



Thesis Approval

Assessment of drug use in UNRWA West Bank using WHO prescribing, patient care and health facility indicators

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Abstract

This is a cross-sectional prospective study of drug use that was conducted in 20 UNRWA primary health care facilities in the year 2007 in the West Bank field.

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

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.

UNRWA primary health care facilities (37 clinics) operating across the West Bank were stratified into 3 sub-districts: south (Hebron Area) middle (Jerusalem Area) and north (Nablus Area). A cluster sample from health centers and health points (facilities) was obtained from each sub-district, according to the number of each in the sub-district. In each health centre/point, 30 prospectively selected prescribing encounter forms and 30 patients care forms were obtained. In total 600 client/provider encounters were studied: around 40% were with female and 60% were with male patients.

The overall average of consulting time (the time which the patient spends with the physician) in the studied health facilities was 1.07 minutes and ranged between 0.47 to 1.75 minutes. The results showed variations in the average dispensing time by clinic ranging between 28.7- 65 seconds. The overall average, was 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 from 83.3% to 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% and 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 overall percentage of drugs prescribed by generic name was 31.0%. The average percentage of encounters with prescribed antibiotic in relation to the total number of prescribed drugs was 36.0% ranging between 10.0% and 56.7%. The overall percentage of encounters with injectable drugs prescription was only 1.2% of the total (range 0%–6.7%). In 99% of the cases the drugs prescribed are on the EDL list of UNRWA. The overall percentage of prescriptions following standard treatment guidelines in terms of writing patient complaints and diagnosis to medical file records was (44.0%) and (77.0%), respectively.

The availability of the EDL in the studied UNRWA clinics was 100% and the availability of key drugs was as high as 94.0%. One key finding in the facility indicators areas relates to pharmacy problems. The investigated pharmacists categorized into four categories as being: inadequate space in 50%, inadequate shelves in 40%, inadequate/ineffective cooling system in 75%, and inadequate drug storage space in 85% of the facilities.

The study recommends revisiting the staffing system currently in the studied facilities by conducting a staffing audit in reference to provider/client ratio with particular emphasis on the physician/ patient and pharmacist/ patient relation so as to establish means for giving adequate time to provider-medical/ client encounter. It also calls for the installment of a proper computerized drug labeling system and maintenance and continuous updating of the physicians' knowledge of rational use of drugs including refreshment courses on their generic names. It also stresses the need for close monitoring and follow up of antibiotic prescriptions.

Finally, it suggests conducting similar studies in the NGO, and government systems in the West Bank as well as in Gaza Strip so as to construct national baseline data that can be employed in drug use surveillance system in future.

ملخص الدراسة

هذه دراسة تطبيقية منظورة للنمط الحالي لاستعمال الأدوية في وكالة الغوث اجريت في ٢٠ مرفقاً من مرافق الرعاية الصحية الأولية في في العام ٢٠٠٧ في منطقة الضفة الغربية. الهدف من الدراسة كان تقييم توفر الأدوية الحيوية، وتقييم قواعد وتطبيقات وصف وصرف الأدوية في تلك المرافق. ولقد وظفت مؤشرات منظمة الصحة العالمية للاستخدام الأدوية "الاستمارات المعيارية لاستخدام الأدوية الصادرة عن منظمة الصحة العالمية" في هذه الدراسة الكمية المقارنة.

العيادات السبع والثلاثون للرعاية الصحية الأولية التي تديرها وكالة الغوث الدولية والتي تعمل خلال الضفة الغربية كانت قد قسمت طبقياً الى ٣ مناطق: المنطقة الجنوبية (منطقة الخليل) والمنطقة الوسطى (منطقة القدس) والمنطقة الشمالية (منطقة نابلس). وقد اخذت عينة عنقودية من المراكز الصحية والعيادات المتنقلة من كل منطقة وذلك بناءً على عدد تلك المراكز والعيادات في كل منطقة. في كل مركز صحي أو عيادة تم أخذ عينة من ٣٠ ملف علاج و ٣٠ وصفة طبية. بما مجموعه ٦٠٠ ملف مستفيد و ٦٠٠ وصفة طبية تمت دراستها: ٤٠% كانوا إناث و ٦٠% كانوا ذكور.

