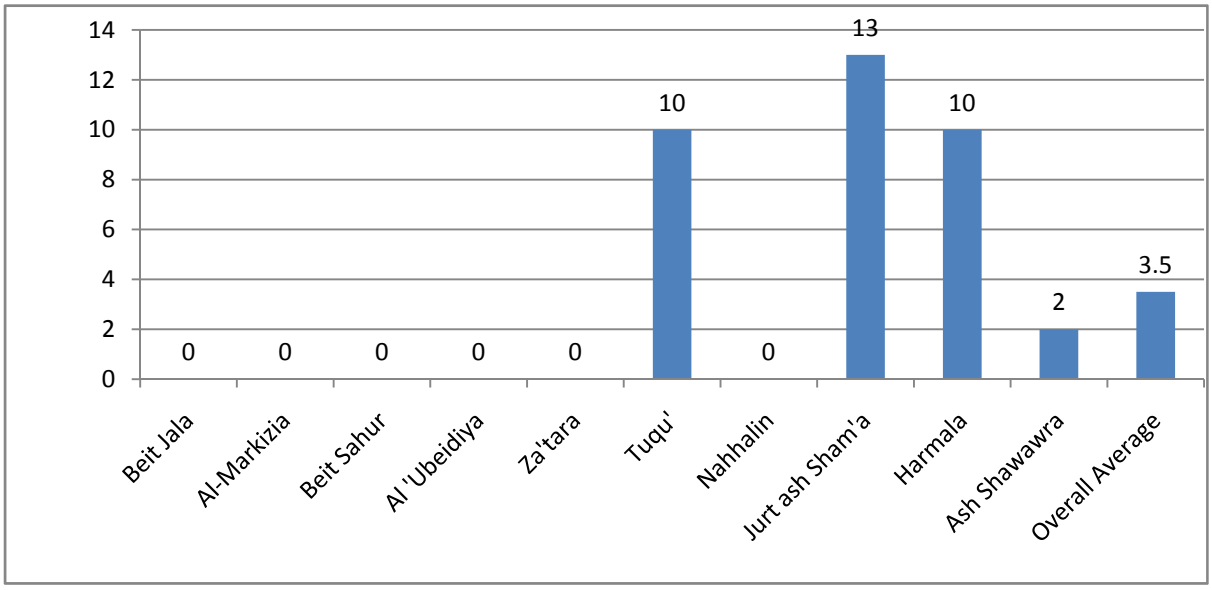

Figure (5.11): Distribution of the percentage of encounter not prescribed drugs

5.6 Facility Indicators

Availability of a copy of essential drugs list or formulary and availability of key drugs are two particularly important components of health facility indicators. These indicators were tested in the studied clinics and the results are provided in Table (5.3).

Table (5.3): Facility indicators by availability of copy of EDL and Percentage of key drugs

Health care center	% Key drugs in stock	Availability of EDL	
		Yes	No
Beit Jala	93.0	1	0
Al-Markizia	100.0	1	0
Beit Sahur	100.0	0	1
Al 'Ubeidiya	93.0	1	0
Za'tara	93.0	1	0
Tuque'	93.0	1	0
Nahhalin	100.0	1	0
Jurt ash Sham'a	100.0	0	1
Harmala	93.0	0	1
Ash Shawawra	87.0	1	0
Average	95.0	70%	30%

*Table key, 1=Yes, 0=No

5.6.1 Availability of a copy of Essential Drug List or Formulary

In 70% of the studied health facilities (7 clinics) a copy of EDL was available, 30% of the clinics (3 clinics) a copy was not available.

5.6.2 Percentage of availability of key drugs

Key drugs availability was very high in all health facilities under study. The overall average was 95 %(SD=±4.51).Four clinics had all the key drugs available in their pharmacies (Table 5.3) .The least availability was in Ash Shawawra clinic (87%)

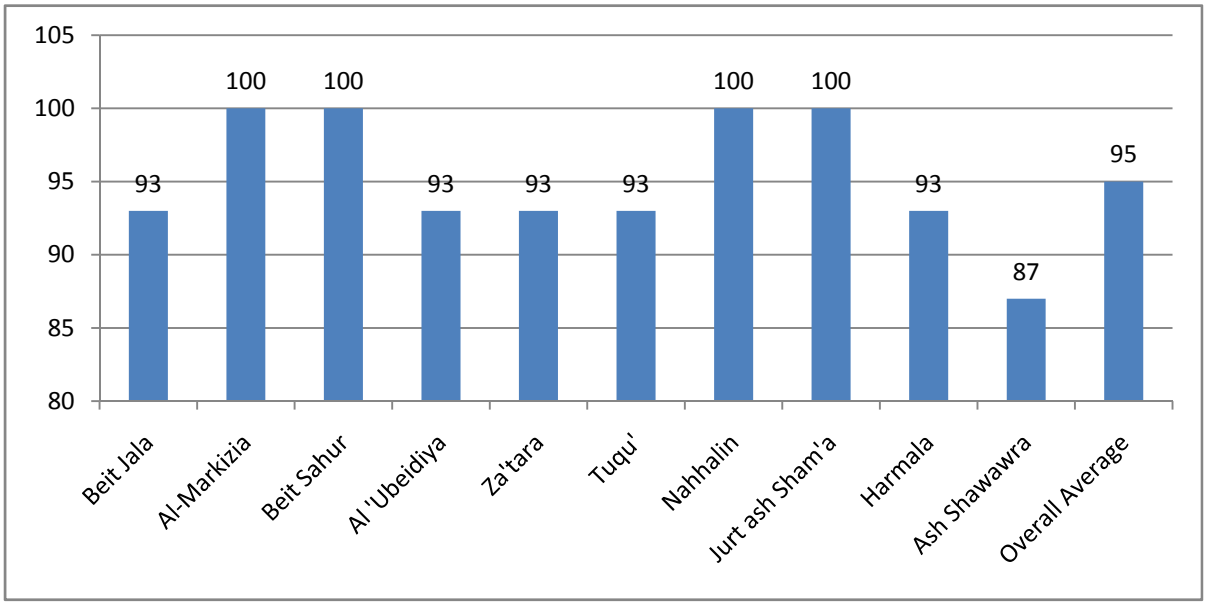

Figure (5.12): Distribution of the percentage of the availability of key drugs

5.6.3 Drug dispenser qualifications

With regards to the qualifications of the drug dispensers in the pharmacies of the studied health facilities the results were as follows, 30% of the health facilities (3 clinics) have pharmacist assistances , 30% of the health facilities (3 clinics) have pharmacists, and in 40% of the health facilities (4 clinics) the drug dispensers' were nurses (Figure 5.14).

