

Original Article**Evaluation of Prescribing Practices in the Outpatient Departments of a Teaching Hospital**PC Paul¹, DR pal², MM Rahaman³, MJ Islam⁴, AR Siddique⁵.**Abstract**

Irrational use of medicines is widespread throughout the world. Polypharmacy, injudicious use of antimicrobials and unnecessary use of vitamins are commonly observed. In an attempt to observe the prescribing practices in a Teaching Hospital outpatient departments and to sensitize the future prescribers about rational prescribing, 1200 prescriptions were collected and analyzed by 4th year MBBS students using some of the WHO/INRUD core drug prescribing indicators. The average number of drug per prescription was 3.24. Only 0.13% drugs prescribed under generic names. Around 36.83% of prescriptions were prescribed with antimicrobials and

7.08% prescriptions were contained injections. About 48.35 drugs were prescribed from essential list of drugs and vitamins were prescribed in 33.33% prescriptions. The result revealed that there are apparent lacks of prescribing habit among the prescribers even in a teaching hospital. It is suggested that the periodic evaluation of prescribing practices at a health facility would eventually help to promote rational prescribing. Furthermore, participation of 4th year MBBS students in such exercise may enhance the understanding and sensitize them about rational use of medicines in future.

Key words: Rational prescribing, Polypharmacy, MBBS students, Medicines

Introduction:

Irrational use of medicines is a global problem, particularly in developing and transitional countries. Country like Bangladesh, irrational prescribing is common finding. Frequently observed irrational use of medicine includes- the use of too many medicines per patient (Polypharmacy), inappropriate use of antimicrobials, over use of injections and vitamins. Furthermore, aggressive drug marketing, lack of

information on the use of drug and inadequate drug supply have been suggested to be the main causes behind the irrational prescribing.¹

Promoting rational use of drugs (RUD) is becoming a priority issue for governments and other organizations all over the world. RUD increased obviously since WHO broadened the concept of essential drug policy to include a strong emphasis on RUD and many countries paid more attention to establish essential drug lists (EDL) approved by WHO. By the end of 1999, 156 WHO member states including Bangladesh had a national EDL.² WHO model list of Essential Medicines was prepared first time in 1977 and updated every two years since then. In Alma Ata in 1978, the WHO/ UNICEF conference on primary health care adopted the essential drug concept as one of the basic tools to improve health care.

Rational prescription of medicines requires judicious utilization of drugs. It has been suggested that there is a need to prescribe medicines rationally to improve quality of health and medical care.^{3,4} Theoretical courses for undergraduate students in medical colleges do not prepare them adequately for rational therapeutics. Medical students need realization and understanding about rational prescribing. This is not achieved properly due to their pharmacology training has been focused more on theory than that of practical aspect.⁵ Appropriate use of medicines and related information to the patient should be regarded as key 'transferable skills' to be achieved in Pharmacology undergraduate courses.^{6,7} Medical

1. Paritosh Chandra Paul, Associate Professor, Department of Pharmacology, Jahurul Islam Medical College, Bhagalpur, Bajitpur, Kishoregonj.

2. Dipali Rani Pal, Associate Professor, Department of Anatomy, Jahurul Islam Medical College, Bhagalpur, Bajitpur, Kishoregonj.

3. Md Mahbubur Rahaman, Assistant Professor, Department of Orthopedics, Jahurul Islam Medical College & Hospital, Bhagalpur, Bajitpur, Kishoregonj.

4. Md Jahidul Islam, Assistant Professor, Department of Pharmacology, Jahurul Islam Medical College, Bhagalpur, Bajitpur, Kishoregonj.

5. Abu Rayhan Siddique, Lecturer, Department of Pharmacology, Jahurul Islam Medical College, Bhagalpur, Bajitpur, Kishoregonj.

Corresponding author:

Dr Paritosh Chandra Paul, Associate Professor, Department of Pharmacology, Jahurul Islam Medical College, Bhagalpur, Bajitpur, Kishoregonj.

students should be sensitizing to learn how to choose drugs for rational prescribing. Recently, it has been reported that the medical students participated in the exercise enthusiastically and perhaps understood the issue related to rational prescribing.⁸ International Network of Rational Use of Drugs (INRUD) has developed a list of indicators of rational prescribing.⁹ These indicators have already been tested in many countries.¹⁰ Present study was an attempt to teach, sensitize and develop skill about rational prescribing as well as to evaluate of prescribing practices at a health facility by the future prescribers.

