"A STUDY OF RATIONAL USE OF DRUGS IN THE HEALTH FACILITIES OF JAWZJAN AND FARYAB PROVENCE OF AFGHANISTAN"

A Dissertation Proposal for Post Graduate Diploma in Health and Hospital Management

by

Dr. Tushar S. Bhoyar

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New Delhi

Date 25th April 2012

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Certificate from Dissertation Advisory Committee

This is to certify that **Dr. Tushar S. Bhoyar** graduate student of the **Post- Graduate Diploma in Health and Hospital Management** has worked under our guidance and supervision. He is submitting this dissertation titled "**STUDY OF RATIONAL USE OF DRUGS IN THE HEALTH FACILITIES OF JAWZJAN AND FARYAB PROVINCE OF AFGHANISTAN**" in partial fulfillment of the requirements for the award of the **Post- Graduate Diploma in Health and Hospital Management**.

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr. Sangram Kishor Patel
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Rational Use of Drugs

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Dr. Sangram Kishor Patel

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Rational Use of Drugs

Certificate of Approval

The following dissertation titled "**STUDY OF RATIONAL USE OF DRUGS IN THE HEALTH FACILITIES OF JAWZJAN AND FARYAB PROVINCE OF AFGHANISTAN**" is hereby approved as a certified study in management carried Out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of **Post- Graduate Diploma in Health and Hospital Management** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation

Name Signature

DR. NITISH K. DOGRA _____

PRAGYA T. GUPTA _____

_____ _____

Solidarity for Afghan Families (SAF)

همبستگی خانواده های افغان

Certificate of Internship Completion

Date: 25-April-2102

TO WHOM IT MAY CONCERN

This is to certify that **Dr. Tushar S. Bhoyar** has successfully completed his 3 months internship in our Organization from **January 25, 2012 to April 25, 2012**. During this intern he has worked on **"STUDY OF RATIONAL USE OF DRUGS IN THE HEALTH FACILITIES OF JAWZJAN AND FARYAB PROVENCE OF AFGHANISTAN"** under the guidance of me and my team at **Solidarity for Afghan Family.** The Internship was completed well in time and appreciates his sincere effort in making this internship project successful.

We wish him/her good luck for his/her future assignments.

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LIST OF ABBREVIATIONS

BPHS	Basic Package Health Services
CBHC	Community Based Health Centre
CDC	Centre for Disease Control
INGO	International Non- Governmental Organization
IRB	Institutional Review Board
IYCM	Infant and Young Child Feeding
MCH	Maternal and Child Health
MOPH	Ministry of Public Health
NGO	Non- Governmental Organization
SAF	Solidarity for Afghan Families
SC-UK	Save the Children- UK
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNODC	United Nations Office on Drugs and Crime
UNSC	United Nations Security Council

USAID	United States Agency for International Development
WHO	World Health Organization

PART -1

INTERNSHIP

REPORT

Organization profile

Origin and development of the organisation

Solidarity for Afghan Families (SAF) is a nongovernmental, non-political and non for profit organization with an independent legal identity works with an aim to serve the disastrous and needy people irrespective of their thoughts, religion, race and language. Solidarity for Afghan Families (SAF) has been established in October 2005. SAF was registered with Ministry of Economy on 31.10.2005 (Reg. No. 148) and signed the memorandum of understanding (MoU) with Ministry of Public Health on 27.11.2005 (MoU No. 12) which was renewed on October 2010.

The Solidarity for Afghan Families (SAF) is mainly working in health sector. SAF since its inception in 2005 has the experience of working with various international organizations (World Bank, GF/BRAC, USAID, UNFPA, UNODC, WFP, ARD, GIZ, SC-UK, Oxfam Novib, MI-Canada etc) and related ministries. The Solidarity for Afghan Families (SAF) has been successfully implementing numerous projects in different parts of Afghanistan (Kabul, Ghazni, Faryab, Jawzjan, Balkh, Baghlan and Bamyan provinces). However, currently SAF through implementation of 14 developmental projects (Projects of BPHS, Nutrition, Reproductive Health, Child protection, and HIV), has active presence in Faryab, Jawzjan, Balkh and Kabul provinces of Afghanistan.

Considering the problems and inter-sectoral priorities, the Solidarity for Afghan Families (SAF) provides its services in four areas:

1. Health
2. Education
3. Social Development and
4. Agriculture & husbandry

Organisational objectives

SAF's **vision** is "a developed and welfare society for Afghan families" and its **mission** is "empowering and enabling Afghan families to combat against diseases, poverty, social injustice and illiteracy".

The people of SAF follow certain **principles** which give them strength to contribute towards the society in a best possible manner:

- **Independency:** The organization is managed by its management delegation, which is lead by general council (Trusty Board). All members follow the internal policies and express independency in policies, mutual assistance, to society, government and other organizations.
- **Non political:** The organization supports no party, group or politic personality and no member of the organization is allowed to use the reputation, influence and resources of the organization for political activities. The organization endeavors to unite Afghan families with the aim of economic growth, rehabilitation and development of Afghanistan.
- **Justice:** SAF is against all kind of racial, tribal, language, gender and regional discrimination and offers services based on justice. The organization will serve wherever it is needed and where it can contribute to rehabilitation and development of the country.
- **Professionalism:** The organization performs all management procedures on the base of professional standards.
- **Transparency, sincerity and accountability:** The organization, its members and representatives strongly follow the principles of transparency, sincerity and accountability during their activities and present transparent information about utilization of resources to society, government and other organizations.

SAF has a well organized structure. The structure of SAF is mainly made of:

1. The general council (Board of trusty)
2. The management board
3. Executive Board

The general council (**Board of trusty**) is the highest decision making body of the organization. The members of SAF's trusty board work voluntarily and the decisions are made by the majority. The trusty board has two categories of members:

1. **Core members:** Manage all affairs of the board and have the right to vote.
2. **Reserved Members:** These members are the founders of the organization that are employed by the organization. They do not have voting rights but can express their opinions freely. Whenever they quit their employment in the organization, they become Core members of the board and can participate in decision making.

However, the **management board** is the second highest decision making entity after the general council. The management board has the following authorities:

- Recruitment and dismissal of the staff according to the regulation and approval procedures
- Proposing changes in the principles and policies of the organization for approval of general council.
- Financial control of the organization
- Proposing working areas and activities to general council
- Proposal of annual budget and related projects to the general council

Currently, the **management board** of SAF consists of six highly qualified and experienced members namely Director General, Program Director (Deputy), Organizational Development Director, Operational Director, Organizational Development and Management Advisor and Finance Manager/Controller . The director general is elected by the general council (Only Afghan national can apply). Other members of management board are recruited through open competition on the basis of merits and abilities. The director general will approve recruitment of management board members and final decision will be shared with general council.

Name	Degree	Profession	Position	Years on the Board
Dr. Abdul Basir Mansoor	MD, M.Sc	General Medicine, HLT Management, Social Medicine	Director General	1.5 Year
Dr. Juma Khan Khairzada	MD, MBA	General Medicine, Business Administration	Program Director	2.5 Years
Dr. Mir Mohammad Faramarz	MD,MPH,EMBA	Public health and General Management	Organizational Development Director	2 years
Ms. Arunika Agarwal	MBA, PGDHM	General management, Public health management	Organizational Development & Management Advisor	8 months
Dr. Abdul Manan Arify	MD	General Medicine, HLT Management	Program Manager	3 Years
Mr. Naqibullah Tahir	DBA	Operation management	Operation Director	5 Years
Mr. Sediqullah	CA, MBA (Finance)	Auditor, Finance management	Finance manager	11 months

The members of management board are presenting their **reports** to director general on monthly basis.