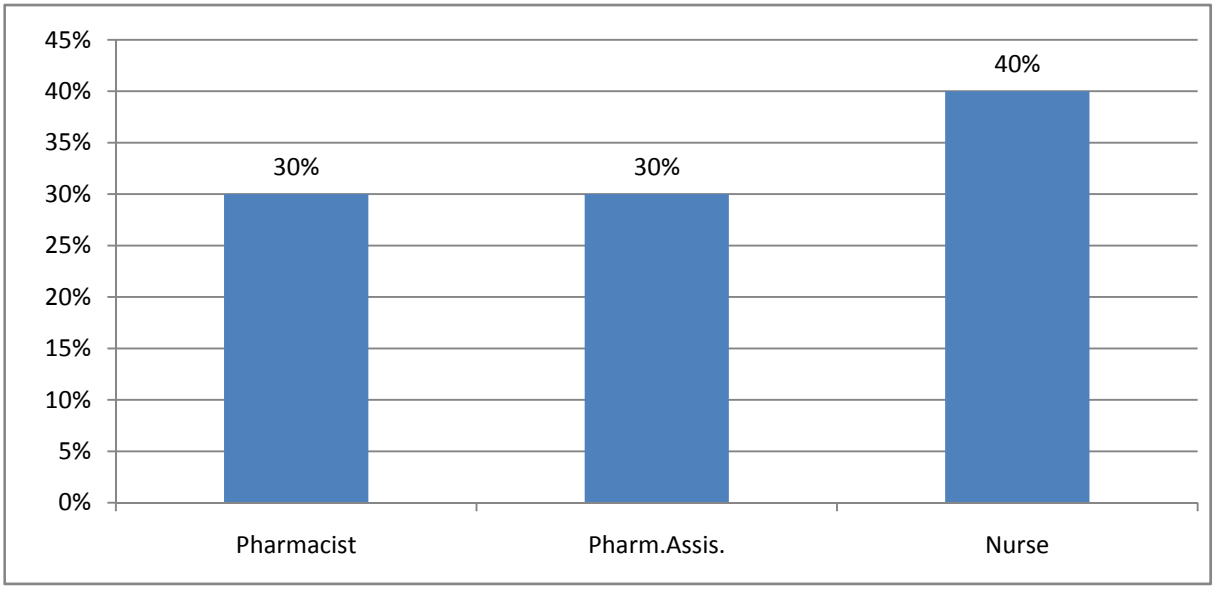

Figure 5.13:Qualifications of the drug dispensers in pharmacies

5.6.4 Pharmacy condition

In terms of the adequacy of the pharmacy conditions according to the drug dispensers in the studied clinics ,the results clearly shows that while 40% of the pharmacies (4 pharmacies) have adequate space and 40% of the pharmacies (4 pharmacies) have adequate shelves, only 10% (1 pharmacy)only have adequate cooling system and none of the pharmacies have an independent pharmacy store (Figure 5.14) .

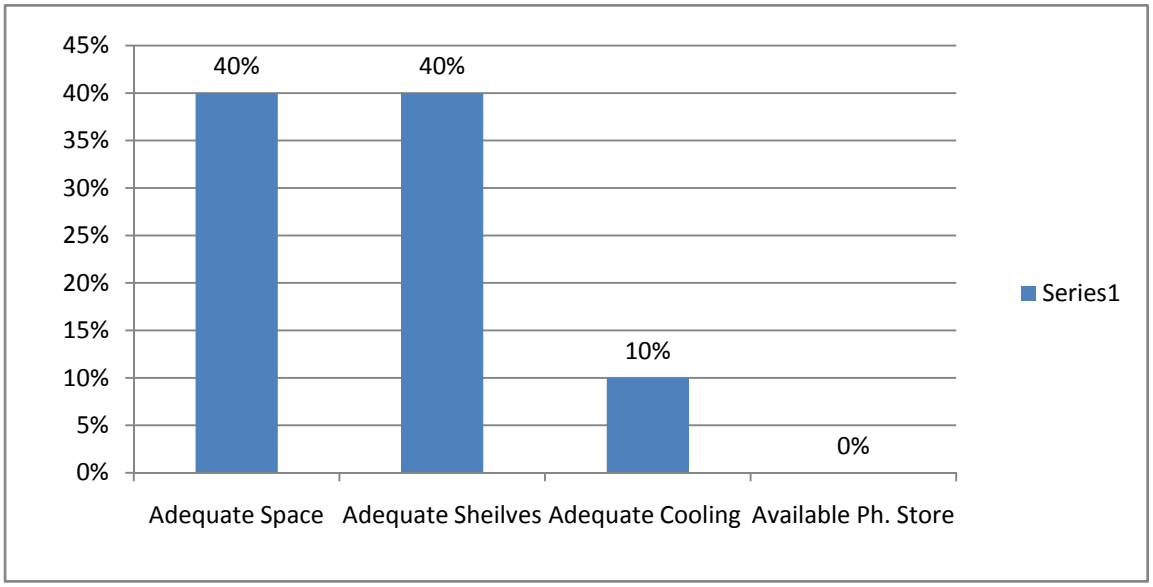

Figure (5.14): Percentage of adequacy of pharmacy conditions

No medicines were seen unattended or on the floor, all were on shelves or cupboard. Adequate dispense windows were observed only in three out of the studied ten facilities. Among the health teams in three facilities nurses complained from the multi task they perform, as nurse, clerk and drug dispenser.

