Original Research

A CASE STUDY ON NATIONAL LIST OF ESSENTIAL MEDICINES (NLEM) IN OUT PATIENTS PRESCRIPTION: A HOSPITAL BASED STUDY

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ABSTRACT

Background: Availability of modern medicine increased in India. At the same time misuse of drugs is significantly increased worldwide which leads to resistance and increase the prevalence of ADR. To restrict the misuse of drugs India made National List of Essential Medicines (NLEM).

Materials and Methods: The present study conducted in department of Pharmacology, Dhanalakshmi Srinivasan Medical College and Hospital, Siruvachur, Tamil Nadu. This study collected list of drugs from prescription in out patients. Data related name of the drug, dose, frequency, formulation, how many drugs prescribed per prescription and number of drugs per prescription was recorded and analysed. Statistical Package for Social Sciences (SPSS 20.0) version used for analysis.

Results: A total of 682 drugs were prescribed last 6 months for outpatients. Maximum number of drugs prescribed in the month of April and least in March. 5 is the average of number of drugs per patient. 53% of drugs prescribed in generic name. Antibiotic use is high in the month of December least in the month of January. In December 61% patients received medication in the form of injection. December, February and April 60% drugs were prescribed form essential drug list.

Conclusion: The study indicates the need to improve rational drug prescribing, increase generic prescribing practices, and enhance adherence to essential medicine guidelines in outpatient departments.

KEYWORDS: Drugs, NLM, Essential Medicine, WHO, Out Patients, Prescription.

INTRODUCTION

Essential medicines are drugs that fulfil the priority healthcare needs of the majority of the population. These medicines should be available at all times in adequate quantity, proper dosage form, assured quality, and at an affordable cost.[1] The World Health Organization (WHO) introduced the Essential Medicines Concept in 1977 as a part of primary healthcare services.

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In India, the National List of Essential Medicines (NLEM) was developed to promote rational use of medicines, improve accessibility, and reduce healthcare costs.[2,3] The NLEM acts as a guideline for healthcare professionals in selecting safe, effective, and economical medicines for patient care. However, irrational prescribing practices such as polypharmacy, excessive use of antibiotics and injections, prescribing by brand names, and inappropriate use of fixed-dose combinations are still commonly observed, especially in outpatient departments. These practices may lead to adverse drug reactions, antimicrobial resistance, increased treatment cost, and poor patient compliance.[4-6] Therefore, regular prescription audits are important to evaluate prescribing patterns and ensure adherence to WHO prescribing indicators and NLEM guidelines. Recent updates on NLEM are the latest revision of the National List of Essential Medicines (NLEM 2022) was released by the

Government of India to improve access to safe and affordable medicines.[7] Several medicines were added and removed based on current disease patterns, efficacy, safety, and cost-effectiveness. Key highlights of NLEM 2022 are addition of newer essential medicines for cancer, diabetes, cardiovascular diseases, and infections, inclusion of important drugs such as Ivermectin, Insulin analogues, and Nicotine Replacement Therapy. Removal of medicines with lower therapeutic importance or safety concerns. Focus on rational prescribing and reducing out-of-pocket healthcare expenditure. Support for price regulation under the Drug Price Control Order (DPCO).[8] With this background the present study aimed to evaluate the number of drugs will be prescribed from NLEM for out patients.

Aim of the study

The aim of the study to assess the number of drugs prescribed from NLM catalogue for outpatients in tertiary care hospital.

Objectives

- To evaluate the average number of drugs prescribed per encounter.
- To assess the percentage of drugs prescribed by generic name.
- To evaluate the percentage of encounters with antibiotics prescribed.
- To determine the percentage of encounters with injections prescribed.
- To assess the percentage of drugs prescribed from NLEM.
- To promote rational use of medicines and improve prescribing practices.

MATERIALS AND METHODS

Study design: Prospective observational study

Study settings: Hospital pharmacy, Dhanalakshmi Sinivasan Medical College and Hospital, Siruvachur, Perambular, Tamil Nadu.

