

# A Study of Drug Utilization Pattern (DUP), at Dental Outpatient Department of a Teaching Institution, in South Delhi, India

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## Research Article

Volume 3 Issue 3

**Received Date:** August 07, 2019

**Published Date:** August 26, 2019

**DOI:** 10.23880/ipcm-16000174

## Abstract

Rational prescribing aims at improving the clinical condition, thereby improving the quality of life at affordable cost to the patient. Therefore it is important to know the pattern of drug prescribing in a particular set up. The present study was conducted with an objective to evaluate drug utilization pattern (DUP), at dental outpatient department of a teaching Institution, in south Delhi, India. The study design was prospective and cross sectional. Data from 1000 eligible dental prescriptions during consecutive 4 months was taken from September 2015-january 2016, as per ethical norms. Data was presented as tables and graphs. The prescriptions were analyzed using WHO core indicators. Out of 1000 dental prescriptions, 783 were having prescribed systemic medications. The average number of drugs per prescription was 2.89 and only 0.55% drugs were prescribed by generic name. The number of drugs given by injectable route was only 3%. Total number of prescriptions having antimicrobials were prescribed were (56%). The drugs prescribed from National essential medicine list (NEML) were 80%. We can conclude that there is a need to establish Drug and Therapeutic committees at dental hospitals and to sensitize dental practitioners for rational prescribing at affordable cost to patient. Polypharmacy and indiscriminate use of antimicrobials need to be minimized to prevent drug resistance. Continuing Medical Education (CMEs) and workshops should be conducted from time to time to create awareness regarding the rational use of drugs and to inculcate ethical etiquettes, not to indulge in malpractice.

**Keywords:** Drug Utilization Studies; Prescribing Pattern; Rational Prescribing

## Introduction

As per World Health Organization (WHO) definition drug utilization may be defined as “the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social, and economic consequences” [1]. The prescribing trend in a practitioner is influenced by various strategies inculcated

by seniors as well as tactics used by marketing and sales medical representatives to promote their drug product. The same attitude or habit of prescribing is adopted by the junior practitioners. Lack of awareness about the rational prescribing leads to many health issues and adverse effects of drugs. Thus the quality of healthcare and safety is compromised leading to wastage of infrastructure and resources of government [2]. Polypharmacy is becoming

an increasing trend in india, which is a worrying fact leading to dangerous outcomes e.g. drug resistance, adverse drug effects due to drug interactions, increased cost of therapy and reduced quality of life. Prescribing should be focused on diagnosis rather than symptoms of patient [3,4].

Analysis of drug utilization studies (DUS) facilitates appropriate planning to manage the risks resulting from use of drug product in clinical practice. Thus we can get relevant information regarding various factors affecting use of drugs and prescribing patterns e.g. geographical and morphological characteristics of patients, the indication for which a particular drug product used, effect of polypharmacy, relation with already existing morbid conditions in user, potency and efficacy of dose regimen prescribed etc. The inferences drawn from DUS can be utilized for improving healthcare and promoting rational prescribing [5-7].

At present, due to scarcity of relevant studies pertaining to drug prescribing pattern in dentists, there is a need to conduct more studies so as to prospectively implement revised policies to improve healthcare systems.

### Aims and Objectives

The present study was conducted to evaluate the prescribing pattern in dentists whether conforming with WHO core indicators for prescribers and implications on social and economic factors.

### Material and Methods

The study design was prospective, cross sectional. A randomized data of 1000 eligible prescriptions during consecutive 4 months were considered from September 2015-january 2016. The designed study included a

### Observations and Results

S.no.	Parameters studied	% age (n) of total prescriptions (Total n=1000)
1.	Sex	Male
		Female
2.	Number of Complete prescriptions	36 (360)
3.	Number of biased prescriptions	15 (150)
4.	Oral Dose prescribed	91 (910)
5.	Local formulations (oral rinse, lotions, gels etc)	4.4 (44)
6.	Injectable prescribed	3 (30)
7.	Prescriptions showing drug hypersensitivity reactions	1.6 (16)

**Table 1:** Various parameters in prescriptions studied.

comprehensive review of patient's prescription and medication data for rational approach towards therapeutic decision making with an objective of positive outcome for patient. The study was conducted after approval from Institutional Ethics Committee (IEC) with clearance number 46/JMI/IEC/2015. Written and verbal consent was obtained from prescriber (dentist) and strict confidentiality was maintained for the personal data of patient as well as prescriber.

