

Drug utilization pattern In Pediatrics With Gastro-Intestinal Tract Infections- A prospective study.

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ABSTRACT

Aim: To conduct a prospective study on prescribing pattern of drugs in paediatrics suffering with gastrointestinal infections. **Background:** Prescription analysis can identify places where encounters with drugs written by prescribing doctors need to improve. **Methodology:** A prospective study was carried out in Likith Sai Amar Eye and Children Hospital in patients up to 12 years of age from march 2022 to May 2022. A total of 75 patients were recruited for the study based on inclusion and exclusion criteria. Prescriptions were collected and relevant data was entered into the proforma designed as per the study requirements and prescriptions were analysed for the calculation of the prescription indicators. **Results:** This investigation revealed that the data obtained out of 75 paediatrics, 66.66% were males and 33.33% were females. Further prescriptions with maximum drugs are 46.6% and least is 10.6%. The highly prescribed drugs were belonging to the class of antibiotics especially cephalosporins.

Conclusion: A prescription-based survey is seen to be one of the most effective ways to monitor medication utilization. It is also beneficial to improve the prescriber's prescribing practices and, as a result, clinical standards.

KEYWORDS: Pediatrics, Prescription pattern, gender, Gastro intestinal infections, antibiotics.

1.INTRODUCTION

1.1 PEDIATRICS

Pediatrics is a branch of medicine dealing with the development, diseases and disorders of children. A medical practitioner whose specializes in the area of pediatrics is known as paediatrician. The word pediatrics is derived from greek and it means that healer of children and iatros means doctor or healer. Pediatric population comprises of 39% (2011) of the total world population, out of which 40% of India's population are prone to acute and chronic diseases because of their less immunologic conditions. In fact, infancy and childhood is a period of rapid development and growth.

Keeping these facts into consideration, this study has been planned, to evaluate - prescribing patterns of drugs in pediatrics suffering with git infections" using WHO core drug use indicators in our study with an ultimate aim to achieve rational and cost effective medical care.

GIT INFECTIONS IN PEDIATRICS

Gastro intestinal infections in children are caused mostly by either bacterial or viral infections. Some of the common causes of gastrointestinal upset are Rotavirus, Norwalk virus, Escherichia coli, campylobacter, and salmonella infections. In the industrial world, the most common causes of gastroenteritis in children are viruses, bacteria (food poisoning) and intestinal parasites

GASTROENTERITIS

Gastroenteritis is usually caused by viral, bacterial, or parasitic infection. The infection causes a combination of vomiting, diarrhea, abdominal cramps, fever and poor appetitie which can lead to dehydration. Symptoms of gastroenteritis include Watery, usually non bloody diarrhea - bloody diarrhea usually means you have a different, more severe infection. Nausea, vomiting or both. Stomach cramps and pain. Occasional muscle aches or headache, low grade fever. [1,2,3]

1.2 PRESCRIBING PATTERNS:

Prescribing practices are a health professional's abilities to determine among the various choices of drug and determine the ones that will benefit the patient. Prescribing patterns need to be evaluated periodically to increase the therapeutic efficacy, decrease adverse effects and provide feedback to the prescriber.

Revolving drug fund list 2015 was used as of EDL. An essential tool for such work is objective to measure drug use in health facilities that will describe drug use patterns and prescribing behavior drug use indicator. The WHO in collaboration with International Network for the Rational Use of Drugs (INRUD) has formulated these set of core indicators Types of indicators used include:

1. Average number of drugs per prescription
2. Percentage of drugs prescribed by generic name
3. Percentage of encounters with an antibiotic prescribed
4. Percentage of encounters with an injection prescribed
5. Percentage of drugs prescribed from an essential drugs list or formulary

The core prescribing indicators measure the performance of prescribers, the patient care indicators measure what patients experience at health facilities, and the facility indicators measure whether the health personnel can function perfectly.

The indicators of prescribing patterns measure the performance of health care providers in several key dimensions related to appropriate use of drug.

The present study was undertaken to evaluate the drug prescription patterns in pediatric patients and to generate data on the extent of rational prescribing [4,5,6].

2. METHODOLOGY

PLACE OF STUDY:

A prospective study was carried out in Likith Sai Amar Eye and Children Hospital.

