

**An audit on the prescriptions issued by various facilities in a tertiary care dental hospital**

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**Citation of this Article:** Dr. S. Prathiba, Dr. R. Jayasree, Dr. P. Mahesh Kumar, Dr. K. Saraswathi Gopal, “An audit on the prescriptions issued by various facilities in a tertiary care dental hospital”, IJDSIR- August - 2022, Vol. – 5, Issue - 4, P. No. 228 – 232.

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**Type of Publication:** Original Research Article

**Conflicts of Interest:** Nil

**Abstract**

Auditing of the prescriptions was carried on to assess the standards of prescription writing. 602 medical and 333 dental prescriptions were scrutinized for prescribed standards. The encounters were audited for legibility, mentioning of age and sex, average number of drugs per prescription, generic drugs, dosage forms, completeness of the prescription, mentioning of directions, mentioning of review, possibility of drug interactions, and writing of doctor's signature. 82% of medical and 92% of the dental prescriptions had grade I legibility, age and sex were mentioned in 20% of the medical encounters whereas it was not mentioned in 9.3% of the dental encounters. The average number of drugs per encounter was 2.73 for medical and 2.43 for dental. 2.4% of the drugs prescribed in medical prescriptions were generic and 3.3% of the drugs prescribed in dental prescriptions

were generic indicating very low utility of generic drugs in the encounters. Majority of the drugs were prescribed by oral route except for some typical conditions. 81.4% of the medical and 84.38% of the dental encounters were complete and directions were mentioned in 22.6 % of medical and 40% of the dental prescriptions. Review was mentioned in 2.2% of medical encounters and only 3 dental encounters contained review. Almost 80% of the medical and 60% of the dental encounters had no drug interactions. The most common interaction that was interpreted in dental was across NSAIDs and proton pump inhibitors or H2 blockers administered concomitantly. Doctor's signature was not mentioned only in 3.6% of the medical encounters and 5.7% of the dental encounters. This assessment helped in understanding the lacunae in prescription practices and it will be an indicator for ideal prescription writing among

dentists and physicians so that patients will acquire the maximum benefits.

**Keywords:** Generic drugs, Completeness of prescription, Drug interactions

### **Introduction**

Prescription is defined as a health care program implemented by a physician or other qualified health care practitioner in the form of instructions that govern the plan of care for an individual patient. The prescription is a health care provider's written authorization for a patient to purchase a prescription drug from a pharmacist. Audit in healthcare is a process used by health professionals to assess, evaluate and improve care of patients in a systematic way. Audit evaluates current practice against a defined standard. Prescription Audit is done to ensure safety of patients by causing reduction in medication errors and also reduce the frequency of unwanted drug interactions. This will help the patients in acquiring optimum benefits from their medication. Rational use of medicine is defined as "Patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community" (WHO, 1985). Auditing of prescriptions helps to analyze whether there is adherence to rational drug use. Irrational prescribing practices lead to impairment of quality care and health to the patients. Prescription audit will also open up new guidelines for practice in medicine.

Audit was first used by Florence Nightingale in 1854 to prevent post-surgical mortality. Prescription audit is part of the holistic clinical audit which was defined in a paper Principles for Best Practice in Clinical Audit as "a quality improvement process that seeks to improve patient care and outcomes through systematic review of

care against explicit criteria and the implementation of change".

### **Methodology**

Study design: Prospective cross-sectional study to audit the prescriptions

Study site: Pharmacy counters of Meenakshi Ammal Dental College and Hospital

Duration of study: 3 months – October 2019 to December 2019

### **Method**

The investigator obtained permission from the Principal and HODs of concerned department of the institution to conduct the study. Waiver for the study was obtained from the institutional review board as human participants were not involved.

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The investigator was in the dispensing pharmacy from 9 A.M to 11A.M during which there was peak flow of patients. There was not any interaction with the patients or the attendee. A photograph of the prescription was taken to record the details. The patient's identifier, prescriber and name of the departments were kept confidential. There was not any delay for the patient in procuring the medicines. The following information was noted.