In general, most of health facilities were located in old buildings which can`t serve the increasing patients number, or adding new health services because of the limited space in these facilities. It is worth to indicate that the two new clinics in Nahhalin and Za'tara villages are good examples to be adopted.

One of the main problems in almost all the health facilities visited was the hygiene conditions in these facilities and the shortages in cleaners. Most of the cleaners working in these facilities are not regular employees, but working as part-timers with very low salaries.

5.7 Summary

This chapter covered the data presentation. The patient care indicators, the prescribing indicators, and the facility indicators were covered. Under each indicator area selected number of variables was presented exploring different dimensions of the drug use process at the governmental studied facilities in Bethlehem district.

Chapter Six

Discussion

6.1 Introduction

This study was conducted with the aim to assess drugs availability, prescribing and dispensing processes in MoH primary health care 10 clinics in Bethlehem district using WHO recommended set of indicators.

In this chapter, the study findings for the 10 governmental primary health care facilities at Bethlehem district are discussed, conclusion and recommendations are made.

6.2 Prescribing indicators

Prescribing practices indicators are indicators that measure the performance of the health care providers in several key dimensions related to the appropriate use of drugs, (WHO b, 1993). In this study these prescribing indicators were calculated based on the prospective observation forms of a sample of patients attending the clinic on the days in which the data was collected. Table (6.1) compares the prescribing indicators in our study and the other two earlier national studies in PHC clinics in UNRWA (Hilo, 2008) and in selected clinics in NGO`s by (Khatib *et al.,* 2004), as well results from international studies.

Table (6.1): Comparable prescribing indicators from similar national and international studies

Prescribing indicators	Our MoH study	Hilo ,UNRWA study	Khatib *et al,*NGO`*s* study	International Studies
# Drugs	2	2.1	1.9	Sudan- 1.4 Lebanon- 2 India- 3.3 Bangladesh- 1.4
% Generic	0	31	24	Jordan- 5.1 Lebanon- 2.9 India- 59 Zimbabwe- 94
% Antibiotic	34	36	59	Yemen- 46 Sudan- 63 Ecuador- 27 India- 43
% Injection	3	1.2	16	Yemen- 25 Jordan- 1.2 India- 17 Nigeria- 37
% EDL	100	99	*	Jordan- 93 Syria- No EDL Tanzania- 88 Nepal- 86

Key table *=not discussed indicator, No EDL=EDL not available

6.2.1. Average number of drugs prescribed per encounter

The overall average drugs prescribed per encounter was (2) drugs. The highest was (2.6) drugs in Beit Jala and Beit Sahur clinics, and the lowest was (1.5) drugs in Jurt ash Shamaa'

clinic ,it is important to mention that in Beit Jala and in Beit Sahur the data collection took place at the end of September 2009 and at the beginning of October 2009. Coincidently, these days were the time when chronic diseases patients usually take their monthly drugs, where these patients receive large number of drugs than the ordinary patients.

In Palestine Hilo, (2008) study reported (2.1) drugs prescribed per encounter at UNRWA, and Khatib *et al*., (2004) reported (1.9) drugs prescribed per encounter at the NGO`s clinics. (Table 6.1).

It is worth to mention that, public physicians often prescribe drugs that are only available in the MoH health facilities and rarely prescribe drugs to be purchased from the private pharmacies.

The overall average of patients who were not prescribed drugs was (3.5%). Most of them were cases that had been referred to other specialized health facilities, after attending their area health facilities and sometimes more than one time.

6.2.2. Percentage of drugs prescribed by generic name

Although the EDL and drug order form are written in the generic names of the drugs, all dugs prescriptions were written with the commercial name of the drugs. These practices may reflect the lack of physician's awareness about the importance of using drug generic name, and they are more familiar with the brand names of drugs rather than the generic names.

This brings to the attention the important role of the pharmaceuticals industries in marketing and advertising their drugs in their brand names. This will result in having high average prescribing drugs with their brand names rather than the generic or scientific name.

One of the assumptions for the lack of using generic drug name is might that health workers and patients use the commercial names of drugs, because they are easier to pronounce and to remember.

It is believed that physicians in Palestine have different educational back-grounds due to different countries where they have obtained their academic qualifications. This fact has an influence on their prescribing practices and especially on using brand names in the prescription. In Palestine, medical schools and pharmacy schools use much often the generic names in their teaching.

It worth to indicate that using the generic drugs names in describing, despising and using drugs by patients has many positive aspects , especially for the patients who might confuse and use the same drug with two different brand names, which may resulted in bad sequences for patients health. .

Hilo, (2008) study reported (31%), and Khatib *et al*., (2004) reported (24%) of drugs prescribed by generic name (Table 6.1). This shows that prescribing by brand name is not only limited to MoH physician but also practiced by physicians in other health sectors in Palestine.

6.2.3. Percentage of encounter with an antibiotic

The overall average percentage of encounter with at least one antibiotic prescribed was (34 %).The percentages ranged between (67%) in Ash Shawawra and (5%) in Beit Sahur clinic.

Patients diagnosed with upper and lower respiratory tract infection (pharyngitis, otitis media, and bronchitis) were (25%) from the total patients who were prescribed with at least with one

antibiotic, and (27%) out of these were children under 5 years, it is worth noting that antibiotics usage was affected by the seasonal diseases patterns and effectiveness of antibiotics in many cases of upper respiratory infection is questionable.

According to(NICE, 2008), no antibiotic prescribing strategy or a delayed antibiotic prescribing strategy should be agreed for patients with the following conditions: acute otitis media ,acute sore throat/acute pharyngitis/acute tonsillitis ,common cold, acute rhinosinusitis ,acute cough/acute bronchitis. Depending on clinical assessment of severity, patients in the following subgroups can be considered for an immediate antibiotic prescribing strategy: bilateral acute otitis media in children younger than 2 years, acute otitis media in children with otorrhoea, acute sore throat/acute pharyngitis/acute tonsillitis when three or more center criteria are present. Center criteria are: presence of tonsillar exudate, tender anterior cervical lymphadenopathy or lymphadenitis, history of fever and an absence of cough (Nice, 2008).

