

## DRUG PRESCRIPTION PATTERN IN OUTPATIENT DEPARTMENTS OF TERTIARY CARE HOSPITAL, KANPUR

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### ABSTRACT

**Introduction:** Drug Prescription is an art of Medical Science that when correctly performed will deliver relief to patients with all his/her ailments. More than 50% of all medicines worldwide are prescribed, dispensed, and sold inappropriately and 50% of patients fail to take them correctly. Drug use prescribing indicators advocated by the World Health Organization (WHO) are important tools for assessing the degree of polypharmacy and use of generic medicines, and to evaluate if there is inappropriate use of antibiotics or parenteral medications. This study aimed to study the pattern of drug prescription at the medical outpatient department (OPD) of a tertiary care hospital, in Kanpur, India. **Materials & Methods:** This cross-sectional study was done among patients who attended consultations in OPDs of various departments. 110 patients drug prescriptions were randomly chosen and drug prescription pattern was analyzed by using WHO prescribing indicators. **Results:** A total of 110 prescriptions were analyzed and the average number of drugs per prescription was 3.88. Amongst the prescribing indicators, generic prescribing was low (31.6%). In contrast, antibiotic prescribing and prescription of injections was 63.6% and 10.9%, respectively. Furthermore, the prescription of the drugs enlisted in the essential drugs list was determined to be 91.1%. **Conclusion:** This study has delineated the requirements for pertinent changes in current prescribing trends in a tertiary care hospital. There is a need to increase generic prescribing and augment the adherence of prescriptions to the essential drugs.

**KEYWORDS:** Prescription pattern, Drug prescription, WHO prescribing indicators, Generic drugs.

### INTRODUCTION

Drug Prescription is an art of Medical Science that when correctly performed will deliver relief to patients with all his/her ailments. In addition, prescriptions have a significant value in terms of medico-legal aspects. For individual patients, the rational use of a drug implies prescribing a well-documented drug at an optimal dose, with the correct information, at an affordable price.<sup>[1]</sup> Inappropriate prescription of drugs is a potential hazard to the patient's health and a waste of resources. More than 50% of all medicines worldwide are prescribed, dispensed, and sold inappropriately and, 50% of patients fail to take them correctly. The World Health Organization (WHO) defines drug utilization research as "the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social, and economic consequences."<sup>[2]</sup>

The principal aims of drug prescription studies are to facilitate the rational use of drugs in patients, improve the measures the quality care and preventing unusual burden on the health care system. Conducting periodic

studies of the pattern of drug use in various hospital settings or patient populations is therefore essential to critically analyse the current hospital drug policies, and to make recommendations based on various guidelines, for improving the current drug usage pattern in the future, if needed. Though there have been various drug prescription studies conducted on specific populations and in varied settings in India.<sup>[3,5]</sup>

The indicators of prescription, measures the performances of health care provider in several key dimensions related to appropriate use of drug.<sup>[4]</sup> Therefore, the present study was undertaken to analyze the prescriptions of patients attending OPD of a tertiary care hospital, GSVM Kanpur, Uttar Pradesh.

### MATERIALS AND METHODS

#### Study Design

This observational cross-sectional study was conducted by the Department of Pharmacology GSVM Kanpur, Uttar Pradesh.

**Study Duration:** it is a short period of study conducted between 13 Feb 2023 to 25 Feb 2023. During elective posting of MBBS 3<sup>rd</sup> year students in the department of pharmacology.

#### Study population

This included 110 prescriptions who attended in outpatient department (OPD) for consultations selected randomly.

#### Inclusion criteria

- Prescription of Patients attending OPD from all departments
- Prescription of Patients of all age groups
- Prescription of Patients of either sex

#### Exclusion criteria

- Patients not sharing their prescriptions and not interested in participating in the study.
- unsigned prescriptions

#### METHODOLOGY

In this study, 110 prescriptions of patients were collected randomly from all OPDs. Prescriptions were scanned for the records and data was obtained from 110 patients' prescriptions. Basic demographic information in the form of age, and sex was recorded.