#### 1. Legibility of hand written prescriptions

Legibility was graded on a subjective scale by the investigator. Prescriptions were graded as [2]: Grade 1 (legible with ease) Grade 2 (legible with difficulty) Grade 3 (illegible).

#### 2. Age and gender of the patient

#### 3. Number of drugs in a prescription

#### 4. Drugs written by generic name

#### 5. Dosage form

#### 6. Completeness of Prescription

Dose, Dosage form, Route of administration, Frequency of drug intake, and Duration of treatment

7. Directions for drug intake- when and how to take
8. Instructions regarding review
9. Possibility of drug interactions
10. Signature of the Prescriber

### Results

The data collected was analyzed statistically.

Total no. of prescriptions: 935 (Medical – 602, Dental – 333)

#### Medical Prescription Audit

1. Legibility: Grade 1 – 494 prescriptions, 82 %  
Grade 2 – 108 prescriptions, 18 %
2. Age: Mentioned in 122 prescriptions, 20 %
3. Sex: Mentioned in 122 prescriptions, 20 %
4. Total No. of drugs – 1644 with an average of 2.73 drugs per prescription  
No. of prescriptions with single drug – 116, 19.3 %  
Maximum drugs prescribed in an encounter – 9 contained in single prescription  
No. of prescription with 8 drugs – 2  
No. of prescription with 7 drugs – 7  
No. of prescription with 2 drugs – 163, 27 %
5. No. of generic drugs – 40, 2.4% of the drugs
6. Dosage Form – Prescriptions with drugs prescribed by oral route only – 346, 57.5%  
Prescription with drugs prescribed by topical route only – 30, 5%  
Prescriptions with drugs prescribed as injection only – 58, 9.6%  
Prescriptions containing injection with other routes – 30, 5%  
Prescriptions containing drugs prescribed by oral and topical routes – 109, 18%  
Prescriptions that contain drugs prescribed by inhalational route – 15, 2.5 %

Prescriptions that contain drugs prescribed by rectal route – 9, 1.5%

7. Completeness of prescription – 490 prescriptions were complete, 81.4%  
112 prescriptions were incomplete, 18.6%
8. Directions – Mentioned in 136 prescriptions, 22.6%
9. Review – Mentioned in 13 prescriptions, 2.2 %
10. Drug Interactions – 478 prescriptions didn't have drug interactions, 79.4%  
124 prescriptions seemed to have drug interactions, 20%
11. Signature – 22 prescriptions didn't contain signature, 3.6%

#### Dental Prescription Audit

1. Legibility – Grade 1 – 305 prescriptions, 92 %  
Grade 2 – 28 prescriptions, 8%
2. Age – Not mentioned in 31 prescriptions, 9.3 %
3. Gender – Not mentioned in 28 prescriptions, 8.4 %
4. Total no. of drugs – 809 with an average of 2.43 drugs per prescription  
Minimum no. of drugs prescribed – 1 – 72 prescriptions, 21.6%  
Maximum no. of drugs prescribed – 6 – 2 prescriptions  
Prescription with 5 drugs – 4
5. Dosage Form –  
Prescription with drugs prescribed by oral route only – 285, 85.6%  
Prescription with drugs prescribed by topical route only – 24, 4%  
Prescription with drugs prescribed by oral and topical route – 20, 3.3%  
Prescription with drugs prescribed as injection – 2  
Prescription with drugs prescribed intra-lesion ally – 1  
Prescription with drugs prescribed by oral & as injection – 1
6. Total no. of generic drugs – 27, 3.3% of the drugs

7. Completeness of prescriptions – 281 prescriptions were complete, 84.38%

52 prescriptions were incomplete, 15.61 %

8. Directions- Mentioned in 134 prescriptions, 40%

9. Review – Mentioned in 3 prescriptions

10. Interactions – 203 prescriptions had no drug interactions, 61 %

130 prescriptions (39%) had drug interactions among which 22 had Ranitidine prescribed along with NSAIDs and 2 had Omeprazole prescribed along with NSAIDs and in the remaining Pantoprazole was prescribed with NSAIDs.

