SURVEY ON
DRUG INFORMATION PROVIDED BY
THE GOVERNMENT HOSPITAL.

Dissertation submitted for the Partial fulfillment of Bachelor of
Pharmacy, East West University, Dhaka, Bangladesh

Submitted by

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February 10, 2010

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(A Research paper submitted to the Department of Pharmacy, East West University in conformity with the requirements for the Degree of Bachelor of Pharmacy. The study has been carried under the supervision of Professor A B M Faroque., Adjunct Faculty, Department of Pharmacy, East West University.)

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ID# 2005-2-70-017
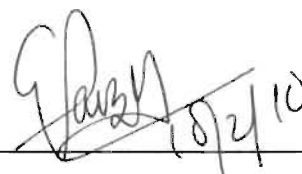
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CERTIFICATE

This is to certify that, the project work on "**A Survey on Drug Information Provided by the Government Hospital**" submitted to the Department of Pharmacy, East West University, Mohakhali, Dhaka, in partial fulfillment of the requirements for the degree of Bachelor of Pharmacy (B. Pharm) was carried out by Razowoana Taskin. Id# 2005-2-70-013) under our guidance and supervision and that no part of the thesis has been submitted for any other degree. We further certify that all the sources of information of in this connection are duly acknowledged.

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ACKNOWLEDGEMENT

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Abstract

Worldwide, it is estimated that over half of all medicines are prescribed, dispensed or sold inappropriately, and that half of all patients fail to take their medicine correctly. Medicines are used rationally when patients receive the appropriate medicines, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost both to them and their community. Irrational use occurs when one (or more) of these conditions is not met. In spite of available tools and information on how to measure medicines use and the intervention strategies needed to achieve this, irrational use continues to occur. This is wasteful, expensive and dangerous, both to the health of the individual patient and to the population as a whole. Inappropriate use of medicines, and the related illness and deaths, are not restricted to low-income countries. The scope of pharmacy practice includes more traditional roles such as compounding and dispensing medications, and it also includes more modern services related to patient care, including clinical services, reviewing medications for safety and efficacy, and providing drug information. Hospital pharmacy plays a pivotal role in patient care in a hospital. Hospital pharmacists serve as a link between physicians and patients to promote better patient outcomes. But it is matter of great regret that in Bangladesh, a developing country, people are totally unknown to the responsibilities of hospital pharmacist, even they do not seek for recruit for hospital pharmacist in any hospital except a few aristocrat hospitals. There is no Drug information center in any hospital in Bangladesh. More over, in out national Health Policy and National Drug Policy, there is no rules and regulation of giving prescribing information to the patients. So the patients remain out of this knowledge of right use of medication. To find out the drug information status with Prescription in Government Hospitals in Bangladesh, a survey programme was conducted in three areas namely Sir Salimullah Medical College Hospital Faridpur Medical College Hospital and Madhukhali Thaana Health Complex and Tongi Government hospital. Firstly, the data was collected from the areas with the help of a prepared sample collection form and, then the analysis of the data and finding out the subjected outcomes. The main objective of the study was to improve the drug information pattern with prescription, to know about the health status of the patients. enhance the rational use of drug and ensure the proper public health care. The present study has limitations since only three areas were considered for the study and thus the results obtained are apparent but not exact for the national picture.

Survey on Drug Information Provided by the Government Hospital

1.0 INTRODUCTION

1.1 Concept of Drug

Human beings engage in a great variety of drug taking behaviors, but one of the most important and rudimentary consideration involves the definition of what constitutes a drug and which situations characterize drug taking. In 1972 a nationwide survey of drug use in the USA, adults and youths were asked to indicate which substances such as heroin, cocaine, marijuana, and psychotherapeutic agents to be drugs. One should realize, however that a small proportion of the general public (5-20%, depending on the specific drug) did not regard these substance to be drugs. Alcohol and tobacco were regarded as drugs by less than one-third of the respondents (84%) did not consider tobacco to be a drug, although we might expect that if the survey were repeated today, the result would be different.

The key point is that individuals can hold different beliefs or perceptions about which chemical substances they regard as being drugs. [1] But in pharmacology, the drug is defined as "Drug is the single active chemical entity present in a medicine that is used for diagnosis, prevention, treatment/cure of diseases".

WHO (1966) has given more comprehensive definition-"Drug is any substance or product that is used or intended to be used to modify or explore physiological systems or pathological states for the benefit of the recipient.

1.2 Essential Drug Concept

It has been realized that only a handful of drugs out of the multitude available can meet the health care need of majority of the people in any country, and that many well tested and cheaper drugs are equally (or more) efficacious and safe as their newer more expensive congeners. For optimum use of resources, governments should concentrate on these drugs by identifying them as Essential Drugs.

The WHO has defined "Essential drugs as those that satisfy the priority healthcare needs of the population. They are selected with due regard to public health relevance, evidence on efficacy and safety, and comparative cost effectiveness". Essential medicines are intended to be available within the context of functioning health systems at all times and in adequate amount.

1.2.1 Criteria to Guide Selection of an Essential Drug

The WHO has laid down criteria to guide selection of an essential drug:

1. Adequate data on its efficacy and safety should be available from clinical studies.
2. It should be available in a form in which quality, including bioavailability, and the stability on storage can be assured.
3. Its choice should depend upon pattern of prevalent diseases; availability of facilities and trained personnel; financial resources; genetic, demographic and environmental factors.
4. In case of two or more similar drugs, choice should be on the basis of their relative efficacy, safety, quality, price and availability. Cost-benefit ratio should be a major consideration.
5. Choice may also be influenced by comparative pharmacokinetic properties and local facilities for manufacture and storage.
6. Most essential drugs should be single compounds. Fixed ratio combination products should be included only when dosage of each ingredient meets the requirements of a defined population group, and when the combination has a proven advantage.
7. Selection of an essential drug should be a continuous process, which should take into account the changing priorities for public health action, epidemiological conditions as well as availability of better drugs/formulations and progress in pharmacological knowledge. [2]

1.3 Healthcare System in Bangladesh (WHO)

Bangladesh has made significant progress in recent times in many of its social development indicators particularly in health. This country has made important gains in providing primary health care since the Alma Ata Declaration in 1978. All health indicators show steady gains and the health status of the population has improved. Infant, maternal and under-five mortality rates have all decreased over the last decades, with a marked increase in life expectancy at birth. It has achieved a credible record of sustaining 90% plus vaccine coverage in routine EPI along with NIDs (national immunizations days) since 1995. But some of this progress is uneven and there still exists inequalities between different groups and geographical regions. A major constraint identified towards reaching the MDGs and other national health goals is the issue of shortages in the health workforce and the uneven skill mix.

Like most transitional societies, a wide range of therapeutic choices are available in Bangladesh, ranging from self care to traditional and western medicine. The public sector is largely used for in-patient and preventive care while the private sector is used mainly for outpatient curative care. Primary Health Care (PHC) has been chosen by the Government of Bangladesh as the strategy to achieve the goals of "Health for all" which is now being implemented as Revitalized Primary Health Care.[3]

1.3.1 The Public Sector

The primary care in the public sector is organized around the Upazila Health Complex (UHC) at sub-district level which works as a health-care hub. These Units have both in- and out-patient services and care facilities. Most commonly, they have in-patient care support with 31 beds, while some UHC have over 50 beds. Many UHC Units have a package service called "comprehensive emergency obstetric care services" (EOC) available, with an expert gynecologist, an anesthetist and skilled support nurses on duty round-the-clock and basic laboratory facilities. At a lower tier, the Union Health and Family Welfare Centre (UHFWC) are operational, constituted with two or three sub centers at the lowest administrative level, and a network of field-based functionaries. The public sector field-level personnel are comprised of Health Assistants (HAs) in each union who supposedly make home visits every two months for preventive healthcare services, and Family Welfare Assistants (FWAs) who supply condoms and contraceptives pills during home visits. Recently some of the female HAs and FWAs

have been trained as birth attendants (skilled birt attendants – SBAs), to provide skilled services within a household setting. The number of health assistants is determined according to the size of the population. The Health Assistants and Family Welfare Assistants are supervised by a Health Inspector (HI) and a Family Planning Inspector (FPI) respectively, posted at the union level. The UHC is staffed by ten qualified allopathic practitioners and supporting staff, while the UHFWCs are staffed by professionals such as a Medical Assistant (MA/SACMO) and mid-wife (Family Welfare Visitor), both trained in formal institutions. The Union Health and Family Welfare Centers (UHFWCs) provide out-patient care only.

Above the sub district are the district hospitals (100-250 beds) and medical colleges (serving a group of districts with around 650 beds) providing secondary care, and national tertiary level care facilities. A common tendency is observed in terms of utilization – a stark imbalance in service utilization at public health facilities. There is low utilization of most facilities at the primary level (Upazila and below) and overutilization of facilities at the secondary and tertiary levels.

1.3.2 The Private Sector

In the private sector, there are traditional healers (Kabiraj, totka, and faith healers like pir / fakirs), homeopathic practitioners, village doctors (rural medical practitioners RMPs/ Palli Chikitsoks-PCs), community health workers (CHWs) and finally, retail drugstores that sell allopathic medicine on demand. In addition to dispensing medicine, sellers at these mostly unlicensed and unregulated retail outlets also diagnose and treat illnesses despite having no formal professional training. All of these informal providers are deeply embedded in the local community and culture and are easily accessible, providing inexpensive services to the villagers with occasional deferred payment, and payment in kind being accepted instead of cash. To this is added an emerging cadre of semi-qualified community health workers / volunteers, who are formally trained by the NGOs (such as BRAC, Gonoshasthya Kendra etc); their numbers have been increasing since the 1990's with the expansion of PHC infrastructure in the country.

1.3.3 Traditional Medicine

Grouped under "traditional medicine" are most of the medical practices that fall outside the realm of 'scientific' medicine. Thus, Kabiraj, totka, herbalists, practitioners of 'Folk Medicine' and faith healers (e.g. pir, fakir etc.) of different shades fall under this broad umbrella. Many of these healers (e.g. faith healers) provide a much narrower range of services for a more limited set of conditions

1.4 Policy Brief on the Health and Population Sector

The Centre for Policy Dialogue (CPD) has brought together representatives of the civil society, within a number of Task Forces, to prepare a series of Pre-Election Policy Briefs. The purpose of this exercise is to draw upon the talents and commitment of civil society to influence the formulation of policy agendas through the national political process, in the run-up to, and immediately after, the parliamentary elections to be held this year. The purpose of the Policy Briefs is to address issues of urgent public concern where concrete, doable, policy agendas can be identified for implementation within the prevailing political configurations of the country. The Policy Briefs focus on (a) issues of urgent public concern with a view to developing concrete, implementable policy agendas within the existing realities of the country and (b) translating academic and applied research and views of different stakeholders into practical policy recommendations.

CPD has constituted a Task Force on Health and Population Policy to prepare a Policy Brief on the health and population sector of the country. The Task Force held a series of meetings and a number of brainstorming sessions, in which strategic issues relating to the sector were identified and articulated. Based on these discussions, the Task Force has prepared a draft Policy Brief, which was discussed in great details in a dialogue organized in Comilla on July 21, 2001. Professionals representing different organizations and groups, involved with the population and health sector, actively participated in the dialogue. The cutting edge issues that emerged from the dialogue were taken into account while finalizing this Policy Brief, which is presented below.[4]

1.4.1 The Current Situation

In Bangladesh the total fertility rate (TFR) has declined from around 6 in the mid-seventies to 3.4 in 1993-94. The major share of this decline should be attributed to the increase in the level of contraceptive prevalence from 7 per cent in 1975 to 44.6 per cent in 1993-94. Such an increase in the level of the contraceptive prevalence rate (CPR) in the setting of Bangladesh has taken place without any remarkable change in the level of household income, education or health. This indicates that the population of Bangladesh has not experienced the necessary transition in the quality of life traditionally associated with a significant increase in demand for contraceptive use. The increase in CPR must thus be ascribed largely to institutional interventions in the area of family planning (FP), which may have improved the motivation for adopting contraceptive methods. However, the level of CPR has increased from 44.6 per cent in 1993-94 to 53.8 per cent in 1999-2000, but TFR remained plateaued at a level of 3.3. In other words, the increase in CPR was not translated into the expected decline in the level of fertility. This implies that the replacement level fertility will not be achieved by 2005 and the population size will continue to grow at a moderate rate and the size of the stable population will be much higher than expected.

According to the WHO composite index for overall health system attainment of 191 member states, Bangladesh is ranked 131, worse than Sri Lanka, India and the Maldives but better than Pakistan, Bhutan and Nepal (WHO, 2000). Similarly, out of 162 countries, Bangladesh ranks 132, according to the Human Development Index, 2001, behind the Maldives, Sri Lanka, India, Pakistan, Nepal and Bhutan (UNDP, 2001).

The infant mortality and maternal mortality rates are still very high in Bangladesh, 79.6 per thousand live births and 4.3 per thousand live births respectively (BDHS Preliminary Report, 2001; BIRPERHT, 1996). The prenatal mortality rate is 57.4 per thousand pregnancies (of more than 7 months).

It is very disappointing to note that almost two-thirds of the births do not receive any antenatal care. Among those who receive antenatal care, only 16 per cent are informed of the signs of complications, and slightly more than one-third receive iron tablets. For delivery, only 6 per cent use health facilities. Trained health personnel assist deliveries of only 22 per cent of the births.

The complete coverage of immunization is not achieved for almost 50 per cent of the children. Prevalence of acute respiratory infection (ARI) is high (18.3 per cent) but treatment is sought for only one-fourth of the ARI patients.

Malnutrition continues to be a severe health problem among both mothers and children in Bangladesh. The extent of stunting and underweight are 45 per cent and 48 per cent respectively for children under five years of age, while anaemia is prevalent among 53 per cent of pregnant women.

The major causes of death are pneumonia, respiratory failure, injuries, upper respiratory tract infection and diarrhoea, while the major causes of morbidity appear to be ulcer, diarrhoea, malaria, asthma and rheumatism/rheumatic fever.

There are only 18 doctors and 5 nurses for every 100,000 people in Bangladesh. These figures indicate that the existing health care system is very poor in the country.

1.5 Primary, Secondary and Tertiary Health Care

Primary health care (PHC) is the most important tier of the national health system. Attempts should be made to improve the quality of PHC and make it accessible to the people, especially the poor and the vulnerable. To this end, the following recommendations are made:

a) Sixty per cent of the total expenditure in the health sector should be incurred in this area.
b) The provision of ESP under HPSP should be strengthened.
c) There should be a doctor in every UHFWC.
d) The CCs should be strengthened and the services of a doctor should be provided during certain fixed days every month. The CC would be the focal point for providing ESP at the village level. Regular supply of drugs and medicines to the CCs should be ensured.
e) Domiciliary services should continue.
f) There should be greater involvement of the community, i.e., local government, civil society, community groups.

g) NGOs should be encouraged to provide PHC services and should also meaningfully be involved in the functioning of CCs.

h) Greater efforts should be given to reduce maternal mortality and child mortality. Post and antenatal care should, in particular, be stressed and doctors and paramedics dealing specifically with PHC should be proficiently trained on the subject.

i) Training of Traditional Birth Attendants (TBA) should be initiated and should continue parallel to the policy to replace their role with that of trained paramedics and doctors.

k) Emergency Obstetrics Care (OEC) should be provided in every Upazila Health Complex.

l) Universal coverage of Vitamin A consumption should be ensured.

For improving *Secondary Health Care* the following recommendations are made:

a) Hospitals should be semi-autonomous with financial empowerment.

b) Management Committees at hospitals should be strengthened and empowered to take administrative and financial decisions.

c) The DG Health should be able to transfer the Civil Surgeon and below in rank.

In order to improve *Tertiary Health Care*, the following steps should be taken:

a) Existing institutions should be expanded and strengthened.

b) Existing specialised units should be strengthened and new ones should be set up only if the need is critical.

c) The number of health specialists needs to be increased.

d) New branches of sub-specialisation should be created in medical colleges so that patients do not need to come to Dhaka. The set-up should be absorbed in the revenue structure.

e) Except where it is absolutely necessary, only autonomous units should be created.

f) Hospitals should be empowered to contract and hire specialists from abroad to provide hands-on training on new technology. The proposals should have to be approved by a body of professionals headed by the DG (Health).

g) All referred patients should be accepted by medical colleges/hospitals, and, if necessary, they should assume the responsibility of referring them and ensuring admission elsewhere.

a) Hospitals should have multi-disciplinary facilities for catering to the needs of the patients.[5]

1.6 Public health infrastructure in Bangladesh

Medical college and hospital	13
Specialised hospital and centre	61
National institute	5
Medical university	1
Post graduate institute and hospital	5
Infectious diseases hospital	6
TB hospital	4
Chest hospital	45
Leprosy hospital	3
Mental hospital	2
Paramedic institute	1
Dental college hospital	2
Upazila Health Complex	402
Union sub-centre	3175 [6]

1.7 Problems in the healthcare system

It is noted that the highest number of problems (22%) in health sector are related to inadequate number of physicians, wrong treatment, negligence towards patients, absence from duty and unwillingness of doctors to stay at rural areas and small towns. The other problems are related to supplies, equipment, beds etc (21%). Some other major problems often discussed also include lack of ambulance services as well as proper referral services

1.7 Deficiencies particularly in the rural healthcare centres

1. Lack of proper diagnostic facilities
2. Lack of qualified physicians
3. Improper distribution of diagnostic professionals
4. Professional isolation of Physicians
5. Medical manpower shortage
6. Post-disastrous medical management   [7]

1.8 Table 1. Population and Health Profile of Bangladesh

Total Population,	1991	111.45 million (BBS, 2001)
	2001	133.20 million (Projected)
	2015	183.30 million (Projected)
Population <15	1999-2000	39.2 percent (BDHS, 1999-2000)
Population >60	1999-2000	6.4 percent (BDHS, 1999-2000)
Growth Rate figures)	1991-2001	1.78 percent (Based on projected
Population Density	2001	903 per sq. km. (Based on the projected population)
Crude Birth Rate 2000)	1999-2000	30.2 per 1000 population (BDHS, 1999-
Total Fertility Rate	1993-94	3.4 (BDHS, 1993-94)
	1996-97	3.3 (BDHS, 1996-97)
	1999-2000	3.3 (BDHS, 1999-2000)
Mean Ideal Number of Children	1999-2000	2.5 (BDHS, 1999-2000)
Contraceptive Prevalence Rate	1993-94	44.6 percent (BDHS, 1993-94)
	1996-97	49.2 percent (BDHS, 1996-97)
	1999-2000	53.8 percent (BDHS, 1999-2000)
Adolescent Pregnancy	1999-2000	34.7 percent (BDHS, 1999-2000)

Table 1 (contd.) Population and Health Profile of Bangladesh

Perinatal Mortality 1999-2000 (BDHS)	57.4 per 1000 pregnancies (7+months)
Neonatal Mortality 1999-2000	50.4 per 1000 live births (BDHS)
Post neonatal Mortality1999-2000	29.2 per 1000 live births (BDHS)
IMR 1999-2000	79.6 per 1000 live births (BDHS)
Child Mortality 1999-2000	33 per 1000 live births (BDHS)
Under 5 Mortality 1999-2000	110 per 1000 live births (BDHS)

ANC Provider 1999-2000		(BDHS, 1999-2000)
Doctor/Nurse/Midwife	33.3 percent	
No One	63.0 percent	

ANC Component 1999-2000		(BDHS, 1999-2000)
Informed of Signs of Complications	15.9 percent	
Received Iron Tablets	36.4 percent	
Received TT Vaccine (2+)	63.7 percent	

Place of Delivery 1999-2000		(BDHS, 1999-2000)
Home	91.6 percent	
Health Facility	5.6 percent	
Delivery Attendant 1999-2000		(BDHS, 1999-2000)
Trained	21.8 percent	
Untrained	78.2 percent	
Vaccination by 12 months		(BDHS, 1999-2000)
BCG	90.0 percent	
DPT (3)	70.2 percent	
Polio (3)	69.1 percent	
Measles	62.1 percent	
All	52.8 percent	

Prevalence of ARI (<5 Years)	18.3 percent (BDHS, 1999-2000)
Treatment of ARI	27.2 percent (BDHS, 1999-2000)

Prevalence of Diarrhoea (<5 Years)   6.1 percent   (BDHS, 1999-2000)

Received Vitamin A-capsule (<5 Years) 73.3 percent (BDHS, 1999-2000)

Maternal Mortality Rate   1993-94   4.3 per 1000 live births (BIRPERHT, 1996)

Malnutrition (Percent < -2SD) for Children < 5 Years (BDHS, 1999-2000)	
Stunting (Height-for-Age)	44.7 percent
Wasting (Wt-for-Ht)	10.3 percent
Underweight (Wt-for-Age)	47.7 percent

Pregnant Women with Anaemia	53 percent

Major Causes of Death 1997	Streatfield et al., 2001
Pneumonia	15.7 percent
Respiratory Failure	9.4 percent
Injuries (unintentional)	8.7 percent
Upper Respiratory Tract	5.9 percent
Diarrhoea	4.9 percent

Major Causes of Morbidity 1997	Streatfield et al., 2001
Ulcer	7.0 percent
Diarrhoea	5.1 percent
Malaria	3.2 percent
Asthma	2.6 percent
Rheumatism/Rheumatic Fever	1.8 percent

Doctors	18 per 100,000 population
Nurses	5 per 100,000 population

[8]

1.9 Rational use of drug

Rational use of medicines 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.