The **executive board** consists of the managers of various sections and provincial/ regional managers who implement the programs.

SAF has Central Office/Headquarter (CO/HQ) and Regional Offices (ROs). The main responsibility of Regional offices is to implement SAF's programs/projects at the related regions.

According to the current structure there are four functional departments in SAF as below:

1. Program Department

Purposes:

1) To coordinate health and health related training activities within organization as well as stakeholders.

2) To develop and maintain a high quality standards of health program.

3) To design, plan and follow up the health program in the existing areas of work as well as in the new targeted areas.

4) To provide effective technical support to all SAF health projects on timely manner.

5) To facilitate opportunities for continuous capacity building of health staff.

This department is headed by program director who is under direct supervision of general director. Accordingly, below staff members come under direct supervision of program director:

- Program manager
- Regional /Provincial Managers
- Harm reduction manager
- MCH/Gender manager
- CDC/Nutrition manager
- Pharmacy manager
- Lab officer

2. Organizational Development Department

Purposes:

1) To provide facilities for overall organizational development in terms of fundraising, capacity building, program development and improved organizational structure.

2) To formulate organizational policies and plan in participatory manner.

3) To design programs/ projects for organizational mandated sectors (health, education agriculture and social development) and develop proposals using global information.

4) To process information in such a manner to present the organization in prestigious way with reference to external affairs.

5) To search donor market place.

This department is headed by organizational development director and has three following units.

- PME/MIS Coordinator
- PME/CBHC Coordinator
- IT Officer

3. Operational Department

Purpose:

To develop appropriate and efficient administrative, human resource and logistics rules and regulations as well as guidelines. This directorate is also responsible to provide effective and efficient support services to program staff on timely manner. This department is headed by operational director and has three following units:

- Admin/security unit
- HR unit

- Logistics unit

4. Finance Department

The **finance department** is not operating under the supervision of operational director as it is directly reporting to the director general.

Purposes:

1) To develop and revise financial policy and guidelines in line with international standards.

2) To establish and maintain a smooth financial system within organization.

3) To ensure accuracy and completeness of financial information.

4) To ensure transparent financial transactions.

5) To inform the management of the organization on financial positions.

6) To develop financial planning and budget in consultation with relevant department/units.

7) To ensure fund safety and keep financial document safely.

8) To ensure all financial transactions are in line with available resources.

9) To advise financial course of action for project managers.

The unit is headed by Finance Manger/Controller who is under direct supervision of general director.

For the moment, SAF as awhole has 684 employees including 135 operational / program staff (106 males and 29 females) who are technical experts in the fields of general managment, administration, logistics, security, financial management, management information system (MIS), information technology (IT), public health, health management, community based health care, mother and child health, mental health & psychiatrics, social science, monitoring & evaluation (M&E), HIV/AIDS, harm reduction, health care financing, gender and research. In

addition, 549 projects‘ staff members including MD, nurses, midwives, pharmacist, counselors, and supporting staff are working with SAF in Kabul, Balkh, Faryab and Jawzjan provinces.

Moreover, there are 1996 community health workers (999 males and 997 females) who are voluntarily working with SAF in Jawzjan and Faryab provinces.

Solidarity for Afghan Families is a national NGO for all Afghans in all over Afghanistan. SAF either designs projects or applies for the projects on the basis of:

1. Professional standards
2. Needs and priorities of Afghanistan.
3. Organizational vision, background and its capacity
4. Adaptibitly of projects‘ concepts, objectives, and goals with the people’s thoughts and customs

SAF currently is engaged in implementation of 14 developmental projects (Projects of BPHS, Nutrition, Reproductive Health, Child protection, and HIV), in Faryab, Jawzjan, Balkh and Kabul provinces of Afghanistan.

This is the list of the name of projects, their location, duration and the donor organization for each project:

Name of Project	**Dates of project**	**Location**	**Donor**
• Partnership Contract for health Services	Nov 23, 2009 to Nov 23, 2012	• Faryab	• USAID / MoPH
• Sub Centres & Mobile Health Teams	June 01, 2009 to Feb 29, 2012	• Faryab	• GAVI

• IYCF / CMAM	Apr 01, 2011 to Mar 31, 2012	• Faryab	• Oxfam Novib
• Equipping Lab	Apr 01, 2011 to Sep 30, 2012	• Faryab	• Global Fund
• Partnership Contract for health Services	Nov 23, 2009 to Nov 23, 2012	• Jawzjan	• USAID / MoPH
• EPPH	Jun 06, 2010 to Jan 31, 2012	• Jawzjan	• USAID-HSSP
• Result Based Financing	Aug 23, 2010 to Nov 23, 2012	• Jawzjan	• Multi-Donor SHARP
• Harm Reduction	Feb 11, 2011 to Jun 30, 2012	• Mazar	• IDA / World Bank
• SPHP	Apr 01, 2009 to Sep 30, 2012	• Mazar	• GIZ
• Better Future for Working Street Children	Jul 01, 2011 to Mar 31, 2012	• Mazar	• Save the Children
• FIDUS	Jun 15, 2011 to Apr 04, 2012	• Mazar	• UNODC
• Harm Reduction	Feb 11, 2011 to Jun 30, 2012	• Kabul	• IDA / World Bank

PART-2

DISSERTATION REPORT

ABSTRACT

INTRODUCTION

Irrational use of medicines is now a global problem, which has a serious impact on health and economy that may results in wastage of resources, inappropriate patient demand, serious adverse drug reactions, increase antimicrobial resistance, increase drug-related morbidity and mortality.[1] World Health Organization (WHO) has reported that more than 50% of national and 60 – 80% of individual health care expenditure is spent on medicines[2]. So it becomes more important in situation of scare recourses that are used optimally. This study is undertaken by Solidarity for Afghan Family (S.A.F.) in order to access the rationality of drug used at the health facilities.

An estimated one third of the world's population lack regular access to essential drugs, with this figure rising to over half in the poorest parts of Africa and Asia. When available, the medicines are often used incorrectly: around 50% of all medicines are prescribed, dispensed or sold inappropriately, while 50% of patients fail to take their medicines appropriately.

Afghanistan is facing dual burden of disease. Contribution of non communicable disease to mortality (35%) is more than infectious diseases (30%). Taking public health perspective, Infectious diseases have more serious consequences than non infectious. So, this study is designed using the WHO standard methodology for use of antibiotics and analgesic which are given for treatment of infectious diseases. Moreover, for females, the leading causes of death are infectious and parasitic diseases (18 %), and respiratory infections (15%). Also, respiratory

[1] Promoting rational use of medicines: core components. WHO policy perspectives on medicines. Geneva, World Health Organization. No. (WHO/EDM/2002.3), 2002.

[2] *Professional practices and perception towards rational use of medicines according to WHO methodology in United Arab Emirates Bazigha K. ABDUL RASOOL , Sahar A. FAHMY, Eman F. ABU-GHARBIEH, Heyam S. ALI.*

infections, infectious/parasitic diseases, and perinatal conditions are the leading causes of death among female children under five years, accounting 77 % of deaths[3].

OBJECTIVES:

General Objective:

1) To assess the pattern of use of drugs specially, antibiotics and analgesics in health facilities of Faryab and Jawzjan provinces of Afghanistan. .

Specific Objectives:

1) To know trends in prescribing of antibiotics and analgesics at health facilities.
2) To know the patient's dose knowledge about advised medicine.

METHODOLOGY

Study Design

A cross sectional study with both retrospective data and current patients at the health facilities will be conducted in the sampled health facilities of the two provinces of Faryab and Jawazjan.