DURATION OF STUDY:

The study was conducted from 3 months (March, 2022- May, 2022)

PATIENT'S SELECTION:

Infants and children attending the pediatrics department of the hospital.

STUDY POPULATION:

Total 75 patient profile sheets were enrolled for the study.

STUDY CRITERIA:[16]

Inclusion criteria:

Patients of either sex

Patients up to 12 years of age

Patient admitted in hospital with infective disease

Exclusion criteria:

Patients who are > 12 years

Patients with comorbidities or critically ill

2.1 STUDY DESIGN:

Hospital based observational study: prospective[13,17,18,19]

DATA COLLECTION:

Permission from hospital authorities was obtained to collect the data from the pediatric patients' case sheets after describing the objectives of the study to the concerned physician. Patient demographic data such as name, weight, age, gender, symptoms, background information about previous allergies and diagnosis etc., were collected by using patient proforma.

DATA ANALYSIS:

Drug use pattern in paediatrics according to WHO prescribing indicators was assessed using essential drug list for average number of drugs per prescription, percentage of drugs prescribed by generic name.

Prescriptions, symptoms and relevant data regarding bacterial infections in pediatrics with different age groups was entered in the proforma and analysed. Details were collected in the proforma.[12]

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RESULT ANALYSIS:

All the information recorded in the patient profile form were analyzed for various parameters like age, gender, weight, antibiotics and diseases diagnosed.

2.2 STUDY PROCEDURE:

A prospective study was carried out in Likith Sai Amar Eye And Children Hospital patients up to 12 years of age from march 2022 to May 2022. A total of 75 patients were recruited for the study based on inclusion and exclusion criteria. Prescriptions were collected after consulting the physician and necessary data were noted. Patient’s parents were interviewed for further details about the patient’s medical history. After noting the required parameters, prescriptions were returned to the patients. The data obtained was analyzed for the calculation of the prescription indicators.

3. RESULTS

1. Gender wise distribution:

A total of 75 pediatric patients were recruited in the study. Out of 75 pediatrics, 66.66% were males and 33.33% were females as shown in the pie chart.

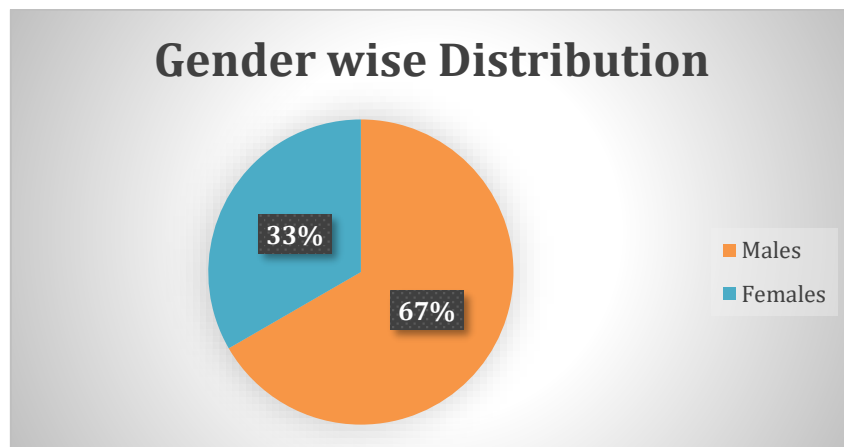


Figure 1: Gender wise distribution

2. Age distribution:

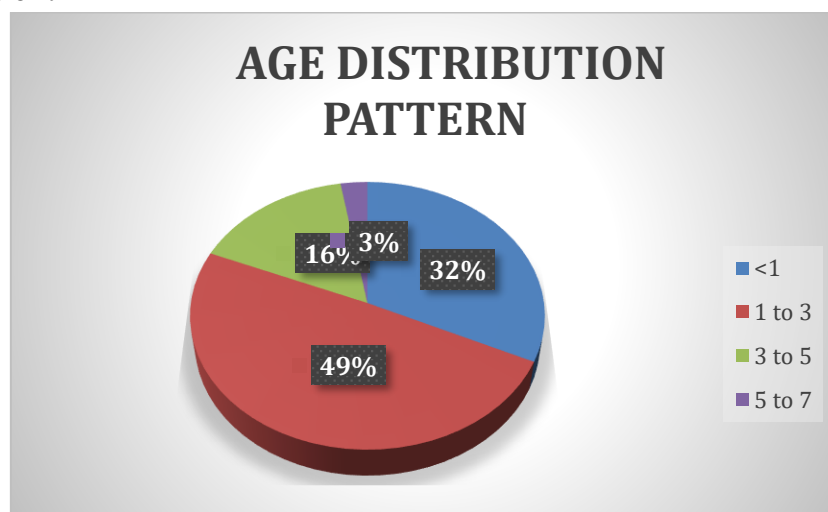


Figure 2: Distribution of paediatric patients according to there ages.

