

Prescription audit as a teaching tool under cbme curriculum in a government medical college.

¹Dr. Shikha Dwivedi, Assistant Professor Dept of Pharmacology, GDMC, Dehradun, Uttarakhand, India.

²Dr. Ayush Jain, Assistant Professor, Dept of Pharmacology, GDMC, Dehradun, Uttarakhand, India.

³Dr. Annwasha Chaudhury, Post graduate, Dept of Pharmacology, GDMC, Dehradun, Uttarakhand, India.

⁴Dr. Sanjay Gaur, Professor, Dept of Pharmacology, GDMC, Dehradun, Uttarakhand, India.

⁵Dr. Libin Sanjeev L, Post graduate, Dept of Pharmacology, GDMC, Dehradun, Uttarakhand, India.

Corresponding Author: Dr. Libin Sanjeev L, Post graduate, Dept of Pharmacology, GDMC, Dehradun, Uttarakhand, India.

Citation this Article: Dr. Shikha Dwivedi, Dr. Ayush Jain, Dr. Annwasha Chaudhury, Dr. Sanjay Gaur, Dr. Libin Sanjeev L, “Prescription audit as a teaching tool under cbme curriculum in a government medical college”, IJMSIR- December - 2022, Vol – 7, Issue - 6, P. No. 130 – 135.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: Prescription audit is a quality improvement process that seeks to improve patient care.

The exercise of prescription audit by the medical students at an early stage will develop the understanding of correct and complete prescriptions. With our study, we aim at introducing the students to the practicality of doing a prescription analysis giving them a hands-on approach while ensuring the credibility of their findings with appropriate validation

Materials and Methods: The observational cross-sectional study was conducted in Department of Pharmacology, from June 2022 to August 2022. Process of prescription audit and prescription analysis were explained to Second professional students. They were directed to submit prescription copies with the audit data in a predefined excel sheet. The submitted prescriptions were independently audited by faculty in similar excel sheet and the outcomes were compared to that of students.

Results: 700 prescriptions were analyzed by 175 students and the average number of drugs per encounter was found to be 3.3. The study showed that the 65% of drugs were prescribed in generic names and 82% drugs were prescribed from the Essential Medicines list. 68% prescriptions had legible handwriting. Only 34% had an antibiotic prescribed.

Conclusion: The exercise of Prescription audit proved to be an effective teaching tool for MBBS Second professional Students. The low scoring attributes in prescriptions were identified and conveyed to the Drug and Therapeutics Committee for implementation and Improvement.

Keywords: Prescription Audit, CBME, MBBS Students, WHO Core prescribing indicators, Legibility

Introduction

Acquiring adequate knowledge about drugs is one of the preliminary steps in preparing the medical students for future practice. Prescription writing is an essential and basic skill in a process of providing better clinical care to

the patients. Since it's a medicolegal document, utmost care is required while writing a prescription by a Registered Medical Practitioner. The ideal prescription is a step towards rational prescribing.

For all medical professionals, rational prescribing is a monumental task since it requires a sophisticated integration of knowledge, abilities, and attitudes into the social environment of the clinical workplace. Educating medical students how to rationally prescribe through interactive teaching techniques like problem-based learning, P-drug exercises and prescription writing are useful in reducing the development of irrational prescription behaviors in the future.¹ One of the key teaching techniques for educating aspiring medical graduates about rational prescribing is prescription audit.² The practice of prescription audit by medical students at an early level will help them to grasp the importance of accurate and comprehensive prescriptions and how they might improve patient care. Prescription writing and auditing are skills that the National Medical Council has included in its Competency-Based Medical Education (CBME) curriculum³ in the subject of Pharmacology for Second Professional MBBS students. With our study, we aim at introducing the students to the practicality of doing a prescription analysis giving them a hands-on approach while ensuring the credibility of their findings with appropriate validation.

Material and Methods

The study was designed and conducted as an observational cross-sectional study in the Department of Pharmacology, Government Doon Medical College. The study was carried out over a period of three months (June 2022 to August 2022).