وبينت الدراسة أن الزمن المتوسط الذي تستغرقه استشارة المريض للطبيب كان (1.07 دقيقة) وقد تراوحت النسبة بين ٠,٤٧ الى ١,٧٥ دقيقة. وقد تراوح المتوسط الزمني لتسليم الدواء للمريض في الصيدلية بين ٢٨,٧ الى ٦٥ ثانية بمتوسط زمني مقداره (44.76 ثانية). وقد تراوحت النسبة المئوية للأدوية المصروفة للمرضى والتي تم استلامها من المرضى فعلياً مقارنة بالأدوية التي تم وصفها للمرضى بين ٨٣,٣% الى ١٠٠%, حيث بلغ متوسط نسبة الأدوية الأساسية المتاحة في المراكز ٩٣,٨٦%. وبلغت نسبة الأدوية التي دون على غلافها المعلومات الازمه ٨٠,١% من نسبة جميع الأدوية الموصوفة حيث تراوحت النسبة في المرافق الصحية المدروسة بين ٣٥,٨% الى ١٠٠%. أما معلومات المرضى عن الجرعة الدوائية المعطاة كانت عالية الى حد كبير في الدراسة التي أجريت حيث بلغت النسبة ٧٦,٦٣% من مجمل عدد المرضى الذين تلقوا العلاج بالأدوية في المرافق الصحية. وبلغ متوسط عدد الأدوية الموصوفة للمرضى في الدراسة ٢,١٧ دواء. ولوحظ أن النسبة المئوية للأدوية الموصوفة بأسماء جنيسة (غير مسجلة الملكية) كانت ٣١%, وكذلك كانت النسبة المئوية للأدوية الموصوفة المعطاة حقناً ١,٢% حيث تراوحت النسبة المئوية بين

٠% الى ٦,٧%. وبلغت النسبة المئوية للمضادات الحيوية الموصوفة ٣٦,٠% حيث تراوحت تلك النسبة بين ١٠,٠% الى ٥٦,٧%. وكانت نسبة الأدوية الموصوفة من قائمة الأدوية الأساسية ٩٩%. وكانت نسبة الوصفات الطبية التي أعقبت كتابة الشكوى والتشخيص الطبي على الملف الطبي للمرضى ٤٤% و ٧٧% بالتوالي.

ولقد توفرت قائمة الأدوية الأساسية في المراكز الصحية التي تمت فيها الدراسة بنسبة ١٠,٠%، وكذلك كانت نسبة توفر الأدوية الأساسية ٩٤%. وتضمنت الدراسة احد المؤشرات المتعلقة بالمشاكل التي يعاني منها الصيادلة العاملين في المراكز الصحية لوكالة الغوث، حيث تم تصنيفها من قبل الصيادلة التي أجريت على مراكزهم الدراسة الى اربعة أصناف، حيث وجد أن ٥٠% من المساحة المخصصة للصيديات غير كافية، وكذلك ٤٠% من الصيديات تعاني من عدم توفر الرفوف اللازمة، وأيضاً ٧٥% من الصيديات تعاني من عدم توفر نظام التبريد والتكييف الأزم داخلها، وأخيراً ٨٥% من الصيديات تعاني من عدم توفر مساحة ملائمة لتخزين الأدوية داخل المراكز الصحية.

وقد أوصت الدراسة ضرورة مراجعة نظام التوظيف والقوى البشرية العاملة في المراكز الصحية التي تمت فيها الدراسة وذلك عبر تدقيق ملائمة أعداد العاملين اعتماداً على مرجعية نسبة مقدمي الخدمة/ المستفيدين منها، مع التركيز على نسبة الأطباء/ لعدد المرضى والصيادلة/ لعدد المرضى وذلك من أجل اسخلاص العبر وتوفير الوقت الكافي للمرضى من قبل مقدمي الخدمة. كذلك من الضروري الاشارة الى أهمية تحديث نظام تدوين استخدام الدواء من قبل الصيادلة على الأدوية المقدمة للمرضى والعمل على ادخال نظام الحاسوب لضبت تلك المهمة. وكذلك ضرورة التقويم والتحديث المستمر للمعلومات لدى الأطباء في موضوع ترشيد استخدام الأدوية ومتضمنة على دورات تعليمية بخصوص الأسماء العلمية للأدوية. وكذلك ضرورة العمل على متابعة ومراقبة صرف المضادات الحيوية للمرضى.