Study period: 6 months (November 2025 to April 2026)

Inclusion criteria

- Both gender
- Outpatients
- Prescription with all the details of drugs

Exclusion criteria

- Repeated prescriptions
- Chronic ill patients
- Patients in ICU and emergency department
- Postoperative patients

Procedure

The study selected prescriptions based on inclusion and exclusion criteria. All the subjects were explained study procedure and informed consent was obtained. Prescription from all the department outpatients were collected and entered in excel sheet for evaluation. Prescribed drugs list was compared with NLEM 2022 which contains 384 drugs.

Statistical analysis

The data was expressed in number and percentage. Statistical Package for Social Sciences (SPSS 20.0) version used for analysis. Chi square test applied to find the statistical significant. p value less than 0.05 considered statistically significant at 95% confidence interval.

RESULTS

The study was conducted in out patients for 6 months. A total of 682 drugs were prescribed during the study period. Highest number of drugs prescribed in the month of April (144), November (122), February (120), December (106), January (96) and March (94). Maximum number of drugs were prescribed in April and least in March. April month prescriptions have 5 drugs per prescription, November, February and March has 4 and least number in December and January. In march month prescriptions 53% drugs were prescribed with generic name followed by November (48%) and least is 19% April. Maximum antibiotic use was observed in the month of December (25%) and minimum in the month of January (8%). December 61% prescriptions had injection from followed by 16% in November. December (61%), February and April (60%), January (50%), March (47%) and November 43% drugs were prescribed form essential drug list. (Table-1, Graph-1-6).

DISCUSSION

The World Health Organization (WHO) and the Indian Medical Council Research (IMCR) advised to doctors to prescribe drugs from the National List of Essential Medicine (NLEM) with generic name because these drugs are available all over the country with low price. The management of the patients will be at the lower side and there shall be cost effectiveness for patients.[9,10] This will improve the quality of policy of Rational Use of Medicine (RUM) and banned some irrational Fixed Dose Combinations (FDC). The aim and objective of preparation of NLEM is to reduce the cost with more effective treatment. There are several studies done on drug utilization highlighted that maximum number of drugs were not prescribed from NLEM list due to several limitations.[11] The present study was conducted for 6 months in outpatients. A total of 682 prescriptions were included and analysed. In this study 50-55% drugs were prescribed with generic name. In the present study we observed that 43-61% drugs were prescribed form National List of Essential Medicine. Neerajkumar S et.al., study observed that 27% drugs were prescribed form NLEM catalogue. [12] Implementation of the NLEM list for purchasing and supply of medicine, especially in

public sector healthcare, planned and implication will be resulted in progress of availability of drugs, cost savings and more rational use of drugs. Essential drugs list can be prepared in department level and hospital level to improve the availability of medicine with low price. Hospital authorities should conduct frequent awareness programs in improve the knowledge about available drugs in the hospital and ensure all the doctors should prescribed drugs form EML. Hospital EML should compare with NLEM and required changes should be done for patients safety and availability of drugs. Prepare and implementation of NLEM on regular basis which reduce the cost burden and improve the treatment quality.

CONCLUSION

The Essential Drug List (EDL)/National List of Essential Medicines (NLEM) concept is more important than ever due to increasing healthcare costs, changing disease patterns, and limited healthcare resources. A total of 682 drugs were prescribed during the study period. The average number of drugs per encounter was approximately 4. The average percentage of encounters with antibiotics prescribed was about 15%. The average percentage of encounters with injections prescribed was approximately 17%.. The study indicates the need to improve rational drug prescribing, increase generic prescribing practices, and enhance adherence to essential medicine guidelines in outpatient departments.