1.9.1 A major global problem

Irrational use of medicines is a major problem worldwide. WHO estimates that more than half of all medicines are prescribed, dispensed or sold inappropriately, and that half of all patients fail to take them correctly. The overuse, under use or misuse of medicines results in wastage of scarce resources and widespread health hazards. Examples of irrational use of medicines include: use of too many medicines per patient ("poly-pharmacy"); inappropriate use of antimicrobials, 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; inappropriate self-medication, often of prescription-only medicines; non-adherence to dosing regimes[9]

1.9.2 The situation where the rational use of drug is hampered:

- **No drug needed:** In the treatment of the diarrhoea no drug is needed; only ORS is enough. But antibiotic is given in the first time for the treatment of the diarrhoea.
- **Wrong drug:** The infection of the upper respiratory tract which is mainly caused by the *Staphylococcus* can be treated by Amoxicillin but treat by tetracycline.
- **Ineffective drug:** Tonic and multivitamins supplement is mainly ineffective drug.
- **Unsafe drug:** Anabolic steroids are used to treat severe eczema. But this drug cause weight gain of the patient.
- **Under use of effective drug:** ORS is not used more to treat diarrhoea but antibiotic are used more to treat diarrhoea than ORS.
- **In correct use:** Antibiotics are not used properly. The course of antibiotic is not complete by the patient.*

* Based on the lecture provided by Mr. Chandra Shekhar Biswas.

1.9.3 Impact of irrrational use of drug:

Irrational use of drugs may lead to:-

1. Ineffective and unsafe treatment
2. Exacerbation or prolongation of illness.
3. Distress and harm to patient
4. Increase the cost of treatment   [10]

1.9.4 Factor affecting the rational use of drug:

- ⌘ **Lack of information:** - Unlike many developed countries we don't have a regular facility which provides us up to date unbiased information on the currently used drugs. Majority of our practitioners rely on medical representatives. There are differences between pharmaceutical concern & the drug regulatory authorities in the interpretation of the data related to indications & safety of drugs.

- ☐ **Faulty & inadequate training & education of medical graduates: -** Lack of proper clinical training regarding writing a prescription during training period, dependency on diagnostic aid, rather than clinical diagnosis, is increasing day by day amongst doctors.

- ☐ **Poor communication between health professional & patient: -** Medical practitioners & other health professionals are giving less time to their patients & not explaining some basic information about the use of drugs.

- ☐ **Lack of diagnostic facilities/Uncertainty of diagnosis: -** Correct diagnosis is an important step toward rational drug therapy. Doctors posted in remote areas have to face a lot of difficulty in reaching to a precise diagnosis due to non availability of diagnostic facilities. This promotes poly-pharmacy.

- ☐ **Demand from the patient**
  To satisfy the patient expectations and demand of quick relief, clinicians prescribe drug for every single complaint. Also, there is a belief that "every ill has a pill". All these increase the tendency of polypharmacy.

- ☐ **Defective drug supply system & ineffective drug regulation**
  Absence of well organized drug regulatory authority & presence of large number of drugs in the market leads to irrational use of drugs.

- ☐ **Promotional activities of pharmaceutical industries**
  The lucrative promotional programmes of the various pharmaceutical industries influence the drug prescribing. [11]

1.9.5 How we can ensure rational use nof drug:

- **Diagnosis accurately :** What is the diseases or in which perpose the drug will prescribed it should be find out accurately.
- **Prescribed accurately:** The physician should prescribed the drug carefully and the name of the drug and other information of the drug like dosage form, when and how to take the drug, appropiate dose should be wright down clearly.

- **Dispensing properly:** Dispens the drug properly to the consumer by giving all the information of the drug like side effect, adverse effect, when, where,how the drug apply and contraindication of the drug.
- **Adherence:** After receiving the drug the patient should take the drug by the direction of the physician or pharmacist and should complite the course of the drug.

If the above mentioned four point can be fullilled only then the the Rational use of drug might be ensured.*

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* Based on the lecture provided by Mr. Chandra Shekhar Biswas.

WHO advocates 12 key interventions to promote more rational use:

1. Establishment of a multidisciplinary national body to coordinate policies on medicine use
2. Use of clinical guidelines
3. Development and use of national essential medicines list
4. Establishment of drug and therapeutics committees in districts and hospitals
5. Inclusion of problem-based pharmacotherapy training in undergraduate curricula
6. Continuing in-service medical education as a licensure requirement
7. Supervision, audit and feedback
8. Use of independent information on medicines
9. Public education about medicines
10. Avoidance of perverse financial incentives
11. Use of appropriate and enforced regulation
12. Sufficient government expenditure to ensure availability of medicines and staff.

[12]

1.10 Polypharmacy

The term **polypharmacy** generally refers to the use of multiple medications by a patient. The term is used when too many forms of medication are used by a patient, when more drugs are prescribed than is clinically warranted, or even when all prescribed medications are clinically indicated but there are too many pills to take. Polypharmacy which technically translates to "many drugs" has many meanings. The Health Alliance Plan, a subsidiary of the Henry Ford Health System, defines polypharmacy as "the unwanted duplication of drugs that often results when patients go to multiple physicians or pharmacies."[1] Other researchers implicate anywhere from 5 to 10 drugs as a signal of polypharmacy. Furthermore, a portion of the treatments may not be evidence-based. Polypharmacy is most common in the elderly but is also widespread in the general population.

The most common results of polypharmacy are increased the followings;

- *Adverse drug reactions,*
- *Drug-drug interactions and*
- *Higher costs*   [13]

1.10.1 Adverse Drug Reaction:

In medicine, an adverse effect is a harmful and undesired effect resulting from a medication , multiple medications or other intervention such as surgery. An adverse effect may be termed a "side effect", when judged to be secondary to a main or therapeutic effect, and may result from an unsuitable or incorrect dosage or procedure, which could be due to medical error. Adverse effects are sometimes referred to as "iatrogenic" because they are generated by a physician/treatment. Some adverse effects only occur only when starting, increasing or discontinuing a treatment. Using a drug or other medical intervention which is contraindicated may increase the risk of adverse effects. Adverse effects may cause medical complications of a disease or procedure and negatively affect its prognosis. They may also lead to non-compliance with a treatment regimen. Adverse effects can occur as a collateral or side effect of many interventions, but they are particularly important in pharmacology, due to its wider, and sometimes uncontrollable, use by way of self-medication .Adverse effects may also be caused by drug interaction. This often occurs when patients fail to inform their physician and

pharmacist of all the medications they are taking, including herbal and dietary supplements. The new medication may interact agonistically or antagonistically (potentiate or decrease the intended therapeutic effect). Significant morbidity and mortality is caused around the world because of this. Drug-drug and food-drug interactions may occur, and so-called "natural drugs" used in alternative medicine can have dangerous adverse effects. For example, extracts of St John's wort (*Hypericum perforatum*), a phytotherapic used for treating mild depression are known to cause an increase in the cytochrome P450 enzymes responsible for the metabolism and elimination of many drugs, so patients taking it are likely to experience a reduction in blood levels of drugs that they are taking for other purposes, such as cancer chemotherapeutic drugs, protease inhibitors for HIV and hormonal contraceptives. Examples of adverse effects associated with specific medications include the followings;

- Abortion, miscarriage or uterine hemorrhage associated with misoprostol (Cytotec), a labor-inducing drug (this is a case where the adverse effect has been used legally and illegally for performing abortions)
- Addiction to many sedatives and analgesics, such as diazepam, morphine, etc.
- Birth defects associated with Thalidomide and isotretinoin (Accutane)
- Bleeding of the intestine associated with aspirin therapy
- Cardiovascular disease associated with COX-2 inhibitors (i.e. Vioxx)
- Deafness and kidney failure associated with gentamicin (an antibiotic)
- Death, following sedation in children using propofol (Diprivan)
- Dementia associated with Coronary artery bypass surgery
- Depression or hepatic injury caused by interferon
- Diabetes caused by atypical antipsychotic medications (neuroleptic psychiatric drugs)
- Diarrhea caused by the use of orlistat (Xenical)
- Erectile dysfunction associated with many drugs, such as antidepressants
- Fever associated with vaccination (in the past, imperfectly manufactured vaccines, such as Bacillus Calmette-Guérin (BCG) and poliomyelitis, have caused the very disease they intended to fight)
- Glaucoma associated with corticosteroid-based eye drops
- Hair loss and anemia may be caused by chemotherapy against cancer, leukemia, etc.

- Headache following spinal anaesthesia
- Hypertension in ephedrine users, which prompted FDA to remove the status of dietary supplement of ephedra extracts
- Insomnia caused by stimulants, methylphenidate (Ritalin), Adderall, etc.
- Lactic acidosis associated with the use of stavudine (Zerit, for anti-HIV therapy) or metformin (for diabetes)
- Liver damage from paracetamol
- Drowsiness or increase in appetite due to antihistamine use. Some antihistamines are used in sleep aids explicitly because they cause drowsiness.[14]

1.10.2 Drug Interection

A drug interaction is a situation in which a substance affects the activity of a drug, i.e. the effects are increased or decreased, or they produce a new effect that neither produces on its own. Typically, interaction between drugs come to mind (drug-drug interaction). However, interactions may also exist between drugs & foods (drug-food interactions), as well as drugs & herbs (drug-herb interactions). These may occur out of accidental misuse or due to lack of knowledge about the active ingredients involved in the relevant substances

A contemporary example of a drug interaction used as an advantage is the co-administration of carbidopa with levodopa (available as Carbidopa/levodopa). Levodopa is used in the management of Parkinson's disease and must reach the brain in an un-metabolized state to be beneficial. When given by itself, levodopa is metabolized in the peripheral tissues outside the brain, which decreases the effectiveness of the drug and increases the risk of adverse effects. However, since carbidopa inhibits the peripheral metabolism of levodopa, the co-administration of carbidopa with levodopa allows more levodopa to reach the brain un-metabolized and also reduces the risk of side effects.[15]

Types of drug interactions

Drug-drug interactions

It occurs when two or more drugs interact with each other. Interactions can occur with prescription drugs, over-the-counter drugs, vitamins, and alternative medications such as supplements and herbal products.

Some examples of drug-drug interactions include:

- Mixing a prescription sedative to help the patient sleep with an over-the-counter antihistamine for allergies can cause daytime drowsiness and make driving or operating machinery dangerous.
- Combining aspirin with a prescription blood thinner such as Plavix (clopidogrel) can cause excessive bleeding.

Drug-food interactions

It occurs when a drug interacts with something patient eats or drink.

Some examples of drug-food interactions include:

- Dairy products, such as milk, yogurt and cheese, can interfere with the absorption of antibiotics into the bloodstream.
- More than 50 prescription drugs are affected by grapefruit juice. Grapefruit juice inhibits an enzyme in the intestine that normally breaks down certain drugs and hence allows more of a medication to enter the blood stream.
- Vegetables containing vitamin K, such as broccoli, kale and spinach, can decrease the effectiveness of drugs, such as Coumadin (warfarin), given to prevent blood clotting.

Drug-Disease interactions

It may occur when a medication interacts with an existing health condition.

example of drug-disease interactions include:

- Decongestants, such as pseudoephedrine found in many cough and cold preparations, can increase blood pressure and may be dangerous for people with hypertension. [16]

List of drug interactions

The following is a list of interactions with various prescription and over-the counter drugs: [17]

Table 2: list of drug interactions

Generic name	Prescription drugs	Over-the counter drugs	Street drugs	Food	Pregnancy	Nursing
Acetaminophen	Isoniazid					
Allopurinol	Ampicillin, Azathioprine, Chlorpropamide, Ethacrynic acid, Furosemide, Furosemide, Indapamide, Mercaptopurine, Metolazone, Probenecid, Theophylline		Cocaine		Unknown	Avoid
Ambenonium	Guanadrel, Guanethidine, Mecamylamine, Procainamide, Quinidine, Trimethaphan		Cocaine		Avoid	Safe

1.10.3 Higher costs

Polypharmacy practice leads the patients to spend more money though they may aford or not. Prescribing more than the necessary drug causes the extra clost for the patients. This phenomenon results to the discontunation of treatment is case of poor patients.

1.10.4 Role of Pharmacist to Avoid Polypharmacy Pitfalls

Pharmacists have legitimate concerns about polypharmacy (Table 1) and frequently try to address it. Nonetheless, the vague definition of polypharmacy contributes to prescribers' eye-rolling when well-meaning pharmacists try to intervene. What pitfalls can pharmacists avoid to improve communication?

Pitfall #1: An Inflexible Definition: Defining *polypharmacy* with a strict number may deny patients access to necessary drugs. Prescribers may find pharmacists who use number-driven definitions less credible than those who broaden the definition to an outcomes-based assessment. This broader definition involves the question, "Is every drug clinically indicated for this unique patient and prescribed at its lowest effective dose?" If the answer is no, polypharmacy is a problem.

Pitfall #2: Failure to Acknowledge Legitimate Polypharmacy: Some conditions create complex care needs. They cannot be treated with simple regimens. Evidence-based treatment regimens for heart failure, for example, recommend an angiotensin-converting enzyme inhibitor, a beta-blocker, an aldosterone antagonist, =1 antihypertensive, a diuretic, digoxin, and an anticoagulant. Diabetic patients need additional drugs. A diagnosis of heart failure has been linked to an increased risk of nonadherence because of the number of drugs needed.

Other conditions that frequently require polypharmacy are cancer, mental illness, and hypertension. Polypharmacy is so frequent among the mentally ill that the National Association of State Mental Health Program Directors has identified 5 subtypes:

(1) Same-class polypharmacy (e.g., the use of paroxetine and fluoxetine; this type of polypharmacy is almost always inappropriate)

(2) Multiclass polypharmacy (e.g., the use of full doses of drugs from different medication classes to treat the same symptom cluster)

(3) Adjunctive polypharmacy (e.g., the use of =1 drugs to treat side effects of another)

(4) Augmentation (e.g., the use of a medication at a low dose to augment another, or adding a medication that would not be used alone to treat a symptom cluster)

(5) Total polypharmacy

Legitimate polypharmacy usually is supported by guidelines or treatment algorithms developed by leaders in the field.

Pitfall #3: Ignoring the Patient: A complete assessment for polypharmacy must include a medication history from the patient or the patient's proxy. Using open-ended questions and wellplaced prompts, pharmacists should ask patients about their prescription and nonprescription medication use. One of the most troublesome sequels to polypharmacy is nonadherence. Some key questions to ask are listed below:

1. What dietary supplements, vitamins, or OYC drugs do you take?
2. What pharmacies have you used to fill your prescriptions in the last tow years?
3. Who are your doctors? What medication does your doctor prescribe for you?
4. What type of bottle or packages do you find difficult to open?
5. How would you describe your eyesight and your hearing?
6. When do you take your medication?
7. What concern or question do you have about your medication's regimen?

After querying patients, pharmacists should do the following:

- Encourage patients to read all labels carefully and to use only one pharmacy
- Help patients make a comprehensive list of their prescription and OTC medications including the strength, dose, and duration of therapy
- Indicate to patients that they should carry the list to every physician appointment and update it as medication use changes
- Educate patients that nonadherence often leads to unnecessary medication changes

Pitfall #4: Believing That 2 + 2 = 4: Concomitant use of common and relatively benign drugs often looks fairly harmless. Unfortunately, such is not always the case. Consider a woman who takes calcium for osteoporosis prevention and also takes a proton pump inhibitor (PPI). She takes her whole dose of calcium?1500 mg?with her PPI at bedtime. Taking the 2 substances this way produces suboptimal therapy. The calcium should be

split into doses of =500 mg and should not be taken at the same time as the PPI, because calcium works best in an acid stomach. The PPI is best scheduled in the morning. The patient's new regimen should be 500 mg of calcium tid with meals and the PPI every morning.

Pitfall #5: Saving Money on Supplies: After patients have seen the doctor, had prescriptions filled, and been counseled at the pharmacy, adequate prescription bottles and labels will be the most important reminder of what they were told. Pharmacists should use the best-quality product available. "Quality" in this case means that the bottle must be easy to open, yet safe, and be legible for the average reader. (The national retailer Target's redesigned prescription vial, the ClearRx system, is an example of a system that enhances patient safety and compliance.) Including the prescription's indication on the label helps patients, too.

Pitfall #6: Focusing Only on the Elderly: It is common knowledge that elderly people use more drugs than younger people and often require multiple medications. Thus they have an increased potential for adverse reactions, drug interactions, and self-medication errors.

Children who have chronic or serious acute conditions are equally at risk. Although one might think that parental supervision and concern would make adherence in this population excellent, such is not the case. Approximately one third of children and adolescents with serious cancer diagnoses are seriously or occasionally nonadherent.[12,13] The greater the number of children in the family, the less likely total adherence becomes.[12] Similar findings have been documented for children with diabetes,[14] asthma,[15] and *Helicobacter pylori* gastritis.[16,17] Adolescents tend to consider themselves indestructible or bend to peer pressure. They need more attention and education. Also, pharmacists should remind parents that many OTC preparations for children are combination products. They should encourage parents to call with questions.

Pitfall #7: Not Noticing Red Flags: Certain red flags should prompt clinicians to suspect iatrogenic origin. Conditions that may occur as a result of polypharmacy are listed below;

    a) Arrythmia
    b) Balance disturbance

c) Cognition Changes
d) Confusion
e) Constipation
f) Depression
g) Gastric Ulcer
h) Hyper or Hypotension
i) Pseudoparkinsonism
j) Rash
k) Suicidal Ideation
l) Unexpected treatment failure

Pitfall #8: Fixing It All at Once: It is human nature to want to fix something that looks broken immediately. In the case of true polypharmacy, however, correcting problems requires thoughtful consideration and cannot necessarily be done "today." Discontinuing several drugs at once may have adverse consequences. Some drugs (i.e., benzodiazepines, anticonvulsants, heavily anticholinergic agents) should be tapered to prevent withdrawal symptoms. Discontinuing other drugs that interact with necessary drugs, thus increasing the serum levels of the latter drugs, can precipitate problems. Polypharmacy usually occurs over time, and correcting it may take weeks to months.

Pitfall #9: Forgetting Care Continuity: Once patients' polypharmacy issues are resolved, pharmacists need to evaluate them periodically in case unnecessary or inappropriate drugs "sneak back" onto the profile. Patients often forget why they stopped taking a drug and start using it again. Pharmacists have to be tenacious and vigilant. [18]

1.11 MEDICATION ERROR

FDA receives medication error reports on marketed human drugs (including prescription drugs, generic drugs, and over-the-counter drugs) and nonvaccine biological products and devices. The National Coordinating Council for Medication Error Reporting and Prevention[5] defines a medication error as "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including

prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use."

The American Hospital Association lists the following as some common types of medication errors:

- incomplete patient information (not knowing about patients' allergies, other medicines they are taking, previous diagnoses, and lab results, for example);
- unavailable drug information (such as lack of up-to-date warnings);
- miscommunication of drug orders, which can involve poor handwriting, confusion between drugs with similar names, misuse of zeroes and decimal points, confusion of metric and other dosing units, and inappropriate abbreviations[7];
- lack of appropriate labeling as a drug is prepared and repackaged into smaller units; and
- Environmental factors, such as lighting, heat, noise, and interruptions, that can distract health professionals from their medical tasks.

In 1992, the FDA began monitoring medication error reports that are forwarded to FDA from the United States Pharmacopeia (USP) and the Institute for Safe Medication Practices (ISMP). The Agency also reviews MedWatch reports for possible medication errors. Currently, medication errors are reported to the FDA as manufacturer reports (adverse events resulting in serious injury and for which a medication error may be a component), direct contact reports (MedWatch), or reports from USP or ISMP.

The Division of Medication Errors and Technical Support includes a medication error prevention program staffed with pharmacists and support personnel. Among their many duties, program staff review medication error reports sent to the USP Medication Errors Reporting Program[11] and MedWatch, evaluate causality, and analyze the data to provide feedback to others at FDA. [19]

A Pharmacist Role in Medication Error Prevention
Pharmacists play a major role in modern pharmacy practice. The pharmacist relies on the technician to provide an extra layer of safety. It is important for technicians to follow system-based processes and inform the pharmacist whenever they have questions, concerns, or feel processes do not work or are unmanageable.

Prescription Drop-Off

If technicians are stationed at prescription drop-off, consider creating a checklist of critical patient information that the technician should obtain from each patient. The date of birth should be written on every hard copy prescription so the pharmacist has a second identifier readily available during verification. Allergy and medical condition (e.g., pregnancy) information should be updated in the patient's profile at each patient encounter and communicated to the verification pharmacist. Knowing a patient's medical conditions can help the pharmacist uncover errors.

Order Entry

Medication safety is enhanced when technicians know medical terminology and drug names, especially if they enter prescriptions. New drugs are a risk, because technicians, and pharmacists as well, may not be aware of them and may instead see and select something familiar. Pharmacists and technicians should work together to determine the best method of distributing information regarding new drugs on the market.

It is important that the technician understands the safety features of the computer system and does not create workarounds to improve efficiency at the risk of decreasing accuracy and safety. Drug alerts can be numerous, and the technician may be inclined to override an alert and not "bother" the pharmacist. All alerts that involve medication interactions, allergies, duplications, and other clinical warnings should be relayed to the pharmacist. Pharmacists should communicate unnecessary or superfluous alerts with corporate or commercial software designers and discuss the possibility of turning off those alerts.

Filling/Dispensing

Many mix-ups during this production phase occur due to incorrectly reading a label. The problem is aggravated by confirmation bias, whereby one selects based on what is familiar or expected on the label, rather than what is actually there. For example, a technician may choose a medication container based on a mental picture of the item, whether it is a characteristic of the drug label, the shape, size, or color of the container, or the location of the item on a shelf. Consequently, the wrong product may be picked.

Physically separating drugs with look-alike labels and packaging can help reduce these types of errors. The use of bar code technology, viewing scanned images of products and prescriptions by pharmacists, and other technology for verification in the production process will help catch errors in this step.

Point of Sale

Errors may also occur with a correctly filled prescription if it is dispensed to a patient for whom it is not intended. This can be avoided by consistent use of a second identifier at the point of sale. The person picking up the prescription should be asked to provide the patient's address or date of birth. The technician should then check this against the information on the prescription receipt and vial. Reviewing each medication with the patient or caregiver at the point of sale provides the best final check. Implement a process for technicians to refer dispensing of high-alert medications to pharmacists at the point of sale. Use notations on bags for patients that may be new, have had major changes in medications or dosages, and other established internal protocols to direct technicians to refer the patient to the pharmacist for counseling.