### Inclusion Criteria

1. Outdoor patients visiting Dental Department from September 2015 to January 2016, diagnosed with various painful and infective conditions of oral cavity e.g. tooth ache, carries tooth, acute necrotizing ulcerative gingivitis (ANUG), acute and chronic periodontitis, stomatitis, periodontal abscess, chronic gingivitis, traumatic condition of oral cavity, oral candidiasis.
2. Patients of either sex with age 10 years and above.
3. Patients with or without concomitant medical conditions like hypertension, diabetes mellitus, compromised hepatic and renal functions.
4. Patients taking concomitant medications like anti-hypertensive drugs, anti-diabetic drugs etc.

### Exclusion Criteria

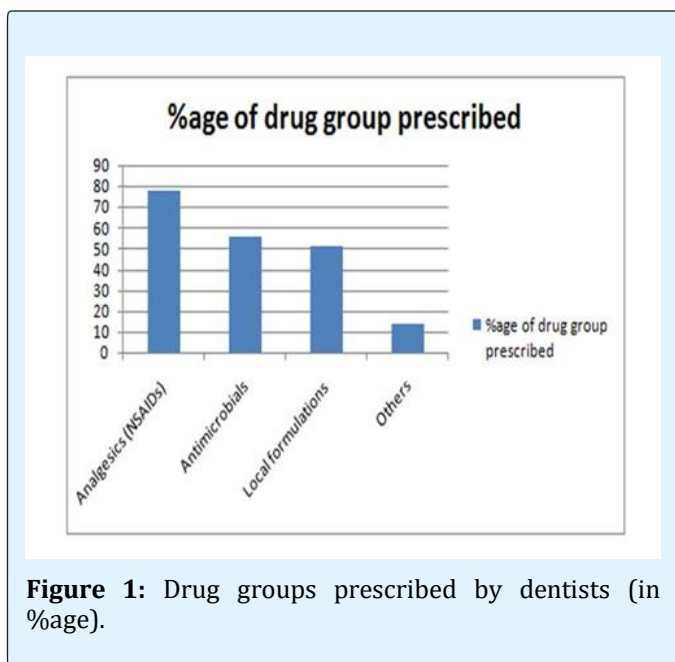
- 1) Pregnant females.
- 2) Patients of either sex with age less than 10 years.
- 3) Immuno-compromised patients e.g. AIDS, transplant recipients and those on cancer chemotherapy.

### Statistical Analysis

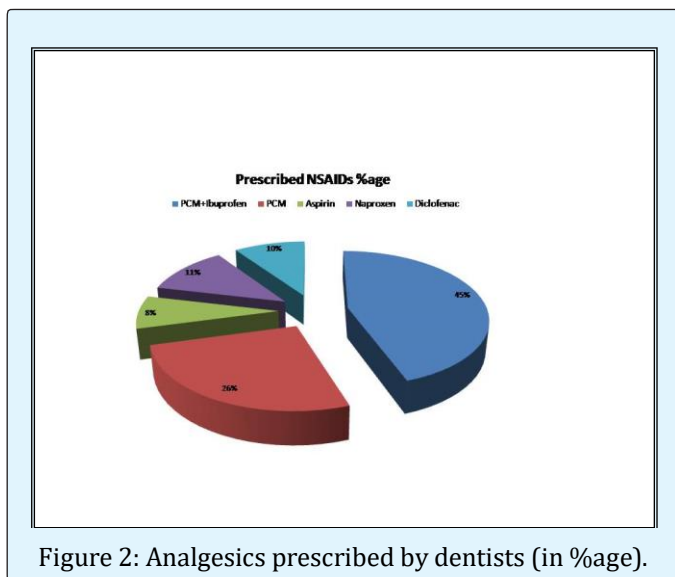
Nominal data were expressed and compared as percentages. The data was analyzed using SPSS (version 16).