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Conflict of interest: Nil

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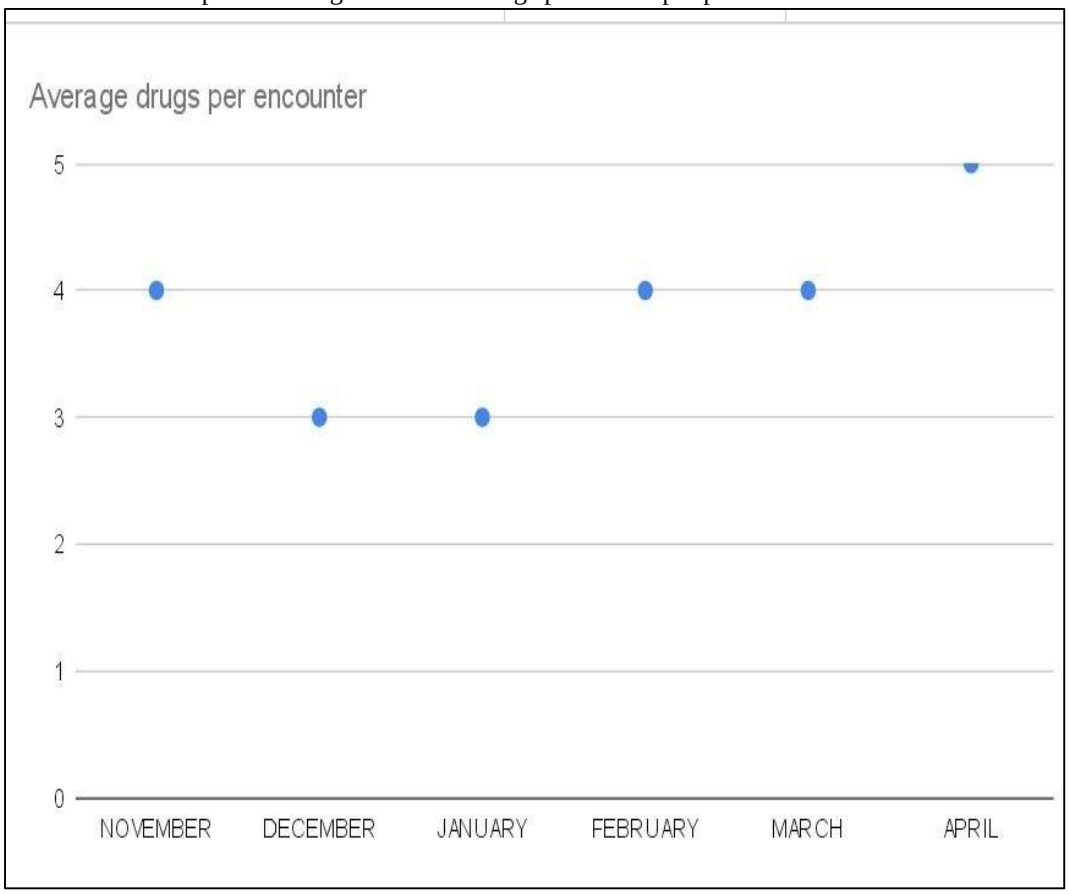
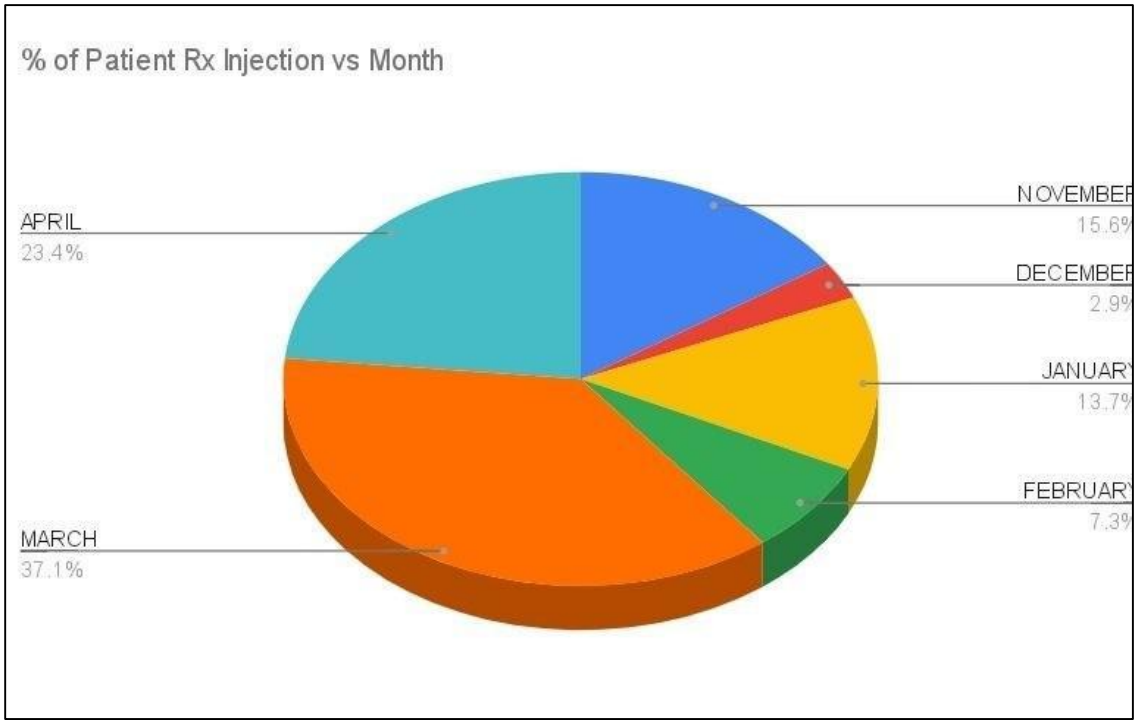
Table-1: Assessment of drug prescription pattern for outpatients