Internal errors should be discussed among pharmacists, technicians, and clerks. To foster proactive learning, it is important to share errors occurring at other pharmacies. This includes errors and prevention strategies reported nationally, such as those published in the ISMP Medication Safety Alert! Community/Ambulatory Care Edition [20]

1.12 PRESCRIPTION:

Definition: A Prescription is an order for medication issued by a physician, dentist, or other properly licensed medical practitioner. Prescriptions designate a specific medication and dosage to be administered to a particular patient at a specific time. Commonly, the prescribed medication also is referred to as the prescription by a patient. A prescription by a doctor may be taken as a reflection of physicians' attitude to the disease and the role of drug in its treatment. It also provides an insight into the nature of the health care delivery system.

FORM OF THE PRESCRIPTION ORDER:

The prescription order is a part of the professional relationship among the prescriber, the pharmacist, and the patient. Prescriptions usually are written on printed forms that contain blank spaces for the required information. These forms are called prescription blanks and are supplied in the form of the pad. Most prescription blanks are imprinted with the name, address, telephone number, and other pertinent information of the physician or his or her practice site (hospital or clinic). The printed information clarifies the prescriber's name when it is signed illegibly, and his address and telephone number facilities additional professional communication, as may be required.

For the purpose of the study, the component parts of prescription are described as follows:

1. Prescriber's office information.
2. Patient's information.
3. Date
4. Superscription
5. Medication prescribed or inscription
6. Dispensing directions to pharmacist or subscription
7. Directions for the patient or signa (to be placed on label)
8. Refill, special labeling, and or other instructions
9. Prescriber's signature and license or Drug Enforcement Agency (DEA) number as required.

PATIENT'S INFORMATION

The full name and address of the patient are necessary on the prescription for identification purpose. Names and address written illegibly should be clarified on acceptance of the prescription.

DATE:

Prescriptions are dated at the time they are written and when they are received and filled in the pharmacy. The date is important in establishing the medication record of the patient. The date prescribed is also important to a pharmacist in filling prescription for

controlled substances. The Drug Abuse Control Amendments specify that no prescription order for controlled substances may be dispensed or renewed more than 6 months after the date prescribed.

R_X SYMBOL OR SUPERSCRIPTION:

The R_X symbol generally is understood to be contraction of the Latin verb recipe, meaning take thou or you take. The symbol is representative of both the prescription and the pharmacist itself.

MEDICATION PRESCRIBED OR INSCRIPTION

This is the body or principal part of the prescription order. It contains the names, dosages, and quantities of the prescribed ingredients.

Today, the majority of prescriptions are written for medications already prepared or prefabricated into dosages forms by industrial manufacturers. The medications may be prescribed under their trademarked or manufacturer's proprietary name or by their nonproprietary or generic names.

Pharmacist are required to dispense the trademarked product when prescribed , unless substitution of an equivalent product is permitted by the prescribing physician or by state law.

DISPENSING DIRECTIONS TO PHRMACIST OR SUBSCRIPTION:

This part of the prescription consists of direction of the pharmacist for the preparation of the prescription. With diminished frequency of compounded prescription, such directions are likewise less frequent be supplied. Example of prescription direction to the pharmacists includes the following among others:

M ft caps dtd no xxiv (Mix and make capsules. Dispense 24 such doses).

Ft supp No xii (Make 12 suppositories).

M ft ung (Mix and make ointment)

Disp tabs No c (Dispensed 100 tablets)

In Bangladesh this point of the prescription is totally absent. Here no pharmacist is not formulate the dosage form by the direction of the physician from the prescription order which is prescribed for the patient.

DIRECTIONS FOR PETIENT OR SIGNATURE:

The prescriber indicates the directions for the patient's use of the medication in the portion of the prescription termed the signature. The word, usually abbreviated Signa or Sig means mark thou. The direction is the signa commonly are written using abbreviated forms of English or Latin terms or a combination of each. Examples include:

Tabs ii q4h (Take 2 tablets every 4 hours).
Caps i 4xd pc & hs (Take one capsule four times a day after meals at bedtime).

In my study I was found that in Bangladesh the physician are prescribed by the following way:
1 + 0 + 1 before meals (Take one tablet in the morning & one tablet in the night before meals)
1 spoon + 0 + 1 spoon after meals (Take1spoon syrup in the morning and 1 spoon syp in the night after meals)

Some pharmacists and physicians provide their patients with written directions outlining the proper use of the medication prescribed. Frequently this directions include the best time to take the medication, the importance of adhering to the prescribed dosages schedule, what to do if dose is missed, the permitted use of the medication with respect of food, drink, and/or other medications the patient may be taking as well as information about the drug itself. As a requirement of law, certain manufactures have prepared patients packaging inserts for specific products for issuances to patients. These present to the patient information regarding the usefulness of the medication as well as its side effects and potential hazards.

Physicians generally do not specify that expiration dates and storage condition be noted on the label because they recognize that the pharmacists provides the information when dispensing such preparations. Statements on auxiliary labels such as *do not use after*

__days or discard after __days serves this purpose .Some states law require that pharmacists place the expiration date on the label of all medications dispensed, even those with no special stability problems.

SPECIAL LABELING AND OTHER INSTRUCTION:

The number of authorized refills should be indicate in all prescription by the prescriber. In the event that no refill information is provided, it is understood that no refill have been authorized; however it is advised that the label state such to avoid confusion. Most prescription blanks include a section where this information may be indicated. Most states limit refills on a prescription to one year after the prescription was written originally. When a prescriber indicates that a prescription can be refilled *prn* "as needed" the pharmacist should refill it only with a frequency consistent with the directions. No refills are permitted for schedule II controlled substance. [21]

2.0 STUDY BACKGROUND

Drug is a poison based on dose. Moreover most of have adverse and side effect. Though drugs are poisonous, we have no way to avoid the use of drug. Since human being suffers from various diseases, drug is a compulsory means to eradicate the diseased condition. So rational use of drug is very important way to minimize the hazard. In Bangladesh, the healthcare is not that much updated compared to the developed countries. That is why the rational is not strictly maintained in the healthcare system. Doctors are bribed to prescribe particular company's medicine. This phenomenon ultimately leads to polypharmacy. To make the best utilization of drug the patient should know how, when and where to use the drug. Any type of information about the use of drug must be available for the patients. Unfortunately, in our healthcare system this provision is not practiced. To confirm the rational use of certain person has very significant role.

1. **Physicians' role:** The role of the physician is very much important for the safety of the patients. The physician must diagnosis the diseases accurately in which purpose the drug is prescribed. Should know the adequate previous medical history from the patient, including: any previous adverse reactions to medicines; current medical conditions; and concurrent or recent use of medicines, including non-prescription medicines.Should clear the patient about the administration of the drug like when, how, where and duration of the dose.

2. **Pharmacists' role:** The responsibility of the pharmacists to provide quality pharmaceutical care that meets the medication needs of the patients. The pharmacists must be provide with the necessary information and guidance like side effects, adverse drug reaction, storage condition, stability , indication contraindication of the drug to assure the patients' compliance in taking the medicines properly. It is also the pharmacist's responsibility to advise the prescriber of drug sensitivities the patient's may have, previous adverse drug reaction and/or other medications that the patient's may be taking that may alter the effectiveness or safety of the newly or previously prescribed medications.

3. **Patients' role:** Patients' sincerity and responsibility can save them from the irrational use of drugs. So patient's role is very important to ensure the rational use of drug. They should take the drug according to the direction of the physician and pharmacists.

Without the contribution of the physician, pharmacists and also the patient we can not ensure the rational use of drug.

This study has been carried out to have a closer look at the condition of providing drug information to the patients from the respective personnel. The aim of the study also includes the followings;

1. The present situation of the health service in the Government hospitals in Bangladesh.
2. How a pharmacist can contribute to ensure the rational use of drug.
3. To investigate whether the drugs are used rationally or not in government hospitals.

LITERATURE REVIEW

In past many litrerature was published on Health policy of the Bangladesh, health system of Bangladesh, Rational and irrational use of drug. Those contain the implementation and recommendation of the policy. Factor, impact, improvement of the rational use pf drug.

A literature on "HEALTH AND POPULATION SECTOR POLICY" by Dr.EnamulKarimDeputy Chief Management Change Unit, MOHFP, Kazi Saleh Ahmed Former Vice Chancellor,Jahangirnagor University ,Ataharul IslamProfessor, Department of Statistics University of Dhaka. uggested about the implementation and recommendation of the health policy of Bangladesh.

In Bangladesh there is many policy about the Drug, Health system, etc. but no policy is implement strongly.So in their literature they described about the recommendation of the policy. he Policy Briefs focus on (a) issues of urgent public concern with a view to developing concrete, implementable policy agendas within the existing realities of the country and (b) translating academic and applied research and views of different stakeholders into practical policy recommendations. The Government of Bangladesh (GOB) should have a commitment to provide to its citizens quality health care service, which is affordable and accessible to all. The focus of government policy should be on the fundamental goals of improving health, enhancing responsiveness to the expectation of the population and assuring fairness of financial contribution. These fundamental goals include the following: increasing health status, reducing health inequalities, ensuring access to social support network, improving the quality of basic amenities and choice of provider, and ensuring that every household pays a fair share according to its ability.

The government needs to create greater awareness of and provide services for newly emerging diseases like hypertension, asthma, HIV/AIDS, heart disease, etc. Steps need to be taken to combat common diseases, such as ARI, tuberculosis and diarrhoea, which particularly afflict the poor. Special measures need to be initiated for combating malaria, dengue and kala-azar, which have recently registered a significant increase in the country.

To the extent possible, free treatment in government hospitals should be ensured for those who cannot pay. Necessary funds should be provided through user fees, government allotment, social organisations, etc. Fair price medicine shops should be arranged in all hospitals. Gradual coverage through affordable insurance schemes needs to be introduced. User fees may be charged but at the same time safety nets for the poor will have to be provided. The hard-core poor should be exempted from making any payment for services. Collecting institutions should be allowed to spend the funds, particularly on equipment, medicines and essential supplies.

C Duggan and I Bates (School of Pharmacy, University of London, London, UK) said on his literature *"Medicine information needs of patients: the relationships between information needs, diagnosis and disease"* that,

"The main aim of this research was to explore differences in medicine information needs of different disease groups of patients, and we found significant differences in the extent of information desired between patient groups (independent of age), implying that the diagnosis is a major factor in affecting the desire for information. While we found that scores to the EID scale correlated negatively with age (medicine information desires decreases with age) and positively with socio-demographic variables (higher socio-economic status is associated with a higher desire for drug information), these correlations were consistent within all disease categories, with the exception of oncology patients, which could be in part due to the narrower age range and smaller sample. Other studies have also found that age is a predominant factor associated with patient desire for information; however, this could be confounded by length of diagnosis. For example, a patient who has been diagnosed as having an illness for a significant period may require less information about their condition or prescribed drugs than someone who has been newly diagnosed. [25]

It is important for healthcare professionals to identify and understand that patients with different disease have different desires for information about their disease and their drugs which may influence the way they take their medicines and subsequently the ways we manage their long-term disease. The key implications of our findings are congruent with other research evaluating the information patients desire; that we should no longer assume all patients want the same information or indeed, that same amount of medicine information, because there is variation both within (e.g., age) and between disease

categories for medicine-information desires. This has important implications for professionals who may fear the move towards increased information provision for all which could result in simply dispensing the same level or quantity of information to patients. Evidence now suggests that we must take into account the patient's age, socio-economic status and their disease, but how can we identify these medicine information needs."

A literature on "Prescribing Patterns in Medical Outpatients" by Ravi Shankar P. M.D. Department of Pharmacology in Manipal college of Medical Science, Pokhara, Nepal. It contain;

A prescription by a doctor may be taken as a reflection of physicians' attitude to the disease and the role of drug in its treatment. It also provides an insight into the nature of the health care delivery system.

Average number of drugs per prescription (in a prescription audit) is an important index of the scope for review and educational interventions in prescribing practices. A community-based study on prescribing patterns from India reported a mean number of 2 drugs, similar to our study. A hospital-based study in India has also reported a similar figure. However; other hospital-based studies have reported figures of 3-5 drugs per prescription. With higher figures there is an increased risk of drug interactions[12] and errors of prescribing.

We have expressed the prevalence of prescribing as the total number of prescriptions for a particular drug/drug category and also as the prescribing frequency. Prescribing prevalence studies are useful to determine the prevailing morbidity patterns.[14]

The assessment of drug utilisation is important for clinical, educational and economic reasons.[2] Various factors influence the prescribing behaviour of clinicians and to change the behaviour it is necessary to understand the reasons behind it.[3] It is necessary to define the prescribing pattern and to target the irrational prescribing habits for sending a remedial message

Irrational prescription of drugs is a common occurrence in clinical practice.[1] The cost of such irrational drug use is enormous in terms of both scarce resources and the adverse

clinical consequences of therapies that may have real risks but no objective benefits. This is especially true in case of countries such as Nepal with a difficult topography that makes access to health care delivery systems difficult.

4.0 METHODOLOGY

4.1 Study Area

To fulfill the objective of the research work, I worked in four Government healthcare providing institutions. Among these institutions, two are Government Medical College Hospitals namely;

1. Sir Salimullah Medical College Hospital (SSMCH)
2. Faridpur Medical College Hospital (FMCH)

And among the other two institutions one is the Madhukhali Thana Health Complex (MTHC). And another one is Tongi Government Hospital(TGH).

The primary data have been collected through a defined form(attached in the annexure) from the healthcare institutions. The secondary data have been collected from the different published papers. The pattern of drug dispensing and the way of treating patients is those institutions have been assessed.

I collected a total of 400 patient's data which contains 150 from SSMCH, 150 from FMCH and 50 from MTHC and another 50 from TGH on the basis of prepared format (*Annex-1: Drug Information From*).

This format includes:

- Complaints of patients
- Number of drugs prescribed
- Time schedule to take the drug
- Duration of taking drug
- Diet and drinking water
- Storage condition of drugs
- Side effects of drugs

And patient information such as:

- Age of patients
- Gender
- Religion
- Monthly income of patient's family
- Patient's profession
- Education level of patients

4.2 Data Entry and Data Analyzing:

After entering the Data into the computer and then using Microsoft Office XP that is a recent version including MS Word and Excel, all data were analyzed.

4.1.4 Data Presentation:

Results are presented in different approaches using pie chart, bar diagram, columns and different tables.

5.0 RESULT AND DISCUSSION

5.1 DRUG INFORMATION

5.1.1 Type of complain that was found in different Medical College Hospital and Thaana Health Complex.

In this study ,15 types of complain was found in different medical college hospital and Thaana health complex. But the highest number of patient was found in the complain of the Cold, Fever, Cough, Tonsillitis. Then highest number of patient was came for the treatment of the Allergy, Infection, and Body pain.

TABLE 01: Type of complain that was found in different Medical College Hospitals and Thaana Health Complex.

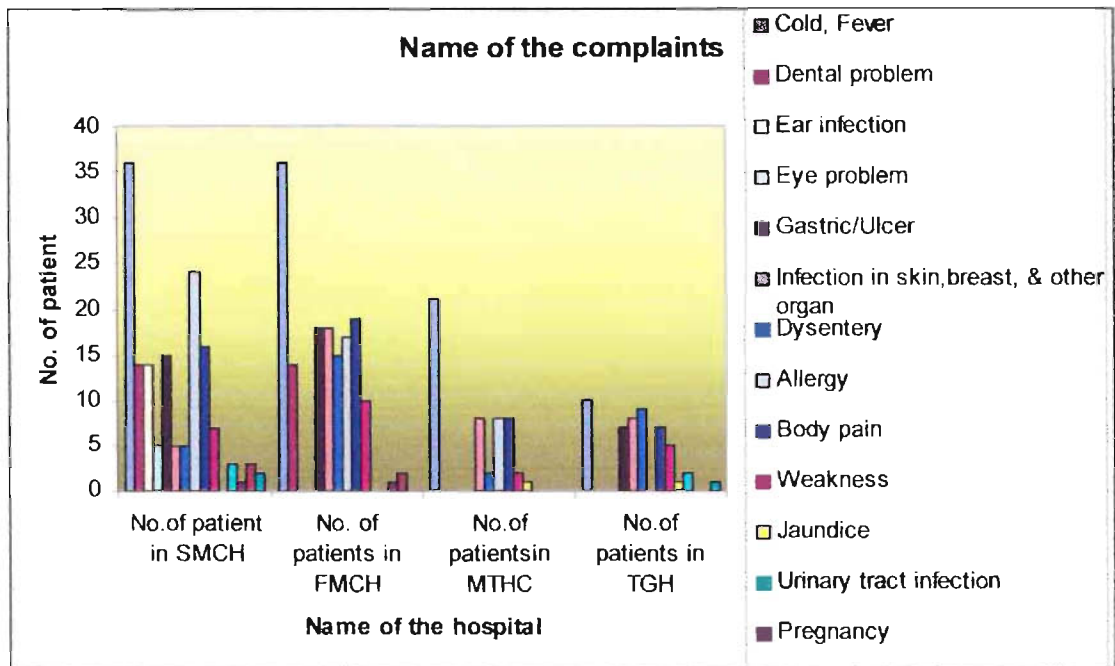| Name of the complaints	No. of patient in SSMCH	No. of patients in FMCH	No.of patients in MTHC	No. of patients in TGH
Cold, Fever	36	36	21	10
Dental problem	14	14	0	0
Ear infection	14	0	0	0
Eye problem	5	0	0	0
Gastric/Ulcer	15	18	0	7
Infection in skin ,breast, & other organ	5	18	8	8
Dysentery	5	15	2	9
Allergy	24	17	8	0
Body pain	16	19	8	7
Weakness	7	10	2	5
Jaundice	0	0	1	1
Urinary tract infection	3	0	0	2
Pregnancy	1	1	0	0
Asthma	2	2	0	0
Hypertension	3	0	0	1
Total	150	150	50	50

Figure 01: Type of complain that was found in different Medical College Hospital and Thaana Health Complex

5.1.2 Name of the drug which was prescribed to treat different type of diseases in different Medical College Hospital and Thaana Health Complex.

Fever, Cold, Cough, Tonsillitis

In this study it was found that there are different types drugs which was prescribed only for the treatment of the Cold, Fever, Cough, Tonsillitis. In SMCH 120drugs were prescribed for 36 patient. in Faridpur Medical college Hospital 92 drugs were prescribed for 36 patient, in Madhukhali Thaana Health Complex 53 drugs were prescribed for 21 patients, in Tongi Government Hospital 21 drugs were prescribed for 10 patients for the treatment of the Cold, Fever, Cough, Tonsillitis. The most common drugs were Acetaminophen, Amoxicillin, and Chlorpheniramine Maleate in different Medical College Hospital.

Table 02:Name of the drug which was prescribed to treat Fever, Cold, Cough, Tonsillitis
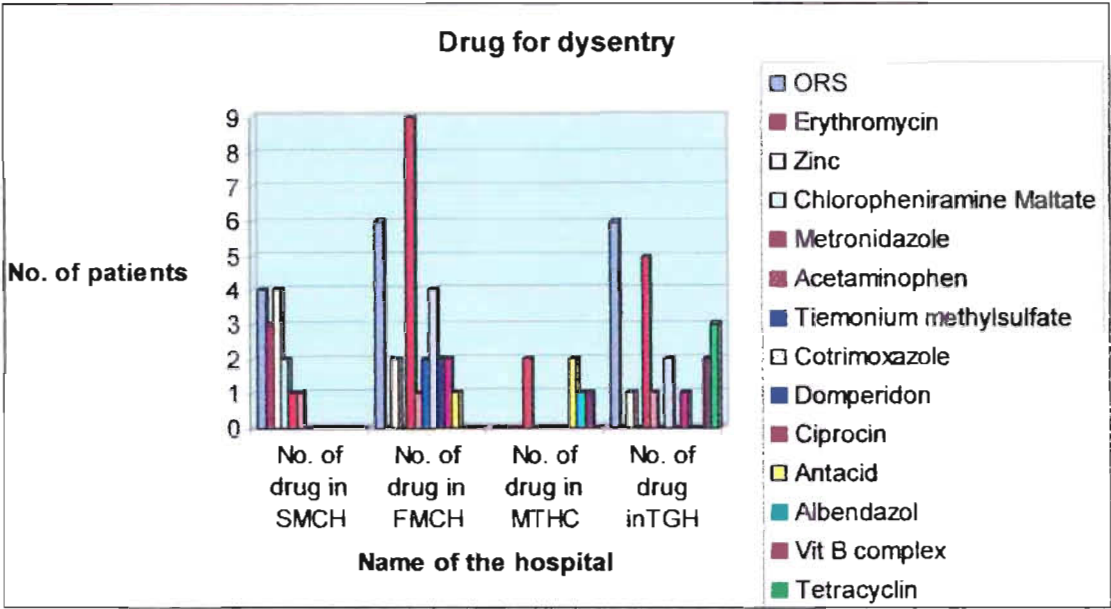
Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Amoxicillin	23	10	1	4
Chloropheniramine meltate	17	10	11	1
Acetaminophen	21	28	14	8
Vit B complex	8	4	2	3
Iron	3	0	0	0
Desloratidin	1	1	6	0
Hydrogen peroxide	3	0	0	0
Indomethacin	2	0	0	0
Erythromycin	4	1	0	0
Clotrimoxazole	1	6	0	3
Sulbutamol	4	3	0	0
Zinc	2	3	0	0
Ranitidine	8	0	0	0
Calcium	3	0	0	0
Mebendazole	3	0	0	0
Ciprofloxacin	2	7	0	0
Xylometazolin HCl	3	1	0	0
Cetrizine	4	7	1	0
Diclofenac	1	0	0	0
Flucloxacilline	2	0	0	0
Cephridine	2	0	0	0
Cefpodoxine	1	0	2	0
Azithromycin	1	2	4	0
Vit A complex	1	0	0	0
Omeprazol	0	3	2	0
Antacid	0	2	2	0
Ambroxol HCl	0	2	0	0
Levofloxacin	0	1	0	1
Domperidon	0	1	1	0
Theophyline	0	0	1	0
Trycyclin	0	0	4	0
Cefixime	0	0	2	0
Kitotifen	0	0	0	1
	120	92	53	21

Dysentery

In this study it was found that there are different types drugs which was prescribed only for the treatment of the Dysentery. In SMCH 15 drugs were prescribed for 5 patient. in Faridpur Medical college Hospital 29 drugs were prescribed for 15 patient, in Madhukhali Thaana Health Complex 8 drugs were prescribed for 2 patients, in Tongi Government Hospital 21 drugs were prescribed for 9 patients for the treatment of the Dysentery. The most common drugs were ORS Metronidazole.