Data was analyzed as per WHO prescribing indicators which are as follows: WHO(2003),<sup>[2]</sup>

1. Average number of drugs per encounter was calculated, by dividing the total number of different drugs prescribed, by the number of encounters surveyed. It is not relevant whether the patient actually received the drugs.
2. Percentage of drugs prescribed by generic name was calculated by dividing the number of drugs.
3. Percentage of encounters with an antibiotic prescribed and Percentage of encounters with an injection prescribed were calculated.
4. Percentage of drugs prescribed from essential drugs list was calculated and by dividing the number of products prescribed which are listed on the essential drugs list by the total number of products prescribed, multiplied by 100.

#### RESULTS

##### Gender & Age distribution

In the prescriptions, ratio of the patient's male: female were found to be 1.2:1. Out of the 110 studied prescriptions, 60.9% (67) of prescriptions were male and 39.1% (43) of prescriptions were female. Test of proportion showed that the male prescriptions were slightly more than the female prescriptions. Most of the Prescriptions was of from age group 21-40 years (47.2%) followed by 41-60 years. (Table 1, Figure 1).

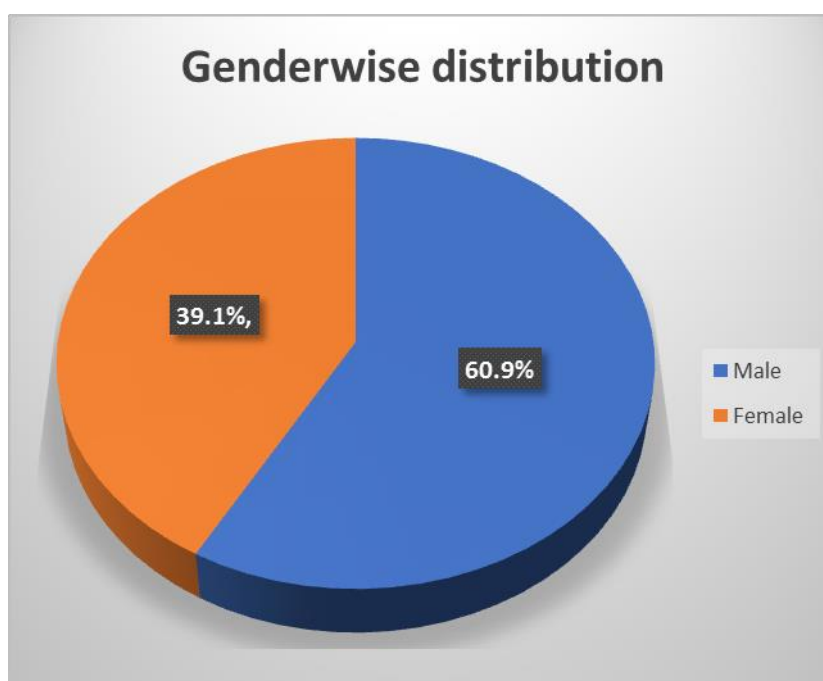


Figure 1: Gender wise distribution of study prescriptions.

Table 1: Sociodemographic Characteristics of Study Prescriptions.

Variables	Category	No. of prescriptions	Percent
Age	<18	18	16.4%
	18-40	52	47.2%
	41-60	36	36.0%
	61 and above	4	3.4%

Table 2: Department wise Sociodemographic Characteristics.

Department	Study Prescription	Age (in years)				Gender	
		18	18-40	40-60	60 above	M	F
Surgery	16	3	12	1	0	13	3
Medicine	37	3	16	17	1	22	15
Gynecology	7	0	1	4	2	0	7
Pediatrics	7	7	0	0	0	4	3
Orthopedics	12	2	6	4	0	6	6
ENT	10	0	3	6	1	7	3
Dermatology	19	3	12	4	0	15	4
Ophthalmology	2	0	2	0	0	0	2
<b>Total</b>	<b>110</b>	<b>18</b>	<b>52</b>	<b>36</b>	<b>4</b>	<b>67</b>	<b>43</b>