وأخيراً فاننا نقترح إجراء مثل هذه الدراسة في القطاع الحكومي وقطاع المنظمات الأهلية العاملة في القطاع الصحي في الضفة الغربية وقطاع غزة وذلك من انشاء قاعدة معلومات وطنية يمكن تزطيفها في نظام المراقبة والاشراف على استخدام الأدوية في المستقبل.

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Chapter One

1.1 Introduction

Essential medicines save lives, reduce suffering, and improve health, but only if they are of good quality and safe, available, affordable, and properly used. However, in many countries today not all these conditions are being met. Despite increased production and consumption of pharmaceuticals in many countries, the availability and rational use of drugs remain a problem for much of the world's populations; irrational use of medicines is a major problem worldwide. It is estimated that half of all medicines are inappropriately prescribed, dispensed or sold and that half of all patients fail to take their medicine properly. The overuse, under-use and/or misuse of medicines result in wastage of scarce resources and widespread health hazards (WHO, 2004).

Inappropriate, ineffective and inefficient use of drugs commonly occurs at health facilities in developing and developed countries (Quick, Laing, & Ross-Degnan, 1991; Laing, 1994). Common types of irrational use of drugs include non-compliance with health worker prescription, self-medication with prescription drugs, overuse and misuse of antibiotics, overuse of injections and overuse of relatively safe drugs, use of unnecessary expensive drugs and poor patient compliance (Reeler, 1990; Quick, Laing, & Ross-Degnan, 1991).

Essential medicines also have a huge economic impact on countries and on households. In developing countries today, because of high prices, medicines account for 25%-70% of total health care expenditures, compared to less than 15% in most high-income countries (WHO, 2004). For governments and NGOs providing primary health care, medicines are the largest expense after personnel costs. For households in low-income countries, medicines represent 50%-90% of out-of-pocket spending on health. Yet in some countries, less than half of people living in poor households receive all the medicines they need for acute illness – and one-third receive none (WHO, 2004).

In the case of Palestine, data on drug use are scarce, let alone drug use policy. This is when one rare WHO document declares that consumption of drugs in the West Bank and Gaza Strip is very high (Obeidallah et al, 2000). This is driven by strong patient demand and by the

medical profession, which tends towards irrational prescribing and over-prescribing, particularly since there is no independent source of information on drugs. As the only information on drugs is provided by the pharmaceutical industry, doctors also tend to prescribe more expensive brand-name drugs, particularly in private sector. This situation is clearly reflected in the high national pharmaceuticals bill, estimated at more than US\$ 50 million in the year 2000. This is higher than that of neighboring countries at the same level of economic development countries (WHO, 2004). In the same time drugs and consumables constituted 22.5% (31,5 million US\$) of the governmental health sector expenditures (MoH, 2005).

Therefore; it is imperative to investigate drug use as a fundamental element of health care delivery, provided by UNRWA in this case, as a prime health care provider within the Palestinian health care system especially given the growing demand and the sever concomitant budgetary constraints within the Agency.

1.2 Background and Significance

The irrational use of drugs is a major problem of present day medicine. Its consequences include the development of bacterial resistance to antibiotics, ineffective treatment, adverse effects of drugs and the economic burden on the patient and society. Irrational or misuse of drug refers to the distribution or consumption of drugs in ways that negate or reduce their efficacy or in situations where they are unlikely to have the desired effect (Trostle, 1996). As accepted by WHO the "Rational use of drugs requires that patient receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, and at the lowest cost to them and their community" (WHO,1987). This definition, however, gives a more medical therapeutic view of rational drug use and may substantially differ from the consumers' perspective. Unlimited access to and irrational use of drugs is common in many developing countries (Hossain et al, 1982; Van der Geest, 1987). The changing focus of health care from traditional to western scientific practice has resulted in free access of pharmaceutical agents to health care providers and communities in the absence of proper regulatory mechanisms. The inappropriate use of drugs is not restricted to developing countries for the inappropriate use of antibiotics is a general practice (Nyquist et al, 1998; Frischer et al, 2001).