In (Hilo, 2008) study, the reported percentage of encounters with prescribed antibiotic was (36%) and in the (Khatib *et al*., 2004) study the reported percentage was (59%).This shows that irrational use of antibiotics, especially in RTI is a common practice in Palestine and not only in MoH clinics, even the percentage of encounter with an antibiotic was lower than the same indicators in the two studies.

It is believed that physicians tend to overestimate the severity of illness to justify antibiotic prescribing. They are also under pressure from patients seeking a rapid amelioration of symptoms (Otoom *et al.,* 2007). Adding to this the competition between physicians, which exacerbates the circle of public confusion, inappropriate patient drug demand and inappropriate medical practice (Otoom *et al*., 2007).The inappropriate use of antibiotics is a major contributing factor to non-adherence to treatment guidelines and to polypharmacy (Lates & Shiyandja, 2001).

6.2.4. Percentage of encounter with an injection prescribed

The overall percentage of encounters with an injection prescribed was (3%). This indicator ranged between (10%) at Za'tara, (8%) at Al-Markazia, (5%) at Al'Ubeidya, (2.5%) at Beit Sahur and (0%) at the rest of the health facilities. This low percentage in prescribing injections might be explained; in the availability of alternative orally therapies; and usually injections are for hospital use. In addition the cost of injection therapy is almost higher than oral dosage forms. It is worth mentioning that the highest percentage of the prescribed injectable drugs that had been prescribed was Insulin injections.

The percentage of injection prescribed in Hilo, (2008) study was (1.2%), and in Khatib *et al.*, (2004) the percentage was (16%).The higher percentage of prescribed injection was noted in NGOs clinics ,it was higher percentage than those in UNRWA and MoH clinics According to WHO the optimal percentage for injectable drugs is 17.2 % (Siddiqi *et al*., 2002).

6.2.5. Percentage of drugs prescribed from EDL or Formulary

The overall percentage of drugs prescribed from EDL according to our study was (100%). In Hilo,(2008) study ,the percentage was (99%), in Khatib *et al.* (2004) the researcher couldn't calculate the percentage of the drugs prescribed from EDL in the different studied NGOs clinics, because every NGOs clinic had its own EDL, and thereby was difficult to calculate this indicator.

This high average of drugs prescribed from EDL, reflects the percentage of prescribing patterns which follow the national essential drugs list, the effectiveness of the drug supply system, and the availability of EDL drugs in governmental PHC.

It is worth to mention that usually drugs on EDL are known drugs for the health professionals and had been experienced and intensively used in practice by them.

6.3 Patient care indicators

In order to understand the way drugs are used it is important to consider what takes place at health facilities from both the provider`s and the patient's perspectives. (WHOa, 1993).The patient care indicators address consultation and dispensing times, drugs actually dispensed and adequately labeled and the patients` knowledge of the correct dosage. These above mentioned indicators can give a basic idea about the quality of consulting and dispensing procedures, and the form of the interaction between the patients and the health workers.

Table (6.2) shows patient care indicators compared to the two earlier national studies in PHC clinics in UNRWA Hilo, (2008) and in selected clinics in NGO`s Khatib *et al.,* (2004) as well as similar international studies.

Table (6.2): Comparable patient care indicators from similar national and international studies

Patient care indicators	Our MoH study	Hilo, UNRWA study	Khatib *et al*, NGO`*s study*	Earlier studies
Consultation Time/mints	3.9	1.07	6.4	Nigeria- 6.3 Malawi- 2.3
Dispensing Time(seconds)	65	4.76	102	Nigeria- 12.5 Nepal- 86.1
% Actually Dispensed	90	93.86	*	Nigeria- 70 Nepal- 83
% Adequately Labeled	27	80.13	60	Jordan- 91.4 Iran- 84
% Patient Knowledge	92	76.63	*	India - 82 Malawi- 27

Key table *=not discussed indicator

6.3.1. Average consultation time

The overall average of consulting time was (3.9) minutes , ranged between (6.6) minutes in Al'Ubeidya health facility and (1.5) minutes in Nahhalin clinic, Hilo, (2008) study reported an average consultation time of (1.07) minutes in UNRWA clinics, Khatib *et al*, (2004) reported (6.4) minutes for the NGOs clinics. It is noticed that the average consultation time in

the MoH clinic is much better than the UNRWA clinics and much lower than those of NGOs clinics.

It had been noticed that the average number of encounters had influence on the consultation time as the individual physician had to see all the encounters showed at the clinic that day.

We believe that higher average consultation time at NGOs clinics than the MoH clinics, could be explained by the lower number of patients attended those clinics, and patients out-of- pocket payments to access to the health services.

It is important to indicate that in the governmental clinics under study have a very high load of patients in the morning (between 8:00-12:00am). All the patients attend the clinic during this time to get services, and in later hours the number of patients decreases significantly. Exception had the central clinic in Bethlehem (Al-Markazia) which had high load of patients all the work day. Al-Markazia clinic had the highest work load among the studied clinics. This is because it serves a larger number of patients from all over the district, including many specialized health services and different kinds of drugs that could only be found in this central clinic.

The daily facility encounters number of patients attending the clinics ranged between (40-60) patients, except for Al-Markazia clinic, the number of patients ranged between (120-160) patients daily .In every health facility there is only one general physician providing services except for Al-Markazia which usually has two general physicians.

Although consultation time in this study is higher than the many other developing countries, but it still below the expectation to conduct a proper patient consultation and prescribe him the proper therapy. Although it is also difficult to standardize consultation (estimate an optimal) time period, it is believed that 30 minutes period should be the lower limit for proper interaction between the patient and physician in order to make a complete evaluation of the patient, and to prescribe an appropriate drug and have a proper physician-patient

interaction (WHOb,1993).This suggested optimal time might be unreasonable for public health system .Sub-optimal time as (10-15) minutes perhaps it is more reasonable time to be afforded in public health services.

