

## Original Research

### Patterns of prescriptions and drug dispensing in Pediatric patients

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#### ABSTRACT:

**Background:** Prescription analysis is a very good tool to analyze the prevalent disease pattern and drug use in a community. Irrational prescriptions can result in unsafe and ineffective treatment, exacerbation or prolongation of illness, patient distress and harm, and higher costs. The present study was conducted to evaluate the patterns of prescriptions and drug dispensing in Pediatric patients. **Materials & Methods:** 140 pediatric patients of either gender was selected. Parameters such as number of children with diseases and number of drugs given for each, various dosage forms, and range of drugs per prescription was recorded. **Results:** Number of children and number of drugs given in URTI was 62 and 188, in LRTI was 30 and 94, in acute diarrhoeal diseases was 24 and 47, in conjunctivitis was 6 and 15, in viral fever was 14 and 30 and in wound was 4 and 16 respectively. Various dosage forms was tablet in 36, capsules in 10, drops in 14, syrups in 54, nebulization in 12, injection in 8, lotion in 4 and powder in 2 patients. The difference was significant ( $P < 0.05$ ). One drug was prescribed in 26, two in 68, three in 32 and four in 14 patients. The difference was significant ( $P < 0.05$ ). **Conclusion:** Various dosage forms was tablet, capsules, drops, syrups, nebulization, injection, lotion and powder. In maximum cases, drugs were prescribed in upper and lower respiratory tract infection.

**Keywords:** Children, Drug, Prescription

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#### INTRODUCTION

Prescription analysis is a very good tool to analyze the prevalent disease pattern and drug use in a community. Irrational prescriptions can result in unsafe and ineffective treatment, exacerbation or prolongation of illness, patient distress and harm, and higher costs. These can be caused by a variety of factors, including patient pressure, poor example setting from colleagues, and high-powered salesmanship.<sup>1</sup> Prescription analysis aids in the promotion of rational drug use, where the right drug is prescribed for the right condition in the right dose and duration, and provides information about any dispensing errors. It also aids in the antibiotic stewardship program, which is essential in preventing antibiotic resistance. Finally, it supports cost-benefit analysis of drugs and aids in the formulation of drug policy by policy makers.<sup>2</sup>

Prescribers can treat patients in a rational way if they have access to essential drugs on a regular basis. Paediatric prescription is more complicated than

adults because prescription is according to weight and some drugs are contraindicated in paediatric age groups.<sup>3</sup> Drug prescribing is known to be especially challenging due to peculiarities in organ function and disease state reflecting their age, the paucity of pharmacokinetic, pharmacodynamic, safety and efficacy data for these patients, ethical, financial and regulatory limitations and lack of provider training in Pediatric pharmacotherapy.<sup>4</sup> Therefore, irrational use of medicines including prescribing in this group of patients has been documented to be widespread. For instance, an increased prevalence of adverse drug reactions, self-medication by carers and excessive use of antibiotics have been documented among Pediatric patients.<sup>5</sup> The present study was conducted to evaluate the patterns of prescriptions and drug dispensing in Pediatric patients.

#### MATERIALS & METHODS

The study was carried out on 140 pediatric patients of either genders. All parents gave their written consent

to participate in the study. Data such as name, age, gender etc. was recorded. Parameters such as number of children with diseases and number of drugs given for each, various dosage

forms, and range of drugs per prescription was recorded. Results thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

**RESULTS**

**Table I Number of children with diseases and number of drugs given**

Diseases	Number of children	Number of drugs given
URTI	62	188
LRTI	30	94
Acute diarrhoeal diseases	24	47
Conjunctivitis	6	15
Viral fever	14	30
Wounds	4	16

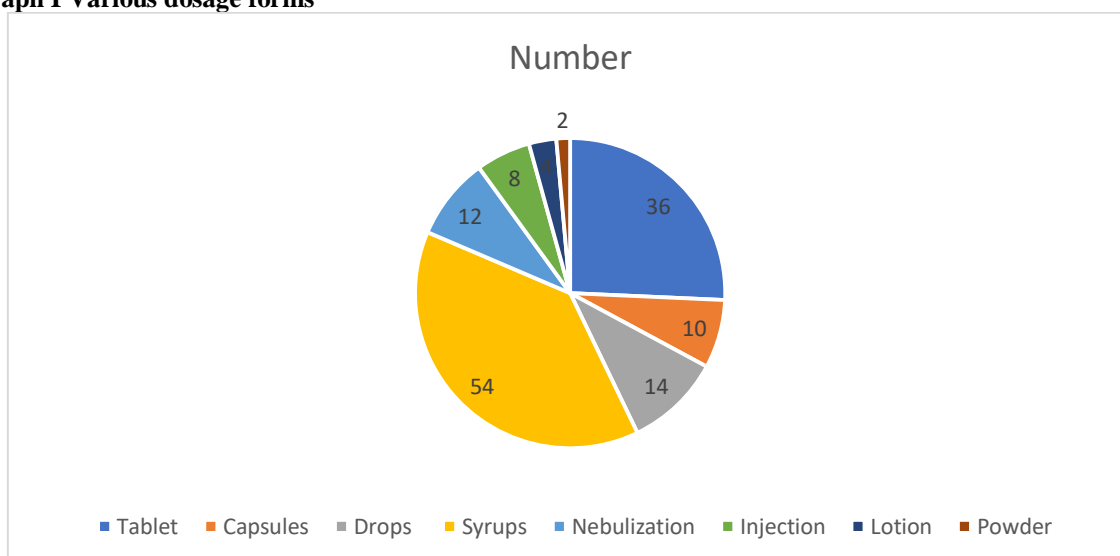
Table I shows that number of children and number of drugs given in URTI was 62 and 188, in LRTI was 30 and 94, in acute diarrhoeal diseases was 24 and 47, in conjunctivitis was 6 and 15, in viral fever was 14 and 30 and in wound was 4 and 16 respectively.