TABLE 03:Name of the drug for the treatment of Dysentery

Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug inTGH
ORS	4	6	0	6
Erythromycin	3	0	0	0
Zinc	4	2	0	1
Chloropheniramine Maltate	2	0	0	0
Metronidazole	1	9	2	5
Acetaminophen	1	1	0	1
Tiemonium methylsulfate	0	2	0	0
Cotrimoxazole	0	4	0	2
Domperidon	0	2	0	0
Ciprocin	0	2	0	1
Antacid	0	1	2	0
Albendazol	0	0	1	0
Vit B complex	0	0	1	2
Tetracyclin	0	0	0	3
	15	29	8	21

Figure 02: Name of the drug for the treatment of Dysentery

ALLERGY

Here, it is shown that there are 66 drugs are prescribed for 24 patients in SMCH, 34 drugs are prescribed for 17 patients in Faridpur Medical college hospital, and 14 drugs are prescribed for 8 patients in Madhukhali Thaana Health Complex. No patients was found in Tongi Government Hospital. Here most common Drug was Chlorpheniramin Maleate. Semi solid dosages form are mostly prescribed in the treatment of Allergy.

TABLE 04: Name of the drug used to treat ALLERGY

| Name of the Drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Chlorphenamine Maleate	21	11	3	no patient
Flucloxacilline	10	1	0	
Acetaminophen	3	4	1	
Kitoconazole shampoo	1	0	0	
Econazole	5	0	0	
Amoxicilline	4	0	0	
Ranitidine	5	0	0	
Mebendazole	5	0	0	
Erythromycine	1	2	2	
Cefradine	2	0	0	
Whitfield's ointment	2	0	0	
Benzyle benzoete	1	3	0	
Betamethasone	4	1	0	
Vit B complex	1	1	1	
Fluconazole	1	0	0	
Clobetasol	0	1	1	
Permethrin	0	4	0	
Tetracyclin	0	2	0	
chlotrimoxazole	0	3	0	
Antacid	0	1	1	
Omeprazole	0	0	3	
Miconazole Nitrate	0	0	2	
	66	34	14	
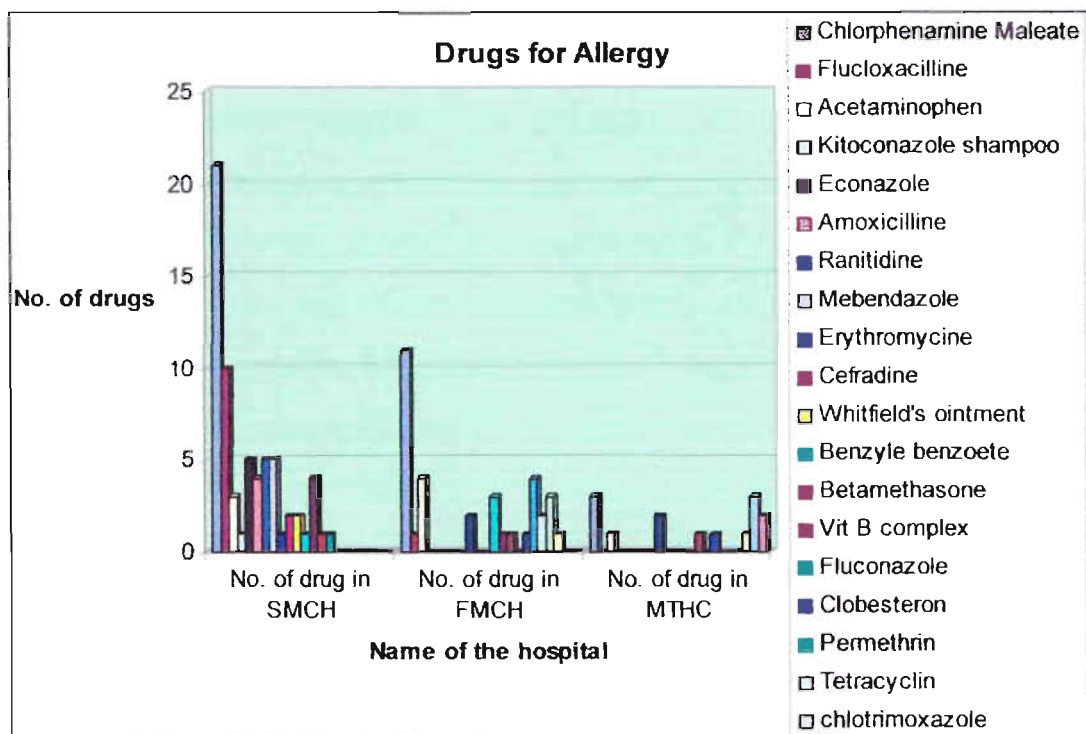
Figure 03: Name of the drug used to treat ALLERGY

GI DISTURBANCE

Gastro intestinal disorder is the most common diseases in Bangladesh. The most common class of drug is Proton Pump Inhibitor (PPI) which is used to treat GI disturbance. Example: Omeprazole, Pantoprazole. Here, 38 drugs are prescribed for 15 patients in SMCH, 38 drugs are prescribed for 18 patients in FMCH, 12 drugs are prescribed for 8 patients in TGH for the treatment of the GI disturbance including Abdominal Pain.

TABLE 05: Name of the drugs used to treat GI disturbance

Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Omeprazole	6	3	No patient	3
Pantoprazole	0	6		1
Ranitidine	4	3		0
Antacid	0	8		3
Hyoscine Butylbromaide	4	3		3
Drotaverine HCl	0	2		1
Acetaminophen	6	2		0
Domperidon	4	6		1
Vitamin B complex	4	3		0
Calcium	1	1		0
Iron	1	0		0
Amoxicilline	1	0		0
Cloxacilline	2	0		0
Mebendazole	2	0		0
Amitriptyline HCl	3	0		0
Bromazepum	0	1		0
	38	38		12
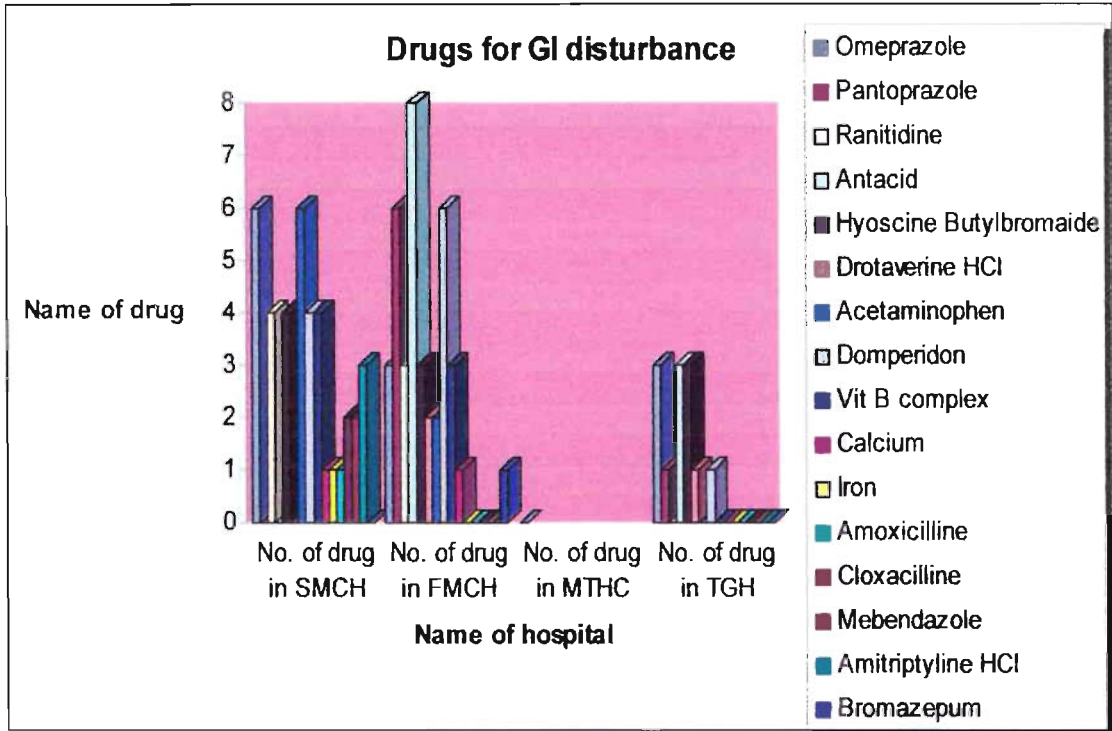
Figure 04: Name of the drugs used to treat GI disturbance

Infection

Infection is the most common complaints which is found in all 4 hospital .Infection was found in different part of the body like infection in the skin, infection in the leg, infection in the finger, infection in the breast. Here 12 drugs for 5 patients in SMCH, 38 drugs for18 patients in FMCH, 18 drugs for 8 patients in MTHC and 19 drugs for 8 patients in TGH were prescribed for the treatment of the Infection.

TABLE 06: Name of the drugs used to treat Infection

| Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Flucloxacilline	2	4	0	0
Amoxicilline	2	2	0	0
Ciprofloxacine	1	3	0	0
Cefradin	0	4	0	1
Erythromycin	0	2	0	2
Econazole	0	1	0	0
Metronidazole	0	2	0	0
Hydrocortisone	0	3	1	0
Betamethasone	1	2	0	2
Acetaminophen	1	5	2	4
Omeprazole	1	0	0	0
Ranitidine	0	1	0	0
Chlorphenamine Maleate	4	7	0	0
Desloratidine	0	0	2	0
Povidon Iodine	0	1	3	1
Chlotrimoxazole	0	0	4	0
Cefpodoxime	0	0	2	0
Cefixime	0	0	1	0
Whitfield ointment	0	0	1	4
Vit B complex	0	1	1	1
Antacid	0	0	1	2
Tetracycline	0	0	0	2
Total	12	38	18	19
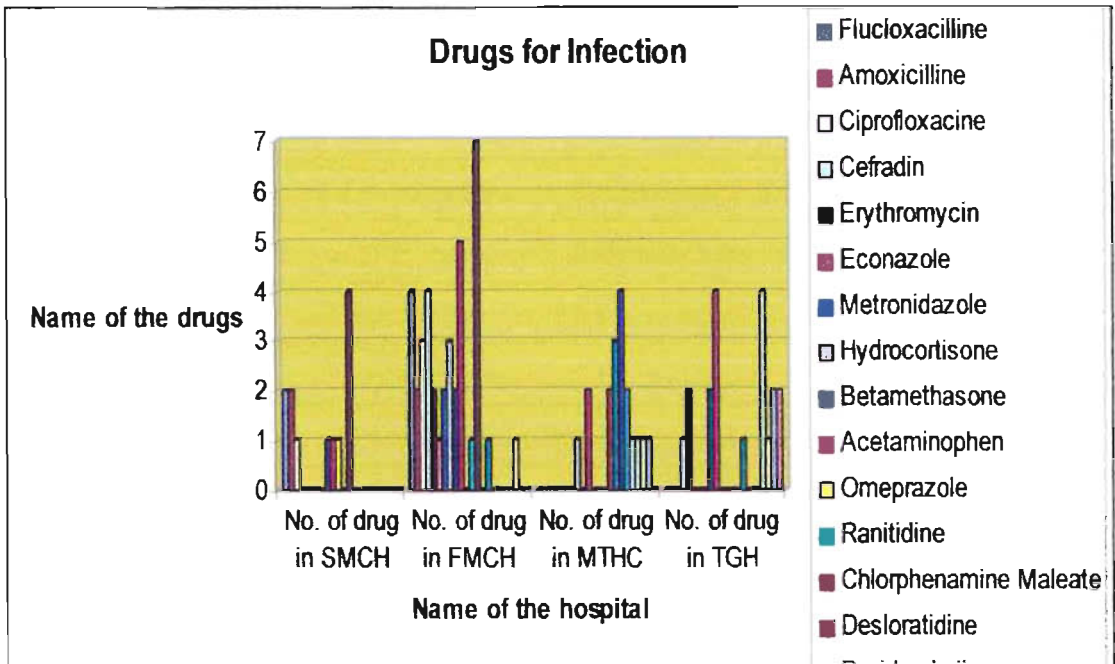
Figure 05: Name of the drugs used to treat Infection

PAIN

Pain is very common problem and it was found in all 4 medical. There are various type of pain like, Headache, Body ache, pain in hand, pain in Joint, pain in Backbone. Here 44 drugs are prescribed 16 patient in SMCH, 47 drugs are prescribed for 19 patients in FMCH, 21 drugs for 8 patients, and 19 drugs for 7 patients in TGH are prescribed to treat any type of pain. The most common class of drug is NSAIDs which is used to treat any type of pain. With this class of drug the Physicians should prescribed Anti Ulcer drugs. But in this study it is shown that the prescription contain less number of Anti Ulcer drugs than Pain killer.

TABLE 07: Name of the drugs used to treat Pain

| Name of drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Indomethacin	4	5	0	1
Diclofenac	3	3	1	3
Aceclofenac	0	0	2	0
Naproxane	1	0	1	1
Ibuprofen	1	0	0	0
Acetaminophen	6	11	0	2
Amoxicillin	2	0	0	0
Clindamycin	0	1	0	0
Metronidazol	1	0	0	0
Amilotriptyline	0	6	0	2
Nortriptyline	2	0	0	0
Flupenthixol	1	0	0	0
Domperidon	0	3	0	0
Omeprazole	10	9	5	5
Ranitidine	3	0	0	1
Antacid	0	0	1	0
Vit B complex	3	4	2	3
Tramadol HCl	1	0	0	0
Tolperisone	1	0	0	0
Azithromycin	0	1	0	0
Propranolol	0	1	0	1
Clorphenamine Meleate	0	3	0	0
Etorocoxib	0	0	3	0
Ketorolac	0	0	1	0
Tetracyclin	0	0	2	0
Albendazole	0	0	1	0
Calcium	5	0	2	0
	44	47	21	19
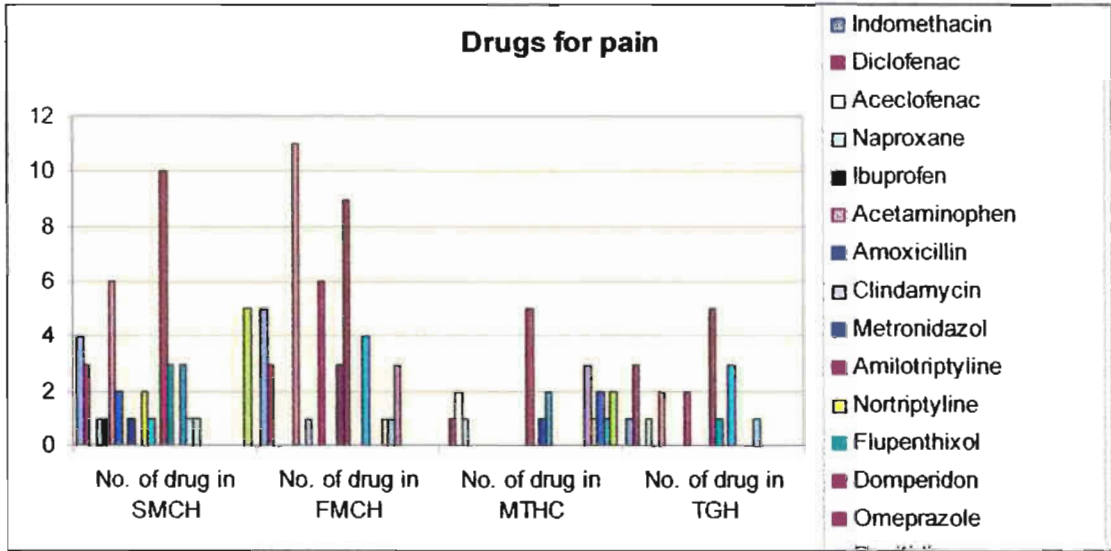
Figure 06: Name of the drugs used to treat Pain

DENTAL Problem

Any type of tooth related problem like pain in the teeth, infection in the teeth, root canal are fall in this category of Dental problem. 14 no of patients was found in the SMCH and 33 no. of drugs were prescribed and 37 drugs were prescribed for 14 patients in FMCH for the treatment of the dental problem. Acetaminophen and Amoxicilline are prescribed more in the treatment of the infection and pain of the tooth. No patient was found in MTHC and TGH.

TABLE 08: Name of the drugs used to treat Dental Pain

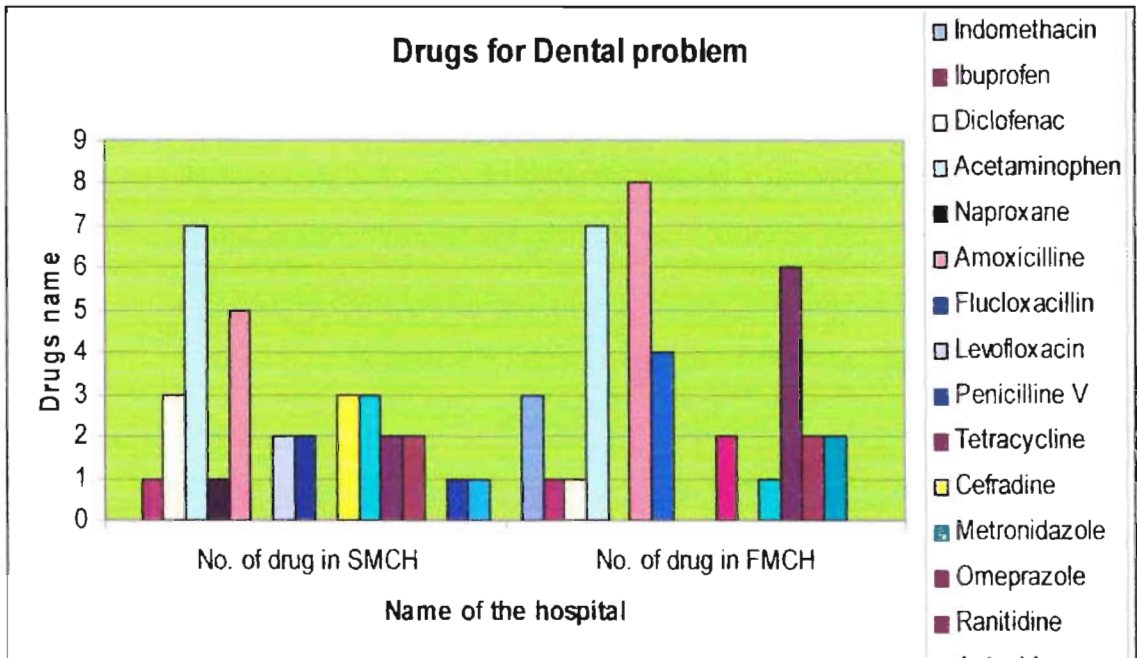| Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Indomethacin		3	No patient	No patient
Ibuprofen	1	1		
Diclofenac	3	1		
Acetaminophen	7	7		
Naproxane	1	0		
Amoxicilline	5	8		
Flucloxacillin	0	4		
Levofloxacin	2	0		
Penicilline V	2	0		
Tetracycline	0	2		
Cefradine	3	0		
Metronidazole	3	1		
Omeprazole	2	6		
Ranitidine	2	2		
Antacid	0	2		
Vit B complex	1	0		
Calcium	1	0		
	33	37		

Figure 07: Name of the drugs used to treat Dental Pain

ANEMIA/WEAKNESS

In this study it is shown that no male patient was found who is suffering from anemia or weakness. So, it has been seen that only female member of our country are suffering from anemia or weakness due to lack of proper supplement of nutrition, proper rest. Here, this type of patient was found in 4 hospitals.18 no of drugs for 7 patient in SMCH, 26 drugs for 10 patients in FMCH, 9 drugs for 2 patients in MTHC and 16 drugs for 5 patients in TGH was prescribed in the treatment of the weakness.

TABLE 09: Name of the drugs used to treat Anemia/Weakness

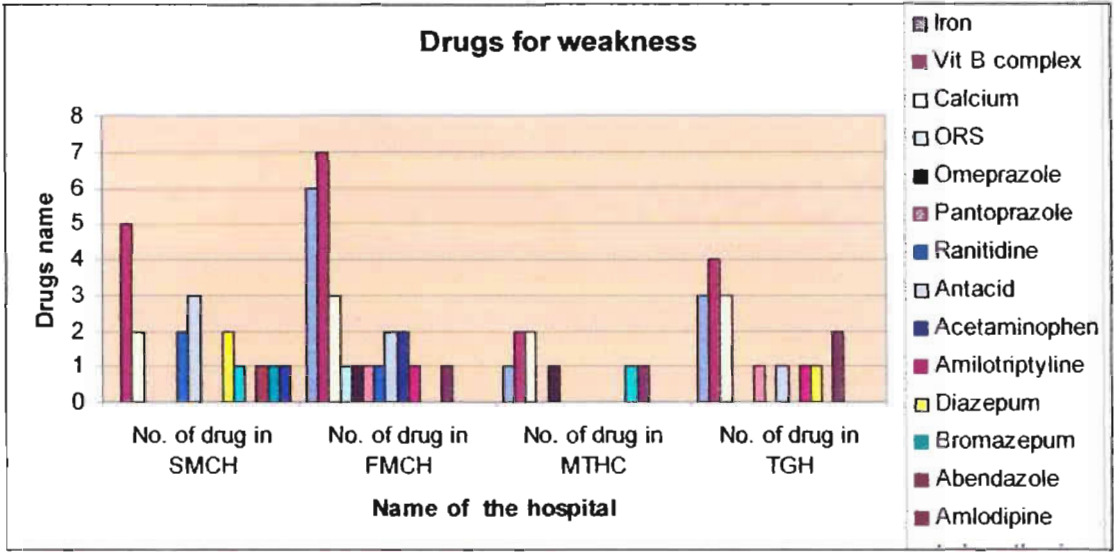| Name of the Drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Iron	0	6	2	3
Vit B complex	5	7	2	4
Calcium	2	3	2	3
ORS	0	1		0
Omeprazole	0	1	1	0
Pantoprazole	0	1	0	1
Ranitidine	2	1	0	0
Antacid	3	2	0	1
Acetaminophen	0	2	0	0
Amilotriptyline	0	1	0	1
Diazepum	2	0	0	1
Bromazepum	1	0	1	0
Abendazole	0	1	1	2
Amlodipine	1	0	0	0
Indomethacin	1	0	0	0
Diclofenac	1	0	0	0
total	18	26	9	16

Figure 08: Name of the drugs used to treat Anemia/Weakness

EAR PROBLEM

Here, 14 no of patients was found only in the SMCH. Infection in the ear, pain or any other type of ear problem are include in this category.56 no of drugs were prescribed for 14 patients in the treatment of the ear problem.