Some patients, who attend the public facilities frequently, become familiar with the procedures and even with the kind of drugs available at the pharmacy of the facility. Moreover, because there are no fees for physician consultation, as so this makes easy access to many patients which they are really not in need to attend the clinic. Other patients, visit the public facilities as a first step, and then afterward visit the private facilities to seek better health care. Other patients make visit to the primary clinic just to be referred by the physician to other specialized health facilities. The absence of diagnostic services e.g. laboratories and x-ray, also affects the interaction between patient and physician results in a short consultation time.

6.3.2. Average dispensing time

The results showed variations in the average dispensing time in the studied clinics. As an average it was (65) seconds per patient .It ranged between (42) seconds in Al'Ubeidya clinic and (102) seconds in Beit Jala clinic.

While Hilo, (2008) reported (44.76) seconds average dispensing time in the UNRWA clinics, Khatib *et al*, (2004) reported (102) seconds in the NGO`s clinics. This shows that the dispensing time in the studied governmental PHC falls between the NGOs and UNRWA clinics dispensing time.

Regarding the observed physical setting in the studied clinics showed inadequate pharmacy space, absence of dispensing aids, unspecialized drug dispensers, patients' crowdedness and the high work load, all may affect negatively the dispensing procedures and dispensing time.

Also this may leads to inadequate labeling which resulting in inadequate patient knowledge about the drugs.

6.3.3. Percentage of drugs actually dispensed

The overall average of drugs actually dispensed was (90%) from the total drugs prescribed. The highest percentage (99%) was found in Al-Markazia health center and the lowest was (72%) in Ash Shawawra .This indicator reflects high drugs availability in the studied MoH health facilities. It was noticed that there is a big difference in the of percentages of drugs actually dispensed between Al-Markazia (99%) and in Ash Shawawra (72%) and Nahhalin (78%),(Figure 5.5) .This can be explained by the high drug availability in Al-Markazia health facility as the central health facility in the district. The other 7 clinics percentage of drugs actually dispensed ranged between (90%-96%) (Table 5.1).

This indicator is lower than that reported in UNRWA health clinics (93.86%), (Hilo, 2008) study, in the (Khatib *et al*, 2004) study this indicator was not selected for the study.

Availability of drugs in health facilities is affected by the centralized drugs supply and management system. Usually every two months the drugs dispenser in the health clinics prepares a request for the drugs needed based on the utilization records of the last two months. Dispensers also take into consideration the number of expected increase of patient's due to seasonal outbreaks. This request is submitted to the central drug store for procurement. This centralized drugs management (procurement and supply) system need a long time to perform it is duties. This sometimes causes delays in the supply and consequently shortages in the drug levels in clinics.

6.3.4. Percentage of adequately labeled

According to WHO (1995) patient care indicators, adequately labeled dispensed drugs packages must contain at least patient name, drug name and when the drug should be taken. Adequate labeling process can contribute to patient satisfaction and to lowering the possibility of misuse or abuse of the drugs in the community (de Vries *et al*, 1994; Management Sciences for Health, 1997).

The overall average of drugs adequately labeled from all actual dispensed drugs was (27%) as noted in the target health facilities. The highest percentage (76%) was in Beit Sahur clinic and in Al'Ubeidya and in Za'tara clinics the percentage was (0%) since none of the drug dispensed had the patient name written on the package by the drug dispenser.

The percentage of adequately labeled in our study much less than the percentage of UNRWA clinics (80.13%), (Hilo, 2008). In the NGO`s clinics, (Khatib *et al*, 2004) the indicators was (60%).

In most facilities patient names were not written on the drug packages. Omission of patient`s name on drug labels is a serious matter, with potentially serious consequences such as drug misuse, drug abuse, and overdose (Slobodan *et al*., 1999).

The name of patients was written in some cases when there was more than one patient from the same family getting drugs from the clinic at the same time. Although the patients name was not written in many of the cases, but, however the drug name, dosage, schedule of taking the drug and the expiry date were properly written.

It was noted that the most common way for labeling the drug packages was only, to write (1x3) indicate that the dosage of the drug is to be taken three times daily.

It is important to mention that in cases of patients with chronic diseases (who are very familiar with the schedule of their drugs) patients receive their drug packages without any labeling at all. It is believed that chronic patients usually refuse to wait for drug labeling or

sometimes the drug dispenser considers that there is no need for labeling the drugs because they assumes that the patients know the names and the regimen of their drugs.

6.3.5. Patient`s knowledge of correct dosage

The overall average of the patients` knowledge of the correct dosage schedule for all drugs dispensed was (92%). Beit Jala had the highest percentage (97%) and Al-Markazia had the lowest percentage (87%).This high percentage could be explained by the instruction given about the drugs` use by the drug dispensers, patient's familiarity with drugs and ability of patients to read the labeled drugs. Cases of patients who couldn't repeat the correct dosage were resulted from their inability to read.

In Hilo, (2008) study, the percentage of patients' knowledge was (76.63), Khatib *et al*, (2004) the percentage of patients' knowledge was not investigated.

6.4 Facility indicators

Table (6.3) shows facility indicators in our study compared to the two earlier national studies in PHC clinics in UNRWA (Hilo, 2008) and in selected clinics in NGO`s by (Khatib *et al.,* 2004).

Table (6.3): Comparable facility indicators in three PHC sector studies

Health facility indicators	Our MoH study	Hilo ,UNRWA study	Khatib *et al* ,NGO`s study
% Copy of EDL	70	100	45*
% Key Drugs	95	94	**
% Adequate space	40	50	**
% Adequate shelves	40	60	**
% Adequate cooling	10	25	**
% Adequate store	0	15	**

Table key *=EDLs written in brand name, **=not discussed indicator

6.4.1. Availability of copy of Essential Drugs List or Formulary

The availability of the copy of essential drugs list in the studied MoH clinics was (70%). In UNRWA study (Hilo, 2008) reported (100%) availability of EDL list,(45%) in the NGO`s clinics studied by Khatib *et al*, (2004), (there were list written in brand name and not unified in all NGOs clinic).The availability of a copy of EDL in health facilities is considered a vital indicator, even though it was noticed that is not used by the drug dispensers because the same list is written in the drug order sheet which they use frequently.