3. Overall distribution of drugs:

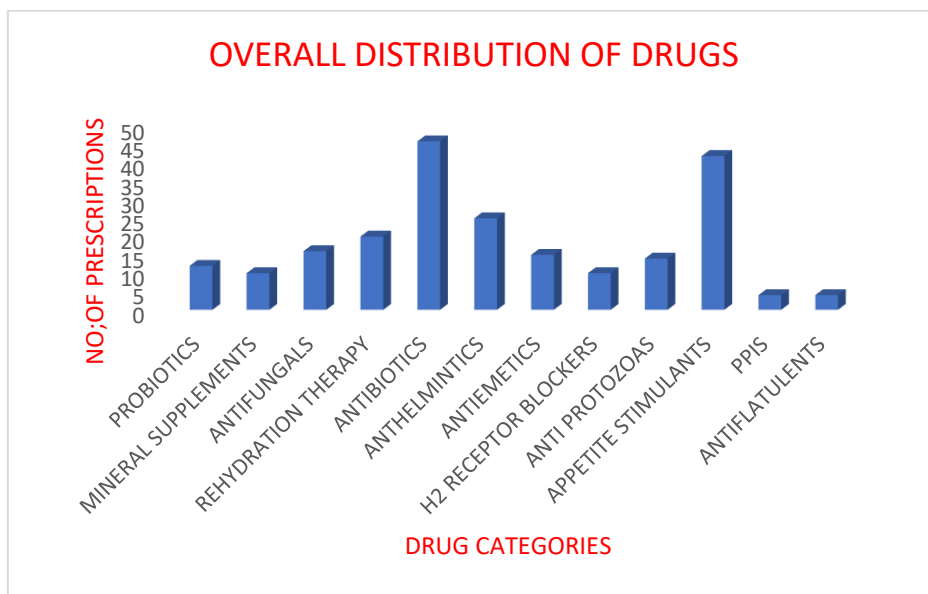


Figure 3: Overall Distribution of drugs categories vs number of prescriptions.

4. Class of antibiotics prescribed: The classes of antibiotics commonly prescribed in these 75 prescriptions include Cephalosporins, fluoroquinolones and aminoglycosides.

PRESCRIBING INDICATORS:

The prescribing indicators were calculated for all the patients to determine the differences in the prescription.

Average number of medication per prescription:

Table 1 showed that a total of medications were prescribed to 75 patients.

Table 1: Drugs encountered per prescription

No. of drugs per prescription	No. of prescriptions	Percentage (%)
1	8	10.6
2	13	17.3
3	35	46.6
4	12	16
5	7	9.33
Total	75	100

Percentage of medicines prescribed by generic name: Table 2 showed that only 27.92% of medicines were prescribed by the generic name.

Table 2: List of drugs prescribed with generic names

Generic drugs	No. of generic drugs prescribed	Percentage (%)
Cefexime	17	27.4
Cefpodoxime	12	19.3
Pantoprazole	11	17.7
Ofloxacin	13	20.9
fluconazole	9	14.5
Total	62	100

Percentage Encounter with an Antibiotic Prescribed:

The percentage encountered with an antibiotic prescribed was 20.72%. For the cases where an antibiotic was prescribed, average number of antibiotics per prescription was one.