Approval from Institutional Ethics Committee was not required as current study is done as a part of CBME teaching curriculum. Process of prescription audit and

prescription analysis were explained to Second professional MBBS students as part of their undergraduate teaching program. Each of the 175 students were instructed to collect 4 prescriptions from Outpatient Department (OPD) patients of any department during their clinical postings and analyze them.

They were divided into 17 small groups (16 groups of 10 and one group of 15 students) and directed to submit prescription copies with the audit data in a predefined excel sheet.

(Annexure - 1) The submitted prescriptions were independently audited by faculty in similar excel sheet and the outcomes were compared to that of students. The prescriptions were analyzed on the following Parameters.

1. Patient and Prescriber information
2. Drug related information
3. World Health Organization (WHO) Core Prescribing indicators⁴

The data obtained were summed up and presented as descriptive statistics using Microsoft excel. The data were analyzed using SPSS version 22.

Results

A total of 700 handwritten prescriptions were collected and audited by Second Professional MBBS students of Government Doon Medical College as part of their undergraduate training programme and then verified by faculty of Department of Pharmacology.

When we compared the student analysis of the prescriptions to that of the faculty, we discovered discrepancies in 18% of the cases. The discrepancies were separately addressed within each small group and resolved.

The parameters in which the analysis of the students is inconsistent with that of the faculty are listed in Table 1.

Table 1: Discrepancies in analysis of students

S.no	Parameter	Inconsistent prescriptions
1	Brief history written	19 (2.7%)
2	Salient features of clinical examination recorded	13 (1.9%)
3	Follow up advice and precautions are recorded	14 (2%)
4	In case of referral, the relevant clinical details and reason for referral given	13 (1.9%)
5	Prescribed by Generic Name	15 (2.1%)
6	Prescribed as per NLEM	14 (2%)
7	Prescribed as per Facility's Antibiotic Policy	17 (2.4%)
8	Prescribed in line with Standard Treatment Guidelines	21 (3%)
9	Total prescriptions with discrepancies	126 (18%)

The prescriber information is printed by default on the prescriptions. Most of the prescriptions contained the basic patient details like name, age, gender and date of consultation along with prescriber signatures but failed to mention any follow up advice or precautions for the medications. Majority of the prescriptions lacked the mentioning of a Provisional diagnosis and the date for next visit. The findings of our study from patient and prescriber data are listed in Table 2.

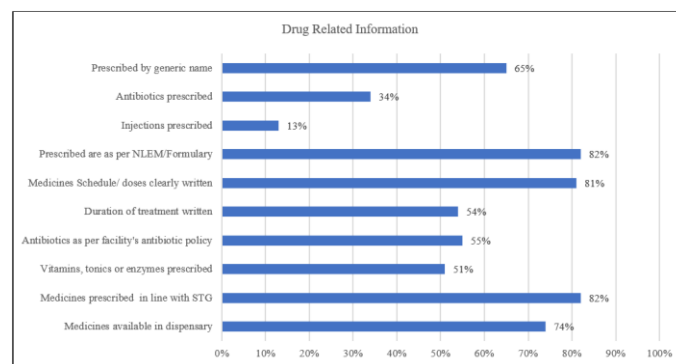
Table 2: Patient and Prescriber information

S. No	Parameter	Percentage
1	OPD Registration number mentioned	96%
2	Complete name of the patient is written	92%
3	Age in years (months if <5 years) mentioned	98%
4	Weight in kg (only patients of paediatric age group)	72%
5	Gender of patient	96%
6	Date of consultation (day/month/year)	95%

7	Brief history written	56%
8	Salient features of clinical examination recorded	45%
9	Allergy status mentioned	4%
10	Presumptive/definitive diagnosis written	54%
11	Investigations advised	44%
12	Follow up advice and precautions are recorded	37%
13	In case of referral, the relevant clinical details and reason for referral given	22%
14	Date of next visit written	23%
15	Prescription duly signed	86%

Vitamins, tonics and enzymes were prescribed in 51% of the prescriptions. 74% of the prescribed medicines were available in the hospital dispensary. 68% of the prescriptions were found to be legible while duration of drug therapy was missing from 46% and the doses/schedule from 19% of prescriptions. The drug data findings are depicted in Figure 1.