Materials and Methods

This study was carried out in the Department of Pharmacology of Jahurul Islam Medical College (JIMC) from July 2010 to August 2010. The data were collected from Outpatient Departments (OPD) of different disciplines. No attempt has made to group the prescriptions according to patient's age, sex or disease profile. The 4th year MBBS students of JIMC were divided into 08 groups, each group consisting of 10 students. Each group was instructed to collect 150 prescriptions from OPD with in an assigned period of time. Prescriptions were randomly collected both from graduate and postgraduate specialist. A total of 1200 prescriptions were the study sample. The relevant data were recorded in the "Prescribing Indicators Form" as recommended by INRUD/WHO.⁹ Following parameters were analyzed with each group of students in subsequent practical session-

1. Average number of drugs per encounter.
2. Percentage of drugs prescribed by generic name.
3. Percentage of prescriptions with an antibiotic.
4. Percentage of prescriptions with an injection.
5. Percentage of drugs prescribed from essential drug lists.
6. Percentage of prescription with vitamins

The sum total of averages and percentages were calculated by using the standard formulas in WHO's manual "How to investigate drug use in health facilities".⁹

DETAILED INDICATORS ENCOUNTER FORM

Location : -----

Investigator : -----

Date: -----

ID#	Date	Name	Age	Sex	Prescriber
Health Problems	Health Problem Description		Code		
	1.				
	2.				
	3.				
Drugs	Name and Strength		Code		Quantity
	1.				
	2.				
	3.				
	4.				
	5.				
	6.				
	7.				
	8.				
	9.				
10.					

Results

A total of 3888 drugs were prescribed in all prescriptions. Average number of drugs per prescription was 3.24. Only 0.13% drugs were prescribed under generic names. Antibiotics constituted 36.83% of the prescriptions; Injections were prescribed in about 7.08% of the prescriptions. About 48.35% drugs were prescribed from the EDL and vitamins were prescribed in 33.33% of the prescriptions (Table I).

Table I

Core drug prescribing pattern in a teaching hospital:

Drug prescribing indicators	Value
Average number of drugs per encounter	3.24
Percentage of drugs prescribed by generic name	0.13%
Percentage of prescriptions with an antibiotic	36.83%
Percentage of prescriptions with an injection	7.08%
Percentage of drugs prescribed from essential drug list	48.35%
Percentage of prescriptions with a vitamins	33.33%

Discussion

This study was an exercise in the pharmacology practical session by the undergraduate medical students. The students of 4th year MBBS class of JIMC have collected a total number of 1200 prescriptions and participated to analyze data by using some of the INRUD indicators. By this practical session students may realize that prescribers did not follow the criteria of rational prescribing. Thus, they are expected to be sensitizing as future prescribers to rational prescribing. On an average, 3.24 drugs were prescribed per prescription while the optimum value of the number of drugs per encounter has been reported to be less than 2 drugs.¹¹ However, this finding is consistent with some of the previous results published in Bangladesh,^{12, 13, 14} while differs from Sarker et al.¹⁵ and Kafle et al.¹⁶

In the present study, only 0.13% drugs were prescribed under generic names but Choudhury et al. reported it to be 6.87%.¹⁴ In an Indian study it was 38.2%,¹⁵ which was 44% in Nepal study.¹⁶ The lowest value obtained in the present study and discrepancies among the studies may indicate that prescribers are not aware of the importance of generic names.

In our study, students revealed that 36.86% prescriptions were prescribed with antimicrobials. This finding is quite similar with the study done by Rahman et al. (38.7%).¹³ Baqui and Choudhury¹² and Choudhury et al.¹⁴ reported that percentage of prescriptions with antimicrobials were 73.33% and 61.50% respectively; while Kafle et al. found it to be 43%.¹⁶ These dissimilar result might be due to many factors such as misuse, different in disease profile etc.

It has been recommended to prescribe medicines from EDL of a national formulary.¹¹ In the present study, around 48.35% of the drugs were prescribed from the EDL. Baqui and Choudhury have reported that 49% of prescribed medicines were from EDL.¹² While Choudhury et al. found 90.99% of drugs were prescribed from EDL.¹⁴ These discrepancies might be due to aggressive drug marketing, lack of information etc.