6.4.2. Availability of key drugs

The availability of key drugs is one of the important issues in the health facilities, were these drugs are important for treatment of common health problems.

The availability of key drugs was (95%) as an overall average of the studied clinics. At Al-Markazia, Beit Sahur, Nahhalin and Jurt ash Shamaa` the percentages were (100%), and the lowest percentage was in Ash Shawawra (87%). These high percentages of availability of key drugs reflect the policy in supplying the pharmacies at the health facilities with the key drugs from the central pharmacy.

It is important to mention in case of shortages in drugs and mainly in key drugs, an emergency order can be done by the drug dispensers at the facilities , and usually shortages can be managed in short time, except for when there is no stock of these drugs in the district central pharmacy.

Hilo, (2008) study reported (94%) for the availability of key drugs, and Khatib *et al*, (2004) study this indicator was not selected for investigation.

6.4.3. Pharmacy problems and drugs dispensers complains

Referring to the complains of the drug dispensers concerning pharmacies space, shelves, cooling and availability of a pharmacy store, only 40% of the drugs dispensers admit that the pharmacy has an adequate space ,40% reported adequate shelves, 10% reported adequate cooling. However, none of the studied health facilities has a pharmacy store. (Figure 15.5). Based on the pharmacist complains , Hilo,(2008) study reported 50% of the pharmacists complained about the inadequate space,40% inadequate shelves ,75% inadequate /ineffective cooling ,and 85% inadequate drug storage space .

Only five health facilities have independent pharmacy space. The five remaining facilities haven’t an independent pharmacy space but a multipurpose spaces e.g. to dispense drugs, or

as examining rooms, files keeping or even a kitchen. Adequate dispense windows were observed only in 3 out of the 10 studied facilities.

Despite that in all the pharmacies, no medicines were seen unattended or on the floor, all were on shelves or cupboard.

Frequently nurses in the clinics complained for doing multi tasks as they perform, a nurse, s a clerk and sometimes as a drug dispenser.

In general, most of health facilities were small ,and located in old buildings which cannot serve and cope with the increasing patients number attending the clinic neither or suitable for adding new health services e.g. laboratory or x-ray. On the other hand the two new health facilities in Nahhalin and in Za'tara are good models of clinics to be replicated.

Finally, one of the main problems observed in approximately all the health facilities visited was the hygiene conditions and the shortages in cleaners. Most of the cleaners working in these facilities are not regular employees, but working as part-timers with very low salary.

6.5 Conclusions

Based on the study results we can conclude that:

- The average numbers of drugs prescribed per encounter reflects the fact that public health system in Bethlehem district has reasonable prescribing practices in comparison with other local health providers and developing countries.
- Drugs are prescribed by using the commercial (brand name) rather than the generic names despite the fact that all drugs EDL are generics. This reflects low physicians` awareness of the issue.
- In general, the prescribing level of the antibiotics is very high especially for children under 5 years age (Figure5.1).

- Injection drugs are rarely used which is a good indicator for reducing drug cost and for patient safety reasons. Most of injections used were for insulin injections.
- There is a high adherence to the national essential drugs list EDL. Physicians prescribed only drugs included on the EDL.
- Although the consultation time in average is better than other developing countries, it remains under the optimal time needed for proper interaction between patient and physician and for achieving good quality of patient care.
- Very short dispensing time was noticed leading to improper labeling, and insufficient patient informing about the drug use precautions and interactions.
- High availability of drugs in the health facilities is reflected by the high percentages of drugs actually dispensed out of those prescribed as well as by the high availability of key drugs.
- The drugs dispenser problems mainly consist from unclear job description.
- Finally, most of the studied health facilities lack proper infrastructure and enough space, and have improper working environment for health personnel besides the increased number of patients receiving services at the MoH clinics. Probably all this would impact negatively on the quality of health care provided.

6.6 Recommendations

1. Clinics should be located in suitable area in the health facility, and should have all the means for securing the privacy of patients and relaxed work environment for staff.

2. There is a need to improve the physical setting of the pharmacies in the clinics to better serve the patients. Pharmacies should have separate and independent space, adequate storage and handling conditions of drugs, and adequate dispensing window with glass to separate patients from dispensers.

3. It recommended that health facility pharmacies should be managed by pharmacists and in case of workload he or she can be assisted by a pharmacist assistant.

4. To improve the consultation and dispensing times, there is a need for a continuous practices supervision and monitoring process.

5. There is an urgent need for a continuous education and training programmes for all health personnel including physicians, pharmacies and nurses on drugs related issues.

6. It is important to provide health personnel with clear and up-to-date guidelines for drugs prescribing and dispensing. There is a need also for a follow up and monitoring system for the implementation of these guidelines.

7. In specific there is a need to rationalize prescribing and use antibiotics. Protocols and guidelines and proper training for physicians as well as a monitoring system will help towards that end.

8. It is essential to provide the health facilities with an updated Essential Drugs List. A computerized drugs management system at the clinics that is linked with centre can improve the availability and the efficiency of drugs.

9. There is a need to educate patients about drugs and their rational use.

10. MoH should develop guidelines about the use of generic names of drugs and to train the physicians and pharmacists on using them in prescribing and in dispensing.

11. Staffing patterns of the MoH health facilities (in specific the needed type, numbers and skills of health personnel) to be reviewed in light of health services provide and workload at the facilities. This should aim at empowering the clinics staff and developing their capacities as well as filling the vacant posts at the facilities.

6.7 Recommendation for further research

This is the first study in public primary health facilities in Bethlehem District.

