

# Assessment of Drug Prescription Pattern In Paediatric Patients

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## Abstract

Irrational drug prescription leads to ineffective treatment, occurrence of adverse effects, prolonged duration of illness and suffering to patient, and an increased economic burden to society. Since children are more vulnerable than adults, it is crucial that principles of rational prescription are strictly adhered to. The main objective is to study the prescribing pattern of antibiotic in hospital pediatric outpatient. Prospective study of 6 month's duration was undertaken. A total number of 354 patients were taken for the study. In this study 85.6% of medications are oral medications and use of antimicrobial drugs is highest for children. Beta-Lactam antibiotics were the vastly prescribed antibiotics as well as the mainly chosen for combination therapy among pediatric patients. Pneumonia was the most prevalent disease and was found to be primary cause for hospitalization among pediatric patients. There is a need to improve prescription pattern by generic name and drugs from Essential Drug List.

## INTRODUCTION

Prescribing practices are a indication of health professional's skill to determinate among the various choices of drugs and decide the ones that will most advantage to the patients.[1] The study of prescribing pattern is a element of the medical audit and seeks to monitor, assess and if necessary, propose modification in prescribing practices to make medical care rational and cost effective.[2]

Children compose about 40% of India's population. Infants and children experience frequently nonserious illnesses. Drug therapy is considered to be main element of pediatrics health care management. successful medical treatment of pediatric patient is based upon an correct diagnosis and best possible course of drug therapy, which usually involves a medication regimen. [3]

Prescriber and consumer are flooded with vast array of pharmaceutical preparation with innumerable trade names, available often at unaffordable prices. Considering these facts, the present study was planned to understand the prescription pattern of paediatric patients in Erode, Tamilnadu, South India.[4]

## MATERIAL AND METHODS

This prospective cross-sectional study was conducted in an outpatient department for 6 months in a private tertiary care hospital. Ethical clearance was accorded by Institutional ethical committee before start of study. A prospective study was carried out on the prescriptions, selected randomly with a total of 354 prescriptions. Patient related parameters such as age, sex and body weight were recorded. The drug data such as name of the drug, dosage form, dosing frequency, duration, route of administration and diagnosis data were also noted. The data obtained & the patient related parameters were computed using Ms-Excel 2007. The results were expressed as percentage/proportion either

as pictorial representation in the form of bar diagram & pie chart or in the tabular form. Mean were also shown & data shown up to two significant decimal places.

## RESULTS AND DISCUSSIONS

This prospective observational study of paediatric outpatients was conducted on 354 patients. The demographic profile in this study showed male (57.9%), female (42.1%) proportion. This study indicated that males patients was comparatively more than the number of female patients coming for consultation. The most commonly used drug group was antibiotic. Results showed that significant uses of anti infectives (31.8 %), respiratory diseases (39.6%), gastro intestinal disorders (17.9 %). Pneumonia and gastro intestinal disease were mostly prevalent in infants and age up to five years. Bronchitis was mostly found in age between 5 to 12 and infants. Other common diseases are enteric fever, viral fever, UTI, meningitis, whooping cough, and measles. Among the anti infectives, cephalosporins (20 %), other pencyllin derivatives (3.2 %) were choice of antimicrobial drugs for paediatric patients, which comprised of cefixime (6.7%) cefpodoxime (9.17%) Amoxicillin+clavulanate compination (1.3%) respectively. .Othe class of drugs such as NSAID's (14 %, bronchodilators (13.9 %, antiemetics (3.3 %, nasal decongestants (3.4%), topical preparations (8.6 %) , nutritional suppliments (4.58 %), gluco corticoids (3.2%), proton pumb inhibitors (1.3 %) , anti spasmodic (1.3 %), laxative and purgatives (0.6%), anti diarrerals (0.6%) and antihistamins (0.74%) were prescribed. A study conducted by Shamsy *et al.*, 2013 in another tertiary care hospital in Tamil Nadu have shown that the common combination of antibiotics prescribed were Amoxicillin with clavulanate, followed by piperacillin with tazobactam, and cefotaxim with sulbactam. (5)

Similar study was conducted by Janaki torvi and suman et al (6) which shows out of 300 prescriptions 82% are antibiotics , 32% of antipyretics , 28% of antihistamins which have a slightly match with our study.