Only 7.08% prescribed drugs were injections that were than as compared with the study (12%) of Zaida et al.⁸ Baqui and Choudhury reported that

prescriptions with an injection were 9.70%,¹² where Rahman et al. found it was 8.2%. Taken together, all the result are comparable and it seems that the prescribers limit the use of injections and availability of oral dosage formulation.

In our observation, it was found that physicians like to prescribe more frequently with vitamins. In the present study, about 33.33% of prescriptions were prescribed with vitamins. However, in the absence of disease profile, it is difficult to draw any conclusion about the validity of prescribing vitamins.

Conclusion

This Study revealed deviation from rational prescribing by the prescribers even in a teaching hospital and that includes polypharmacy, no interest to use of generic names, insufficient drugs from EDL and perhaps unnecessary use of vitamins. It is suggested that periodic evaluation of prescribing practices may help to promote rational prescribing. Furthermore, participation of students in the evaluation exercise may improve the understanding and perception about RUD among the future prescribers.

References

1. Offerhaus O. Rational use of drugs in Balkans: a WHO workshop. *Essential Drugs Monitor*. 1995; Issue 20: 3.
2. WHO. Medicines strategy. Framework for action in essential drugs and medicines policy 2002-2003. Geneva: World Health Organization; 2000:WHO/EDM/2000.1.
3. Ross-Degnan D, Laing R, Quick J, Ali HM, Ofori-Adeji D, Salako L, Santosa B. A Strategy for promoting improved pharmaceutical use: The international network for rational use of drugs. *Soc Sci Med*. 1992; 35: 1329-41. [http://dx.doi.org/10.1016/0277-9536\(92\)90037-Q](http://dx.doi.org/10.1016/0277-9536(92)90037-Q)
4. Laing RO. Rational drug use: An unsolved problem. *Trop Doctor* 1990; 20: 101-03.
5. de Vries TPGM, Henning RH, Hogerzeil HV, Fresle DA. Guide to good prescribing: A practical manual. WHO/DAP/94. 11: 1994.
6. Rahman MS, Kamal ASMA, Choudhury S, Khan IA, Islam, AMZ, Sultana R, Begum M, Akhter N, Anwar AKMN. Exercise on selection of

p-drug: Preliminary evaluation of a newer method of pharmacology teaching in Bangladesh. *Bangladesh J Physiol Pharmacol.* 2000; 16: 50-54.

7. Shankar PR, Mishra P, Shenoy N, Partha P. Importance of transferable skills in pharmacology. *Phar Edu.* 2003; 3: 97-101. <http://dx.doi.org/10.1080/1560221031000089507>

8. Zaida R, Rumana N, and Mahmuda B. Evaluation of prescribing pattern of the private practitioners by the undergraduate medical students. *Bangladesh J Pharmacol* 2009; 4: 73-75

9. How to investigate drug use in health facilities: selected drug use indicators, Geneva, World Health Organisation, 1993 (unpublished document WHO/DAP/93.1, available on request from action programme on essential drugs, World Health Organisation, 1211 Geneva 27, Switzerland).

10. Hogerzeil HV, Bimo, Ross-Degnan D, Laing RO, Ofori-Adjei D, Santoso B et al. Field tests for the rational drug use in twelve developing countries. *Lancet* 1993; 342 (8884):1408-10.

11. Dumoulin J, Kaddar M, Velasquez C. Guide to drug financing mechanism. WHO, Geneva, 1998:

pp 44.

12. Baqui QBOF, Choudhury SAR. Prescribing pattern of graduate and non-graduate medical prescribers in rural Bangladesh. *International Conferences on Improving Use of Medicines*, 1996.

13. Rahman MS, Begum M, Khan IA, Kamal ASMA, Choudhury S, Islam AMZ, Sultana R, Haque MZ, Akhter N. A Baseline survey on use of drugs at private practitioner level in Bangladesh. *Bangladesh J Physiol Pharmacol.* 1998; 14: 47-50.

14. Choudhury Wahidur R, Sharadindu KS, Altafur R, Abu Yousuf NU, Choudhury MR. Drug use pattern in hospital outpatients and general practice in Sylhet city. *Jalalabad Medical Journal* 2006; 3(2): 65-70.

15. Sarkar AP, Biswas S, Tripathi SK. A study on drug use in a district hospital of West Bengal. *Indian Journal of Public Health* 2007; 51 (1):75-6.

16. Kafle KK and members of INRUD Nepal Core Group. INRUD drug use indicators in Nepal: Practice patterns in health posts in four districts. *INRUD News* 1992; 3(1): 15.