

## Research Article

# Current scenario of prescribing pattern of drugs in pediatric patients in Hyderabad metropolitan

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### Abstract

**Background:** Pediatrics is a branch of medicine dealing with development, disease and disorders of children. Analysis of prescribing pattern observes the standards of medical treatment at all levels of the healthcare delivery system. Irrational prescription of drug 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. **Objective:** To analyze the current scenario of prescribing pattern of drugs in pediatric patients in Hyderabad metropolitan. **Materials and Methods:** A total of 200 prescriptions were collected for a period of three months and various parameters were calculated. In this study 52.5% prescriptions were of male patients and 47.5% prescriptions were of female patients. These prescriptions mainly consist of oral dosage forms like syrups, tablets, drops, suspensions etc. **Results and Conclusion:** High number of pediatric patients was diagnosed with bacterial infections followed by common cold and with gastrointestinal tract infections. Beta-Lactam antibiotics were the vastly prescribed antibiotics as well as the mainly chosen for combination therapy among pediatric patients. There is a need to improve prescription pattern by generic name and drugs from Essential Drug List.

**Keywords:** Drug prescribing pattern, pediatric patients, antibiotics, dosage forms

### Introduction

The Pediatric population comprises of 20-25% of the total world population out of which 40% of India's population is prone to acute and chronic infectious diseases. Effective medical treatment of pediatric patients is based on an accurate diagnosis and optimum course of therapy/medication regimen (Straand et al., 1998). Infants and children are the most vulnerable population groups to contract diseases. After malnutrition, infections are the major cause of pediatric morbidity. The major leading diseases in children are diarrhea, respiratory infections, measles, pertussis, polio, neonatal tetanus, tuberculosis and diphtheria. With considerable reduction in prevalence of preventable childhood infectious

diseases, the dominance is now taken over by respiratory and gastrointestinal infections (Summers and Summers, 1986; Ghai and Paul, 1988).

The study of prescribing patterns seeks to monitor, evaluate and if necessary suggest modifications in prescribing practices to make medical care rational and effective (Peter and Micheal, 2007). The assessment of drug utilization is important for clinical, educational and economic reasons and study focuses on effective medical treatment of pediatric patients with accurate diagnosis and selecting the proper drug regimens, avoiding unnecessary use of antibiotics and minimizes the prescription errors.

### Materials and methods

A prospective observational study was undertaken from different clinics in Hyderabad. The study was carried out over a three months period from December 2017 to February 2018. A total of 200 pediatric prescriptions were collected on random basis from different clinics and hospitals. The study was based on the collection of

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variables related to the pediatric patients and the drugs prescribed to them.

Basic drug indicators were selected to analyze the prescribing pattern. The information regarding patient characteristics such as gender, age, and disease, drugs prescribed including frequency of administration, dose, dosage form and route of administration and antibiotics used including type of antibiotics and their origin were collected. The prescriptions which were incomplete i.e. absence of any information regarding the patient or the prescriber were excluded from the study. The generic names of all the drugs prescribed were collected from CIMS. The antibiotics were specifically recorded and grouped into their respective classes. The results were presented through statistical procedure.

**Statistical Analysis**

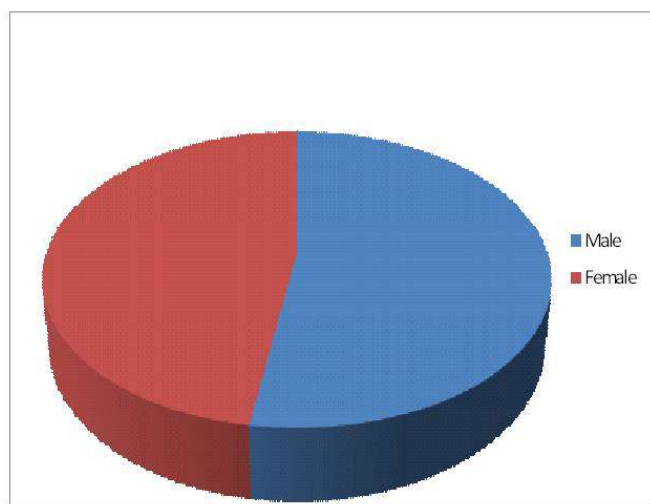
The data obtained using all the above parameters was statistically analyzed. Results were expressed in numbers, percentages and graphs using MS Excel.