Month	Total no of drugs	Average drugs per patient	Percentage of drugs prescribed in generic name	Percentage of patients treated with antibiotic	Percentage of patients treated with Injection	Percentage of drugs from EDL
November	122	4	48.00 (58)	10.00 (13)	16.00 (19)	43.00 (46)
December	106	3	42.00 (44)	25.00 (26)	61.00 (74)	61.00 (74)
January	96	3	39.00 (37)	8.00 (8)	50.00 (48)	50.00 (48)
February	120	4	38.00 (37)	11.00 (14)	60.00 (71)	60.00 (71)
March	94	4	53.00 (50)	23.00 (22)	47.00 (44)	47.00 (44)
April	144	5	19.00 (27)	12.00 (17)	60.00 (86)	60.00(86)

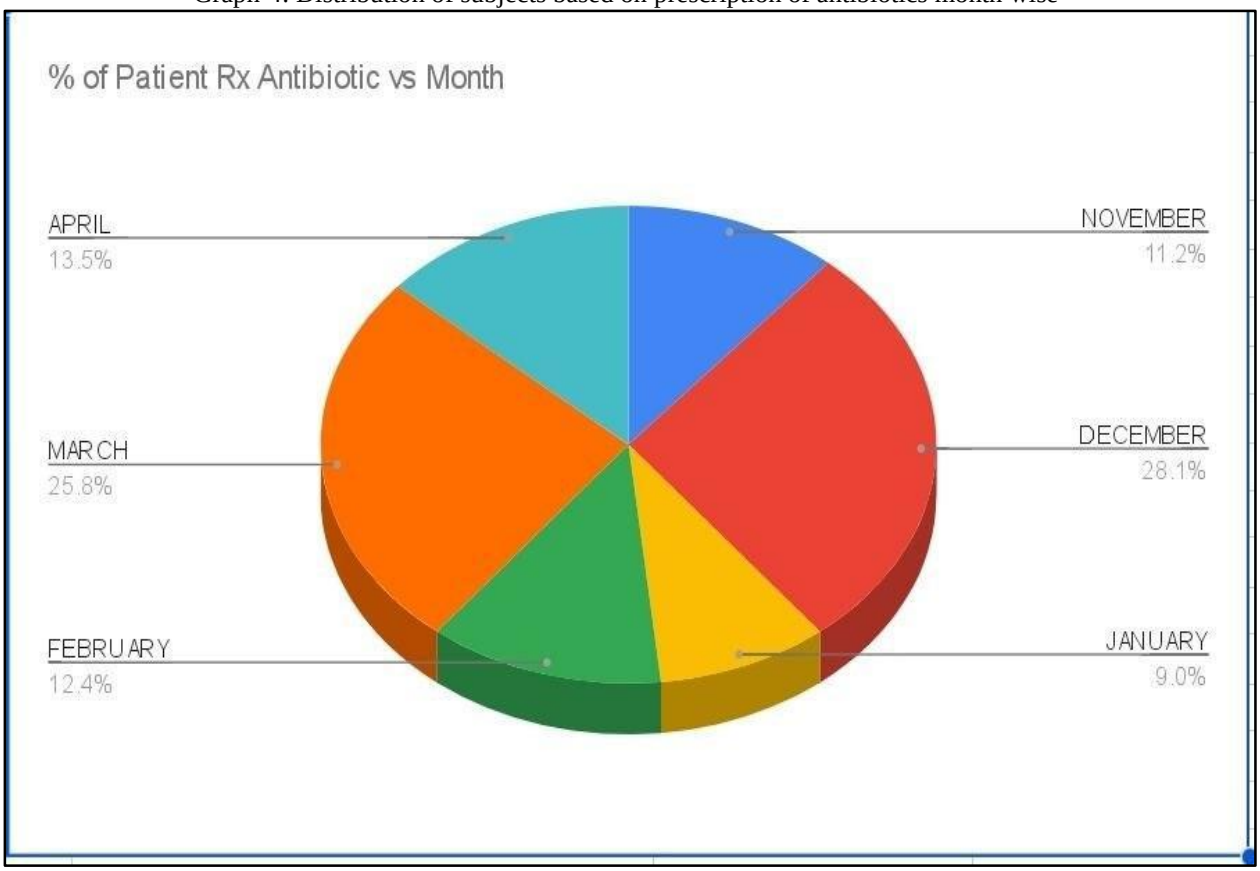
Graph-1: Average number of drugs prescribed per patient month wise