**Table.1 Age wise Distribution of paediatric patients**

Age group	Number of patients (n = 354)	Percentage (%)
Newborn infants (0 to 27 days)	9	2.54
Infants and toddlers (28 days to 23 months)	133	37.58
Children (2 years to 11 years)	212	59.88

**Table.2 Distribution Of paediatric Patient according to Diagnosis**

Diseases	Number of patients (n = 354)	Percentage (%)
Respiratory diseases	140	39.6
Fever	126	35.5
Gastrointestinal disorder	63	17.9
Anemia	2	0.5
Others	23	6.5

**Table.3 Pharmacological classification of drugs Prescribed to Paediatric Patients**

Types of drugs	Number of drugs (n=1068)	Percentage (%)
Antiinfectives	340	31.8
NSAIDs	150	14
Antiemetics	36	3.3
Antidiarrheals	7	0.6
Laxative/purgatives	7	0.6
Antispasmodics	14	1.2
Proton pump inhibitors	14	1.2
Nasal decongestants	37	3.4
Antihistamins	8	0.7
Topical preparations	92	8.6
Bronchodilators	149	13.9
Glucocorticoids	35	3.2
Nutritional suppliments	49	4.5
Others	133	12.4

**Table 4. Types of Betalactam antibiotics prescribed to Paediatric patients**

Drugs	Number of drugs (n = 249)	Percentage (%)
Penicillin derivatives	21	8.4
Cephalosporin generation	214	85.9
Betalactam inhibitors	14	5.6

**Table 5. Types of penicillin derivatives Prescribed to Paediatric Patients**

Drugs	Number of drugs (n=35)	Percentage (%)
Amoxicillin	21	60 %
Amoxicillin + Clavulanic acid	14	40%

**Table 6. Types of Cephalosporins Prescribed to Paediatric Patients**

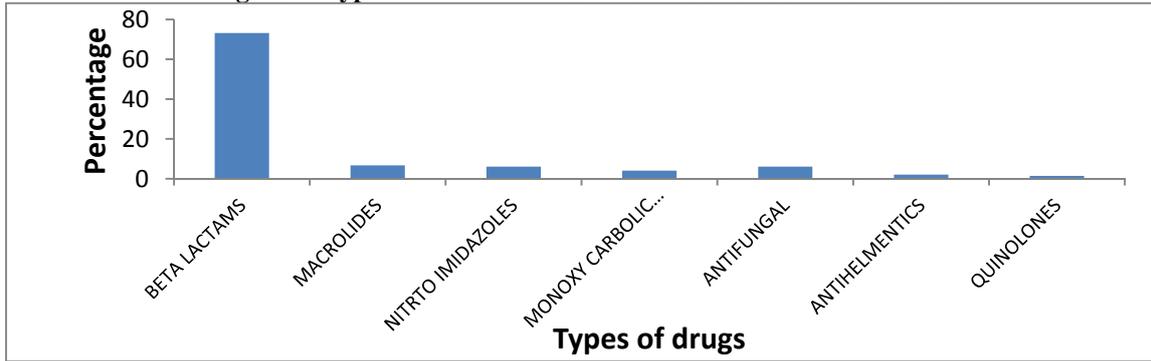
Drugs	Number of drugs (n = 214)	Percentage (%)
Cefixime	72	33.6
Cefpodoxime	98	45.79
Cefuroxime	44	20.5

**Table 7. Types of NSAIDs s Prescribed to Pediatric Patients**

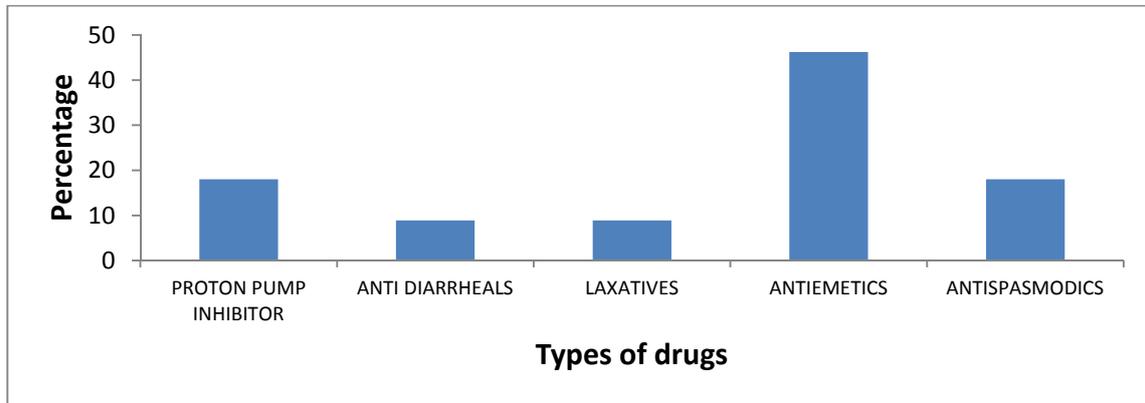
Drugs	Number of drugs (n = 150)	Percentage (%)
Paracetamol	124	82.6
Mefanamic acid	6	4
Paracetamol + mefanamic acid	16	10.6
Paracetamol + ibuprofen	4	2.7