Sampling techniques:

The two operational provinces of Solidarity for afghan Families have been selected to know the current situation of rational use of drugs. The two provinces consists of 4 District hospitals, 20 Community Health Centers and 30 Basic health centers; covering 1,450,000 population.

As per the WHO guidelines, 20 health facilities (10 health facility from each province) will be selected randomly from the list of health facilities of the provinces[4,5]

[3] *Afghanisthan mortality survy 2010 full report*

[4] United Arab Emirates Bazigha K. ABDUL RASOOL , Sahar A. FAHMY, Eman F. ABU-GHARBIEH, Heyam S. ALI.

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From each health facility, prescribing indicators will be based on both retrospective and prospective data. Retrospective data will describe drug use during patient visits that took place in past, over a one year period, to control the seasonal variations. These data will be extracted from the medical records kept at the health facilities. Prospective data, will describe the drug use during patient visits that take place on the day of the indicator survey and also provide information with patient care indicators. 1200 retrospective records will be analyzed and 15 patients visiting that health facility on the day of survey will be interviewed. The entries will be selected by systematic random sampling.

Sample size:

1. 20 health facilities from 2 provinces namely, Faryab and Jawzjan[9].
2. 1200 past records at the health facilities of two provinces that is, 60 records from each health facility.
3. 15 OPD patients visiting the health facility on the day of survey will be interviewed. That is in total 350 patients will be interviewed from 20 health facilities.

Results and recommendations

99% of the encounter results in to prescription. Average number of drugs advised is 1.71. Antibiotic prescription rate is 0.63% and analgesics prescription rate is 0.56% average injectable used are 0.14%.

Average consultation time is 3.26 min. and average dispensing time is 2.20 minutes. Patient's dose knowledge is calculated from 4 parameters 94% of patients are aware about timings of

10 Rational use of drugs: prescribing and dispensingpractices at public health facilities in Lao PDR{Bounxou Ke ohavong 1,2

*, Lamphone Syhakhang 1, Sivong Sengalounde th 1Akio Nishimura 2and Kats uki It o 21Food and Drug Department, Ministry of Health, Simuang Road, Vientiane, Lao PDR2Young Leaders' Program, Nagoya University Graduate School of Medicine, 65 Tsurumai-cho,Showa-ku, Nagoya-shi, Aichi-ken, 466-8550, Japan

medicine, 81.4% are aware about duration of treatment about quantity of medicine to be taken, 95.1% of patients are aware and 94% knows correct methodology of medicine consumption.

These results are quantitatively calculated from the data collection tool designed according to W.H.O.'s standard guidelines for the Rational use of drug (R.U.D.). With quantification, some qualitative aspect also has to be added in order to assess quality of medication provided. As example, total number of antibiotic used , is good indicator of studding rationality, equally in addition to this, specific antibiotic for specific disease should also be assessed.

Conclusion

Drug used pattern is fairly rational at the health facilities of SAF. Observed results are closer to international set guidelines of WHO for rational use of drug. There is still great scope of improvement in the situation as it demands. Data availability also is the needs to be increased in order to include qualitative part of the study.

CHAPTER 1

Introduction:

Though prevention is the primary objective of primary health care services, treating the existing diseases is also equally important. For treatment, use of medicine and drugs is the obvious and can never be ignored. Therefore it becomes more important that utilization of the drugs should be rational in order to achieve set MDG's within time. A report of WHO says that despite abundant availability of medicine in the market and tremendous increase in medicine production world wide, there nearly 50% of the patients do not have access to basic drugs. More than 50% of all medicines worldwide are prescribed, dispensed, or sold inappropriately and 50% of patients fail to take them correctly. Conversely, about one-third of the world's population lacks access to essential medicines. Medicines is one of the most cost-effective medical interventions identified, and the proportion of national health budgets spent on medicines ranges between 10% and 20% in developed countries and between 20% and 40% in developing countries. Thus, it is extremely serious to understand every one's responsibility to use drugs in an inappropriate and rational way[6]. Therefore this study is planned for finding rationality of the drugs used at the facility so that if needed it should be improved.

In 2004, the second ICIUM was held in Thailand. All the evidence presented at the conference made it clear that the misuse of medicines continues to be widespread and has serious health and economic implications, especially in re-source-poor settings[7].

Afghanistan is post conflict country. That implies very less system are in placed which are working very smoothly and peacefully. Health sector is also not fully developed. Afghanistan is implementing Basic Package of Health Services (BPHS) and (EPHS) Essential Package of

[6] *UNDERSTANDING RATIONAL USE OF MEDICINES.*

[7] *World Health Organization, Database on medicines use in developing and transitional countries; work in progress. Department of Medicines Policy and Standards, WHO, Geneva. Initial results presented at the2nd International Conference for Improving the Use of Medicines,Chiang Mai, 2004. Available at URL: http://www.icium.org*

Health Services. Health services are contracted out here for which, Faryab and Jawzjan providences are handed over to Solidarity for Afghan Family (SAF). Therefore, SAF is conducting this study in its area of presence. Also there is not that much of data available regarding rational use of the drug in Afghanistan which a poorly developed country.

Since endings of 19th century, there is tremendous increase in technology. This technology can also be used for public health perspective. Modern technology provides enormous possibilities of drugs and health care facilities provided to community. Drug is important pillar of the treatment and lots of knowledge is made available about it. But with increase of modern techniques there is possibility of misuse of it as well. Therefore, it becomes mandatory to keep a close watch on quality of drugs supplied and prescribed to patients, does it matches with the need of patient or not.

Of the various classes of drug, antibiotics are more important from public health point of view as it is largely used drug in the routine practices so it increasing a drug resisting disease now a day's possibly due to misuse of antibiotic[8].

Further, cost is also an important factor in treatment of the patient and extra use of antibiotics increases cost of medicine many folds. This substantiates the need of studies of rational use of drugs (RUD) especially in the developing countries. However, guidelines for rational prescribing are either not available or not effectively implemented in many developing countries.

Drug use is the complex subject to inspect. There are other aspects too than doctor those are patient and pharmacist. Though these factors are affected by many of the other factors to standardize, the World Health Organization (WHO) has suggested 12 core quantitative indicators for evaluating the rational use of drug use at health facilities[9]. These indicators are divided in to 3 types namely a) Patient care indicators which includes: average consultation time, average

[8] *Guglielmo BJ, Brooks GF. Antimicrobial therapy. Cost-benefit considerations. Drugs, 1989, 38:473-80.*

[9] *The Use of essencial drug. Seventh report of WHO expert committee including the revised model list of essencial drug.World health organization, Geneva 1997:pp77*

dispensing time, percentage of drugs actually dispensed and percentage of drugs adequately labeled and patient knowledge of correct dosage; b) Facility indicators: availability of copy of essential drug lists or formulary and the availability of key drugs; and c) Prescribing indicators: average number of drugs per prescription, percentage of drugs prescribed by generic name, percentage of drugs with antibiotic prescribed, percentage of drugs with injections [10],[11]. Data regarding Patient care indicator and Facility indicator is collected by prospective method where as for prescription indicator retrospective data from health facility is collected.

Consultation time is time taken by treating physician for one particular patient for consultation. Similarly dispensing time is time required by pharmacist to dispense written medicine by doctor.

Calculation of indicators used for the study

Patient care indicators were calculated as follows:

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

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[10] 1. De Vries ThPG, Henning RH, Hogerzeil HV, Fresle DA. Guide to good prescribing. WHO/Geneva: World Health Organization, 1994.

