

## **DRUG UTILIZATION PATTERN IN OUTDOOR PATIENTS OF OPHTHALMOLOGY DEPARTMENT AT A TERTIARY CARE HOSPITAL IN SOUTHERN RAJASTHAN**

**VIKRAM SINGH\*, MEENA ATRAY, ASHISH KUMAR MEHANT, DEVANG PANCHOLI**

Department of Pharmacology, R. N. T. Medical College Udaipur, Rajasthan, India

\*Corresponding author: Vikram Singh; \*Email: [drvikramrathore1625@gmail.com](mailto:drvikramrathore1625@gmail.com)

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### **ABSTRACT**

**Objective:** This study aimed to analyse the drug utilization pattern among outdoor patients in the Ophthalmology department at a tertiary care hospital in southern Rajasthan, with a focus on demographics, diagnosis, drug classes, and routes of administration.

**Methods:** An observational study was conducted at Maharana Bhopal Hospital, Udaipur, over 12 mo from July 2024 to June 2025. Prescriptions from 386 patients aged 18 to 60 y were reviewed, recording drug name, dosage form, frequency, route, and duration. Data was analysed using WHO core prescribing indicators.

**Results:** A total of 783 drugs were prescribed in 386 prescriptions, with an average of 2.02 drugs per prescription. The mean age of participant was 41.1 y, with males (53.6%) slightly outnumbering females. The most common diagnoses were allergy, cataract, and dry eye. Ocular lubricants (91.7%) and antimicrobials (57.5%) were the most frequently prescribed drug classes. Eye drops were the predominant dosage form (99.2%). The ophthalmic route was overwhelmingly preferred, supporting localized therapy in ocular conditions.

**Conclusion:** Prescribing patterns were largely rational, with a focus on matching drug selection to specific diagnoses and prioritizing topical therapy. Continued audit and prescriber sensitization are recommended to ensure optimal drug utilization and improve patient outcomes in ophthalmic practice.

**Keywords:** Drug utilization, Ophthalmology, Outdoor, Dry eye, Eye lubricant

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### **INTRODUCTION**

World Health Organization (WHO) defines Drug Utilization as marketing, distribution, prescription and use of drugs in society, with special emphasis on the resulting medical, social, and economic consequences [1]. Study of drug utilization trends are powerful, exploratory tools to ascertain role of drugs in medical practice. Such studies lay emphasis on the various determinants encompassing the prescribing, dispensing, administering, and related events, including medical as well as nonmedical aspects of drug utilization, its varied effects, and consequences on drug use, beneficial or adverse [2, 3].

It involves the concept of appropriateness which must be assessed relative to treatment, concomitant diseases that might contraindicate or interfere with chosen therapy) and other drug usage (interactions) [4]. Lot of differences are observed in drug utilization among different countries and cities and even among different health institutions within a country and sometimes within the same institute at different point of time probably because of new updates, additions, deletions in treatment pattern and trends over a period of time [5].

Organizing regular studies on patterns of drug utilization in various hospital settings or patient populations is important and essential for critically analyzing current hospital drug policies and for recommending guidelines to improve future drug-use practices. It is of utmost importance in a developing and resource poor country like India. This will ensure optimum and appropriate utilization of the available scarce resources [6]. Recently in the discipline of ophthalmology, there have been many drug developments and introduction of new ocular therapeutic agents. The topical use of drugs like steroids, drugs for glaucoma, in eye is most of the time associated with systemic side effects due to systemic absorption from the nasolacrimal drugs. On the other hand, so many adverse drug reactions of systemic drugs appear in eye. It is imperative to

evaluate and monitor the drug utilization patterns from time to time, to enable suitable modifications in prescribing patterns to increase the therapeutic benefit and decrease the adverse effects to optimize the medical services for the patients. There are limited study has been done to analyze drug utilization in ophthalmology outdoor department, therefore this study has been planned to evaluate drug utilization pattern in outdoor patients of ophthalmology department

### **MATERIALS AND METHODS**

This observational study was conducted in ophthalmology outdoor department of a tertiary care teaching hospital in southern Rajasthan. The study was conducted over 12 mo from July 2024 to June 2025 after approval of the institutional ethics committee.

#### **Inclusion criteria**

All patients (both male and female) of age between 18 to 60 y who were presented to Outdoor of Ophthalmology department

#### **Exclusion criteria**

Patient not willing to consent.

The same patient attending for follow up

Prescriptions of 386 patients were analysed, fulfilling inclusion and exclusion criteria. The details of prescribed drugs were noted, including its dosage form, route of administration, frequency of administration, and duration of therapy. The recorded data was then analysed using Microsoft Excel software.

### **RESULTS**

The mean age of the study participants was 41.1 y, male were 53.6% (207) and females were 46.4% (179).