**Table II Various dosage forms**

Dosage forms	Number	P value
Tablet	36	0.01
Capsules	10	
Drops	14	
Syrups	54	
Nebulization	12	
Injection	8	
Lotion	4	
Powder	2	

Table II, graph I shows that various dosage forms was tablet in 36, capsules in 10, drops in 14, syrups in 54, nebulization in 12, injection in 8, lotion in 4 and powder in 2 patients. The difference was significant (P< 0.05).

**Graph I Various dosage forms**



**Table III Range of drugs per prescription**

Range of drugs per prescription	Number	P value
One	26	0.05
Two	68	
Three	32	
Four	14	

Table III shows that one drug was prescribed in 26, two in 68, three in 32 and four in 14 patients. The difference was significant (P< 0.05).

## DISCUSSION

One of the most successful therapeutic approaches in modern healthcare is the use of medications, particularly when used appropriately.<sup>6</sup> A "patient receives medications appropriate to clinical needs, in doses that meet their individual requirements, for an adequate period of time, and at the lowest cost to them and their family," according to the World Health Organization (WHO), which defines rational medicine use. Both the individual and society are recognized to profit economically, socially, and medically from this.<sup>7</sup> However, careless medication usage has been recognized as a significant issue in healthcare across the globe; according to WHO estimates, at least 50% of all medications are taken inappropriately.<sup>8</sup> Irrational medicine use has been shown to increase individual and governmental spending, lower trust in the health care system, and increase patient morbidity and mortality in developing nations where 20–50% of health budgets are spent on drugs and other health commodities.<sup>9</sup> The present study was conducted to evaluate the patterns of prescriptions and drug dispensing in Pediatric patients.

We found that number of children and number of drugs given in URTI was 62 and 188, in LRTI was 30 and 94, in acute diarrhoeal diseases was 24 and 47, in conjunctivitis was 6 and 15, in viral fever was 14 and 30 and in wound was 4 and 16 respectively. Jose et al<sup>10</sup> analysed the patterns of prescriptions and drug dispensing in pediatric patients using WHO core drug use indicators and parameters in the prescription format prescribed by Medical Council of India. The mean age of the patients was 6.1 (SD±3.4) years. The average number of drugs prescribed was 2.29 (SD±35.91), 98.4% drugs were prescribed by generic name. Majority of drugs prescribed were in the form of syrups (62.73%), use of antibiotics was frequent (73.18%), but injection use was very minimal (0.006%). Weight of the patient was recorded in 58.33% of the prescriptions. Only 30 prescriptions (5.43%) were written in capital letters. A 100% of the prescriptions contain the details of the child along with provisional diagnosis and signature of the doctor. A 98.44% of the drugs prescribed were from the essential drug list. Copy of the essential drug list is available at the institution. The availability of key drugs was 100%. 98.73% knew the correct dosages and 100% of the drugs were adequately labelled.

We found that various dosage forms was tablet in 36, capsules in 10, drops in 14, syrups in 54, nebulization in 12, injection in 8, lotion in 4 and powder in 2 patients. Cole et al<sup>11</sup> in their study found that the average number of medicines per prescription was 3.77. The percentage of medicines prescribed by generic names was 71.0%, while 74.8% and 21.1% of prescriptions had an antibiotic and injection, respectively. The percentage of medicines prescribed from the national essential medicines list was 70.6%. The most commonly prescribed pharmacological groups of medicines were vitamins (85.37%) and

antibiotics (82.99%). The IRDP was 2.71, instead of the ideal value of 5. Pediatric prescribing patterns at the outpatient department of ODCH cannot be said to be entirely rational, especially with regards to antibiotic and injection prescribing.

We found that one drug was prescribed in 26, two in 68, three in 32 and four in 14 patients. Nwolisa et al<sup>12</sup> in their study a total of 2471 medications were prescribed for 790 patients. Antimalarials, Analgesics, Antibiotics, Vitamin C, Antihistamines and Multivitamin preparations were the commonest drugs prescribed. The prescription rate per patient was 3.13. While three different antimalarials were prescribed a total of twelve different antibiotics were. Prescription rate for injections was 1.9 per cent. Only 13.3 per cent of the patients had all their drugs prescribed in generic names. The others had at least two drugs prescribed in brand names. The difference in cost between same drugs prescribed in brand names as against in generic names were between 41.7 per cent and 60 per cent. All the antimalarials and analgesics prescribed were in the Nigerian National essential drug list while only 16.7 per cent of antibiotics prescribed were not. This study has documented significant flaws in the prescribing practices of these doctors, particularly the low rate of prescription in generic names, high rate of antibiotics prescription, inappropriate prescription of multivitamin preparations and Vitamin C and a relatively high rate of poly pharmacy.

The shortcoming of the study is small sample size.

## CONCLUSION

Authors found that various dosage forms was tablet, capsules, drops, syrups, nebulization, injection, lotion and powder. In maximum cases, drugs were prescribed in upper and lower respiratory tract infection.

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