2. WHO. How to investigate drug use in health facilities (selected drug use indicators). Geneva: World Health Organization, 1993

3. General Physicians and Prescribing Pattern in Isfahan, IranLeila Safaeian, Ali-Reza Mahdanian, Mansoor Hashemi-Fesharaki, Soolmaz Salami, Javad Kebriaee-Zadeh,Gholam-Hossein Sadeghian Food and Drug Deputy Isfahan University of Medical Sciences, Isfahan, Iran

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[11] How to investigate drug use in health facilities (Selected drug use indicators). Action Program on Essential Drugs, World Health Organization, Geneva." 1995

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

• Percentage of drugs actually dispensed = (number of drugs actually dispensed/total number of drugs prescribed) × 100.

• Percentage of drugs adequately labelled = (number of drugs or drug packages adequately labeled /number of drugs or drug packages dispensed) × 100.

• Percentage of patients who could adequately describe the dosage schedule for all drugs = (number of patients who could adequately report the dosage schedule for all drugs/total number of patients interviewed) × 100.

Health facility indicators were calculated as follows:

• Availability of key drugs = (number of specified drugs in stock/total number of drugs on the checklist) × 100.

• Availability of a copy of an EDL or formulary at the health facility = Yes or No.

In order to increase rational use of drug, essential drug list is made available at each facility. It is advised that medicine should be advised from this list only so that cost of healthcare is reduced. Therefore it is key indicator for studying rational use of drug at the health facility that how much does it if followed.

Thirdly, prescribing indicators are those who gives idea about prescription advised by doctor for particular patient who comes for the OPD service. like average number of drugs, prescription rate of medicine, prescription rate of antibiotic , analgesics and injectable.

In order to assess rationality of the medicine used in the facility, it is important to have a standard definition of it which is given by WHO. As, “patients receive medications appropriate

to their clinical needs, in doses that meet their individual requirements, for an adequate period of time, and at lowest cost to them and their community WHO 2001[12]".

This definition has 5 different components. Actually these are interdependently linked with each other. First of whom is "appropriate medicine" medicine should be according to clinical requirement of patient. Neither more nor less drugs should be used for treating the patient. Similarly other aspect is of "duration of the treatment". It is also important at patient should be advised complete dose of medicine and unnecessary medicine should be strictly avoided. Rest other aspects are taken into consideration except cost of medicine. Though it is important factor due to time constrain, not included in this particular study.

Common types of irrational use of medicine are:

Use of too many medicines per patient (poly pharmacy); inappropriate use of antibiotics, often in inadequate dosage, for non-bacterial infections; over-use of injections when oral formulations would be more appropriate; failure to prescribe in accordance with clinical guidelines; unsuitable self-medication, often of prescription-only medicines. Irrational use of medicines can stimulate inappropriate patient demand, and lead to reduced access and attendance rates due to medicine stock-outs and loss of patient confidence in the health system.

Towards rational use of medicines first step to correcting irrational use of medicines is to measure it. Indeed, prescribing, dispensing and patient use should be regularly monitored in terms of the types of irrational use of medicines, so that strategies can be targeted towards changing definite problems; the amount of irrational use, so that the size of the problem is known and the impact of the strategies can be monitored the reasons why medicines are used irrationally, so that appropriate, effective and feasible strategies can be chosen. Some of the causes of irrational use include lack of knowledge, skills or independent information, unrestricted availability of medicines, overwork of health personnel, inappropriate promotion of medicines and profit making motives from selling medicines. Though in government settings,

[12] *The rational use of drugs: report of the conference of experts. Geneva, World Health Organization. 1985.*

medicine are provided free of cost, still some of the medicine are advised from out side of the facility contributing in increase in cost of treatment. In the last 35 years progress has been made to promote rational use of medicine. In 1977 WHO established the first Model List of Essential Medicines to assist countries to formulate their own national lists. In 1985, the present defintion of rational use was agreed to at an international conference held in Kenya. In 1989, the International Network for the Rational Use of Drugs (INRUD) was formed to conduct multi-disciplinary intrusion research projects to promote more rational use of medicines. Following this, the WHO/INRUD indicators to investigate drug use in primary health care facilities were developed and many intervention studies conducted[13].

The most commonly used medications world over are analgesics (pain-killers) and antibiotics[14]. Therefore this study is mainly focused on antibiotic and analgesics. Reason of picky medicine to be used may vary according to category of the medicine. But any way, these are most vulnerable drugs for public exposure. In addition to prescription, non adherence of patient towards advised medication and self medication contribute large amount for irrational use of medicine.

There is literature available suggesting that there is in developing countries, volume of these drugs, (antibiotics, analgesic and inject able) sold is far away from what is expected to be[15].

The problem is further worsened by a global shift from public to private sector spending, which, in many developing countries without adequate regulation and inspection, usually results in a large proportion of drugs being purchased without any prescription at all. Therefore, it requires better control over private settings as well. As there are numerous medical schools opening, Ideally, medical students would then be trained in the principles of rational prescribing before they enter the wards; and these concepts would be reinforced during the clinical training with

[13] *UNDERSTANDING RATIONAL USE OF MEDICINES.*

[14] *UNDERSTANDING RATIONAL USE OF MEDICINES*

[15] *WHO world drug situation Geneva 1988.*

bedside teaching, examinations and actual prescribing by senior staff all based on the same principles.

Understanding severity of the problem Government of India (GOI) insisting on rational use of drugs. The National Health Policy 2002 of India also emphasizes on the rational use of drugs within the allopathic system, along with increased access to systems of traditional medicine.[16] It is commonly observed in India that, it has been frequently observed that practitioners in alternative and indigenous systems of medicine are not properly trained and qualified in the practice of allopathic medicine. Moreover, pharmacists working under a doctor, nursing orderlies, and operation theater technicians are also not properly trained. The problem is further compounded by the prevalence of a dispensing practice, wherein written prescriptions are not provided and the patients' pressure for quick results leads to the prevalent dispensing of steroids and use of injections. Such practitioners, both qualified and unqualified, and practices, are especially common in slums and rural areas, where most public health programs are targeted.

[16] National Health Policy 2002. New Delhi: Ministry of Health and Family Welfare, Government of India; Last accessed on 2002. Government of India. Available from: http://www.mohfw.nic.in/np2002.htm

CHAPTER 2

Review of Literature.

Innovation of antibiotic is a historical moment in the medical history. It helped reduce infectious disease mortality and morbidity in a big way. But with duration of time, bacteria rebounded with drug resistance. Finding the reasons, irrational use of available medicine was major problem. In order to encounter the problem WHO is targeting promotion of rational use of drug in the health facilities. Since 1985, there are various studies been undertaken throughout the world assessing rationality of the drugs used according to indicators developed by WHO.

As discussed above these indicators are separated in to 3 parts namely Patient care indicator, facility indicator and prescribing indicators.

Some studies show the values of indicators.

Prescription rate of 2.9 drugs per patient per encounter. Fifty-seven per cent of these were for injectable drugs, and 57% for antibiotics. Most prescriptions were for name brand (62%) rather than generic drugs[17].

A retrospective study from Jorden evaluated pharmaceutical drug prescribing practices in 21 primary health care facilities in Irbid governorate, northern Jordan using World Health Organization-recommended core indicators. The mean number of drugs prescribed was 2.3 overall, ranging from 1.9 to 3.0. The percentage of drugs prescribed by generic name was very low, as was the percentage of prescriptions involving injections. The percentages of prescriptions involving antibiotics and drugs from the essential drugs list averaged 60.9% and 93% respectively. We conclude that the prescribing and use of drugs in Jordan requires ationalization, particularly the over-prescribing of antibiotics and the under-prescribing of generic drug[18]. WHO

[17] Prescribing practices of rural primary health care physicians in Uzbekistan.