11. Signature – 19 prescriptions didn't have signatures, 5.7%

### Discussion

Legibility is a desirable asset in prescription writing. A good legible handwriting leads to better understanding of the drugs prescribed thus acting as a check for misinterpretation. In our study handwritten text is clearly legible in 82 % and 18% falls under grade – 2 categories for medical encounters whereas in dental category only 8% falls under grade -2 the remaining were awarded Grade -1 legibility. In another study conducted in Uttar Pradesh legibility was 88.61 % whereas in another study conducted at Tamil Nadu the legibility was poor <sup>[2],[3]</sup>. Thus, variations are observed with respect to legibility concerned and more significance can be lead to improvement in legibility grades.

Mentioning of age and gender was seen only in 20% of the medical prescriptions and regarding dental prescriptions age was not mentioned in 9.3% and gender was not mentioned in 8.4% of the prescriptions. In another study conducted elsewhere the data procurement with respect to age and gender was complete <sup>[4]</sup>. The practice of specifying age and gender details of the patient has to be implemented among the budding

physicians and dentists so that it may be useful in differentiating the identity of the patients.

The average no. of drugs was 2.73 per prescription for medical category and it was 2.43 for dental. The maximum number of drugs prescribed was 9 found in a single prescription for medical and 6 drugs was the maximum number prescribed in dental found in 2 prescriptions. Prescriptions with single drug was 19.3 % in medical and 21.6% in dental. In most of the auditing studies conducted so far in India the average number of drugs per encounter is more than the WHO ideal score of less than 2 reflecting the trend of overprescribing and polypharmacy practiced throughout India. This kind of practice has to be limited for better health of the society at large.

Regarding the dosage forms in which the drugs were prescribed oral route is the most convenient and preferred route except for some typical conditions where other routes may be preferred. 57.5% of the drugs were prescribed by oral route in medical encounters and 85.7% in dental encounters. The other routes were topical, inhalational, rectal, parenteral injections and so on. In other studies conducted so far it was found that oral is the preferred choice except for emergencies <sup>[2]</sup>.

Drugs prescribed by generic name were few and its value has to be increased in the near future. Wide variations were seen with respect to the pattern of prescribing by generic names in other studies. Generic prescribing helps in increasing the homogeneity of the prescriptions and has economic advantage for the patients.

With regard to completeness of the prescriptions, 81 % of the medical prescriptions and 84.38 % of the dental prescriptions were complete in terms of dose, dosage form and frequency of drug administration. In another study to audit the prescriptions at Uttar Pradesh the

completeness of the prescription was 76.8% [2]. The higher values for completeness indicate the transparency of the prescriptions with lack of chaos and increased clarity. Higher indices of completeness are an indication of higher standards of prescription writing and providing better health services to people.

Directions were mentioned in 22.6 % of medical and 40 % of dental prescriptions. Efforts have to be taken to improve the habit of prescribing with appropriate directions so that maximum benefit can be obtained by the patients.

Review was mentioned only in very few encounters.

Drug interactions were observed in 124 medical encounters and in 130 dental encounters. In dental encounters the interaction was mostly due to concomitant administration of NSAIDs and proton pump inhibitors. The increase in pH by proton pump inhibitor may interfere with the absorption of acidic drugs NSAIDs.

Doctor's signature was not seen in 22 medical prescriptions and 19 dental prescriptions. Thus indicating that majority of prescriptions had signatures which have to be applauded in this study.

Thus in this study certain parameters are satisfactory whereas others have to be improved to the desired levels. Implementation of regulations to correct the deficiencies may help in reaching the highest standards.

### **Conclusion**

Auditing of the prescriptions helps us to understand the lacuna in prescription practices so that they could be rectified and guidelines may be implemented to reach the desired standard in prescription writing.

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