**Results**

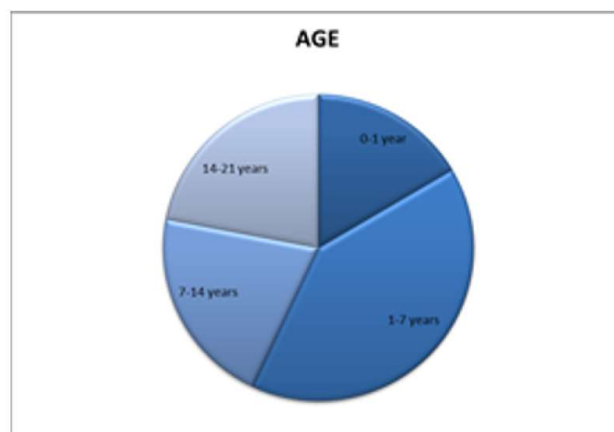
A total of 200 prescriptions were collected and analyzed for a period of three months. Out of the 200 prescriptions, 105 prescriptions were of male patients and the remaining 95 prescriptions were of female patients. The percentage of prescriptions of male patients was high i.e. about 52.5% and that of the female patients was 47.5% which is shown in figure 1.

**Age of the patients**

All the 200 pediatric prescriptions were categorized into 4 age groups. The age group 1-7 years was found to be highest i.e. 81 with 40.5%, followed by 14-21 years i.e. 44 with 22%, 7-14 years i.e. 42 with 21% and lastly 0-1 year i.e. 33 with 16.5%. Figure 2 illustrates



**Figure 1.** Percentage of Male and Female Pediatric Prescriptions



**Figure 2.** Percentage of patients in each age group

the percentage of patients in each age group.

**Frequency of administration of drugs**

Among the 200 prescriptions, the overall drugs prescribed were found 628. The maximum number of drugs administered came under the category of 2 times a day i.e. 247 drugs with 39.3%, followed by 3 times a day i.e. 208 drugs with 33.1%, 1 time a day i.e. 143 drugs with 22.8% and the least was 4 times a day i.e. 30 with only 4.8%. Figure 3 illustrates the number and percentage of drug administration frequency.

**Number of dosage forms of drugs prescribed to patients**

Syrups were prescribed more followed by tablets, drops, suspensions etc and the details were depicted in table 1.

**Number of diseases occurring in pediatric patients**

Out of 200 prescriptions, 50 patients were suffering from bacterial infections, 28 were from common cold and pain, 28 were from GIT infections, 25 were from respiratory tract infections etc. and the details were shown in figure 4.

**Table 1.** Number of dosage forms of drugs prescribed to patients

Dosage Form	Number
Syrups	200
Tablets	175
Drops	42
Suspensions	22
Powders	17
Injections	14
Capsules	8
Gels	8
Inhalers	7
Creams	7