[18] Evaluation of drug use in Jordan using WHO prescribing indicators.

standard indicators of rational drug use, this study analysed 550 prescriptions from 20 health facilities at different levels throughout Hadramout governorate, Yemen. A mean of 2.8 drugs were prescribed per prescription. With a low rate of prescribing drugs (39.2%) by generic name. The proportion of prescriptions for antibiotics was 66.2%, for injectable drugs 46.0% and for vitamins/tonics 23.6%. The essential drugs list was available in 78.9% of facilities and a high percentage of drugs were prescribed from the list (81.2%)[19].

Another study from 2 provinces of South Africa shows high mean number of drugs prescribed per patient (3.2 versus 2.8) in public hospitals and by general practitioners (GPs) respectively and generic prescribing rates were low (45.2% versus 24.5%). The rates of prescribing in public hospitals and by GP were 8.3% versus 23.3% for injections, 68.1% versus 31.9% for antibiotics and 92.6% versus 68.5% for drugs from the essential drugs list. Drug prescribing in both sectors needs to be regulated, especially the use of antibiotics, essential drugs and generic prescribing[20].

A study from Bhopal district of Madhya Pradesh, India showed following results. The overall average number of prescribed drugs per patient was 2.76 (higher in rural than in urban centers). Only 1.4% of the 1,051 prescriptions did not have any drugs (non pharmacological management only). Generic drugs included 48.4% of all drugs prescribed. The proportion of consultations with antibiotics and injections prescribed was 63.5% and 13.8%, respectively. The proportion of drugs prescribed from the list we developed was 66.8%. Three quarter of all prescribed drugs were dispensed at the facility. In total, 87.1% of patients knew the dosage schedule of the medication prescribed[21]. There are many more studies guiding for the literature on this issue[22].

[19] Indicators of rational drug use and health services in Hadramout, Yemen.

[20] Drug prescription habits in public and private health facilities in 2 provinces in South Africa.

[21] Patterns of drug use in the public sector primary health centers of Bhopal district

CHAPTER 3 OBJECTIVES

General Objective:

To assess the pattern of use of drugs specially antibiotics and analgesics in health facilities of Faryab and Jawzjan provinces of Afghanistan

Specific Objectives:

1) To know prescribing pattern of drugs (antibiotics and analgesics).

2) To know the patient knowledge about usages of advised medicine at the health facilities.

CHAPTER 4

METHODOLOGY

Study Design

A cross sectional study with both retrospective data and current patients at the health facilities will be conducted in the sampled health facilities of the two provinces of Faryab and Jawazjan.

Sampling techniques:

The two operational provinces of Solidarity for afghan Families (SAF) have been selected to know the current situation of rational use of drugs. The two provinces consists of 4 District hospitals, 20 Community Health Centers and 30 Basic health centers; covering 1,450,000 population.

As per the WHO guidelines, 20 health facilities (10 health facility from each province) will be selected randomly from the list of health facilities of the provinces[23],[24]

From each health facility, prescribing indicators will be based on both retrospective and prospective data. Retrospective data will describe drug use during patient visits that took place in past, over a one year period, to control the seasonal variations. These data will be extracted from the medical records kept at the health facilities. Prospective data, will describe the drug use during patient visits that take place on the day of the indicator survey and also provide

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[23] United Arab Emirates Bazigha K. ABDUL RASOOL , Sahar A. FAHMY, Eman F. ABU-GHARBIEH, Heyam S. ALI.

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[24]

information with patient care indicators. 30 retrospective records will be analyzed and 5 patients visiting that health facility on the day of survey will be interviewed. The entries will be selected by systematic random sampling.

Sample size:

1. 20 health facilities from 2 provinces of Faryab and Jawzjan[9].
2. 1200 past records at the health facilities of two provinces that is, 60 records from each health facility as 5 records per month with no with no2 records from same day. To cover seasonal variation, data from last one year is considered for retrospective data analysis.
3. 15 OPD patients visiting the health facility on the day of survey will be interviewed. That is in total 350 patients will be interviewed from 20 health facilities.

Data collection:

Information in form of data collected by trained field investigators. This data collected from the available records at the facility. In order to ensure quality of data collection, field investigators are continuous under randomize monitoring by experienced field supervisor.

In addition to continuous monitoring randomly data will be cross checked by prime investigator.

1. Data is collected with the help of structured close ended questioners/forms and general observations.
2. Data is collected over a period of 3 weeks by trained investigators.

Collection of data is done by well trained investigators. This activity of investigators is randomly monitored by field supervisor (person who trained investigators). Every data collector is given detailed training and the "Training manual" to have an assess to concept of study and details about data collection aspect of the study like what exactly is the data to be collected and what is the method to collect this data. Besides this contact number of primary investigator of the study is provided to all data collector. In case any problem regarding data collection, s/he can be

contacted. This data is double entered. Software used for data entry will be MS Excel. Data is analyzed with help of S.P.S.S. (Stastical Package for Social Science) software.

CHAPTER 5

Results and findings.

First of the indicator is prescription rate, is 99%. Writing the prescription, ideally name, age, sex, date of encounter, chief complaints of patients with duration is to be written along with identity of doctor. But unfortunately it is not practiced exactly, our studies shows patient name was mentioned in 99% of cases age was mentioned in 93 % of cases, gender of patient was mentioned in 98%, date of encounter was present in 98% of cases.

Primary health problem of patient was mentioned and readable in only 22% of cases and 63% of cases it is not written at all. Duration of chief complaints was readable in 1.6% of cases.

With SD of 0.69, average number of drugs per person is 1.71 minimum of 0 and maximum of 4 drugs are used for the patient.

Following table shows frequency percentage of drugs/ person

Table 1

Total number of drugs advised	Percentage
0	0.9%
1	37.6%
2	50.8
3	9.6%
4	1.4%

More than 95 % of prescription is from essential drug list and by generic name of the medicine.

Another objective of the study to find antibiotic prescription rate, with average of 0.63 of cases are advised antibiotic. Out of total 56.5% of patients are advised antibiotics. Following table is for percentage frequency of antibiotic

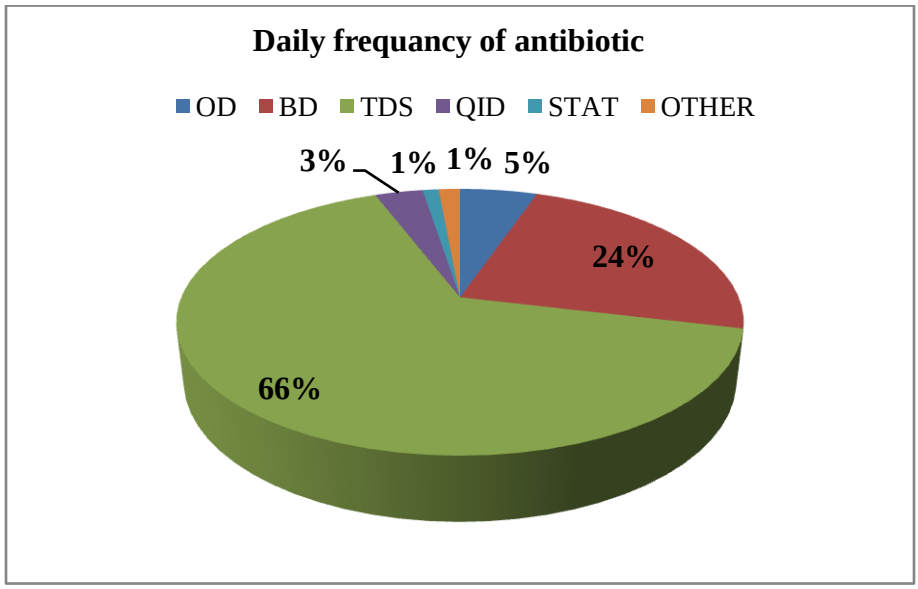
Table 2

Number of antibiotic	Percentage
0	43%
1	51.5%
2	4.4%
3	0.5
5	0.3

Maximum of 5 antibiotics are advised and minimum of 0. Use of single antibiotic is predominant in percentage.