Globally, small number of public education interventions on rational use of drug has been observed. Therefore, many descriptive studies of drug use in Africa, (Michel, 1985; Yenenheh, 1993; Birungi, 1994) Asia, (Dua, 1994; Reeler, 1994) Latin America, (Mitchell, 1983; Price, 1989; Cosminsky, 1990) Europe, (WHO. 1988a) and the Western Pacific, (Kiyingi, 1993; Graham, 1995) highlight and recommend the need for education of the population in the correct use of medicines and the dangers associated with their improper use.

From another perspective, many developing countries have a limited budget allocated to health care especially for drug procurement. Therefore, it is imperative to optimize expenditures for drug purchases by selecting an essential drug list and promoting the rational use of drugs. Essential drugs are selected to fulfill the real needs of the majority of the population in diagnostic, prophylactic, therapeutic and rehabilitative services using criteria of risk-benefit ratio, cost-effectiveness, quality, practical administration as well as patient compliance and acceptance (WHO, 1993b; Budon-Jakobowicz, 1994).

Many factors influence the irrational use of drugs: patients, prescribers, workplace environment, supply system including industry influences, government regulation, drug information and misinformation (Geest et al, 1990; Sachs & Tomson, 1992; WHO, 1996).

To a great extent, problems in rational drug use derive from financial and budgetary constraints, market inefficiencies and distortions, and behavior of health systems, prescribers, dispensers, consumers and multinational pharmaceutical companies. To optimize the availability and appropriate use of drugs for patients and consumers, a well-designed, comprehensive national drug policy is essential. Such a policy should cover drug quality, safety, efficacy, availability and affordability, and should at the same time encourage rational distribution and consumption. The drug policy should also conform to the ideals of primary health care, including the availability of essential drugs for health care prevention (WHO, 2006).

Since WHO published the first report on the selection of essential drugs in 1977, the concept of essential drugs has been widely applied. It has provided a rational basis not only for drug procurement at national level but also for establishing drug requirements at various levels within the health care system (WHO, 1993b).

The 1985 Nairobi conference on the rational use of drugs marked the start of a global effort to promote rational prescribing (WHO, 1988b). The rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community (Drug Information Bulletin, 2004).

In 1989 an overview concluded that very few interventions to promote rational drug use had been properly tested in developing countries (Laing, 1990). Since then, the WHO Action Program on Essential Drugs (WHO/DAP), the International Network for the Rational Use of Drugs (INRUD) and other organizations have collaborated in an international research effort to fill the knowledge gap (Quick, Laing, & Ross-Degnan, 1991). Eight countries in the region already have a national drug policy (Djibouti, Islamic Republic of Iran, Jordan, Oman, Pakistan, Sudan, Syrian Arab Republic and Republic of Yemen). Most other countries do have components of a national drug policy in place but without having integrated them into a comprehensive plan supported by formal political commitment. At least partly due to the increased attention for national drug policy development at regional and global levels. Several additional countries started or intensified the policy development process in 2000 with technical and training support from WHO (Bahrain, Egypt, Lebanon and United Arab Emirates). Pakistan and Sudan initiated a review to update their national implementation plans. Other countries, including Afghanistan, Iraq and Palestine, have planned but not yet started this national development process (WHO, 2004).

In Palestine, UNRWA is increasingly investing in health care services, at the same time when it is suffering from budget constraints. In the last few years UNRWA faced tremendous increase in the number of patients who benefited from its health centers and health points between the year 2000 after the onset of the second Intifada and 2006 as may be noted in table 1.1 below. Therefore, rationalizing drug use is essential to achieve effectiveness but also efficiency of services provided.