Table 3: Percentage of various antibiotics

Antibiotics	No. of antibiotics	Percentage (%)
Cefexime ,Cefpodoxime Proxetil	29	63.04
Amikacin	4	8.7
Ofloxacin	13	28.26
Total	46	100

Percentage Encounter with an Injection prescribed:

Use of injection was very low and percentage encounter with an injection prescribed was only 0.02%

Percentage of medicines prescribed from Essential Drug list:

A total of 47.82% were prescribed from Essential Drug List

Prescription Indicators:**Table 4; Percentage indicators**

Total number of drugs encountered in 75 prescriptions	222
Average number of medications per prescription	2.96
Percentage of medications prescribed by generic names	27.92
Percentage encounter with an antibiotic prescribed	20.72
Percentage encounter with an injection prescribed	0.02
Percentage of medicines prescribed from Essential Drug List	47.82

5. DISCUSSION

A doctor's or physician's prescription is seen as an indication of the physician's attitude regarding the disease and the function of medicines in its treatment. The correct medicine to the right people at the right time is the top priority of the health-care system.[7,8,9]

The precise diagnosis of a disease and its treatment with drugs are critical components of patient care, especially in the case of pediatric patients. The current study's findings are based on data collected from 75 patients.

In this investigation, the average number of medications prescribed per prescription was 2.96%. The rational use of pharmaceuticals necessitates the use of the fewest number of drugs possible, not just to save money but also to avoid drug-drug interactions and adverse drug responses.

In this study, generic names were prescribed for 27.92 percent of drugs. Prescribers' doubts regarding the bioavailability and efficacy of generic formulations, as well as prescriber inexperience, could be one factor for reduced prescription by generic name. Another factor could be that branded pharmaceuticals are more readily available, and their names are easier for prescribers and dispensers to remember.

A large number of medications from the essential drug list were prescribed (2019)²². Prescriptions from the essential medicine list should be encouraged to make the best use of budgetary resources while also meeting the majority of the population's health care needs.[10,15,17]

From Table 4 it is shown that 0.02% of injections were prescribed.

Antibiotics were prescribed 20.72 percent of the time (46). Antibiotic overuse is linked to a doctor's overestimation of the patient's sickness. Antibiotic usage has been linked to medication resistance, increased adverse effects, and increased treatment costs.

Cefexime (27.4 percent) and Ofloxacin (20.9%) were the most commonly given antibiotics. It is well known that Cefexime is not recommended for children under the age of 18 and is not on the Essential Drug List (Annexure 2).

EATS Syrup, an appetite stimulant, was regularly recommended. Prescriptions by generic name are known to lower drug treatment costs, simplify drug therapy, and eliminate confusion. Despite this, most clinicians prefer to use a brand name with which they are comfortable.[11]

Patients who took more drugs had a higher rate of interactions. The average number of medications in each prescription was 2.96, lowering the risk of serious interactions.

The oral method was used to prescribe the majority of medications (93.45 percent). Graduate caps should be used for correct medicine measuring because syrup is the most commonly prescribed dosage form.[20,21]

From this analysis we found that apart from antibiotics(20.72%) other concomitant medications were also prescribed. About 19.36% of prescriptions contained appetite stimulants, 5.4 % contained probiotics, 8.5 % contained anti protozoals. 4.5 % contained mineral supplements.

5. CONCLUSION

One of the most efficient ways to track drug usage is through a prescription-based survey. It is also advantageous to enhance prescriber prescription habits and, as a result, clinical standards. We conclude by strongly recommending that clinicians instill the practise of prescribing drugs by generic names, since this enhances patient acceptance and compliance, avoids confusion with multiple brand names, and reduces treatment costs. Antibiotics used correctly prevent microorganisms from acquiring medication resistance. Antibiotic misuse in brief periods of time may increase the probability of resistance. Input from this study may be provided to prescribers and institution authorities in order to improve prescription patterns and properly assess clinical aspects in order to avoid antibiotic prescription for viral illness.