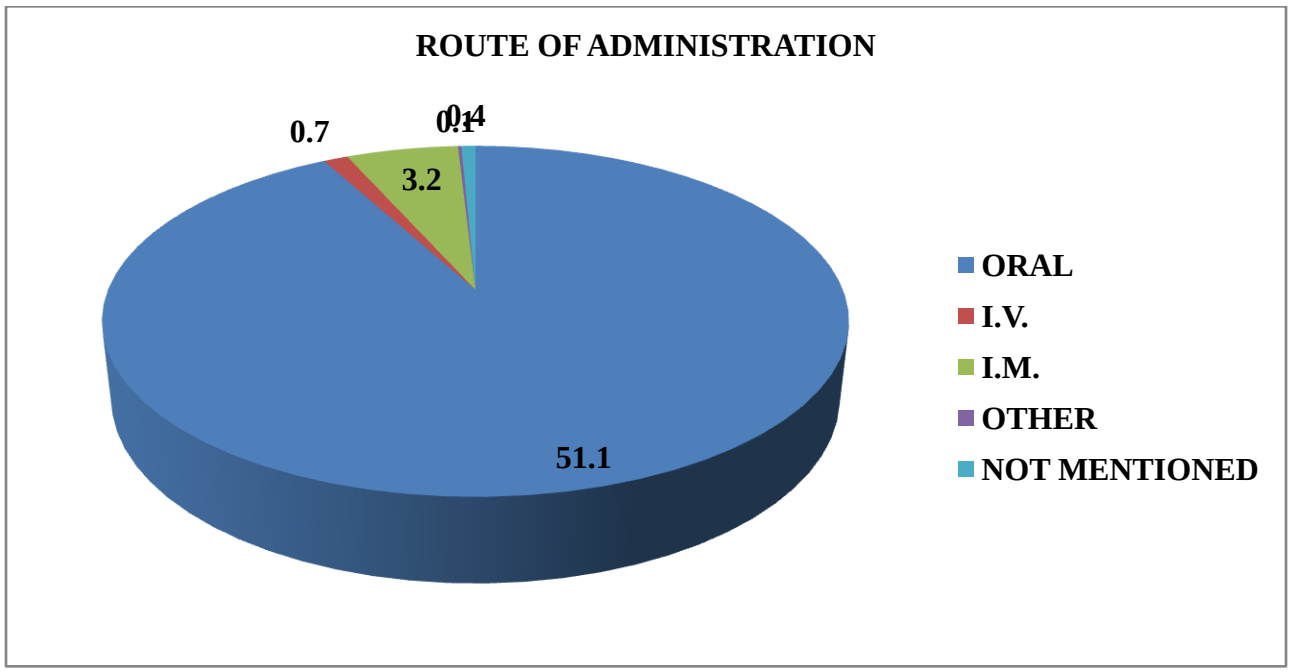
Following is the graph to show frequency of daily dose of antibiotic.

Graph 1



Out of the total antibiotic advised, following is the configuration of route of antibiotic advised.

Graph 2



The unique feature of this study is duration and daily frequency of antibiotic is also studied. Out of the total patients antibiotic advised, average duration of antibiotic was 2.96 days.

Similar to antibiotic, analgesics drugs are also studied. Average number of analgesics per person is 0.56. Frequency of analgesics drugs is as follows

Table 3

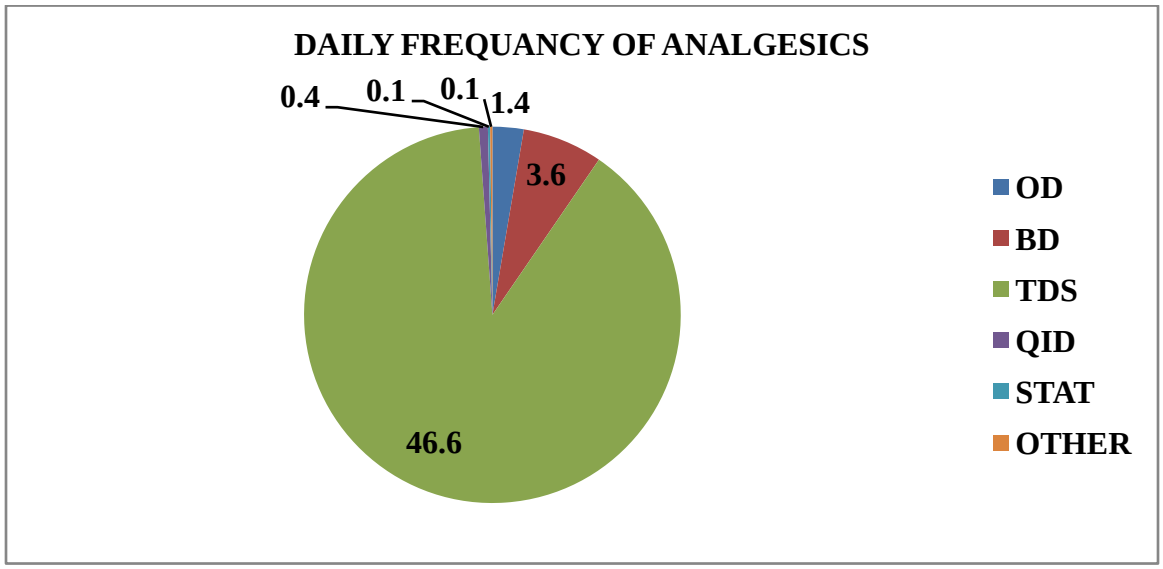
Number of analgesics	Frequency percentage
0	46.4%
1	53.4%
2	0.1%

Average duration of analgesics drug used is 1.83 days.

There is no specific guideline for duration of antibiotic to be continued. Out of the total patients advised antibiotic, this study shows average duration of 1.83 days for antibiotic treatment.

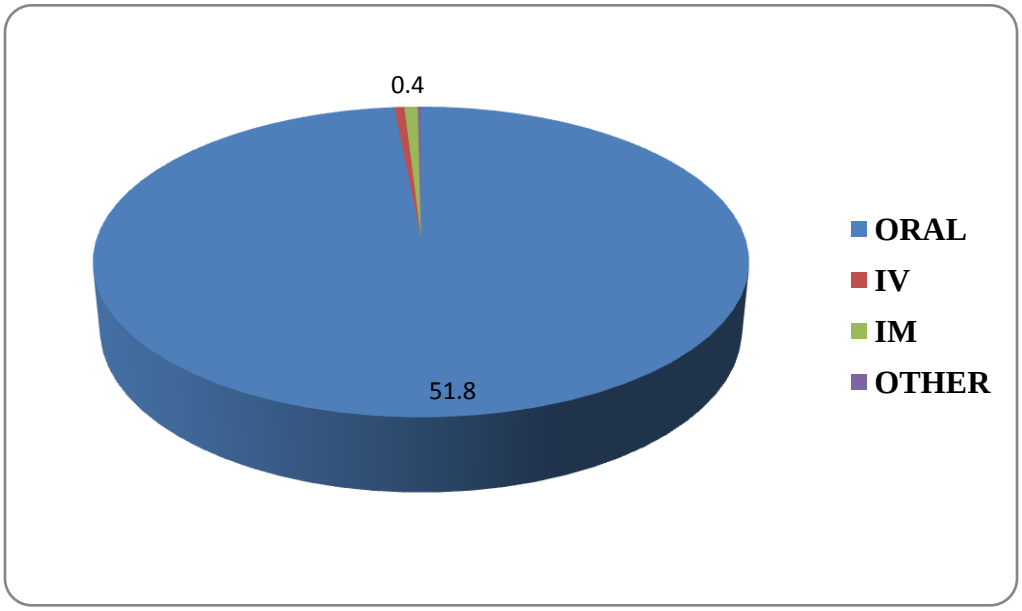
Following is the graph for daily frequency of analgesics used

Graph 3



Following graph shows frequency of route of administration of analgesics.