S.no.	WHO Core Prescribing Indicators	Analysis Results (n=783)
1.	Average no. of drugs per encounter	2.89
2.	Percentage of drugs prescribed by generic name	0.55 %
3.	Percentage of encounters with an antibiotic prescribed	56 %
4.	Percentage of encounters with an injection prescribed	0.31 %
5.	Percentage of drugs prescribed from National essential medicines list or formulary	80 %

**Table 2:** Analysis of dental prescriptions, using WHO Core Prescribing Indicators.



**Figure 1:** Drug groups prescribed by dentists (in %age).



**Figure 2:** Analgesics prescribed by dentists (in %age).

## Discussion

Out of 1000 prescriptions, 68.5% were male and 31.5% were female. Majority of patients were from age group of 30 – 60 years. Surprisingly 64% prescriptions were found incomplete without mention of patient's diagnosis. Only 36% of prescriptions were complete with respect to mentioned diagnosis, dose, duration and frequency and follow up instruction. About 15% of dentists admitted that they had availed favors directly or indirectly from pharmaceutical manufacturing company to promote their drug product, thus generating biased prescription. Most commonly prescribed being oral formulations of drugs (91%) followed by local formulations (4.4%). Injectable were prescribed to the extent of 3% only, that mainly for local anesthesia before tooth extraction or minor surgeries. 1.6% patients returned with hypersensitivity rashes after prescription medication (Table 1).

There is a need to sensitize dental practitioners regarding the risks associated with the irrational and incomplete prescribing patterns which may pose risk to the safety of visiting patient. Effort must be made to encourage writing complete prescription with diagnosis in legible handwriting. Prescribers must be unbiased while prescribing without compromising on the safety aspect of patient [8].

In the present study, Analgesics (NSAIDs) have emerged as most prescribed group of drugs (78%) followed by anti-microbial drugs (56%) (Figure 1).

Among NSAIDs, the most commonly prescribed analgesic-antiinflammatory was combination of Paracetamol and ibuprofen (45%), followed by only paracetamol (26%) (Figure 2).

Drug history should be taken to avoid drug interactions and resulting ADRs [9].

The analysis of drug utilization pattern was done using WHO core prescribing indicators. On an average 2.89 i.e. approximately 3 drugs were prescribed per encounter/consultation i.e., a trend towards polypharmacy was observed. Polypharmacy need to curb so as to avoid adverse drug interactions [9-11]. Generic names were prescribed to the extent of only 0.55%, which is very low. Generic drugs need to be promoted to reduce cost of therapy. About 56% of the prescriptions had antimicrobial as main drug. Un-necessary/indiscriminate use of antimicrobial should be curbed and if required, prescriber must restrict to narrow spectrum antimicrobial first. This would prevent development of anti-microbial drug resistance [12,13]. Most prescriptions (80%) had drugs from National essential medicines list, which is a good practice (Table 2).

It is essential to conduct periodic Drug utilization studies (DUS) and to critically analyze the prevailing trend of prescribing in a hospital [14].

### Conclusion

It can be hypothesized that there is lack of logical reasoning, and awareness regarding rational prescribing in dentists, not conforming to WHO core indicators. Therefore, Continuing Medical Education (CMEs) and workshops and training classes are recommended from time to time to update the subject in dentists. There is need of Drugs & Therapeutics committee in every dental hospital so as to benefit patients by enhancing therapeutic outcome and reducing cost of therapy as well as adverse effects of drugs. Analysis of DUS reports in a dental set up would help in framing drug policies and standard guidelines, to improve prescribing pattern for the dentists.

### Limitation of Study

Since the study sample is small and study has been conducted in one tertiary care dental teaching institution, the results cannot be generalized. Metacentric studies on larger sample size are suggested to carry further research to know the drug prescribing pattern prevailing in country among dentists.

**Conflict of Interest:** None

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