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6. REFERENCES

1. Pise HN, Padwal SL, Jadhav RR, Deshmukh VS, Jadhav AD, Kolhe AM. Drug prescribing and dispensing pattern in pediatrics outpatient clinic of a rural tertiary-care teaching hospital. *National Journal of Physiology, Pharmacy and Pharmacology*. 1970 Jan 1;5(4):313-.
2. Ahmed FM. Evaluation of prescribing pattern in pediatric out-patient at Albuluk Pediatric Hospital (Sudan). *International Journal of Innovative Pharmaceutical Sciences and Research*. 2015;3(4):244-52.
3. Uppal R, Nayak P, Sharma PL. Prescribing trends in internal medicine. *International Journal of Clinical Pharmacology, Therapy, and Toxicology*. 1984 Jul 1;22(7):375-6.
4. Ashraf H, Handa S, Khan NA. Prescribing pattern of drugs in outpatient department of child care centre in Moradabad city. *Int J Pharm Sci Rev Res*. 2010 Jul;3(2):1-5.
5. Sharma A, Shweta O. Assessment of drug prescription pattern in children: A descriptive study. *National Journal of Physiology, Pharmacy and Pharmacology*. 1970 Jan 1;6(1):74-.
6. World Health Organization. The rational use of drugs: report of the conference of experts, Nairobi, 25-29 November 1985. Geneva: Albany: World Health Organization.
7. Gutiérrez G, Guiscafré H, Bronfman M, Walsh J, Martínez H, Muñoz O. Changing physician prescribing patterns: evaluation of an educational strategy for acute diarrhea in Mexico City. *Medical care*. 1994 May 1:436-46.
8. Sontakke SD, Khadse V, Bokade CM, Motghare VM. Medication prescribing pattern in pediatric diarrhea with focus on zinc supplements. *International Journal of Nutrition, Pharmacology, Neurological Diseases*. 2016 Oct 1;6(4):152.
9. Coulibaly JT, Fürst T, Silué KD, Knopp S, Hauri D, Ouattara M, Utzinger J, N’Goran EK. Intestinal parasitic infections in schoolchildren in different settings of Côte d’Ivoire: effect of diagnostic approach and implications for control. *Parasites & vectors*. 2012 Dec;5(1):1-1.
10. Gunawardena GS, Siriwardana C, Paranavitane SR, Ismail MM, Fernando SD. Anthelmintic prescribing patterns of a sample of general practitioners from selected areas in the Colombo

- district of Sri Lanka. *Indian Journal of Community Medicine: Official Publication of Indian Association of Preventive & Social Medicine*. 2008 Apr;33(2):93.
11. Sood M, Lichtlen P, Perez MC. Unmet needs in pediatric functional constipation. *Clinical Pediatrics*. 2018 Nov;57(13):1489-95.
 12. Singh J, Bora D, Sachdeva V, Sharma RS, Verghese T. Prescribing pattern by doctors for acute diarrhoea in children in Delhi, India. *Journal of Diarrhoeal Diseases Research*. 1995 Dec 1:229-31.
 13. [11:33 AM, 6/12/2022] Tataki: Mestawot F, Wubante Y, Jimma LL. Prescribing pattern of antibiotics in pediatric wards of Bishoftu Hospital, East Ethiopia. *Int J Basic Clin Pharmacol* 2013;2:718-22.
 14. Nancy T. Hatfield and Broadribb. *Introductory pediatric nursing*. 2007;28-30.
 15. Otters HB, van der Wouden JC, Schellevis FG, van Suijlekom-Smit LW, Koes BW. Trends in prescribing antibiotics for children in Dutch general practice. *J Anti Microb Chemother*. 2004; 53(2): 361–6.
 16. Pise HN, Padwal SL, Jadhav RR, Deshmukh VS, Jadhav AD, Kolhe AM. *NJPPP*. 2015;5(4):313-7.
 17. Raza UA, Khursheed T, Irfan M, Abbas M, Irfan UM. Prescription patterns of general practitioners in Peshawar, Pakistan. *Pak J Med Sci*. 2014;30:462-5.
 18. Sharma S, Bowman C, Alladin –karanand B, Singh N. Antibiotic prescribing pattern in the ped...
 19. Clavenna A, Bonati M. Drug prescriptions to outpatient children: a review of the literature. *European journal of clinical pharmacology*. 2009 Aug;65(8):749-55.
 20. Goudanavar P, Jacob J, Krishna MS, John SE, Keerthi Y. A Prospective study on medication prescribing pattern for geriatric patients in a tertiary care teaching Hospital. *Journal of Pharmaceutical Research*. 2015 Aug 1:98-.
 21. Any OH, Banu LA, Sultana R, Khan NT, Hossain M, Akhtar S. Drug utilization trends in ENT out patient department in a private teaching hospital in Bangladesh. *Bangladesh Journal of Physiology and Pharmacology*. 2014;30(2):41-5.