TABLE 10: Name of the drugs used to treat Ear Problem

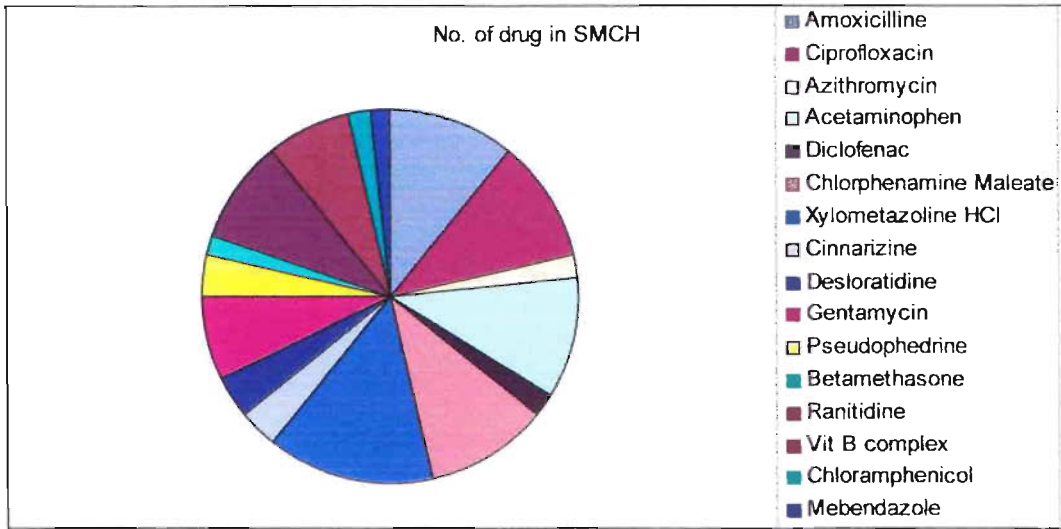| Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Amoxicilline	6	No patient was found	No patient was found	No patient was found
Ciprofloxacin	6			
Azithromycin	1			
Acetaminophen	6			
Diclofenac	1			
Chlorphenamine Maleate	6			
Xylometazoline HCI	8			
Cinnarizine	2			
Desloratidine	2			
Gentamycin	4			
Pseudophedrine	2			
Betamethasone	1			
Ranitidine	5			
Vit B complex	4			
Chloramphenicol	1			
Mebendazole	1			
	56			

Figure 09: Name of the drugs used to treat Ear Problem

EYE

Only 5 patients was found in SSMCH. The complain was cataract, irritation and pain in the eye. 8 drugs are prescribed for 5 patients.

TABLE 11: Name of the drugs used to treat Eye Problem

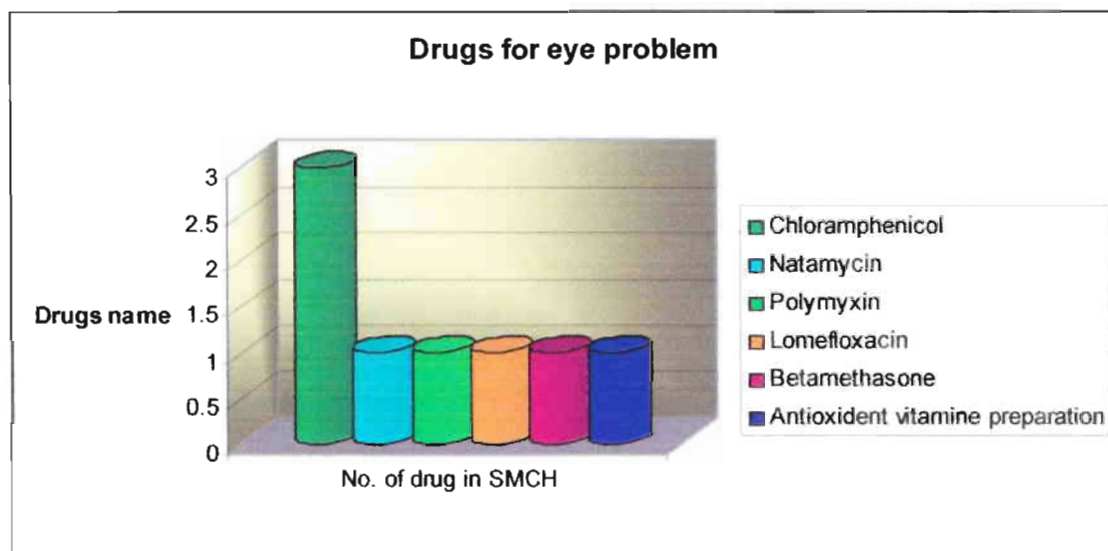| Name of the Drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Chloramphenicol	3	No patient was found	No patient was found	No patient was found
Natamycin	1			
Polymyxin	1			
Lomefloxacin	1			
Betamethasone	1			
Antioxident vitamine preparation	1			
	8			

Drugs for eye problem

Figure 10: Name of the drugs used to treat Eye Problem

URINARY TRACT INFECTION

Urinary tract infection is rare but very complicated diseases. Only 3 patients was found in SSMCH and 2 patients was found in TGH. 5 drugs are prescribed for 3 patient and 4 drugs are prescribed for 2 patients

TABLE 12: Name of the drugs used to treat Urinary Tract Infection.

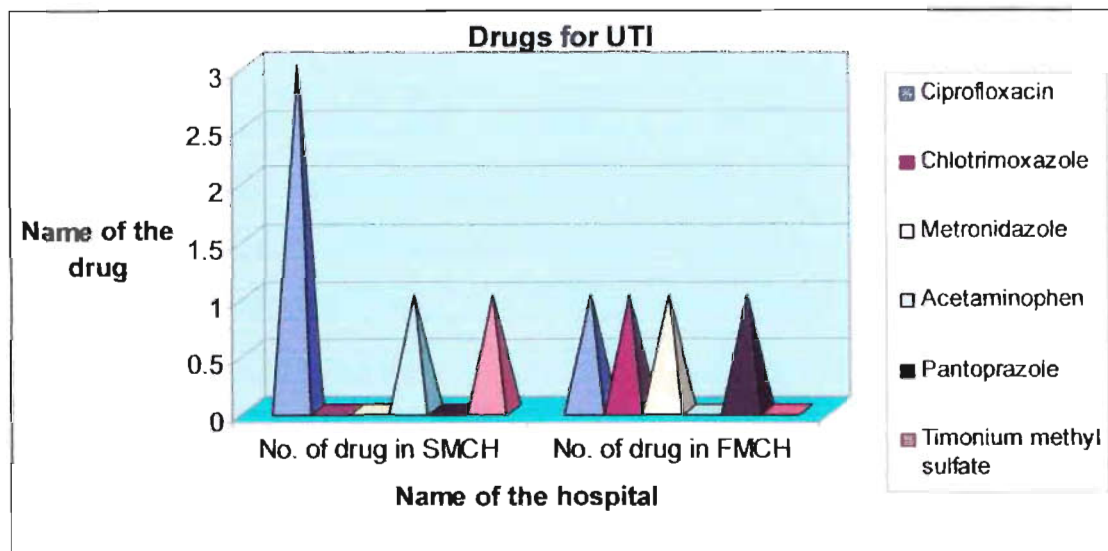| Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Ciprofloxacin	3	No patient was found	No patient was found	1
Chlotrimoxazole	0			1
Metronidazole	0			1
Acetaminophen	1			0
Pantoprazole	0			1
Timonium methyl sulfate	1			0
	5			4

Figure 11: Name of the drugs used to treat Urinary Tract Infection

RESPIRATORY DISEASES:

Respiratory diseases is very common diseases in Bangladesh but in my study I was found only 2 patients in SSMCH and another 2 patients in FMCH. Asthma mainly treat in step wise and sulbutamol is very common drug which is used to treat asthma.

TABLE 13: Name of the drugs used to treat Respiratory Diseases.

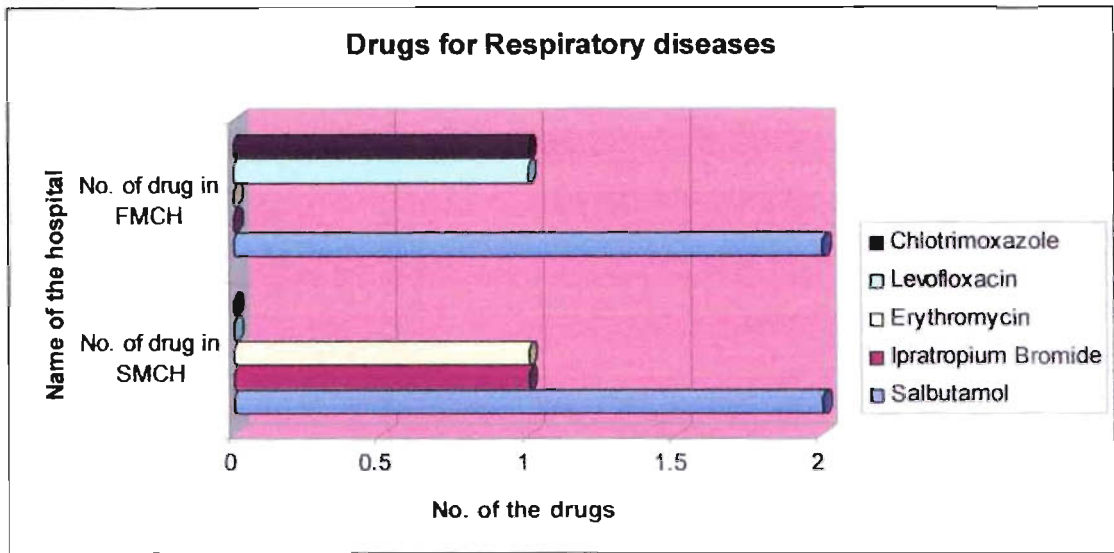| Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Salbutamol	2	2	No patients was found	No patients was found
Ipratropium Bromide	1	0		
Erythromycin	1	0		
Levofloxacin	0	1		
Chlotrimoxazole	0	1		

Figure 12: Name of the drugs used to treat Respiratory Diseases.

HYPERTENTION

Hypertension is silent killer. In my study only 3 patients was found in SSMCH and only one is found in TGH.Propranolol and Amlodipine is common drug which is prescribed to treat Hypertention.

TABLE 14: Name of the drugs used to treat Hypertention.

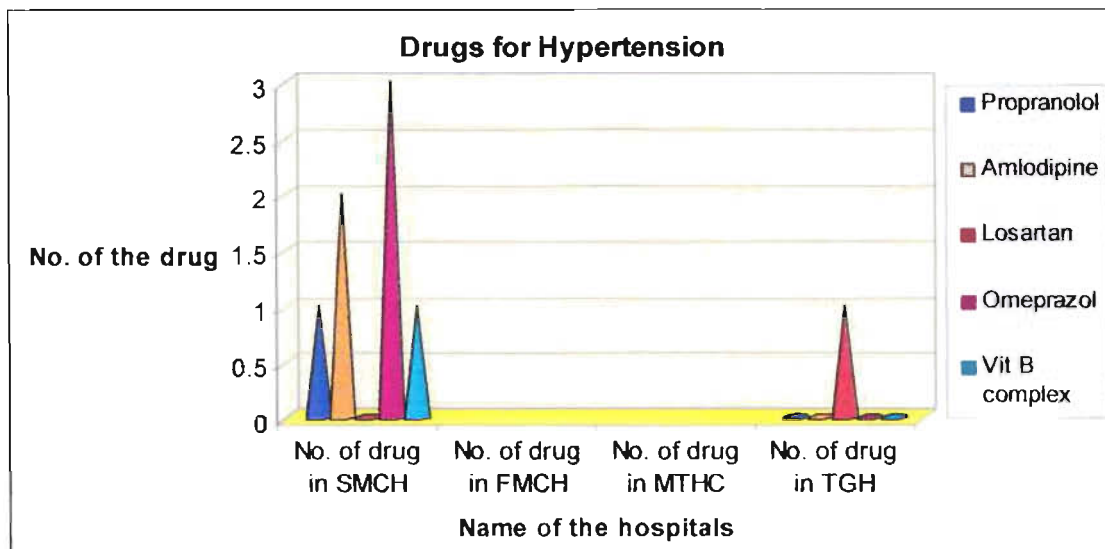| Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Propranolol	1			0
Amlodipine	2			0
Losartan	0			1
Omeprazol	3			0
Vit B complex	1			0
	7			1

Figure 13: Name of the drugs used to treat Hypertension.

Pregnancy

Pregnancy is very Sophisticated and rare complain. Only 4 patients were found, two patients in SMCH and another two patients in FMCH were found. Mainly Vitamin Supplements type of drugs were prescribed.

TABLE 15: Name of the drugs used in Pregnancy

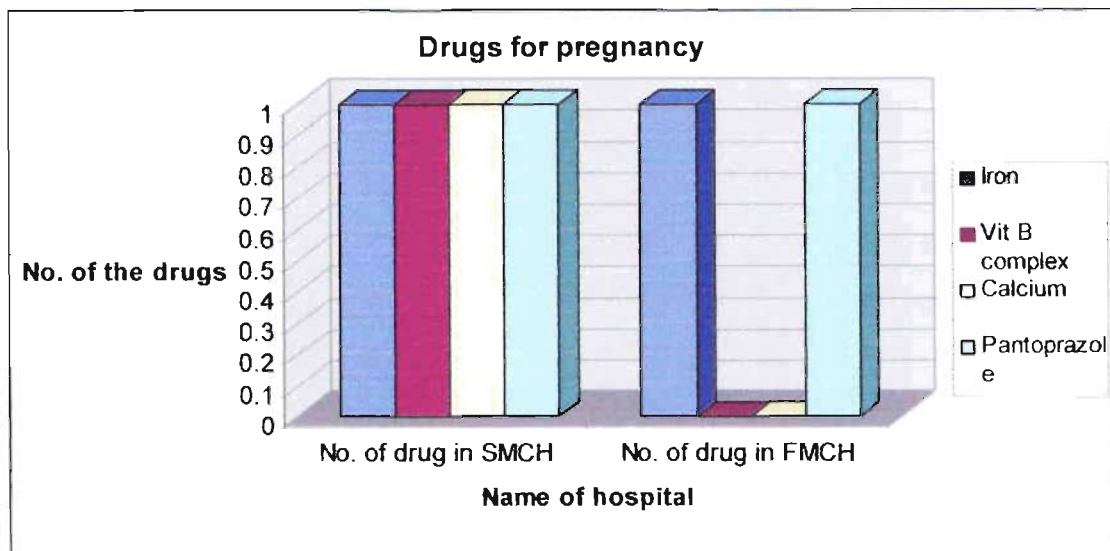| Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Iron	1	1	No patient was found	No patient was found
Vit B complex	1	0		
Calcium	1	0		
Pantoprazole	1	1		
	4	2		

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Figure 14: Name of the drugs used in Pregnancy

JAUNDICE

In this study, it is found that only two patients were found. One in MTHC and another one was found in TGH. Here Vitamin supplements were prescribed.

TABLE 16: Name of the drugs used to treat Jaundice.

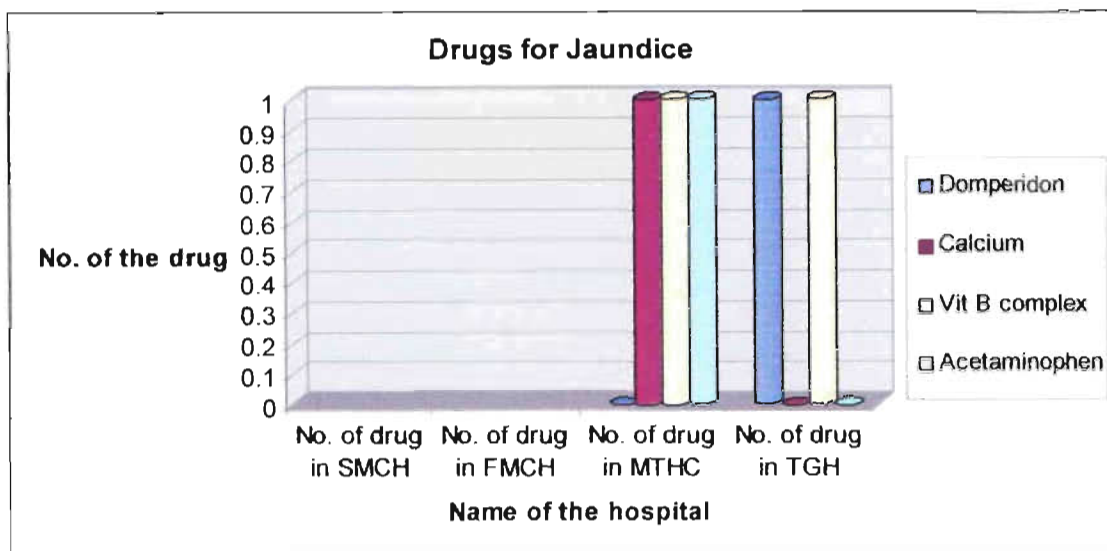| Name of the drug	No. of drug in SMCH	No. of drug in FMCH	No. of drug in MTHC	No. of drug in TGH
Domperidon			0	1
Calcium			1	0
Vit B complex			1	1
Acetaminophen			1	0
			3	2

Figure 15: Name of the drugs used to treat Jaundice

5.1.2 NO OF DRUG IN DIFFERENT DOSAGE FORM PRESCRIBED IN DIFFERENT HOSPITAL

The dosage form of the drug depends on the patient's age and also the rout of administration. Total no. of drug is 1017 in different dosage form in this total 761 no. of solid dosages form, 123 no. of semisolid dosages form and 133 no. of liquid dosages form in all four hospital.

TABLE 17: No. of drug in different dosage form prescribed in different hospital

Name of the hospital	Solid dosage form	Semi solid dosage form	Liquid dosage form	Total
SMCH	324	22	83	429
FMCH	259	61	27	347
MTHC	84	33	8	125
TGH	94	7	15	116
Total	761	123	133	1017
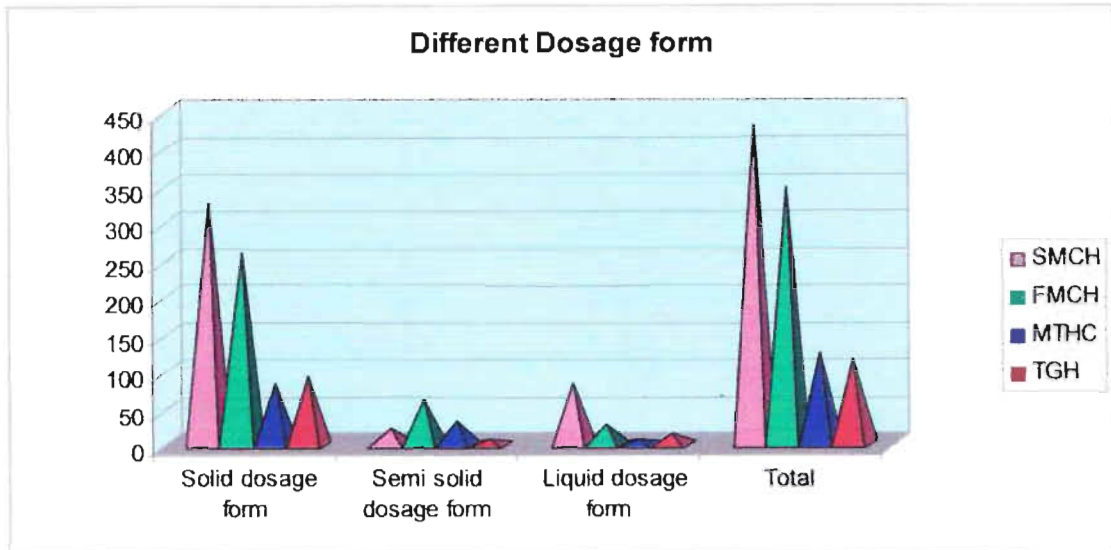
Figure 16: No. of drug in different dosage form prescribed in different hospital

5.1.3 NO. OF DRUGS PRESCRIBED PER COMPLAINTS OF THE PATIENTS

Here in the research I studied the no. of drugs per prescription by counting the cases receiving one drug, two drugs, three drugs, four drugs, five drugs, and six drugs. With the no. of drugs I compare this information to the disease, the drugs prescribed for. Because it is very important, all disease states do not regard much amount of drugs. No. of drugs should always relate to the complaint(s) of the patients. It is not a good practice to prescribe too many drugs, which lead to polypharmacy.
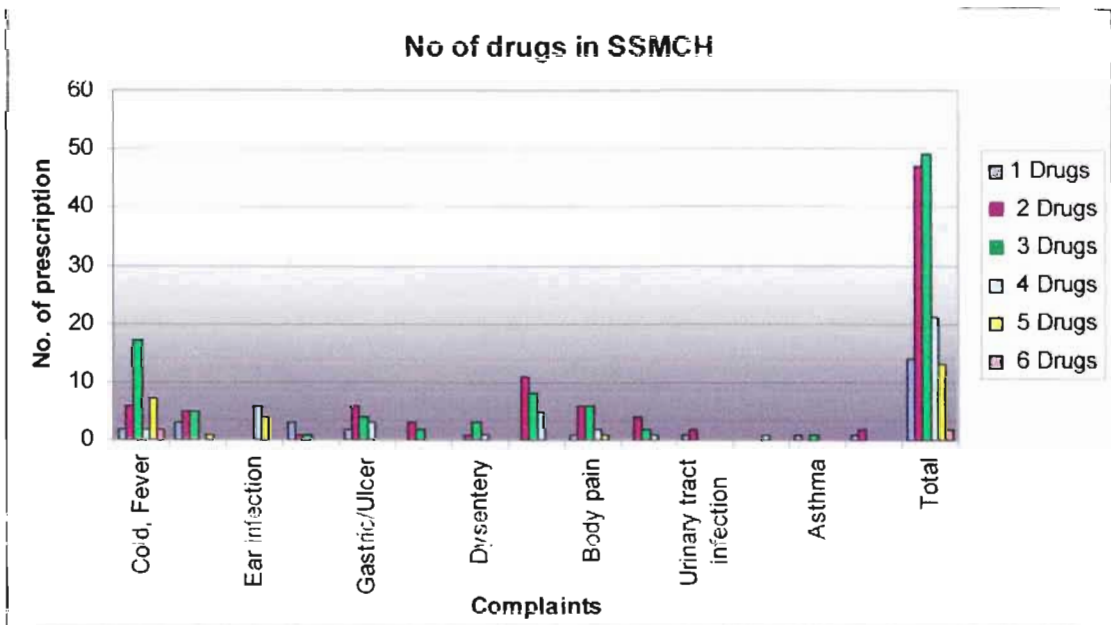
NO. OF DRUGS PRESCRIBED PER COMPLAINTS OF THE PATIENTS IN SSMCH

In my study it has been shown that in SSMCH the prescription contain 3 drugs is more. Total patient is 150, among them 49 patients were received 3 drugs containing prescription, 47 patients were received 2 drugs containing prescription.21 patients were received 4 drugs containing prescription.