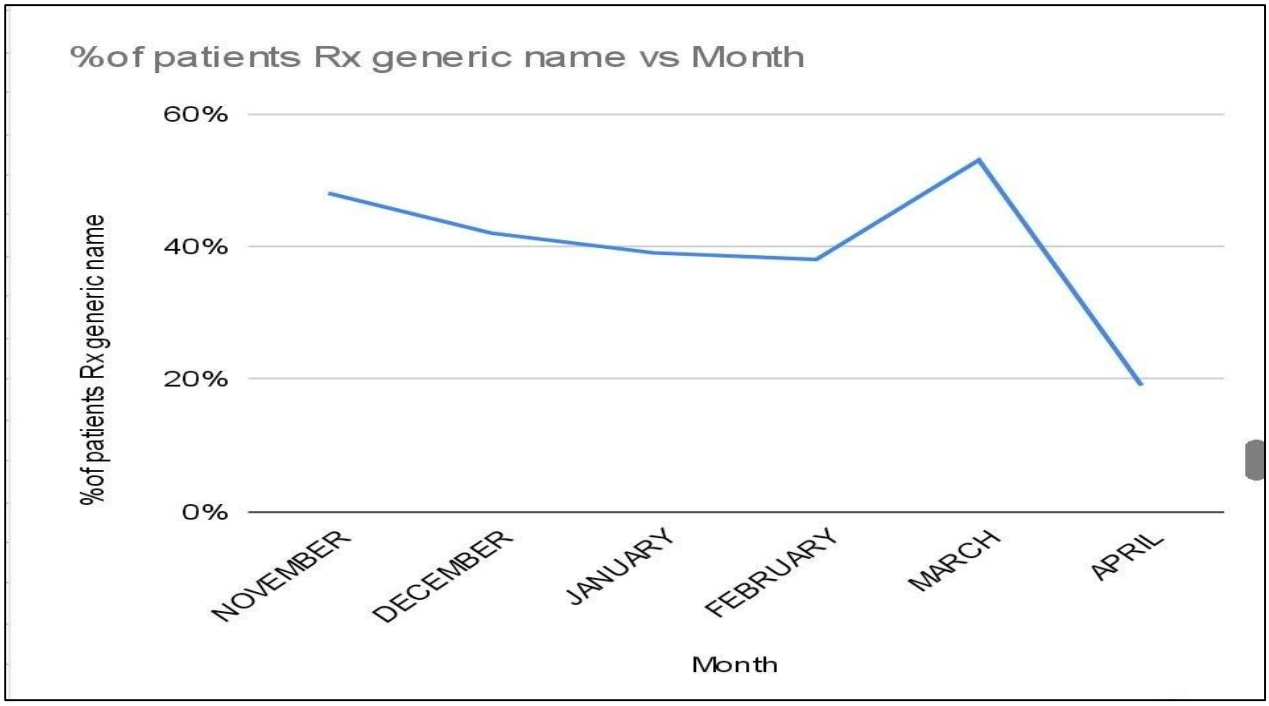
Graph-2: Distribution of subjects based on prescription of injection



Graph-4: Distribution of subjects based on prescription of antibiotics month wise



Graph-5: Distribution of subjects based on prescription of drugs on generic name based on month



Graph-6: Distribution of subjects based on prescription of drugs from essential drug list based on month