Figure 1: Drug Related Information



Regarding the WHO core prescribing indicators, the average number of drugs per prescription is 3.3. Antibiotics were prescribed in 34% prescriptions and 13% had an injection. 65% drugs were prescribed in their generic names and 82% drugs were prescribed from the National List of Essential Medicines (NLEM)⁵. Findings are mentioned in table 3.

Table 3: WHO Core Prescribing Indicators

S. No	WHO Indicators	Findings	WHO standard ⁶
1	Average number of drugs per prescription	3.3	1.6 - 1.8
2	Percentage of drugs are prescribed by generic name	65%	100%
3	Percentage of encounters with an antibiotic prescribed?	34%	20.0 - 26.8%
4	Percentage of encounters with an injection prescribed?	13%	13.4 - 24.1%
5	Medicines prescribed are as per NLEM/Formulary	82%	100%

Discussion

Performing a prescription analysis and involving the students in the process was an innovative and enlightening experience for both the faculty and the students. The inconsistencies that we found during validation of the results from the analysis by the students could be due to inexperience of the students.

Some students found it challenging to differentiate between the patient history and the clinical examination findings mentioned in the prescriptions. They misinterpreted the suggested investigations for follow-up advice and the inclusion of any clinical results as a justification for referral, despite the absence of a clear indication in the prescriptions.

Few students had trouble distinguishing between brand names and generic names. Some students wrongly included Fixed Dose Combinations (FDCs) even if only one of the components were present in the NLEM.

The WHO core prescribing indicators are important standards for assessing the rationality of drug use in a medical facility. The average number of drugs per prescription was 3.3 which was a bit on the higher side when compared to similar studies. It might be attributed

to the high incidence of prescription of vitamins, tonics and enzymes.

The number of medicines prescribed by generic names and medicines prescribed from the National List of Essential Medicines were higher compared to other studies. With our continued efforts, we aspire to move closer to the WHO recommended goal of 100% in these attributes. The number of encounters with at least one antibiotic prescribed was relatively high in our study, compared to similar studies. But most of them were well within standard treatment guidelines. Therefore, this could be explained by the patients' varied diagnoses.

The percentage of injections among the prescriptions in our study was higher than in similar studies but within WHO standards. A comparison of WHO indicators with other similar studies have been depicted in Table 4.

Table 4: Comparison of WHO Core Prescribing Indicators.

WHO Core Indicators	Our Findings	Bandhyopadhyay et al 2014 ⁷	Ahsan et al 2016 ⁸	Saha et al 2018 ⁹	Atal et al 2021 ¹⁰	Prasad et al 2022 ¹¹
Mean No of drugs	3.3	4.4	4.02	2.64	2.53	2.7
Generic names	65%	20.9%	0%	19.07%	15.96%	42.9%
Antibiotics	34%	28.9%	39.0%	15.05%	19.82%	9.6%
Injections	13%	28.9%	7.54%	1.19%	1.98%	1.6%
NLEM	82%	60.9%	79.2%	52.86%	37.37%	95.6%

The number of legible prescriptions on our study were 68%. The number is higher when compared to similar studies Ahsan et al (25.3%), Saha et al (54.5) and Atal et

al (37%) Comparison of parameters such as duration of drug therapy, dosing schedule and complete diagnosis in the prescription are shown in Table 5.

Table 5: Comparison of other parameters

Parameter	Our findings	Atal Et al 2021 ¹⁰	Rai et al 2018 ¹²	Panayappan et al 2017 ¹³
Duration	54%	20.93%	64%	87%
Schedule	81%	11.63%	81.3%	85%
Diagnosis /history	54%	3.89%	56.6%	56%

Conclusion

For MBBS Second Professional Students, the exercise of Prescription Audit proved to be a useful teaching technique. Students were able to appreciate the importance of prescribing generic drugs and to keep themselves updated with the standard treatment guidelines and antibiotic policy. The study promoted embedding of WHO indicators and the concepts of rational prescribing as a practice among the undergraduates who aspire to become future treating physicians. The low scoring attributes such as duration of drug therapy, date of next visit and allergy status in prescriptions were identified and conveyed to the Drug and Therapeutics Committee for implementation and Improvement. We highly recommend conducting similar research to sensitize students towards rational prescribing and routine data sharing with management committee to improve the caliber of care given to patients.