Table (1.1): Annual patient visits to UNRWA health facilities 2000-2006

Years	2000	2001	2002	2003	2004	2005	2006
Patient visits	1,029,774	1,249,560	1,434,293	1,625,475	1,412,803	1,520,320	1,672,862

Source: (UNRWA, 2006d)

6.6 Recommendations

1. Revisit the staffing system currently in place in the studied facilities by conducting a staffing audit for clinics under study particularly in reference to provider/client ratio with particular emphasis on the physician/ patient one so as to establish means for giving adequate time to provider-medical/ client encounter. This includes re-thinking about other service provision alternatives such double shift system, for example.
2. The knowledge of the patients concerning the drugs they received must be improved in order to guarantee a more rational use of medicines. Drug information booklets explaining the rights of the patients or the rational use of antibiotics and injectables should be prepared and disseminated.
3. The cause of poor counseling by the pharmacists should be investigated with proposals for interventions. Written information should always be provided with all necessary details (name, dosage, duration of therapy, time of intake, expiry date) to assure a rational use of drugs. Drugs should be dispensed through a proper computerized labeling system, the newly developed repackaging system should be broadly implemented. Pharmacists should find time to increase awareness and ensure patients' knowledge about proper use of drugs. Appointing pharmacists assistants may give better space for educational and awareness service components at the studied facilities.
4. The recording procedures for complain, diagnosis and treatment of patients are inefficient and do not allow a good follow-up of the prescribing patterns of the doctors. Patient' complaints and diagnosis must be linked to patient treatment in order to allow an efficient monitoring of prescribing habits and to provide a reliable national disease pattern map. All types of information should be at least recorded in the patient file. UNRWA health department should develop simplified standard main complain, diagnostic and treatment guidelines that are adapted to local specificity.
5. To increase patient's knowledge and to change the patient's behavior, UNRWA with cooperation with Ministry of Health should routinely conduct public campaigns on

rational drug use and prescribers should provide face-to-face education to patients at health centers based on printed education material.

6. Maintain and update physicians' knowledge of rational use of drugs and providing them pre-service and in-service training on standard treatment protocols to paramedics working in health services on a regular basis. This activity should be followed by monitoring and supervision in order to give feedback on patterns of drugs use to health centers routinely.
7. There is an evident need to provide physicians with refreshment courses on generic names of drugs and thereafter instruct them to use generic names in prescriptions. Alongside, a monitoring system should be put in place to ensure proper implementation.
8. Antibiotics prescriptions monitoring needs to be strengthened and better followed up. Appropriate administrative and educational strategies should be developed and implemented to improve prescribing habits and the poor adherence to standard treatment guidelines by physicians. Awareness raising workshops could be helpful instruments here.
9. UNRWA health department should provide training on implementing self-monitoring of drug use to health center staff and audit prescriptions as well as give feedback to the health centers on a regular basis. The audit should be focused on leading causes of disease. Should strengthen the capability of senior health staff in order to conduct paramedics training, monitor and supervise drugs use at health centers.
10. UNRWA's drug supply system is efficient and availability of drugs is high. Nevertheless, it remains crucial that the drug list should be evaluated regularly to add drugs that are not on the list, or to replace more efficient dosage of used drugs.
11. There should be reconstruction/renovation of old clinics taking into consideration adequate spacing. New/renovated clinics should be properly designed and spaced to accommodate needs and preservation of drugs.

6.7 Recommendations for further research

This study is the first comprehensive study of its kind in Palestine. However, a lot can be done to complement it and to extend the experience to other levels and agencies. Similar studies should be carried out in NGO, and government systems in the West Bank as well as, in parallel, Gaza Strip body including UNRWA Gaza Strip field, and other UNRWA fields. Comparison studies can then provide a more comprehensive view, nationwide, which can support and enlighten the national health agenda setters and planners. At a later stage drug use surveillance system may be put in place to measure progress and evaluate pre and post intervention changes, which should be an ongoing evaluation research process.