1. Similar studies could be conducted at the other districts or other sectors/providers and also in Gaza, to allow for comparison studies between the districts and between areas.

2. Interventional research rationalizing antibiotics prescribing practices by physicians and the factors affecting that in MoH clinics.

3. Study and research the MoH Essential Drugs List.

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Annexes

Annex (1 A): Governmental Primary Health Care and Public health Programs

Main program	Sub program	Objective
Preventive medicine	Vaccination	Control communicable and infectious diseases as measles, mumps, tetanus, HBV, and polio.
	Epidemiological Surveillance	Monitor the infectious diseases; data collection for rapid action
	Non – communicable diseases control	Identify risk factors, develop preventive measures to reduce incidence and improve the quality of patients' life.
	Occupational medicine	Identify occupational diseases, risk factors, raise medical and public awareness.
	Health institution to prevent accidents	Reduce incidence of the road accidents.
	Brucellosis control program	Raise awareness and decrease morbidity and complications.
	Zoonosis Control	Decrease morbidity and complication
	Tuberculosis control	Prevention, early detection and treatment.
	Sexually transmitted infections program	Raise awareness and decrease morbidity and complications
	Avian flu preventive program	Preventive plan
Community health programs	Mother and Child health program	Record the deaths, analyze the data, develop preventive plans.
	High risk pregnancy program	Reduce the complications and associated deaths for both mother and child.
	Family planning program	Increase the periods between pregnancies.
	Breast examination program	Early detection to reduce the complications and improve patient's life quality
	Pap smear program	Early detection to reduce the complications and improve patient's life quality
	Home visits program	Improve access to primary health care services.
	Integrated Management of Child Illnesses	Improve the children health status
Environmental health program	Food control program	Ensure the quality of the food and reduction of food born diseases
	Water control program	Ensure the quality of water and reduction of water born diseases
	Insects control program	Control the insects and reduce vector born disease
	Medical waste management program	Healthy treatment of the medical waste and reduction of nosocomial and community infection
	Crafts and industries licensing	Ensure the implementation of environmental legislation and regulations

Source: National Strategic Health Plan Medium Term Development Plan (2008-2010)

Annex (1 B): Governmental Primary Health Care and Public health Program.

Main program	Sub program	Objective
Electro-magnetic control program		Monitor the electro magnetic devices and evaluate its health impact
Nutrition department	Anaemia	Provide iron and folic to children and pregnant women.
	Vitamin (A and D) program	Prevention of vitamin A and D deficiency
	Iodinazing program	Prevention of iodide deficiency
	Flour fortification	Improve the quality of flour and prevent anaemia and micro nutrient deficiency diseases
Central Public health lab	Serology	Confirmation of diagnosis
	TSH program	Early detection and provision of curative services
	Molecular biology program	Use DNA/RNA in diagnoses
	Quality assurance program	Assure the quality of Central Public Health Lab services
	Pesticides	Assure the level pesticides
	Detergent and cosmetic materials control program	Assure the quality of these materials
	Pharmaceuticals control program	Assure the quality of drugs
	Water and food examination program	Assure the quality of food and water
	PKU program	Early detection and provision of curative services
School health		Screening, early detection, prevention (vaccination) and follow up
Community mental health		

Source: National Strategic Health Plan Medium Term Development Plan (2008-2010)

Annex (2): Localities and population in Bethlehem District, 2007

Locality Name	**Locality Type***	**Population**
		2007
Al Walaja	2	2,015
Battir	2	3,917
Al 'Ubeidiya	1	10,618
'Ayda Camp	3	2,598
Khallet an Nu'man	2	171
Al 'Aza Camp	3	1,510
Al Khas	2	389
Al Haddadiya	2	53
Khallet Hamameh	2	1,397
Bir Onah	2	664
Beit Jala	1	11,610
Dar Salah	2	3,331
Husan	1	5,481
Wadi Fukin	2	1,153
Bethlehem (Beit Lahm)	1	24,949
Beit Sahur	1	12,212
Ad Doha	1	9,631
Al Khadr	1	9,651
Ad Duheisha Camp	3	8,626
Hindaza	2	4,739
Ash Shawawra	2	3,690
Artas	2	3,617
Nahhalin	1	6,741
Beit Ta'mir	2	1,214
Khallet al Louza	2	571
Al Jab'a	2	885
Za'tara	1	6,210
Jannatah	1	5,348
Wadi Rahhal	2	1,401
Jubbet adh Dhib	2	160
Khallet Sakariya	2	183
Khallet al Haddad	2	402
Al Ma'sara	2	793
Wadi an Nis	2	762
Jurat ash Sham'a	2	1,472
Marah Ma'alla	2	676
Umm Salamuna	2	933
Al Manshiya	2	428
Tuqu'	1	8,769
Marah Rabah	2	1,303
Beit Fajjar	1	10,866
Al Maniya	2	999
Kisan	2	448
'Arab ar Rashayida	2	1,435
Urban Total		**122,086**
Rural Total		**39,201**
Camps Total		**12,734**
Total Bethlehem Gov.		**174,022**

* Locality Type: 1- Urban 2- Rural 3- Camps

Source: Population, Housing and Establishment Census 2007

Annex (3): Prescribing indicator form

PRESCRIBING INDICATORS FORM

Location: _____

Investigator: _____ **Date:** _____

Seq. #	Type (R/P)	Date of Rx	Age (yrs)	# Drugs	# Gen-erics	Antib. (0/1)	Injec. (0/1)	# on EDL	Diagnosis (Optional)
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
Total									
Average									
Percentage					% of total drugs	% of cases	% of total cases	% of total drugs	

* 0=No 1=Yes

Annex (4): Patient Care Indicators Form

PATIENT CARE FORM

Location: _____

Investigator _____ **Date:** _____

Seq. #	Patient Identifier (if needed)	Consulting Time (mins)	Dispensing Time (secs)	# Drugs Pre-scribed	# Drugs Dis-pensed	# Ade-quately Labelled	Knows Dosage (0/1)
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
Count							
Total							
Average							
Percentage					% *of pre-scribed*	% *of dis-pensed*	% *of cases asked*