Here, it is found that 6 patients were received 4 drugs containing prescription in ear infection among the 14 patients. In cold, 7 patients were received 5 drugs containing prescription. But 2-3 drugs is enough to treat the cold, fever.More drugs causes more side effects , which lead to discontinuation of the course.

TABLE 18: NO. OF DRUGS PRESCRIBED PER COMPLAINTS OF THE PATIENTS IN SSMCH

Complaints	1 Drugs	2 Drugs	3 Drugs	4 Drugs	5 Drugs	6 Drugs
Cold, Fever	2	6	17	2	7	2
Dental problem	3	5	5	0	1	0
Ear infection	0	0	0	6	4	0
Eye problem	3	1	1	0	0	0
Gastric/Ulcer	2	6	4	3	0	0
Infection in skin,breast, & other organ	0	3	2	0	0	0
Dysentery	0	1	3	1	0	0
Allergy	0	11	8	5	0	0
Body pain	1	6	6	2	1	0
Weakness	0	4	2	1	0	0
Urinary tract infection	1	2	0	0	0	0
Pregnancy	0	0	0	1	0	0
Asthma	1	0	1	0	0	0
Hypertension	1	2	0	0	0	0
Total	14	47	49	21	13	2

Figure 17: No. of drugs prescribed per complaints of the patients in SSMCH

NO. OF DRUGS PRESCRIBED PER COMPLAINTS OF THE PATIENTS IN FMCH.

In my study it has been shown that in FMCH the prescription contain 2 drugs is more. Total no. of patients is 150 among them 78 no. of patients were received the two drugs containing prescription and 50 no. of patients were received 2 drugs containing prescription.16 no. of patients were received 1 drug containing prescription. Here also found that unnecessary drugs prescription like SSMCH.

TABLE 19: NO. OF DRUGS PRESCRIBED PER COMPLAINTS OF THE PATIENTS IN FMCH

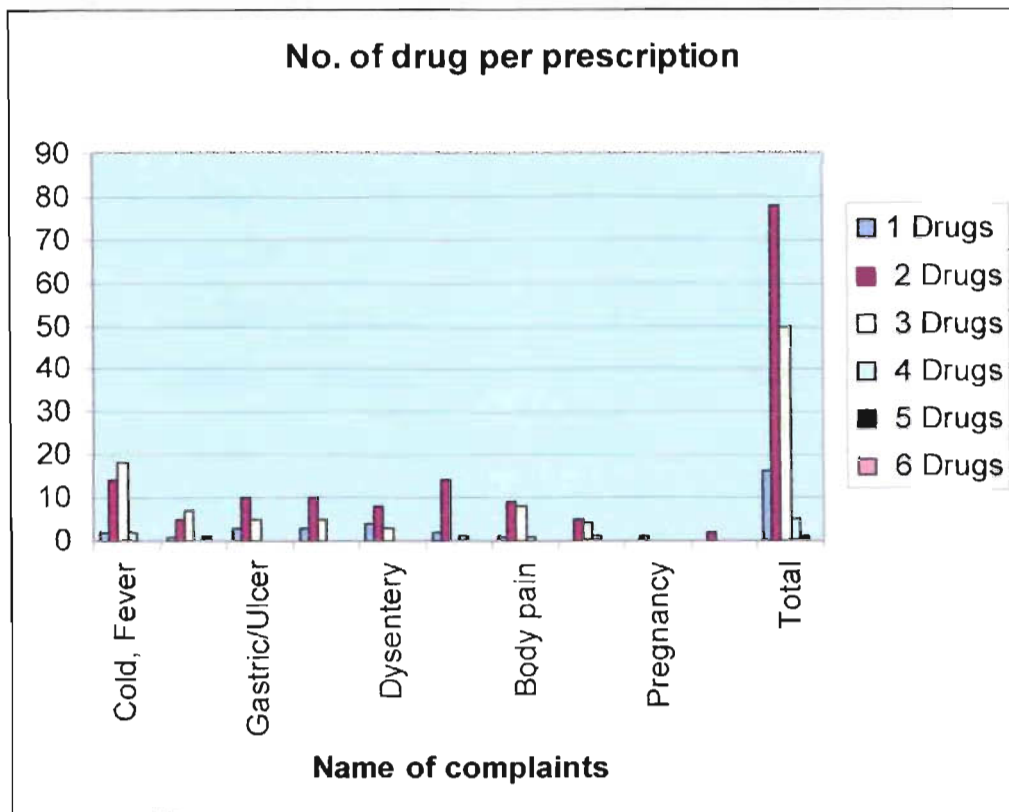| Name of the complaints	1 Drugs	2 Drugs	3 Drugs	4 Drugs	5 Drugs	6 Drugs
Cold, Fever	2	14	18	2	0	0
Dental problem	1	5	7	0	1	0
Gastric/Ulcer	3	10	5	0	0	0
Infection in skin,breast, & other organ	3	10	5	0	0	0
Dysentery	4	8	3	0	0	0
Allergy	2	14	0	1	0	0
Body pain	1	9	8	1	0	0
Weakness	0	5	4	1	0	0
Pregnancy	0	1	0	0	0	0
Asthma	0	2	0	0	0	0
Total	16	78	50	5	1	0

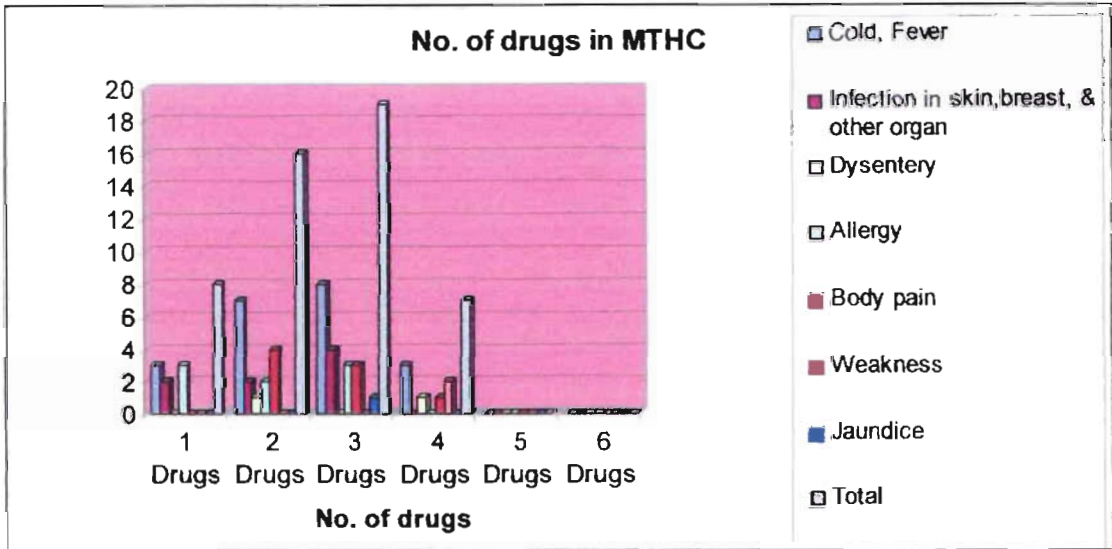**Figure 18: No. of drugs prescribed per complaints of the patients in FMCH**

NO. OF DRUGS PRESCRIBED PER COMPLAINTS OF THE PATIENTS IN MTHC.

In Madhukhali Thaana Health Complex it has been shown that 3 drugs containing prescription is more.Total no. of patients was 50 among them 19 no. of patients were received 3 drugs containing prescription, 16 no. of patients were received 2 drugs containing prescription,7 no. of patients were received 4 drugs containing prescriptions.

Six and seven drugs are omitted, because this kind of prescription is not found.

TABLE 20: NO. OF DRUGS PRESCRIBED PER COMPLAINTS OF THE PATIENTS IN MTHC

Name of the complaints	1 Drugs	2 Drugs	3 Drugs	4 Drugs
Cold, Fever	3	7	8	3
Infection in skin,breast, & other organ	2	2	4	0
Dysentery	0	1	0	1
Allergy	3	2	3	0
Body pain	0	4	3	1
Weakness	0	0	0	2
Jaundice	0	0	1	0
Total	8	16	19	7

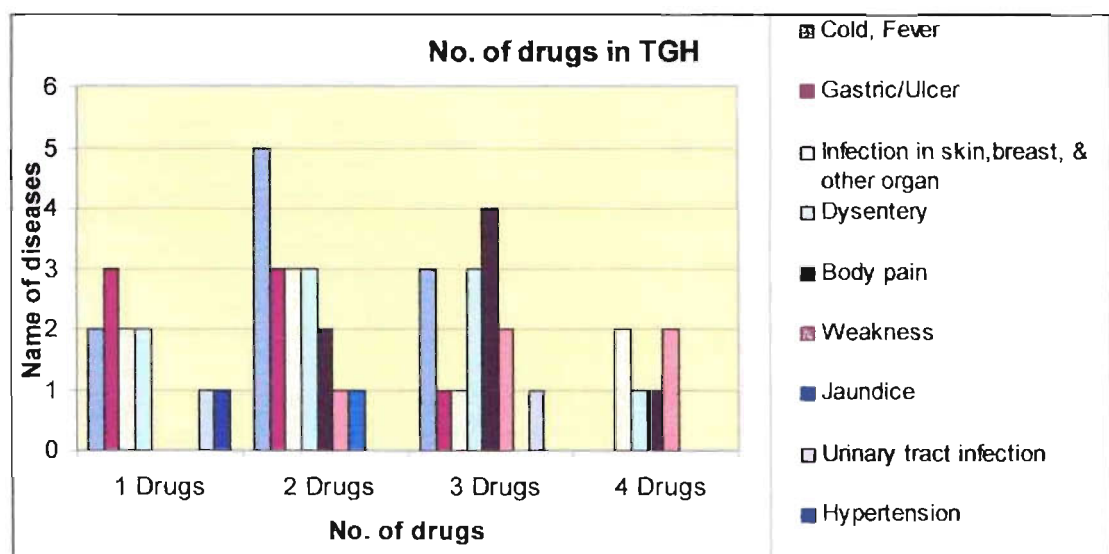**Figure 19: no. of drugs prescribed per complaints of the patients in MTHC**

NO. OF DRUGS PRESCRIBED PER COMPLAINTS OF THE PATIENTS IN TGH.

In Tongi Government Hospital (TGH) it was found that 2 drugs containing prescription were more. 18, 15 and 6 no. of patients were receiving 2,3 and 4 drugs containing prescription.

Six and seven drugs are omitted, because this kind of prescription is not found.

TABLE 21: NO. OF DRUGS PRESCRIBED PER COMPLAINTS OF THE PATIENTS IN TGH

Name of the complaints	1 Drugs	2 Drugs	3 Drugs	4 Drugs
Cold, Fever	2	5	3	0
Gastric/Ulcer	3	3	1	0
Infection in skin,breast, & other organ	2	3	1	2
Dysentery	2	3	3	1
Body pain	0	2	4	1
Weakness	0	1	2	2
Jaundice	0	1	0	0
Urinary tract infection	1	0	1	0
Hypertension	1	0	0	0
Total	11	18	15	6

Figure 20: no. of drugs prescribed per complaints of the patients in TGH

5.1.4 DAYS PRESCRIBED OF USING DRUGS

The drugs should not take continuously except some of the drug. The duration of the taking drug is fixed by the physician. Mainly Antibiotic, Analgesic are prescribed 7-14 days. Not more than 15 days without some rare case. and Antiulcerent drugs are prescribed for 7-60 days or continuous administration. Vitamin supplement is prescribed mainly for 30 – 90 days.

Days prescribing per complains of the patient in SSMCH

In SSMCH, the total no. of drugs is 429 which is prescribed in different type of diseases. Among them of 236 no. of drugs were prescribed should take up to 7 days.74 no. of drugs were advised to take drugs up to15 days.88 no. of drugs were prescribed to take up to 30 days.18 no. of drugs were prescribed to take up to 60 days and only 13 no. of drugs were prescribed to take 90 days or above.

TABLE 22: DAYS PRESCRIBING PER COMPLAINS OF THE PATIENT IN SSMCH

| Coplaints	Up to 7 days	Up to 15 days	Up to 30 days	Up to 60 days	90 days or above
Cold, Fever	83	13	16	5	3
Dental problem	24	6	3	0	0
Ear infection	33	15	8	0	0
Eye problem	2	1	4	0	0
Gastric/Ulcer	16	5	15	2	0
Infection in skin,breast, & other organ	8	2	2	0	0
Dysentery	10	4	1	0	0
Allergy	32	15	14	5	0
Body pain	15	8	19	2	0
Weakness	5	5	5	3	0
Urinary tract infection	5	0	0	0	0
Pregnancy	0	0	0	0	4
Asthma	3	0	1	0	0
Hypertension	0	0	0	1	6
Total	236	74	88	18	13
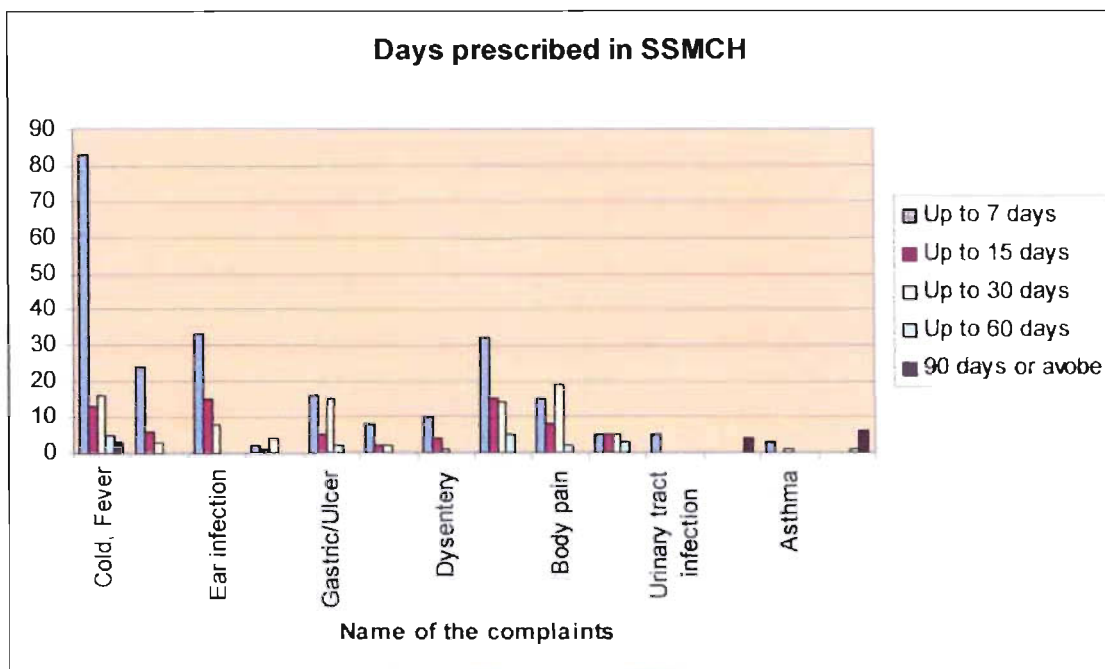
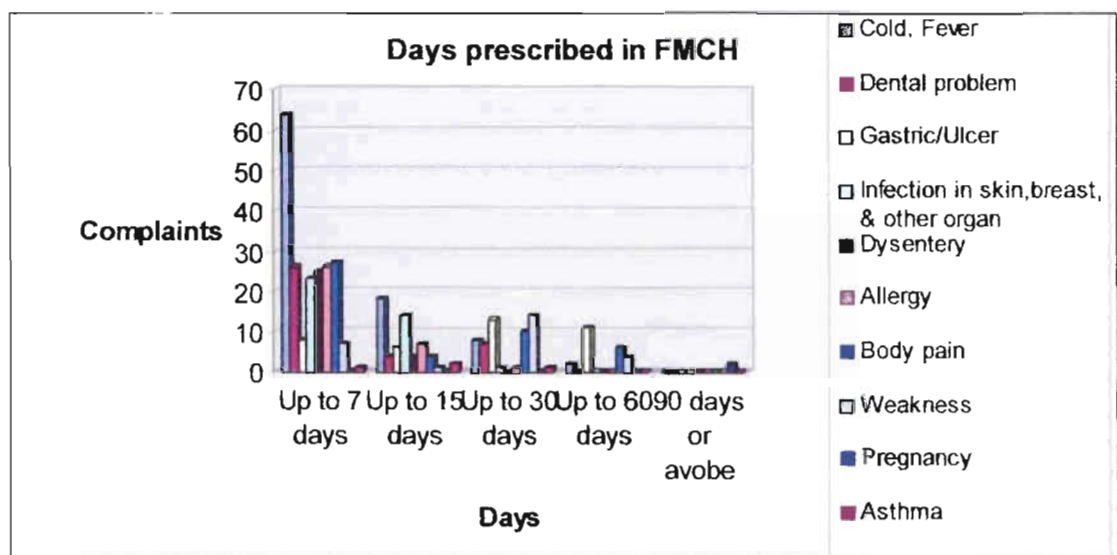Figure 21: **Days prescribing per complains of the patient in SSMCH**

Days prescribing per complains of the patient in FMCH

In FMCH the total no. of drugs were 347 which is prescribed in different type of diseases. Among them 207 no. of drugs were prescribed should take up to 7 days.60 no. of drugs were advised to take drugs up to15 days.55 no. of drugs were prescribed to take up to 30 days.23 no. of drugs were prescribed to take up to 60 days and only 2 drugs were prescribed to take 90 days or above.

TABLE 23: **DAYS PRESCRIBING PER COMPLAINS OF THE PATIENT IN FMCH**

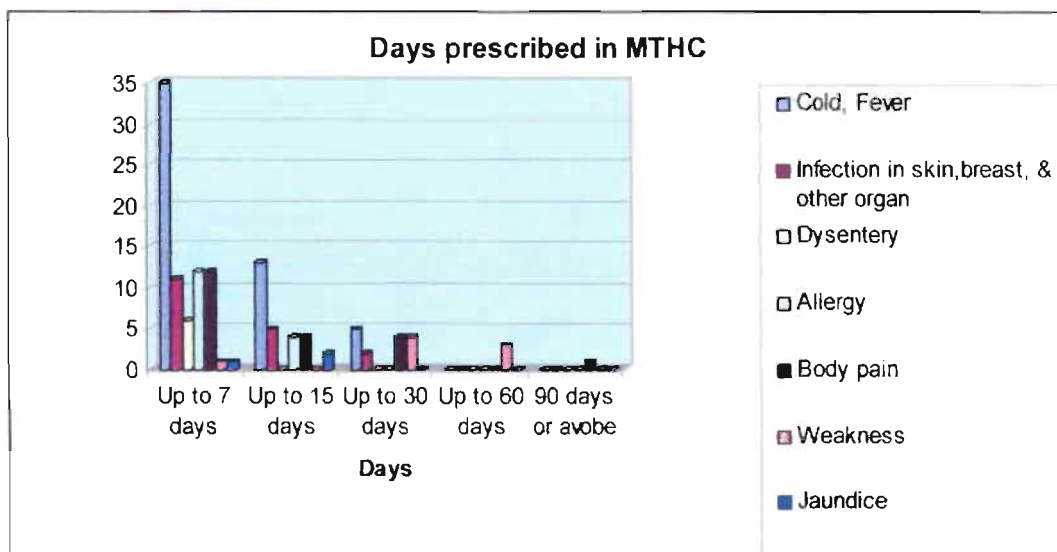| Name of Complaints	Up to 7 days	Up to 15 days	Up to 30 days	Up to 60 days	90 days or above
Cold, Fever	64	18	8	2	0
Dental problem	26	4	7	0	0
Gastric/Ulcer	8	6	13	11	0
Infection in skin, breast, & other organ	23	14	1	0	0
Dysentery	25	4	0	0	0
Allergy	26	7	1	0	0
Body pain	27	4	10	6	0
Weakness	7	1	14	4	0
Pregnancy	0	0	0	0	2
Asthma	1	2	1	0	0
Total	207	60	55	23	2

Figure 22: **Days prescribing per complains of the patient in FMCH**

DAYS PRESCRIBING PER COMPLAINS OF THE PATIENT IN MTHC

In Madhukhali Thaana Health Complex, the total no. of drugs were 125. Among them 78 no. of drugs were prescribed should take up to 7 days. 28 no. of drugs were advised to take drugs up to15 days. 15 no. of drugs were prescribed to take up to 30 days. 3 no. of drugs were prescribed to take up to 60 days and only 1 drugs were prescribed to take 90 days or above.