References

1. Bawa S, Beg MA, Dwivedi S, Malhotra S, Singh A, Kumar H. Prescription monitoring as a teaching tool for Second Professional MBBS students in a Medical College at Dehradun. *Journal of Pharmaceutical Sciences and Research*. 2021 Jun 1;13(6):326-9.

2. Rishi RK, Sangeeta S, Surendra K, Tailang M. Prescription audit: experience in Garhwal (Uttaranchal), India. *Tropical doctor*. 2003 Apr;33(2):76-9.
3. National Medical Commission [Internet]. NMC. [cited 2022 May13]. Available from: [https:// www.nmc.org.in/information-desk/for-colleges/ug-curriculum/](https://www.nmc.org.in/information-desk/for-colleges/ug-curriculum/)
4. World Health Organization. How to investigate drug use in health facilities: selected drug use indicators. World Health Organization; 1993. Who.int. [cited 2022 Jun 20]. Available from: [https:// apps.who.int/iris/bitstream/handle/10665/60519/WHO_DAP_93.1.pdf](https://apps.who.int/iris/bitstream/handle/10665/60519/WHO_DAP_93.1.pdf)
5. Essential Drug List(11.2MB) [Internet]. Official Website of the Department of Medical Health and Family Welfare Government of Uttarakhand. 2013 [cited 20 June 2022]. Available from: [https:// health.uk.gov.in/upload/an-noun-cements/An-noun-cement-13.pdf](https://health.uk.gov.in/upload/an-noun-cements/An-noun-cement-13.pdf)
6. Atif M, Sarwar MR, Azeem M, Umer D, Rauf A, Rasool A, Ahsan M, Scahill S. Assessment of WHO/INRUD core drug use indicators in two tertiary care hospitals of Bahawalpur, Punjab, Pakistan. *Journal of pharmaceutical policy and practice*. 2016 Dec;9(1):1-8.
7. Bandyopadhyay D. A study of prescription auditing in a tertiary care teaching hospital of Eastern India. *Journal of Drug Delivery and Therapeutics*. 2014 Feb 2; 4 (1):140-9.
8. Ahsan M, Shai Fali I, Mallick AK, Singh HK, Verma S, Shekhar A. Prescription auditing based on World Health Organization (WHO) prescribing indicators in a teaching hospital in North India. *Int J Med Res Rev*. 2016;4(10):1847-52
9. Saha A, Bhatta charjya H, Sengupta B, Debbarma R. Prescription audit in outpatient department of a teaching hospital of North East India. *International Journal of Research in Medical Sciences*. 2018 Apr;6(4):1241-7.

10. Atal S, Jhaj R, Mathur A, Rai N, Misra S, Sadasivam B. Outpatient prescribing trends, rational use of medicine and impact of prescription audit with feedback at a tertiary care centre in India. *Int J Health Plan Mgmt.* 2021;1–16
11. Prasad PS, Rudra JT, Vasanthi P, Sushitha U, Sadiq MJ, Narayana G. Assessment of drug use pattern using World Health Organization core drug use indicators at Secondary Care Referral Hospital of South India. *CHRISMED Journal of Health and Research.* 2015 Jul 1;2(3):223.
12. Rai N, Jhaj R, Balakrishnan S. An audit of outpatient prescriptions and drug use pattern at a tertiary care centre of Central India. *Encounters.*;71(6.3):100.
13. Panayappan L, Jose JM, Joseph JG, Jayapal K, Saju S, Krishna Kumar K. Prescription audit and prescribing indicators: A review. *J Bio Innova.* 2017;6(4):542-7.