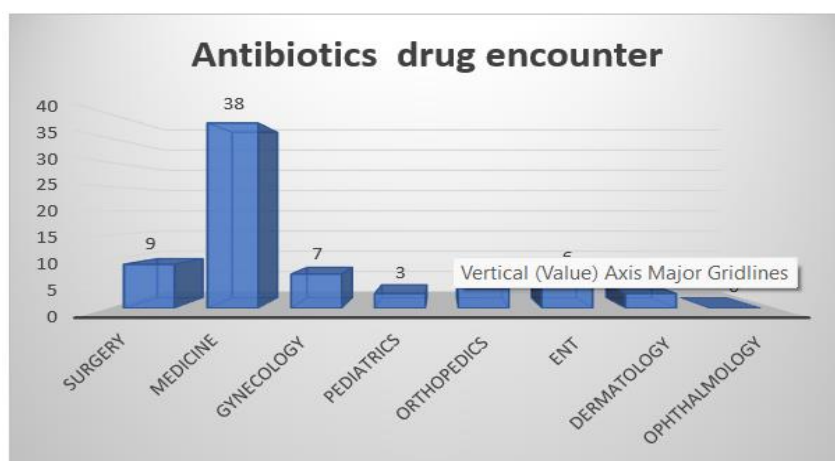


Figure 3. Distribution of Antibiotics encounters department wise

Table 3: Department-wise pattern of drug prescription.

Department	Study Prescription	Number of Oral drugs Prescribed	Number of Antibiotics drugs Prescribed	Number of Injectable drugs Prescribed	Number of Topical drugs Prescribed	Number of Generic Drugs Prescribed	Number of Essential Drugs Prescribed
Surgery	16	58	9	2	0	25	60
Medicine	37	154	38	3	0	73	157
Gynecology	7	22	7	2	0	11	24
Pediatrics	7	21	3	0	3	18	24
Orthopedics	12	76	4	2	7	34	85
ENT	10	40	6	3	6	1	48
Dermatology	19	72	3	0	38	2	74
Ophthalmology	2	2	0	0	2	0	4
<b>Total</b>	<b>110</b>	<b>445</b>	<b>70</b>	<b>12</b>	<b>56</b>	<b>164 (31.6%)</b>	<b>476 (91.9%)</b>

### WHO Prescribing Indicators

A total of 110 prescriptions were analyzed and the average number of drugs per prescription was 3.88. Total number of drugs prescribed in 110 prescriptions were 518.

1. Average number of drugs per encounter was 3.8% which is a reflection of Polypharmacy. This indicator shows that the degree of Poly pharmacy is low in our institute.

2. Average number of drugs prescribed by generic name was 31.6%. Out of 518 drugs, 164 drugs were prescribed

by generic name which is needed to be increased, for the affordability of patients of low socioeconomic status.

3. Only 12 prescriptions were found to have injections prescribed. The percentage of encounters with an injection prescribed was 10.9% which indicates the judicious use of injections.

4. 70 out of 110 prescriptions were found to have an antibiotic prescribed (63.6%).

5. Out of a total of 518 drugs, 476 drugs were found from the essential list of medicines i.e., 91.1% which increases the rationality of the prescription. In our

institute, a good number of practitioners are using drugs from an essential list of medicines.

**Table 4: Drug prescriptions pattern as per WHO Prescribing Indicators.**

INDICATORS	FREQUENCY (N)	INFERENCE (%)
Average number of drugs per encounter	518	3.88
Average number of oral drugs per encounter	445	3.81
Percentage of encounters with an antibiotic-prescribed	70	63.6%
Percentage of encounters with an injection prescribed	12	10.9%
Percentage of encounters with a topical prescribed	56	50.9%
Percentage of drugs prescribed by generic name	164	31.6%
Percentage of drugs prescribed from the essential drugs list	476	91.1%

Amongst the prescribing indicators, generic prescribing was low (31.6%). In contrast, antibiotic prescribing and prescription of injections was 63.6% and 10.9%, respectively. Furthermore, the prescription of the drugs enlisted in the essential drugs list was determined to be 91.1%. [Table 3]

## DISCUSSION

This cross-sectional study analyzed the drug prescription pattern of a total of 110 study prescriptions from OPDs of various departments of GSVM Kanpur. Out of the total 110 prescriptions, 60.9% (67) were male and 39.1% (43) showed female preponderance, which is similar to the study conducted by V. Kushwaha *et al.*<sup>[5]</sup>, Whereas, the maximum number of prescriptions was from the age group 21-40 years (47.2%) followed by 41-60 years.

