



## Original Research Article

## DRUG PRESCRIPTION PATTERN OF OUTPATIENTS IN A TERTIARY CARE TEACHING HOSPITAL IN CENTRAL INDIA

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**Abstract:** A patient based prescription audit was done using cross sectional study design for a period of 3 months on various outpatient departments (OPDs) of Chirayu Medical College & Hospital, Bhopal, MP, India. Total seven hundred fourteen (714) prescriptions were randomly collected and recorded over a 'prescribing indicator form'. The data was analyzed using WHO 'prescribing indicators'. Average number of drugs per encounter was 2.35. Encounter with an antibiotic prescribed was 45.66%, with a FDC it was 62.46% and with an injection it was 14.57%. The most common group of drug prescribed was Vitamins and Minerals (31.13%), followed by Analgesics (20.67%), Antiulcer drugs (18.55%), and Antimicrobials (16.89%). Most common drug prescribed was Omeprazole (14.89%) followed by Vitamin B complex (13.54%) and Paracetamol (11.23%). The most common antibiotic prescribed was Ciprofloxacin (4.08%), followed by Amoxicillin (3.63%) and Metronidazole (2.95%). The prescribing practices in this study are not satisfactory, as suggested by polypharmacy and lack of awareness of essential drugs list. The study was undertaken to give feedback to the prescribers, so as to create awareness about the rational and cost effective use of drugs.

**Key Words:** Prescription pattern, Outpatients, Tertiary care teaching hospital.

### INTRODUCTION

A prescription order is a written instruction of doctors to pharmacist to supply drugs in particular form to a patient and the directions to the patients regarding the use of medicines. It is important therapeutic transaction between the clinician and the patient<sup>1</sup>. Medicines should be used only when essential but in practice, they are used too readily. Irrational prescription is a common occurrence throughout the world<sup>2</sup>, it is seen everywhere (in teaching and non-teaching institution) at all level (senior and juniors) in all categories (family physicians, specialists, and super specialist). WHO has defined "Rational use of drugs requires that patients receive medication appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community<sup>3</sup>."

Drug utilization studies seek to monitor, evaluate and suggest modifications in the prescribing practices with the aim of making the medical care rational and cost effective<sup>4</sup>. A study of prescription patterns is an important tool to determine rational drug therapy and maximize utilization of resources. To improve the overall drug use, especially in developing countries, international agencies like the World Health Organization (WHO) have applied themselves to evolve standard drug use indicators<sup>5</sup>. These indicators help us to improve our performance from time to time<sup>6</sup>. The present study was undertaken with an aim to develop baseline data on drug prescribing pattern and evaluate the rationality of the prevalent prescribing practices using WHO prescribing indicators<sup>7</sup> for adoption in drug utilization studies.

### MATERIALS AND METHODS

A patient based prescription audit was done using cross sectional study design for a period of 3 months (June 2014 to Aug 2014) on various outpatient departments (OPDs) of Chirayu Medical College & Hospital, Bhopal, MP, India. Patient consent was taken after explaining purpose of the study and their respective prescription was copied using digital camera, the data was collected on random basis to minimize bias. Total seven hundred fourteen (714) prescriptions were collected and then analyzed to find out the prescribing pattern in the hospital using the WHO prescribing indicators<sup>7</sup>.

#### WHO Prescribing Indicators<sup>7</sup>:

- I. Average number of drugs per encounter: Average, calculated by dividing the total number of different drug products prescribed, by the number of encounters surveyed. It is not relevant whether the patient actually received the drugs.
- II. Percentage of drugs prescribed by generic name: Percentage, calculated by dividing the number of drugs prescribed by generic name, by the total number of drugs prescribed, multiplied by 100.
- III. Percentage of encounters with an antibiotic prescribed: Percentage, calculated by dividing the number of patient encounters during which an antibiotic is prescribed, by the total number of encounters surveyed, multiplied by 100.
- IV. Percentage of encounters with an injection prescribed: Percentage, calculated by dividing the number of patient encounters during which an injection is prescribed, by the total number of encounters surveyed, multiplied by 100.

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- V. Percentage of drugs prescribed from essential drugs list or formulary: Percentage, calculated by dividing the number of products prescribed which are listed on the essential drugs list or local formulary (or which are equivalent to drugs on the list), by the total number of products prescribed, multiplied by 100.

## RESULTS

A total of 714 prescriptions were randomly collected and analyzed. A total of 1678 drugs were prescribed. Average number of drugs per encounter was 2.35. Drugs prescribed from essential drugs list (India) was 73.54%. Drugs prescribed from essential drugs list (WHO) was 57.63%. Total number of prescriptions with an antibiotic was 45.66%. Total number of prescriptions with an injection was 14.57%. Total number of prescriptions with a FDC was 62.46% [Table 1]. Total 61.22% prescriptions contained 4 or more drugs.