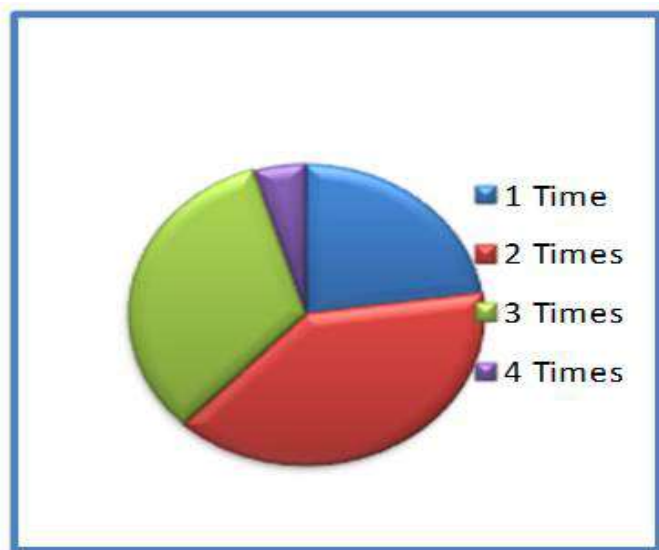


Figure 3. Percentage of drug administration frequency

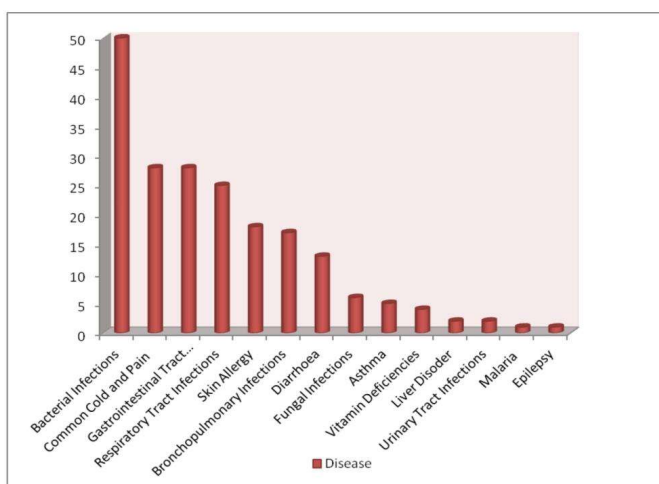


Figure 4. Number of diseases occurring in pediatric patients

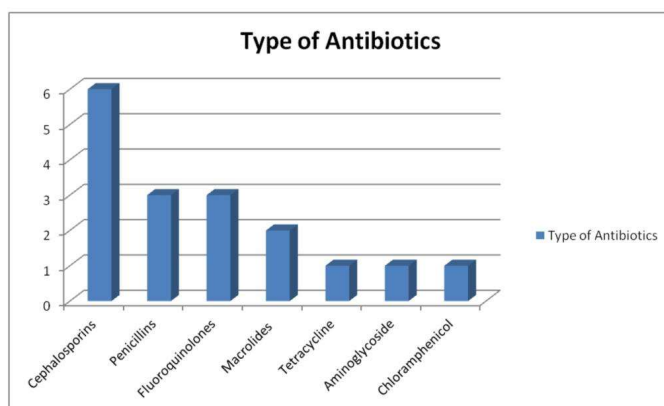


Figure 5. Number and type of antibiotics

**Number and type of antibiotics**

Beta lactam antibiotics were prescribed more which includes

cephalosporin and penicillin followed by fluoroquinolones, macrolides, tetracycline etc. were shown in figure 5.

**Discussion**

Correct diagnosis of a disease & its management with medicines constitute important aspect of patient care, which is more important in case of pediatric patient. The present study is based on data obtained from 200 prescriptions. The male to female ratio reflected a higher number of male patients who are visiting clinic compared to female patients which was similar to the study conducted by (Thomas et al., 2014). Preschool children were prescribed more than other children. The frequency of administration of drugs ranged from 1 time to 4 times a day. The administration of drugs 2 times a day were maximum i.e. 247(39.3%), followed by 3 times a day i.e. 208(33.1%), followed by 1 time a day i.e. 143(22.8%) and finally 4 times a day i.e. 30(4.8%). Syrups and tablets were prescribed more when compared to dosage forms which was similar to that of (Riet-Nales et al., 2013) study.

About 50 patients were diagnosed with bacterial infections which were highest. 28 were diagnosed with common cold and pain, 28 with gastrointestinal tract infections, 25 with respiratory tract infections etc. The maximum type of antibiotics prescribed were cephalosporin (Kanish et al., 2014; Ajitha and Shweta, 2016; Mezgebe et al., 2015) followed by penicillin, fluoroquinolones, macrolide etc.

**Conclusion**

This study gives the current scenario regarding the pattern of drugs prescribed to pediatric patients. The clinical pharmacists must be considered to be an integral part of the multidisciplinary health care team. Correct diagnosis of the disease and its management constitute important aspects of patient care which is even more important in case of pediatric patients. The most common antibiotic prescribed was beta lactam antibiotics followed by fluoroquinolones. The appropriate use of antibiotics delays the development of drug resistance by microorganisms. It is well understood that for achieving the goal of rational use of medicines it is not sufficient to choose the right medicines only but also they must be employed in the most appropriate manner. There is ample scope of improving prescribing pattern by keeping number of medicines as low as possible, prescribing medicines by generic name, using medicines appropriately after selecting and consciously keeping the cost of therapy low. Moreover it is suggested to prescribe the drugs by generic names rather than brand names.

**Conflicts of interests**

None of the authors have conflict of interest.

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