*** 0=No 1=Yes**

Annex (5): Facility Summary Form `A`

FACILITY INDICATORS REPORTING FORM							
Location:							
Investigator					**Date**		
						This Facility	**National Standard**
Number of Cases			**Prescribing**				
			Patient Care				
Average Number of drugs prescribed							
Percentage of drugs prescribed by generic names						**%**	**%**
Percentage of encounters with an antibiotic prescribed						**%**	**%**
Percentage of encounters with an injection prescribed						**%**	**%**
Percentage of drugs prescribed on Essential Drug List						**%**	**%**
Average Consulting Time						**mins**	**mins**
Average Dispensing Time						**secs**	**secs**
Percentage of drugs actually dispensed						**%**	**%**
Percentage of drugs adequately labelled						**%**	**%**
Percent correct patient knowledge of dosage						**%**	**%**
Availability of essential drug List or Formulary						**Yes / No**	**%**
Percentage availability of key indicator drugs						**%**	**%**
Comments							
Signatures							

Annex (6): Facility summary form

FACILITY SUMMARY FORM

Location: _____

Investigator _____ **Date:** _____

Contacts _____

_____

Problems or _____

Complaints _____

_____

_____

# Cases			**From**	**To**
Retrospective	___	**covering dates**	_____	_____
Prospective	___	**covering dates**	_____	_____
Patient Care	___	**covering dates**	_____	_____

Essential Drug List/Formulary available at facility? (0/1) _____

Key Drugs in Stock to Treat Important Conditions	**In Stock (0/1)**	
Amoxicillin		**% in stock**
Cephalexin		**this facility**
Antiacids		
Digoxin		
Diclofenac Sodium		
Enalapril Maleate		
Folic Acid		
Ferrous Sulphate		
Furosemide		
Gilbenclamide		
Metformin		
Mebendazole		
Metronidazole		
Paracetamol		
Acetylsalisalic Acid		

Annex (7): Drug Use Indicators Consolidation

DRUG USE INDICATORS CONSOLIDATION FORM

Location: _____ **Date:** _____

Date	Facility	Avg. drugs Prescribed	Percent generics	Percent antibiotics	Percent Injections	Percent on EDL	Consult time	Dispense time	% Drugs dispensed	% Adequate label	%Adequate knowledge	Impartial Information	% Drugs in stock
Mean													
Maximum													
Minimum													

Annex (8): Facility Summary Form B

N0.	Health Facility	Drug Dispenser Qualifications			Pharmacy Problems			
		Pharmacist	Pharm. Assis.	Nurse	Adequate Space	Adequate Shelves	Adequate Cooling	Available Ph. Store
1	Beit Jala							
2	Al-Markizia							
3	Beit Sahur							
4	Al 'Ubeidiya							
5	Za'tara							
6	Tuqu’							
7	Nahhalin							
8	Jurt ash Sham'a							
9	Harmala							
10	Ash Shawawra							
	Total							
	Percentage							

0=No

1=Yes

Annex (9): Permission Letter

بسم الله الرحمن الرحيم

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

التاريخ:2009/6/22
الرقم: ك ص ع/145/2009

حضرة الدكتور محمد رزق المحترم
مدير صحة بيت لحم المحترم

الموضوع: طلب إذن لإجراء بحث رسالة في برنامج ماجستير الصحة العامة/الادارة الصحية

تحية طيبة و بعد:
تعمل الطالبة الصيدلانية ليانا الحذوة على انجاز بحث متطلب رسالة الماجستير في برنامج ماجستير الصحة العامة/الإدارة الصحية في كلية الصحة العامة في جامعة القدس/ عنوان البحث:

"Public Primary Health Care Clinics Assessment of Drugs Use In Bethlehem District"

وتهدف الدراسة إلى مراجعة استخدام الأدوية في عيادات الرعاية الصحية الأولية باستخدام مؤشرات منظمة الصحة العالمية والمستعملة عالميا لهذا الغرض. بحيث ستقوم الطالبة بدراسة مؤشرات رعاية المريض ووصف وصرف الأدوية بالإضافة إلى فحص مدى توفر القائمة الأساسية للأدوية في عيادات الرعاية الصحية الأولية في محافظة بيت لحم.

نرجو من حضرتكم التكرم بالموافقة على إجراء البحث وتسهيل مهمة الطالبة في دائرتكم.

مع قبول فائق الاحترام،،

د.محمد شاهين

عميد كلية الصحة العامة

نسخة: الملف

Jerusalem Branch/Telefax 02-2799234
Gaza Branch/Telefax 08-2878166,2878177
P.O. box 51000 Jerusalem

فرع القدس / تلفاكس 02-2799234
فرع غزة / تلفاكس 08-2878166-2878177
ص.ب. 51000 القدس

Annex(10): Response Letter

Palestinian National Authority
Ministry of Health
Primary Health Care And
Public Health Directorate
Ramallah
P.H.D. / Bethlehem
Tel :02/2741756
Fax : 02/2741023

السلطة الوطنية الفلسطينية
وزارة الصحة
الادارة العامة للرعاية الصحية الاولية
والصحة العامة
رام الله
مديرية صحة محافظة بيت لحم
هاتف :02/2741756
فاكس -2741756-2741023ت-

No : -
Date :-

الرقم:-
التاريخ :-

From: Director of Bethlehem Health Department M.O.H

Date: 24/9/2009

To:Pharmacist Liana Hadeweh
Subject : Deanship of Graduate Study

Dear: Liana Hadeweh
We received your request letter about your thesis study, we have no objection to allow you taking information and data from our Department,please coordinate with contact persons in Bethlehem health department .

Wishing you luck

Yours Sincerely

Palestinian National Authority Ministry of Health Bethlehem Department of Health Primary Health Care And Public Health Administration

Dr. Mohammad Reziq

Director of Bethlehem Health Department
M.O.H