Graph 4



Average number of injectable used 0.14 per person. More than 10% of cases, injectable are used. Following table shows frequency of number of injectable used. Maximum of 3 inject able are used and minimum of 0.

Table 4

Number of injectable	Frequency percentage
0	89.6%
1	9.6%
2	0.07%
3	0.03

For ideal prescription, clinical observation of patient is to be written with clinical conditions to monitor scale of improvement in the status of patient.

It is written in less than 10% of cases. Out of the written prescriptions, only 8.6% were readable.

Following is the table for total number of drugs advised per person.

Table 5

Total number of	Mean	SD
antibiotic	0.63	0.63
analgesics	0.54	0.50
drugs	1.72	0.69

Qualitatively deciding rationality of the drug used, similar to clinical condition of patient, diagnosis is also to be mentioned. Diagnosis of patient is not written for 25.6 % of cases. Out of the total diagnosis written only 63.5% of diagnosis were readable.

Amongst the patient care indicators, average consultation time was 3.26 min.

Following is the table for frequency of consultation time.

Table 6

Time of consultation	Frequency
1	10.3%
2	25.7%
3	22.3%
4	20%
5	13.4%
6	7.1%
7	1.1%

Minimum consultation time observed was 1 min and maximum of 7 minutes

Similarly average dispensing time was 2.2 minutes. Following is the table for number of drug prescribed and dispensed.

Table 7

Number of drugs	Prescribed	Dispensed
1	26.6%	27.1%
2	53.4%	52.9%
3	16.6	16.6%
4	2%	2%
5	0.9%	0.9%

The difference in prescribed and dispensed medicine shows that there are substitutes medicines provided to patient. Substitute medicines are those which are dispense of in absence of advised medicine.

Patient knowledge is calculated from designed questioner. It shows following results. This dose knowledge of patient consists of 4 components as shown in table.

Table 8

Patient's knowledge about	Percentage of knowledge
Timing of medication	94
Duration of treatment	81
Quantity of medicine to be taken	95
Methodology of consumption	94

Scatter plot analysis with the help of SPSS 16 shows no definite relation between total numbers of drugs advised and same for analgesics drugs and injectable.

Also there is so specific statistical association between total number of antibiotic advised and duration of antibiotic, route of antibiotic and route of administration of antibiotic. Same for analgesics drugs as well.

2 tailed bi veriate analysis show co relation between total number of drugs advised and total number of antibiotic advised, total number of analgesics advised and total number of inject able advised are significant at 0.01 level.

Also correlation analysis between total number of drug used (antibiotic and analgesics) are significant with respective duration, daily frequency, and route of administration at 0.01 level.

CHAPTER 6 DISCUSSION

Irrational use of drug is surely one of the major public health problem to be solved. This is surely not a linear issue that can be solved over night because so many factors associated with it. Aspects of Irrational Drug Use are classified and listed below.

1) Diagnosis ;
   - *A.* Inadequate examination of patient
   - *B.* Incomplete communication between patient and doctor
   - *C.* Lack of documented medical history
   - *D.* Inadequate laboratory Resources

2) Prescribing ;
   - *A.* Extravagant prescribing
   - *B.* Over-prescribing
   - *C.* Incorrect prescribing
   - *D.* Under-prescribing
   - *E.* Multiple prescribing/ers

3) Dispensing ;
   - *A.* Incorrect interpretation of the prescription
   - *B.* Retrieval of wrong ingredients
   - *C.* Inaccurate counting, compounding, or pouring
   - *D.* Pouring
   - *E.* Inadequate labeling
   - *F.* Unsanitary procedures
   - *G.* Packaging:
   - *a.* Poor-quality packaging materials
   - *b.* Odd package size, which may require repackaging
   - *c.* repackaging
   - *d.* Unappealing package

4) Patient adherence ;

A. Poor labeling
B. Inadequate verbal instructions
C. Inadequate counseling to encourage adherence
D. Inadequate follow-up/support of patients
E. Treatments or instructions that do not consider the patient's beliefs, environment, or culture.

Significance of Rational Drug Use to tackle upcoming situatation

1) Fast development of resistance if adherence < 90%
2) Treatment failure likely if adherence <95%
3) High incidence of toxicities
4) Waste of financial resources
5) The consequences of irrational drug use are either poor health outcomes or increased health care costs or both at a time.

Though it is difficult issue to solve, but some of these points may help dealing the issue. Addressing irrational usages of drug,

1) Actions oriented
    1) Only specialists are allowed to prescribe antibiotics.
    2) Prescriptions countersigned higher authority at least for patient receiving treatment for more than 6 month/ 3 month.
    3) Centralized dispensing.
    4) Computerized record keeping in pharmacy, with doctor and also documented with patient as maintaining case paper.
    5) Monitoring by superior authority, randomly checking of prescriptions through year.

- Common problems include in favour of irrational use of medicine are :
- Polypharmacy (use of too many medicines);
- Overuse of antibiotics and injections;

- Failure to prescribe in accordance with clinical guidelines;
- Inappropriate self-medication.

What are the consequences of incorrect use of medicines?

It is well known that incorrect use of medicines occurs in all countries, causing harm to people and wasting resources. Consequences include:

Antimicrobial resistance. Overuse of antibiotics increases antimicrobial resistance and the number of medicines that are no longer effective against infectious disease. Many surgical procedures and cancer therapies are not possible without antibiotics to fight infection. Resistance prolongs illnesses and hospital stays, and can even cause death, leading to costs of US$ 4–5 billion per year in the United States of America1 and €9 billion per year in Europe[2].

Adverse drug reactions and medication errors. Harmful reactions to medicines caused by wrong use, or allergic reactions to medicines can lead to increased illness, suffering and death. Adverse drug reactions have been estimated to cost millions of dollars each year[3,4].

Lost resources. Between 10–40% of national health budgets are spent on medicines. Out-of-pocket purchases of medicines can cause severe financial hardship to individuals and their families. If medicines are not prescribed and used properly, billions of dollars of public and personal funds are wasted.

Eroded patient confidence. Exacerbated by the overuse of limited medicines, drugs may be often out of stock or at unaffordable prices and as result erode patient confidence. Poor or negative health outcomes due to inappropriate use of medicines may also reduce confidence.

What factors contribute to incorrect use of medicines?

Lack of skills and knowledge. Diagnostic uncertainty, lack of prescriber knowledge of optimal diagnostic approaches, lack of independent information such as clinical guidelines, lack of opportunity for patient follow-up, or fear of possible litigation, lead to improper prescription and dispensing of medicines.

Inappropriate unethical promotion of medicines by pharmaceutical companies. Most prescribers get medicine information from pharmaceutical companies rather than independent sources such as clinical guidelines. This can often lead to overuse. Some countries allow direct-to-consumer advertising of prescription medicines, which may lead to patients pressuring doctors for unnecessary medicines.

Profits from selling medicines. In many countries, drug retailers prescribe and sell medicines over-the-counter. The more they sell the more income they generate, leading to overuse of medicines, particularly the more expensive medicines.