TABLE 24: DAYS PRESCRIBING PER COMPLAINS OF THE PATIENT IN MTHC

| Name of the complaints	Up to 7 days	Up to 15 days	Up to 30 days	Up to 60 days	90 days or avobe
Cold, Fever	35	13	5	0	0
Infection in skin,breast, & other organ	11	5	2	0	0
Dysentery	6	0	0	0	0
Allergy	12	4	0	0	0
Body pain	12	4	4	0	1
Weakness	1	0	4	3	0
Jaundice	1	2	0	0	0
Total	78	28	15	3	1

Figure 23: Days prescribing per complains of the patient in MTHC

Days prescribing per complains of the patient in TGH

In Tongi Government hospital the total no of drugs were 116. Among them 69 no. of drugs were prescribed should take up to 7 days. 19 no. of drugs were advised to take drugs up to15 days. 26 no. of drugs were prescribed to take up to 30 days. 2 no. of drugs were prescribed to take up to 60 days and no drugs were prescribed to take 90 days or above for this the row of 90 days or above has been omitted.

TABLE 25: DAYS PRESCRIBING PER COMPLAINS OF THE PATIENT IN TGH

Name of the complaints	Up to 7 days	Up to 15 days	Up to 30 days	Up to 60 days
Cold, Fever	18	1	2	0
Gastric/Ulcer	2	3	5	2
Infection in skin,breast, & other organ	12	4	3	0
Dysentery	19	1	1	0
Body pain	9	4	7	0
Weakness	5	4	7	0
Jaundice	2	0	0	0
Urinary tract infection	2	1	1	0
Hypertension	0	1	0	0
Total	69	19	26	2
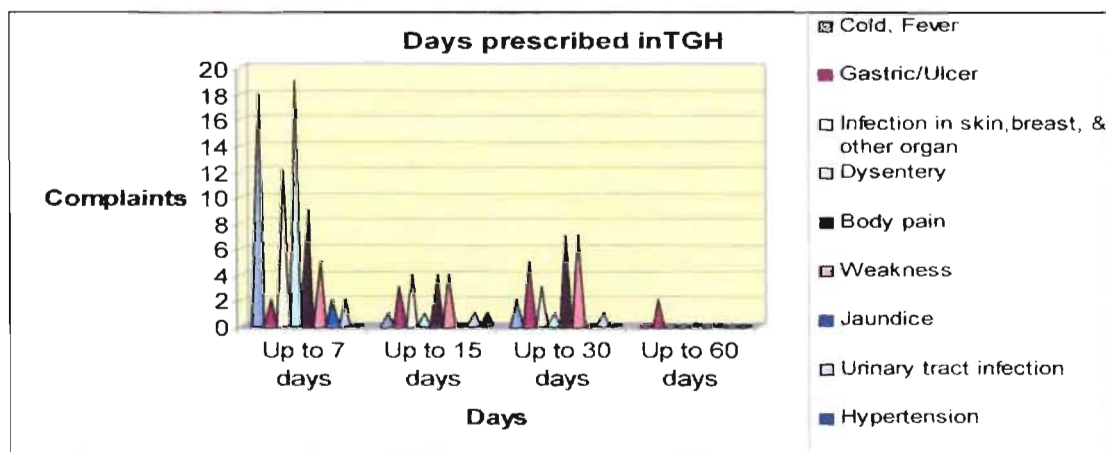
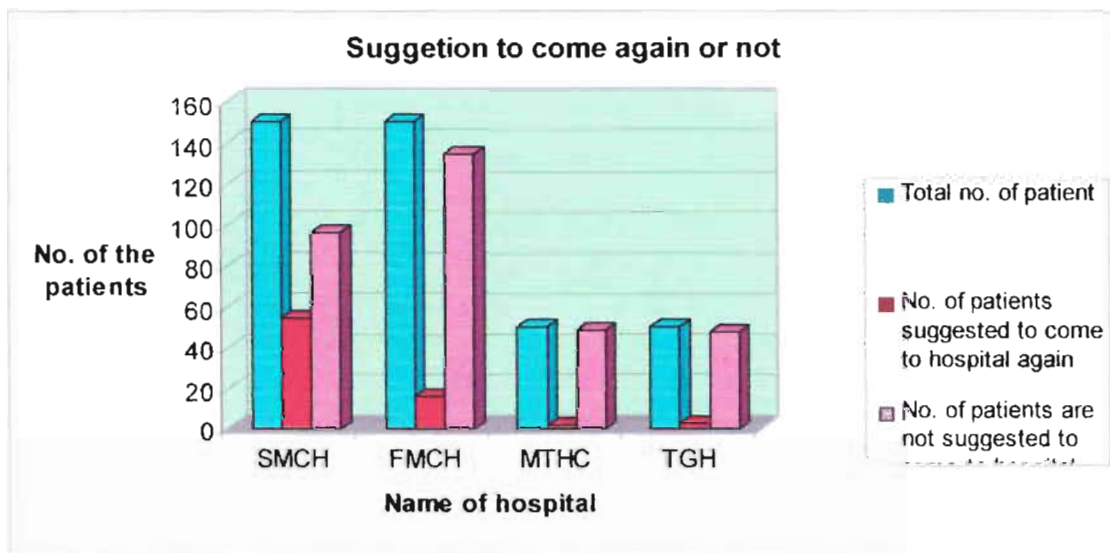Figure 24: Days prescribing per complains of the patient in TGH

5.1.5 NO. Of PATIENTS ADVISED TO COME AGAIN TO THE HOSPITAL

Some times the Physician wants to observe the condition of the patient's after taking the drug ,whether the drug is working or not. The total no. of the patients is 400 in all 4 hospital.Among them only 75 no. of patient were suggested by the physician to come to hospital again and 325 no. of patients were not suggested to come to hospital again.

It should be the duty of physician to observe the patient condition after advising the prescription.

TABLE 26: NO. Of PATIENTS ADVISED TO COME AGAIN TO THE HOSPITAL

Hospital	Total no. of patient	No. of patients suggested to come to hospital again	No. of patients are not suggested to come to hospital again
SMCH	150	54	96
FMCH	150	16	134
MTHC	50	2	48
TGH	50	3	47
Total	400	75	325

Figure 25: No. of patients advised to come again to the hospital

5.1.6 NO. OF PATIENTS ADVISED ABOUT THE SIDE-EFFECTS WHILE TAKING DRUGS

Every drug has side effect. Some side effect are serious.But the patient are not concern about the Side effect of the drug because in my study it was found that no patients were advised about the side effect of the drugs.

In our country most of the people are uneducated. They don't know about the side effect. Some times side effect occur but they can not identify or realize the side effect,

It is the duty of a doctor to inform about the possible side-effects to his patients. This information makes the patient more conscious about using the drugs.

In the study, the side-effect information scenario of drugs is very poor. In my study area, no patient was found informed about the side-effects by the doctor. The percentage is zero in all the hospitals under study

TABLE 27: NO. OF PATIENTS ADVISED ABOUT THE SIDE-EFFECTS WHILE TAKING DRUGS

Hospitals	No. of patients advised about the side effects	No. of patients do not advised about the side effects
SMCH	0	150
FMCH	0	150
MTHC	0	50
TGH	0	50
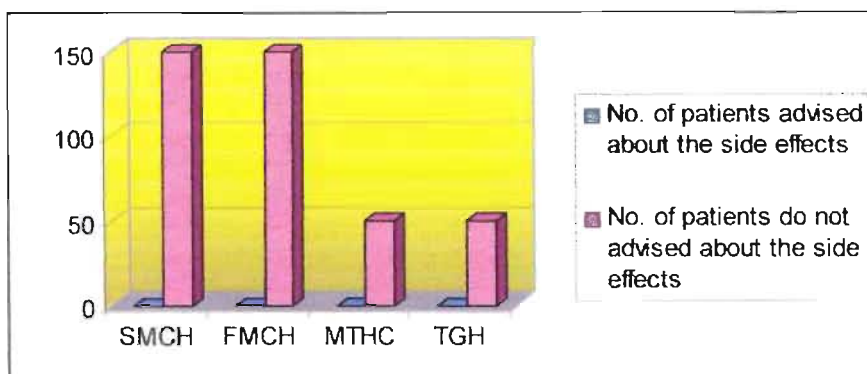
Figure 26: No. of patients advised about the side-effects while taking drugs

5.1.7 NO. OF PATIENTS ADVISED ON WHAT TO DO IF ANY SIDE-EFFECT OCCURS

Some times the side effect is very serious which may cause other type of diseases. So the Physician should advised on what to do if any the possible side effect occur. Without getting information about the side effect from the physician the patients can not realize the side effect and also do not take any necessary steps.

In my study area it was found that no physician ever mentioned about the remedies or interventions, if any side-effect occurs. The percentage of information is Zero in all the hospitals under study

TABLE 28: NO. OF PATIENTS ADVISED ON WHAT TO DO IF ANY SIDE- EFFECT OCCURS

Hospital	No. of patients advised what to do in case of side effects	No. of patients do not advised what to do in case of side effects
SMCH	0	150
FMCH	0	150
MTHC	0	50
TGH	0	50

If side effect occur

No. of Patients

160
140
120
100
80
60
40
20
0

FMCH   TGH

Name of hospital

☐ No. of patients advised what to do in case of side effects

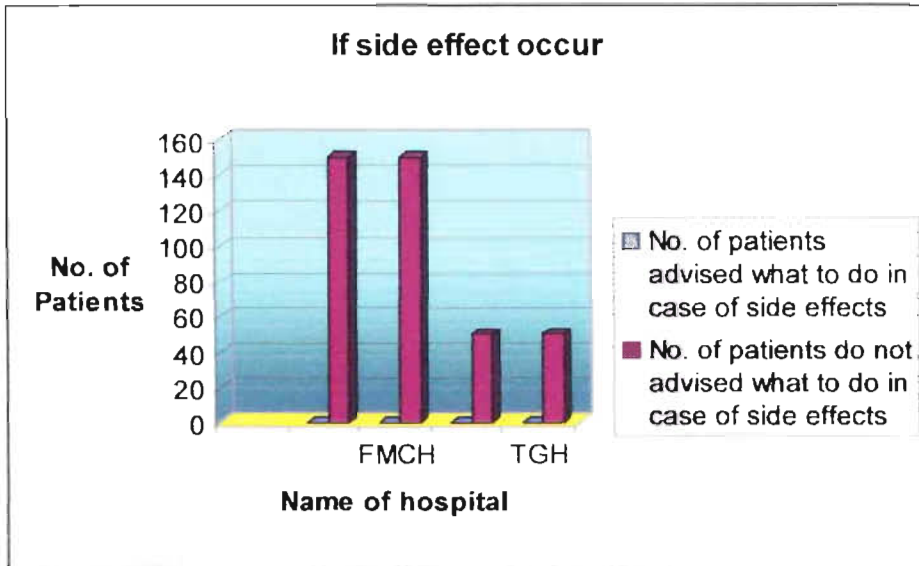■ No. of patients do not advised what to do in case of side effects

Figure26: No. of patients advised on what to do if any side effect occurs

5.1.8 NO. OF PATIENTS ADVISED ABOUT THEIR DIET AND DRINKING WATER
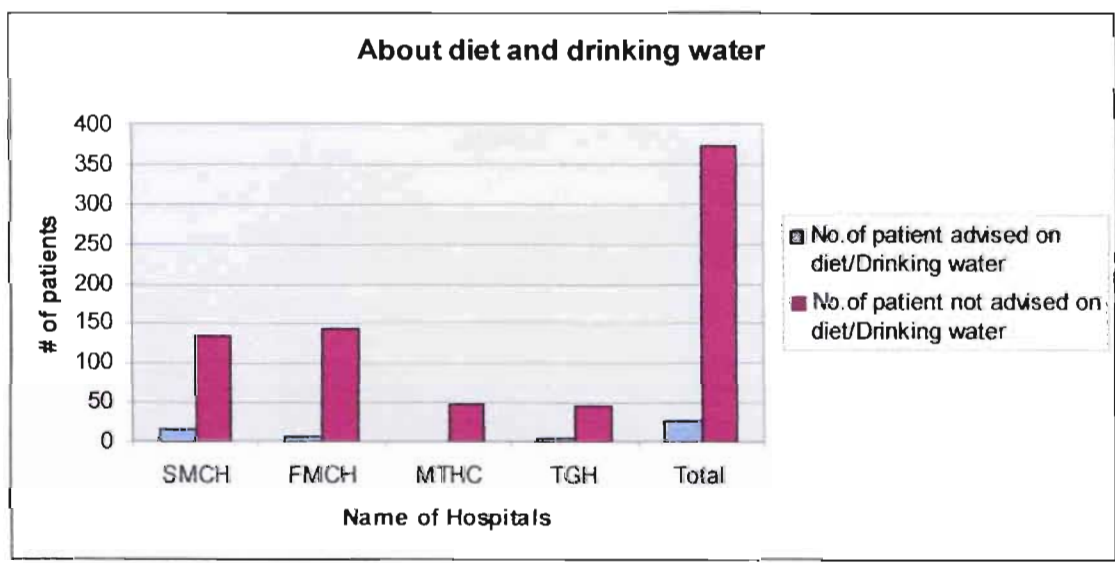
There are many types of drug bioavailability and efficacy depends on the diet and drinking pattern of the patients. Some drug interact with food and loss their therapeutic activity and the patients do not get desired efficacy .

Most of the drug are execrated by the urine. So the patients should drink lot of water.So the doctor should inform or advised about their diet and drinking water to get desired efficacy.

In my study it was found that only 28 no. of patients were advised about the diet and drinking water among the 400 patients.

TABLE 29: NO. OF PATIENTS ADVISED ABOUT THEIR DIET AND DRINKING WATER

Hospital	Total no of patient	No.of patient advised on diet/Drinking water	No.of patient not advised on diet/Drinking water
SMCH	150	16	134
FMCH	150	7	143
MTHC	50	1	49
TGH	50	4	46
Total	400	28	372

Figure 28: No. of patients advised about their diet and drinking water

5.1.9NO. OF PATIENTS ADVISED ON WHERE AND HOW TO KEEP THE DRUG(S)

In my study it has been shown that, the patient in different hospital did not get any information about the storage condition of the drug. The physician or pharmacist should advised where and how to keep the drugs. Without proper storage of the drug, it will loss its efficacy to the sub therapeutic level.

TABLE 30: NO. OF PATIENTS ADVISED ON WHERE AND HOW TO KEEP THE DRUG(S)

| Hospitals	No. of patients advised on storage of drugs	No. of patients not advised on storage of drugs
SMCH	0	150
FMCH	0	150
MTHC	0	50
TGH	0	50
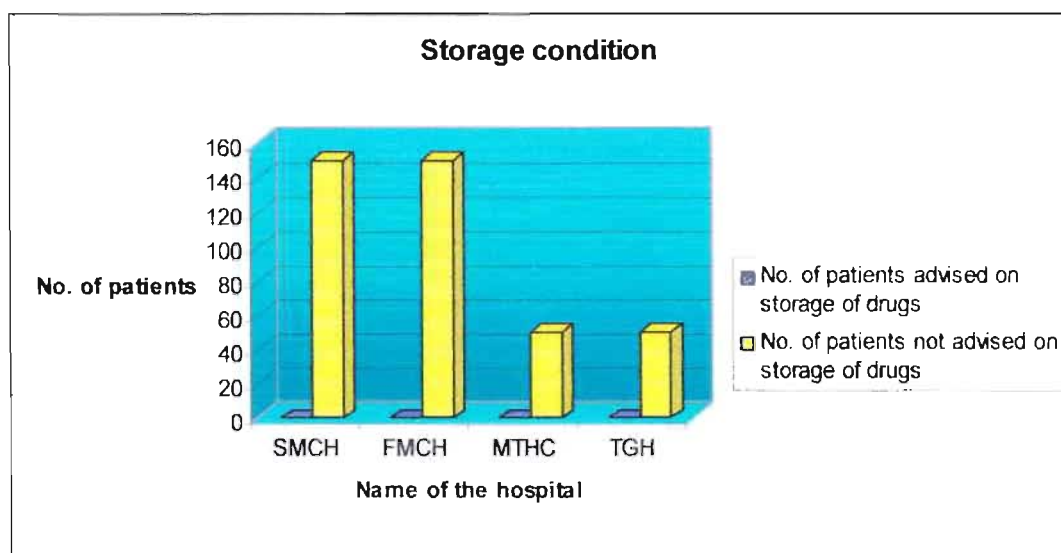
Figure 29: No. of patients advised on where and how to keep the   drug(s)

5.1.10 NO. OF DRUG(S) DISPENSED FROM THE HOSPITAL

In government hospital of Bangladesh many class of drug are dispensed from the hospital for the outdoor patients. During the study program, 319 drugs were dispensed from the SSMCH from amongst 42 drugs, in FMCH 275 drugs are dispensed from amongst 347 drugs, in MTHC 69 drugs are dispensed amongst 125 drugs and in TGH 82 drugs are dispensed amongst 116 drugs. 110, 72, 56, and 34 no of drugs are not dispensed from the SSMCH, FMCH, MTHC and TGH respectively.

TABLE 31: NO. Of Drug(S) Dispensed From the Hospital

Hospitals	No. of Drugs Prescribed	No. of Drugs received from the hospital	No. of Drugs not Dispensed from the hospital
SMCH	429	319	110
FMCH	347	275	72
MTHC	125	69	56
TGH	116	82	34
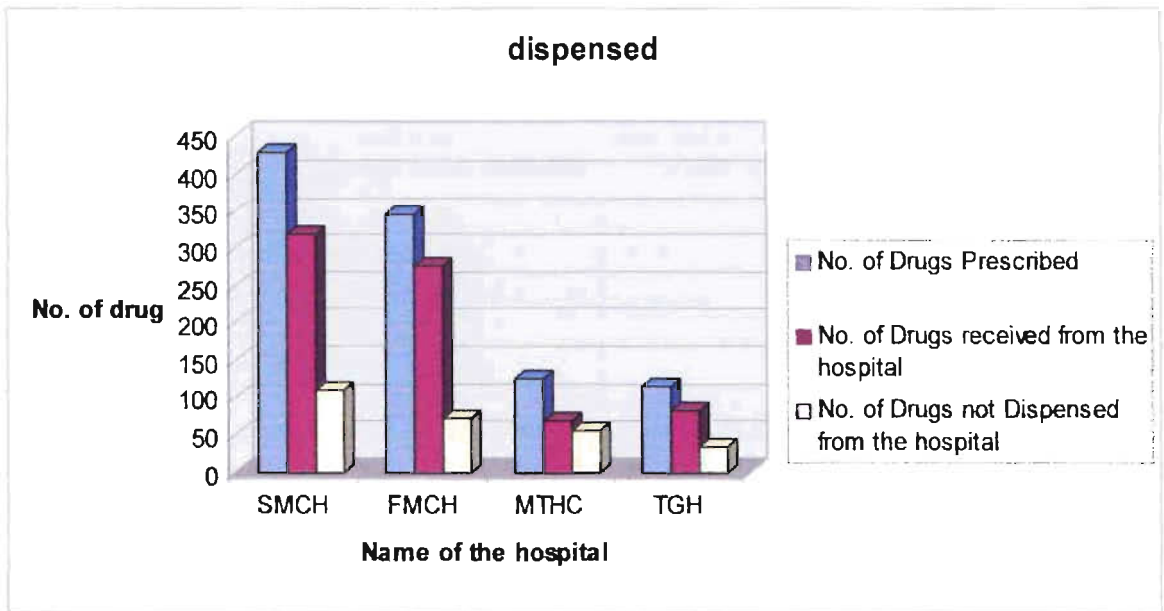
Figure 30: No. of drug(s) dispensed from the hospital

5.1.11 NO. OF PATIENTS BUYING DRUGS FROM OUTSIDE THE HOSPITALS

In government hospital the patient are come to get free treatment and free drugs. Most of the patients do not have the ability to afford the drug from outside. In my study, it was found that some patient are also agree to buy drugs from outside the hospital. The no. of patients agree to buy drugs from outside in SSMCH is 40 and the no. of patients not buying drugs from outside is 32. The no. of patients agree to buy drugs from outside in FMCH is 19 and the no. of patients not buying drugs from outside is 44. The no. of patients agree to buy drugs from outside in MTHC is 4 and the no. of patients not buying drugs from outside is 15 and the no. of patients agree to buy drugs from outside in TGH is 2 and the no. of patients not buying drugs from outside is 12.

TABLE 32: NO. OF PATIENTS BUYING DRUGS FROM OUTSIDE THE HOSPITALS

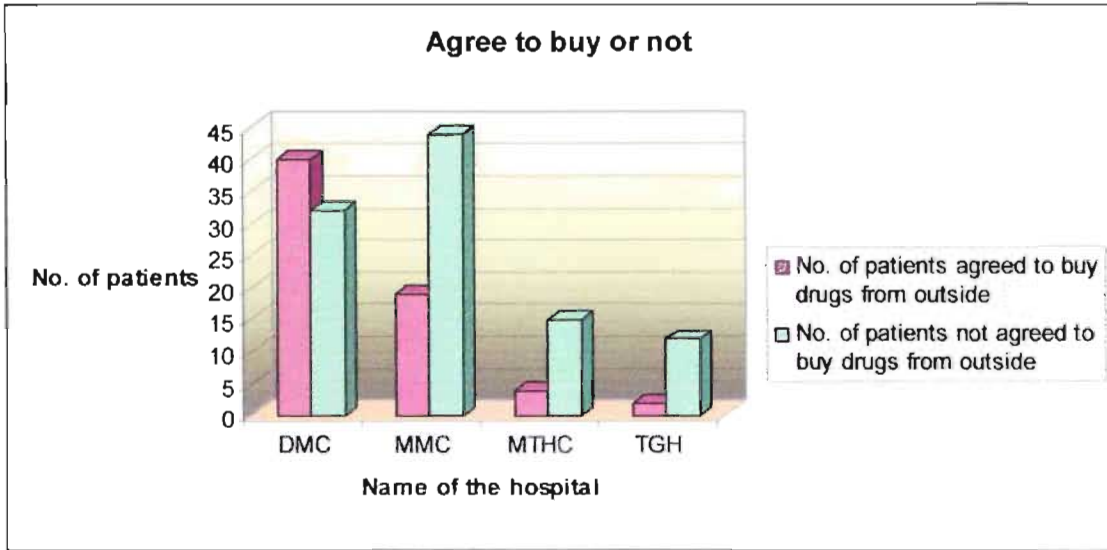| Hospitals	No. of patients agreed to buy drugs from outside	No. of patients not agreed to buy drugs from outside	No of patient get the drug from hospital
SSMCH	40	32	72
MMC	19	44	63
MTHC	4	15	19
TGH	2	12	14

Figure 31: No. of patients buying drugs from outside the hospitals

5.2 PATIENT INFORMATION

GENDER

Patients were divided into their gender groups. It was found that the female patients are more in no. than male patients.62 male and 88 female in SSMCH.64 male and 86 female in FMCH.21 male and 29 female in MTHC and 14 male and 36 female in TGH.It has seem that the female member of our country are suffering from diseases than male.