This study showed the average number of drugs per encounter in the present study was found to be 3.88. Similar trends have been observed by Mittal *et al.*<sup>[6]</sup> Another study conducted by Geetha *et al.*<sup>[7]</sup> in a tertiary care hospital, in Chennai reported 4.38 which is higher than our observation. Slightly lower results were observed from a study conducted in a rural hospital in Jalna i.e 2.82.<sup>[4]</sup>

Polypharmacy has a number of drawbacks like high health care costs and poor patient compliance, higher incidence of adverse events, and drug-drug interactions. Hence, there is a continuous need to identify predictors of polypharmacy and bring amendments to prescribing practices.

In the present study amongst the prescribing indicators, generic prescribing was found low (31.6%). The results of several other studies are 11.19% and 14.52% respectively.<sup>[7,8]</sup> In spite of various benefits like low cost of drug therapy, increased patient adherence, and equivalent therapeutic benefits as brand name alternatives, generic prescribing is not a common practice in India. In a study conducted by Mittal *et al.*<sup>[6]</sup> more than 75% of prescriptions were by brand names. Encouraging prescriptions by generic names is always

recommended by various national and international bodies to promote the rational use of drugs.<sup>[9]</sup>

The result of the present study showed that the percentage of encounters with antibiotic prescribing and prescription of injections was 63.6% and 10.9%, respectively. In several other studies, it was seen that the percentage of encounters with antibiotics was 39% and 42.4%.<sup>[7,8]</sup> Avoidance of resistance and rationality can be improved by prescribing the least possible dose of antibiotics for the shortest possible duration with the lowest economic consideration. Over or under the prescription of antibiotics may result in either treatment failure or side effects.<sup>[9][10]</sup>

This study analyzed an average number of oral drugs per encounter 85.6% which is similar to Virendra K *et al.*<sup>[11]</sup> (85.5% and lower than Imran Khan *et al.*<sup>[4]</sup> In our study 10.9%, of encounters had an injection prescribed which is similar to Bhatnagar Tet *al.*<sup>[12]</sup> (10%) lower than Imran Khan *et al.*<sup>[4]</sup> (14%) and another study conducted by Manju Toppo<sup>[13]</sup> (14.10%).

Injectable drugs are associated with problems of administration and medication errors. Hence, the need to switch over to other routes of administration as soon as possible needs to be emphasized.

In the present study, results showed that the percentage of drugs prescribed from the essential drug list was the prescription of drugs in the essential drugs list was determined to be 91.1%, analysis was done with reference to Tripathi KD.<sup>[14]</sup> In another study conducted by B.K. Mohanty,<sup>[15]</sup> results were 57.70% which is lower than ours. Nazia. Y<sup>[16]</sup> reported that 77.61% of drugs were from the essential drug list which is higher than our results. WHO has defined "Essential medicines are those that satisfy the priority health care needs of the majority of the population. The understanding of the concept of essential medicines and their availability to different sections of society needs to be tested. A prescription from the Essential drug list gives maximum benefit from limited resources, promotes rational use of drugs, assists the development of standard use of standard treatment

protocol and rational prescribing policies, and also increases economic advantages like lowering the cost of therapy.

## CONCLUSION

This study was focused the requirements for necessary changes in current prescribing trends in a tertiary care hospital. There is a need to increase the generic medications in the prescription and to increase the adherence of prescriptions of the essential drugs. There is ample scope of improving the prescribing pattern by keeping the number of medicines per prescription as low as possible, prescribing medicines by generic names, and using medicines appropriately after selecting and consciously keeping the cost of therapy low. Medicines should be prescribed carefully and rationally. Health professionals have a responsibility to ensure that the right drug is prescribed, dispensed, and taken at the same time to treat patient with empathy.

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