**Table 1:** Prescribing Patterns

Prescribing Indicators	Prescribing Indicators No. (%)
Total number of prescriptions analyzed	714
Total number of drugs prescribed	1678
Average number of drugs per encounter*	2.35
Drugs prescribed by generic name*	1189 (70.86)
Drugs prescribed from essential drugs list (India)*	1234 (73.54)
Drugs prescribed from essential drugs list (WHO)*	967 (57.63)
Total number of prescriptions with an antibiotic*	326 (45.66)
Total number of prescriptions with an injection*	104 (14.57)
Total number of prescriptions with a FDC	446 (62.46)

\*WHO Prescribing Indicators

The most common group of drug prescribed was Vitamins and Minerals (31.13%), followed by Analgesics (20.67%), Antiulcer drugs (18.55%) and Antimicrobials (16.79%) [Table 2]. The most common drug prescribed was Omeprazole (14.89%), followed by Vitamin B complex (13.54%) and Paracetamol (11.23%) [Table 3]. The most common antibiotic prescribed was Ciprofloxacin (4.08%), followed by Amoxicillin (3.63%) and Metronidazole (2.95%) [Table 3].

**Table 2:** Different categories of drugs prescribed

Categories Of Drugs	No. of Prescriptions
Vitamins / Minerals	222
NSAIDs	148
H <sub>2</sub> blockers/Antacids	132
Antimicrobials	120
CVS drugs/Antihypertensive	89
Antipsychotic drugs/ drugs for CNS disorder	78
Antihistaminic and drugs for cough preparation	76
Anti-diabetics	38
Steroids	35
Others	134

**Table 3:** Number of drugs prescribed.

Drugs	Number of drug
Omeprazole	250
Vitamin B complex	227
Paracetamol	188
Ciprofloxacin	68
Amoxicillin	61
Metronidazole	50

## DISCUSSION

The average number of drugs prescribed per encounter was 2.35. It was less than that reported in most of the studies in government setups across Indian cities, the closest being Allahabad<sup>3</sup>, Nagpur<sup>8</sup> and Delhi<sup>5</sup> (3.52, 3.40, 3.03 respectively). International studies report values ranging from 1.3 in Zimbabwe<sup>6</sup> to 4.51 in Pakistan<sup>9</sup>.

A staggering 52.75% of prescriptions had 4 or more drugs suggesting a trend of polypharmacy. This may be due to treatment based on symptoms rather than the diagnosis. Such irrational polypharmacy leads to reduction in quality of drug therapy, wastage of resources, emergence of resistance, increased cost of therapy and increased adverse reactions.

The most common drug prescribed was Omeprazole (14.89%), followed by Vitamin B complex (13.54%) and Paracetamol (11.23%). This shows that there is a tendency to prescribe the antiulcer, vitamins & analgesics commonly.

The percentage of prescriptions with antibiotics was 16.79%. According to WHO<sup>15</sup> 25% of prescriptions with antibiotics is expected in most of the developing countries where infectious diseases are more prevalent<sup>7</sup>.

The most common antibiotic prescribed was Ciprofloxacin (4.08%), followed by Amoxicillin (3.63%) and Metronidazole (2.95%). This may be due to over estimation of severity of illness, pressure due to demand of rapid symptomatic relief by patients, and tendency towards empirical therapy rather than personalized therapy.

The prescribers need to be extra cautious before prescribing any antibiotic to avoid unnecessary burden on patient and development of resistance. The percentage of drugs prescribed from the essential drugs list of India was 73.54%. Although good this was low as compared to that reported by Sutharson L *et al.*, where it was 94.48%<sup>10</sup>. Also the percentage of drugs prescribed from the essential drugs list of WHO was only 57.63%. This may be due to lack of awareness of Essential Drug List.

## CONCLUSION

Despite the limitations of the present study, which include the small number of prescriptions studied, and the lack of information on average consultation time, we conclude that drug prescription practices in hospitals should be improved. Implementing institutional guidelines for appropriate prescription writing, basing prescription on the list of essential drugs, and emphasizing the importance of these practices in medical college curriculum and continuing medical education programmes are necessary for more rational and safer drug prescribing and successful drug therapy.

The prescribing practices in this study are not satisfactory, as suggested by polypharmacy and lack of awareness of essential drugs list. The efforts of the prescriber can be successful and patient satisfaction can be achieved only if the patient receives rational treatment for his disease or illness. This study will act as a feedback to the prescribers, so as to create awareness about the rational use of drugs.

The scopes of improvement of prescribing behaviors widely exist for doctors. So, intervention is needed to improve prescribing patterns of doctors. Especial emphasis should be given to budding doctors to write rational and cost effective prescriptions in hospitals so that it becomes their habit when they come in community. Awareness programs and educational methods should be involved at grass root levels so that rational and cost effective treatments come into reality.

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