Table 1: Diagnosis

S. No.	Diagnosis	No. of Prescription
1	Dry eye	41(10.6%)
2	Cataract	46(11.9%)
3	Glaucoma	14(3.6%)
4	Viral illness	7(1.8%)
5	Foreign body	35(9.1%)
6	Refractive error	14(3.6%)
7	Pterygium	20(5.2%)
8	Infection	18(4.7%)
9	Allergy	79(20.5%)
10	Corneal ulcer	4(1%)
11	Stye	5(1.3%)
12	Conjunctivitis	15(3.9%)
13	Trauma	18(4.7%)
14	Blurred vision	17(4.4%)
15	Redness of eye	22(5.7%)
16	Inflammation	16(4.1%)
17	Other	15(3.9%)

Patients suffering from various ocular disorders attended the OPD during the study period. The most common disorders diagnosed were allergy (20.5% 79/346) followed by cataract, dry eye, foreign body in eye, pterygium (table 1)

Table 2: Prescribed drugs

S. No.	Drug	No of prescription
1	carboxymethylcellulose	349(90.4%)
2	olopatadine	90(23.3%)
3	dorzolamide	4(1%)
4	Timolol	2(0.5%)
5	Tobramycin+fluorometholone	43(11.1%)
6	analgesic	36(9.3%)
7	Brinzolamide+timolol	14(3.6%)
8	Gentamycin+prednisolone	4(1%)
9	moxifloxacin	124(32.1%)
10	brimonidine	1(0.3%)
11	Tobramycin+dexamethasone	21(5.4%)
12	moxifloxacin+dexamethasone	35(9.1%)
13	ciprofloxacin	10(2.6%)
14	Other	50(12.9%)

Among the prescribed drugs, maximum prescribed drug was ocular lubricants (91.7%) followed by antimicrobials (57.5%), steroids (25.1%) anti-histamines (23.3%) (table 2).

Table 3: Route of drugs

S. No.	Route	No of prescription
1	ophthalmic	383(99.2%)
2	Oral	24(6.2%)
3	Topical	11(2.8%)
4	injectable	2(0.5%)

Nonsteroidal anti-inflammatory drugs (NSAIDs), vitamins, steroid, and anti-glaucoma drugs were minimally prescribed. During the study period, most commonly prescribed dosage forms was eye drops (99.2) followed by tablet, ointment and capsule forms (table 3).

## DISCUSSION

Rational drug use is critical for optimizing patient outcomes and improving public health in ocular pharmacotherapy.

In our study, Ocular lubricants were the most frequently prescribed category (91.9%), indicating a growing recognition of dry eye disease and the importance of ocular surface stabilization. The high proportion of lubricant use observed in this study parallels that reported by Sengupta *et al.* [8]. Who found lubricant prescriptions in 84% of encounters. This trend reflects a rational, symptom-oriented therapeutic approach in both primary dry eye and secondary conditions such as postoperative ocular irritation.

Antibiotics were prescribed in 59% of cases, primarily for bacterial conjunctivitis, blepharitis, and prophylaxis following cataract surgery. A comparable frequency was reported by Patel *et al.* [7]. Who

documented antibiotic use in 61% of ophthalmic prescriptions. The prominent use of topical antibiotics underscores their role in preventing secondary infections; however, rational prescribing and antibiotic stewardship remain crucial to prevent resistance and unnecessary prophylactic use, as emphasized by WHO guidelines [10].

Topical corticosteroids (25.6%) and antihistaminic agents (23.2%) were the next most commonly prescribed groups, largely for allergic and inflammatory eye diseases. Kumar *et al.* [9] observed similar utilization patterns, reporting corticosteroid use in 28% and antihistamine use in 21% of prescriptions. The frequent concurrent use of these classes suggests that clinicians appropriately tailor therapy based on symptom severity. Nevertheless, prolonged or unsupervised corticosteroid use can lead to complications such as elevated intraocular pressure or cataract formation, warranting cautious prescribing and patient monitoring.

Analgesics (8.9%) were used for ocular pain associated with inflammation or trauma, while beta-adrenergic blockers (15; 4%) and carbonic anhydrase inhibitors (10; 2.7%) were employed selectively in glaucoma management. The low frequency of antiviral (0.8%) prescriptions reflects their disease-specific indications and the relatively lower burden of such cases in outpatient practice.

Our study recorded 383 (99.2%) prescriptions for ophthalmic route drugs, comparable to earlier tertiary-care studies. These studies also documented predominant topical therapy and minimal systemic drug use. Such findings reinforce the importance of matching drug selection to diagnosis, with mostly rational prescribing noted by the lower encounters of fixed-dose combinations and systemic analgesics. Study also reveals similar or slightly lower average numbers of drugs per prescription in comparison to other studies [11] which is also a desirable indicator of rational prescribing since it minimizes polypharmacy risks, adverse drug reactions, and overall treatment costs.

All the drugs were prescribed from the essential drug list and prescribed by generic names. All the drugs were prescribed from essential drug list and the drugs were supplied free of cost to the patients were some encouraging points of the study. The data was collected for single time and follow-up visits were not evaluated and prescription trends over time or treatment modifications based on clinical response and adverse effects could not be assessed. The study was also limited to a single tertiary care centre, and the findings may not be generalizable to private or community ophthalmic practices. Future studies incorporating long-term follow-up, patient adherence, pharmacovigilance data, and therapeutic outcomes would provide a more comprehensive understanding of drug utilization and rational prescribing in ophthalmology.

#### CONCLUSION

This study demonstrates largely rational drug prescribing practices in the ophthalmology outpatient department of a tertiary care hospital in southern Rajasthan. Ocular lubricants and antimicrobials were the most frequently prescribed drug classes, reflecting the predominant burden of dry eye, allergic, and infectious ocular conditions. The overwhelming preference for topical therapy and the low average number of drugs per prescription indicate appropriate, diagnosis-oriented prescribing with minimal polypharmacy. Prescribing by generic name and exclusive use of Essential Drug List medicines further support rational drug use. Periodic prescription audits and continued prescriber sensitization are recommended to sustain optimal ophthalmic pharmacotherapy.

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Nil

#### AUTHORS CONTRIBUTIONS

All authors have contributed equally

#### CONFLICT OF INTERESTS

Declared none

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