In this study 85.6% of medications are oral medications, 4.4 % of cases consist of inhalational drugs, 8.6 % of case are topical drugs and 1.3 % are suppositories or pesseries. Most of the drugs were given as in the form of tablet, capsule, suspension or solution. Among NSAIDS, Paracetamol were prescribed most commonly (82.6 %) followed by Mefanamic acid (4 %), Paracetamol + mefanamic acid (10.6 %) and Paracetamol + ibuprofen (2.7%). Similarly gastro intestinal drugs were prescribed in the pattern of Proton pump inhibitor (18%), Anti diarrheals (8.9%), Laxatives (8.9%) Antiemetics (46.2%) and Antispasmodics (18%). Amon respiratory drugs Salbutamol prescribed most cases (43 %) followed by Montelukost (7.3%), Albuterol + ipratropium + salbutamol combinations (35 %), Theophylline + etofylline combinations (10.7%) and Terbutaline (4 %). In this study use of antimicrobial drugs is highest for children. Thus, there is an ample scope of improving the prescribing pattern by keeping the number of medicines as low as possible, prescribing medicines by generic names, using medicines appropriately after selecting and consciously keeping the cost of therapy low.

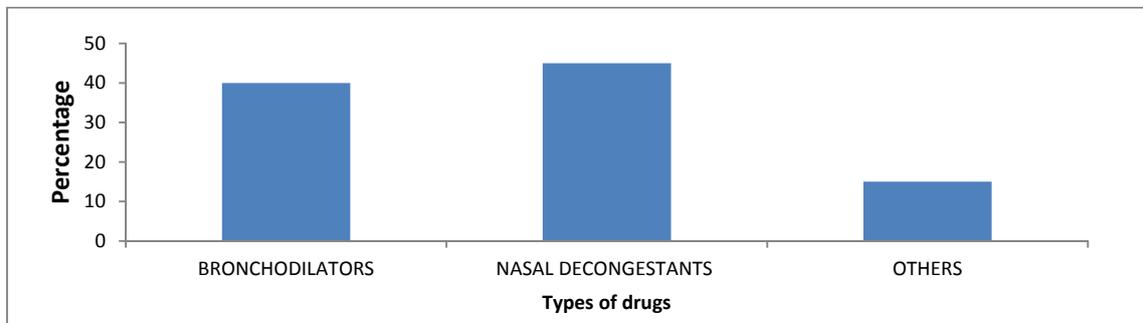
**Figure .1 Types of anti infectives Prescribed to Pediartic Patients**



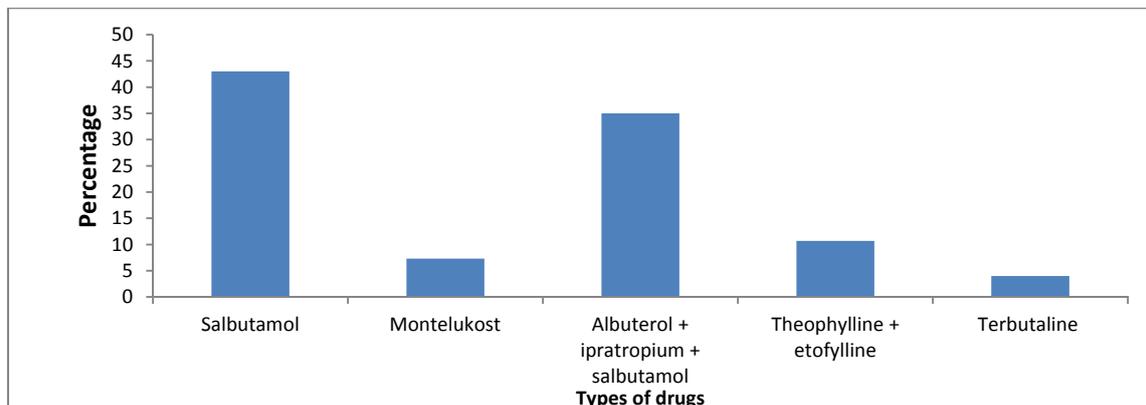
**Figure 2. Gastrointestinal Drugs Prescribed In Pediartic Patients**



**Figure 3. Respiratory System Drugs Prescribed In Pediartic Patients**



**Figure 4. Bronchodialator Drugs Prescribed In Paediatric Patients**



### CONCLUSION

This study gives an overview of the pattern of drugs prescribed to pediatric patients. Beta-Lactam antibiotics were the vastly prescribed antibiotics as well as the mainly chosen for combination therapy among pediatric patients. Pneumonia was the most prevalent disease and was found to be primary cause for hospitalization among pediatric patients. Despite of limited sample size, our study could contribute towards improvement in prescription pattern and implement institutional guidelines. In addition, collaborative researches (Pharmacist, Physician, and Microbiologist) can be performed with a clear understanding of need for microbiological diagnosis, pharmacists' interventions, and physician's good judgment in clinical situation.

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