Unrestricted availability of medicines. In many countries, prescription medicines such as antibiotics, are freely available over-the-counter. This leads to overuse, inappropriate self-medication and non-adherence to dosing regimes.

Overworked health personnel. Many prescribers have too little time with each patient, which can result in poor diagnosis and treatment. In such circumstances prescribers rely on prescribing habit as they do not have the time to update their knowledge of medicines.

Unaffordable medicines. Where medicines are unaffordable, people may not purchase a full course of treatment or may not purchase the medicines at all. Instead they may seek alternatives, such as medicines of non-assured quality from the Internet or other sources, or medicines prescribed to family or friends.

Lack of coordinated national pharmaceutical policy. Less than half of all countries implement the basic policies recommended by WHO to ensure the appropriate use of medicines. These include appropriate measures and infrastructure for monitoring and regulation of medicines use, and training and supervision for prescribing health workers.

Recommendations:

What can be done to improve rational use of medicines?

WHO advises countries to implement national programmes to promote rational use of medicines through policies, structures, information and education. These include:

a national body to coordinate policies on medicine use and monitor their impact;

evidence-based clinical guidelines for training, supervision and supporting decision-making about medicines;

lists of essential medicines used for medicine procurement and insurance reimbursement;

drug (medicines) and therapeutics committees in districts and hospitals to monitor and implement interventions to improve the use of medicines;

problem-based training in pharmacotherapy and prescribing in undergraduate curricula;

continuing medical education as a requirement of licensure;

publicly available independent and unbiased information about medicines for health personnel and consumers;

public education about medicines;

elimination of financial incentives that lead to improper prescribing, such as prescribers selling medicines for profit to supplement their income;

regulations to ensure that promotional activities meet ethical criteria; and

adequate funding to ensure availability of medicines and health personnel.

The most effective approach to improving medicines use in primary care in developing countries is a combination of education and supervision of health personnel, consumer education, and ensuring an adequate supply of appropriate medicines. Any of these alone have limited impact.

WHO in response to rational use of drug (RUD)

To improve rational medicine use, WHO:

monitors global medicines use and pharmaceutical policy;

provides policy guidance and support to countries to monitor medicines use and to develop, implement and evaluate national strategies to promote rational use of medicines;

develops and delivers training programmes to national health professionals on how to monitor and improve medicines use at all levels of the health system.

With these efforts it gives way to improvement in the situation in the future and that too without compromising current development in the health indicators of the world.

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ANNEXURE 1

This part shows the retrospective data collection tool used for the study.

DETAILED ENCOUNTER FORM 1

1) Code of health facility ----------

2) Date ---------- **3) Time**----------

4) Name of data collector----------

5) Health problem description

a) Name of patient _____

b) Age of patient _____ c) Sex of patient _____

d) Date of patient visiting health facility _____.

6) Primary Health problems of respondent

Written		**Not written**	
Readable		**Not readable**	

7) **Primary Health problems of respondent / patient with duration;**

1)_____ .

2)_____ .

3)_____ .

4)_____ .

5)_____.

6)_____.

7)_____.

8) Drug used for treatment

Sr. No	***Name of Drug***	***Strength of Drug***	***Route of administration***	***Daily Frequency of drug***	***Duration of Drug (in days)***	
1)						
2)						
3)						
4)						
5)						
6)						
7)						
8)						
9)						
10)						

9) **Diagnosis by treating physician Provisional / final**

Written		**Not written**	
Readable		**Not readable**	

10) Diagnosis by treating physician Provisional / final *(optional)*:

_____ .

11) Total number of registered O.P.D. patient on the day (of the same O.P.D.) _____.

12) Clinical observation by doctor.

Written		**Not written**	
Readable		**Not readable**	

ANNEXURE 2

FACILITY SUMMERY FORMS 2 THIS FORM IS USED FOR PROSPECTIVE DATA REGARDING AVAILABILITY OF MEDICINES AND FACILITY.

1) **Code of health facility ----------**

2) Date ---------- 3) Time----------

4) Name of data collector----------

5) Is essential drug list is available at facility? 1) Yes 2) No

6) Drugs from essential drug list

Sr. No.	Name of the drug	Yes	No	Not Applicable
1)	Tab. Albendazole 200 mg			
2)	Tab. Albendazole 400 mg			

3)	Syp. Amooxicillin 125mg/5ml			
4)	Tab/Cap Amooxicillin250 mg			
5)	Syp. Amooxicillin 250 mg			
6)	Tab/Cap Amooxicillin 500 mg			
7)	Inj. Ampicilline 1000 mg			
8)	Inj. Ampicilline 500 mg			
9)	Inj. Ceftriaxone 1000 mg			
10)	Inj. Ceftriaxone 500 mg			
11)	Syp. Chloramphenicol 125mg/5ml			
12)	Cap. Chloramphenicol 250 mg.			
13)	Chloramphenicol eye drop			
14)	Inj. Chloramphenicol 1000mg.			
15)	Tab. Chloroquine phosphate 100mg			
16)	Tab. Chloroquine phosphate 150 mg			
17)	Inj. Chloroquine phosphate 200 mg.			
18)	Syp. Chloroquine phosphate 200 mg /5ml			
19)	Tab. Ciprofloxacin 250 mg			
20)	Tab. Ciprofloxacin 500 mg			
21)	Cap. Cloxacillin sodium 250 mg			
22)	Cap. Cloxacillin sodium 500 mg			
23)	Inj. Cloxacillin sodium 500 mg			

24)	Tab. Cotrimaxazole 120 mg			
25)	Tab. Cotrimaxazole 480 mg			
26)	Syp. Cotrimaxazole 240mg/5ml			
27)	Tab. Erythromycin stearate 250 mg			
28)	Inj. Gentamycin sulfate 20mg/2ml			
29)	Inj. Gentamycin sulfate 80mg/2ml			
30)	Tab. Ibuprofen 200 mg			
31)	Tab. Mebendazole 100 mg			
32)	Syp. Metronidazol 125mg/5ml			
33)	Tab. Metronidazol 200 mg			
34)	Inj. Metronidazol 500mg/100ml			

7) Basic facility for clinical check up in your O.P.D.

Sr.No	**Facility**	**Yes**	**No**	**Not Applicable**
1)	Stethoscope			
2)	B.P. apparatus/Sphygmomanometer			
3)	Thermometer			
4)	Weighing machine			
5)	Measuring tape/ Scale			
6)	Torch light(Battery torch)			
7)	Glucometer			

8)	Prescription pads (with doctor)			
9)	Disposable Syringes			
10)	Spirit swab			
11)	Disposable Needles			
12)	Patient Examination Table			

Annexure 3

This form is used for prospective data collection regarding patient care indicator been followed at the health facility.

PATIENT CARE INDICATOR -3

1) **Code of health facility**_____ _____

2) **Date** _____ **3) Time** _____

4) **Name of data collector**_____

5) **Patient care indicator** :

Sr. no.	**1] Consulting time.**	**2] Dispensing time.**	**3] No. of Drugs Prescribed.**	**4] No. of Drugs dispensed.**		**5] No. of substitutes drugs.**
				A} Number of drugs	**B} Complete dose of drug**	
1)						
2)						
3)						
4)						

5)						
6)						
7)						
8)						
9)						
10)						
11)						
12)						
13)						
14)						
15)						

	6]Adequately Labeled			**7] Dose Knowledge of Patient**			
	A} Content of medicine	**B} Dose of drug**	**C} Expiry date**	**A} When to take medicine**	**B} How many days**	**C} How much to take**	**D} How to take medicine**
1.							
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							

10.							
11.							
12.							
13.							
14.							
15.							