TABLE 33: GENDER

Hospital	Male	Female	Total
SMCH	62	88	150
FMCH	64	86	150
MTHC	21	29	50
TGH	14	36	50
Total	161	239	400
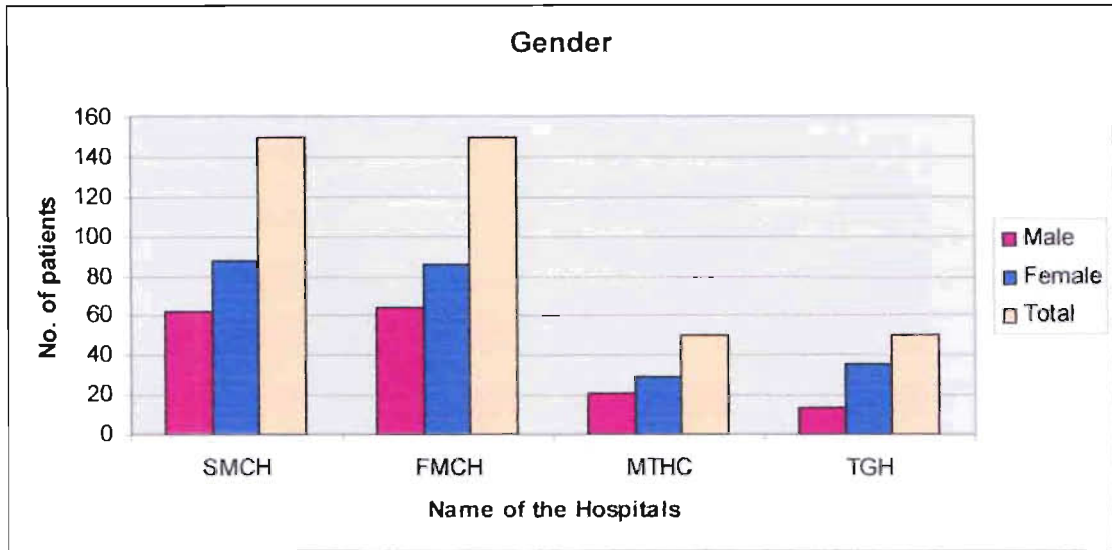
Figure 32: GENDER

AGE

The patient group is divided in different age group. In my study,I have divided the age group in to 7 category. The patients whose age is between 0-10 year are more in all four in hospital. In FMCH and TGH the more patients were fond in the category of 21-30 years old. It was shown that children are suffering more than other age group.

TABLE 34: AGE OF THE PATIENTS

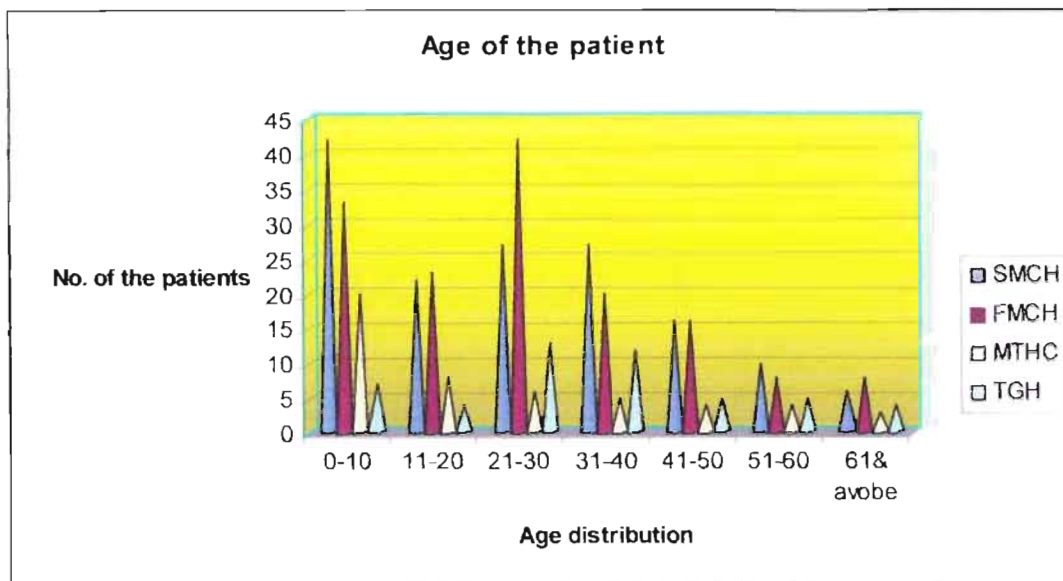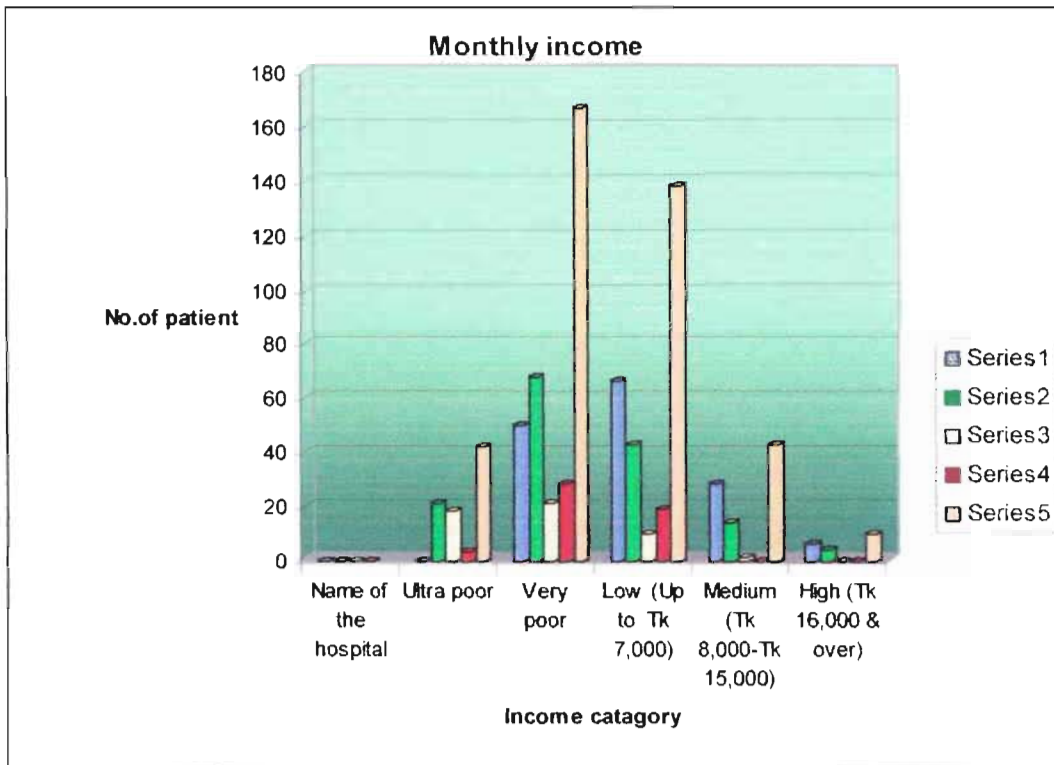| Name of the Hospital	0-10	11-20	21-30	31-40	41-50	51-60	61& avobe
SMCH	42	22	27	27	16	10	6
FMCH	33	23	42	20	16	8	8
MTHC	20	8	6	5	4	4	3
TGH	7	4	13	12	5	5	4
Total	102	57	88	64	41	27	21

Figure 33: Age of the patients

MOMTHLY INCOME

In government hospital most of the patient are come to get free treatment 66 patients was found. In this study very poor patients was found more in all 4 hospital.and free drugs due to their monthly income is not so good. In SSMCH ultra poor patient was not found. But in FMCH and MTHC the rate of ultra poor and very poor patient is very high. In SSMCH low category which monthly income is up to 7000 taka.

TABLE 35: **MONTHLY INCOME OF THE PATIENTS**

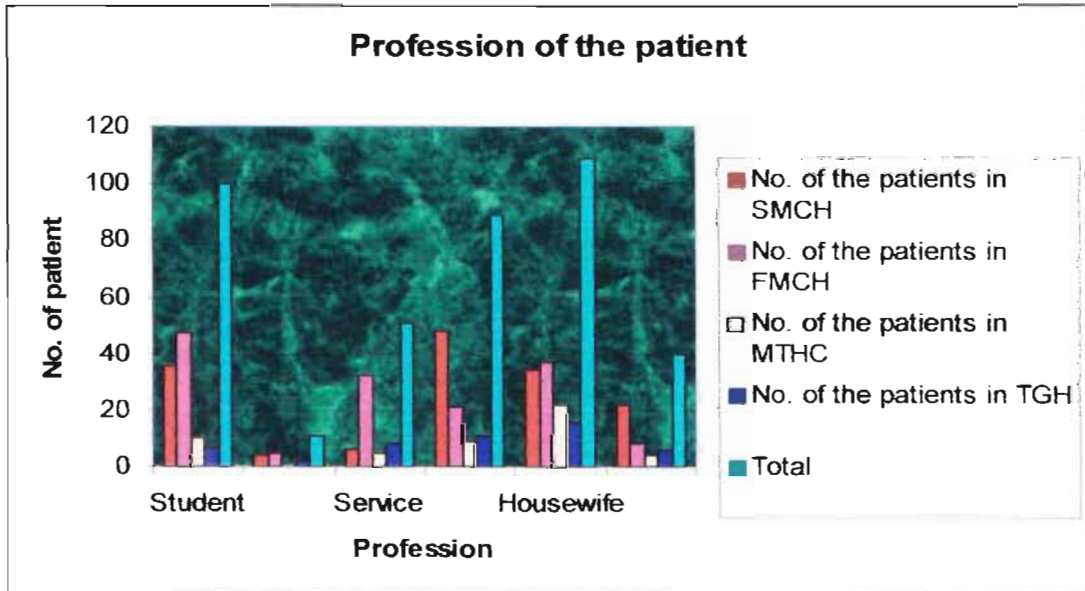| Name of the hospital	Ultra poor	Very poor	Low (Up to Tk 7,000)	Medium (Tk 8,000-Tk 15,000)	High (Tk 16,000 & over)
SMCH	0	50	66	28	6
FMCH	21	68	43	14	4
MTHC	18	21	10	1	0
TGH	3	28	19	0	0
Total	42	167	138	43	10

Figure 34: Monthly income of the patients

PATIENT'S PROFESSION

To study the patients' life style their professions are also imortant. Combining all the four hospitals, no. of housewives was highest with 109 persons. In the study, 100 were students, 89 were labors, 51 were service holders, 40 were unemployed, and 11 were professionals.

TABLE 36: PATIENT'S PROFESSION

| Profession	No. of the patients in SMCH	No. of the patients in FMCH	No. of the patients in MTHC	No. of the patients in TGH	Total
Student	36	47	10	7	100
Professional	4	5	0	2	11
Service	6	32	5	8	51
Labor	48	21	9	11	89
Housewife	34	37	22	16	109
Unemployed	22	8	4	6	40

Figure 35: Patient's profession

PATIENT'S EDUCATION LEVEL

Patients' education level were also studied by dividing the group into no formal education, primary, secondary, technical/ vocational, higher secondary/ Bachelor and Master/ Ph D. From the result it is evident that 201 patients had no formal education, 110 were primary passed, 52 were secondary passed or was not completed 23 patients were higher secondary passed or have not completed Bachelors and 1 patients were

Master degree passed, 13 patient was found passed from technical and vocational institutions.

TABLE 37: PATIENT'S EDUCATION LEVEL

Education level	No. of patients inSMCH	No. of patients in FMCH	No. of patients in MTHC	No. of patients in TGH	Total
No formal education	54	78	31	38	201
Primary	47	36	16	11	110
Secondary	28	21	2	1	52
Technical/Vocational	2	11	0	0	13
Higher secondary/ Bachelor	18	4	1	0	23
Master/Ph D	1	0	0	0	1
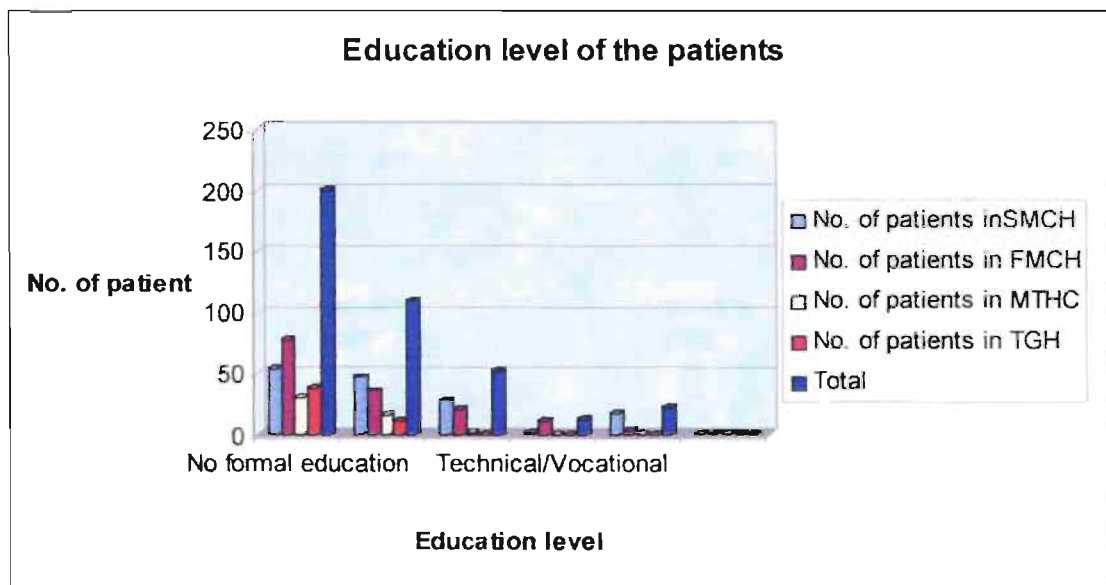
Figure 36: **Patient's education level**

5.3 REPORT SUMMURY:

The study had been carried out to find out the Drug Information delivery pattern in Government Hospitals of Bangladesh. For the study purpose, 400 samples are collected from the Sir Salimullah Medical College Hospital, Faridpur Medical College Hospital, Madhukhali Thaana Health Complex and Tongi Government Hospital. It was considered to collect the sample from both urban and from the respective rural areas.

The result and discussion has been divided into two parts. One is drug information another part is patient information. Patient information contain the gender, profession, religion, monthly income, and education qualification.

Patients were distributed into various age groups. 0-10 aged group contained 102 patients, 11-20 aged group contained 57 patients, 21-30 aged group contained 88, 31-40 aged group contained 64 patients, 41-50 aged group contained 41 patients, 51-60 aged group contained 27 patients and 60 & above group aged contained 21 patients of the total 400 patients. Among all of the patients, 239 were female and 161 were male.

From the prescription pattern it was found that, 1 drug was prescribed to 19 patients, 2 drugs were prescribed to 114 patients, 101 patients got 3 drugs per prescription, 56 patients got four drugs per prescription, 9 patients got five drugs per prescription and only one patient got 7 drugs.

In the result of duration prescribed to take drug, on 303 times drugs were prescribed for 7 days and 129 times the drugs were prescribed for up to 15 days, 158 times drugs were prescribed for 30 days, 16 times drugs were prescribed for up to 60 days and 2 times the drugs were prescribed for 90 days.

No. of patients advised to visit the hospital again was found to be 75 and the no. of patients not advised to visit the hospital again was 325. In SSMCH, 54 patients were advised to come to hospital again whereas in FMC, this no. was 16. In MTHC, 2 patients and in TGH 3 patients were advised to come to the hospital again.

The no. of patient get the information about their diet and drinking water is 28 among the 400 patients

The percentage of patients informed about the possible side-effects of the drug is Zero (0%).

The percentage of patients who knows what to do if any side-effect occurs is Zero (0%).

The percentage of patients informed about the storage condition of the drugs is Zero (0%).

In Sir Salimullah Medical College Hospital, 429 drugs were prescribed whereas 319 drugs were dispensed from the hospital. In Faridpur Medical College, 347 drugs were dispensed amongst 275 drugs were dispensed. In Madhukhali Thaana Health Complex, only 69 drugs are dispensed amongst 125 drugs. In TGH only 82 drugs are dispensed amongst 126 drugs.

In Sir Salimullah Medical College Hospital, 40 patients bought drugs from outside which were not dispensed from the Hospital and 32 patients did not buy drugs from outside during the study period. In Faridpur Medical College, 19 patients bought drugs from outside and 44 patients did not buy drugs from outside. In Madhukali Thana Health Complex, only 4 patients bought drugs from outside of the hospital and 15 patients did not agree to buy drugs from outside. In Tongi Government Hospital only 3 patients bought drugs from outside of the hospital and 12 patients did not agree to buy drugs from outside.

6.0 CONCLUTION

The present condition of the government hospital and the health care delivery system is not satisfactory. Most of the people in Bangladesh are lived under the poverty level. They come in the government hospital to get free treatment and drugs. Their life style is not so high. Another reason is the education. Most of the people are uneducated Due to lack of education the patients are not concern about the use of the drug. So it is the duty of physician and also other healthcare providing person to deliver the information about the drug to ensure the safety of the patient.

The following recommendations can be suggested based on the present study

- There should be a healthy medication system which must be established and strictly implement.
- Patient counseling is necessary to provide healthy medication system.
- The physician should know the patient previous health history and provide all the information of the drug.
- Increase the awareness about the safety of the drug to the patient and also the other people.
- Establishment of community pharmacy in Bangladesh.
- Establishment of hospital pharmacy.
- Should trained the physician , pharmacist, and other healthcare providing person how they can guide the patient.
- Should take necessary steps to prevent polypharmacy.
- Establishment of Drug Information Center, under a community or under a hospital.
- Ensure the rational use of drug
- Should make a good relationship among the physicians, pharmacists and also the patient to provide quality pharmaceutical care that meets the medication needs of the patient.
- Essential Drug List based on treatment choice to be prepared and updated from time to time by the government with the help of the professionals.
- The physician should follow the right prescription pattern.
- Need sufficient government expenditure to ensure availability of the medicine and stuff.

- Update and monitoring the pharmaceutical policy and enforced the regulation.
- Supervision, audit and feedback of health care management system to be implemented.

Without the contribution of the physician, pharmacists, other health care providing person and also the patient we can not assure the safety of the patient.

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13. Data on http://en.wikipedia.org/wiki/Polypharmacy

14. Information taken from http://en.wikipedia.org/wiki/Adverse_

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15. Drug Interaction data on website

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16. Drug Interaction

data on website http://en.wkipedia.org/wiki.Drug_interaction

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Annexure

A Study on Level if Drug Information Provided by the three Government Hospitals in Bangladesh.

Part I: Drug Information

1. What is/are your complaint(s)? ....
2. How many drugs were prescribed? ....
3. What drugs you have received from this hospital? (*Brand Name/trade Name & Dosage form*)

   a) ....
   b) ....
   c) ....
   d) ....

4. Have you been told on how to take these drugs?

   Yes ☐ , By whom? Physician ☐ , Pharmacist ☐ , Nurse ☐ , No ☐

5. How many times you would take this drug in a day?

   a) ....times / ....hourly/ before ☐ after ☐
   b) ....times / ....hourly/ before ☐ after ☐
   c) ....times / ....hourly/ before ☐ after ☐
   d) ....times / ....hourly/ before ☐ after ☐

6. How long you have been advised to take this drug?

   a) ....days b) ....days
   c) ....days d) ....days

7. Have you been advised to come to the hospital again? Yes ☐ No ☐
8. After how many days? ....days ☐ if not cured ☐
9. have you been advised on your diet while taking this drug(s)?

   Yes, Diet?... No ☐

   Drinks/Water?... No ☐

10. Have you been contained on any possible side effect(s) while taking this drug(s)?

Yes ☐ , What? .... No ☐

11. Have you been advised on what to do if any side-effect(s) occur(s)?

Yes ☐ , What? ……………………………………………………… No ☐

12. Have you been advised on where and how to keep the drugs?

Yes, ☐ No ☐

        a) …………………………………………………………
        b) …………………………………………………………
        c) …………………………………………………………
        d) …………………………………………………………

13. Would you buy the rest of the medicines prescribed for you?

Yes, ☐ how many? No ☐

      a) …………………………………………………………
      b) …………………………………………………………
      c) …………………………………………………………
      d) …………………………………………………………

Part II: patient Information

14. Age of the patients: .... Years .... months

15. Patient's gender: Male ☐   Female ☐

16. Patient's religion: Islam ☐   Hindu ☐   Buddist ☐   Christian ☐
              Others ☐

17. Monthly income of the patient's family:

    a) Ultra poor   b) Very poor   c) Low (Up to Tk.7000)

    d) Medium (Tk8,000-Tk15,000)   e)High (Tk16,000 & over)

18, Patient's profession: Student   Professional   Service

    Labour   Peasant   Housewife   Unemploed

19. Patient's education level: a) No formal education   b) Primary

                        c) Secondary   d) Technical/ Vocational

                        e) Higher secondary/ Bachelor

                        d) Master/ Ph D