



## EVALUATION OF LUCIDITY IN INTERPRETATION OF MEDICAL PRESCRIPTIONS WRITTEN IN PEDIATRIC OUTPATIENT BY THE PARENTS AND ATTENDING PHARMACISTS

Dr. U.N. Reddy<sup>1</sup>, Dr Sadiqua Anjum<sup>2</sup>, Dr J. Narsing Rao<sup>3</sup>, Dr Swathi Chacham<sup>5</sup>,  
Dr. Mohd Nasir Mohiuddin<sup>4\*</sup>, Dr Sana Afreen<sup>4</sup>, Dr Mir S Adil<sup>4</sup>, Dr Javeedullah<sup>4</sup>

<sup>1</sup>MD Pediatrics, Professor and Head, Department of Pediatrics, Princess Esra Hospital,  
Deccan College of Medical Sciences.

<sup>2</sup>MD Pediatrics, Asst. Professor, Dept. of Pediatrics, Deccan College of Medical Sciences  
(DCMS) - Princess Esra Hospital, Hyderabad.

<sup>3</sup>MD Pediatrics, Professor, Department of Pediatrics, Princess Esra Hospital,  
Deccan College of Medical Sciences.

<sup>4</sup>Pharm-D, Dept. of Pediatrics, Princess Esra Hospital, Hyderabad

<sup>5</sup>M.D,D.M. Pediatrics, Asst. Professor, Department of Pediatrics, Princess Esra Hospital,  
Deccan College of Medical Sciences.

Article Received on 22/04/2015

Article Revised on 13/05/2015

Article Accepted on 05/06/2015

\*Correspondence for  
Author

Dr. Mohd Nasir Mohiuddin  
Pharm-D, Dept. of  
Pediatrics, Princess Esra  
Hospital, Hyderabad.

### ABSTRACT

**Introduction:** there are various problems in understanding the prescriptions, interpreting and communicating have been documented across the health care. Medicines designed for the betterment of patients health can actually prove detrimental when misused. Therefore the medicines, side effects, usage, dosage and ingredients must be

properly communicated. While most doctors and pharmacist can see the importance of patient's knowledge of prescription when dealing with medicines, most of them hardly make appropriate efforts to communicate the same to them. **Methodology:** This is a cross sectional study done in the out-patient department of Princess Esra hospital, Hyderabad and the pharmacies attached to it from march to may 2014. It is a 1000 bedded teaching hospital, situated in Hyderabad, providing specialized tertiary level health care services to all strata of people. A total of 232 participants were enrolled in the study, out of which 202 could be followed up at the pharmacy to analyze drug dispensing. **Aims and Objectives:** This study aims at evaluation of adequacy of medical prescription written by pediatric practitioner and

its understanding by the parent and the pharmacist .It also aims to assess the drug dispensing at the level of pharmacist and the parental understanding of the usage of the prescribed drugs.

**Results:** it was noticed that among the antibiotics prescribed strength of the antibiotics was written only for 54.6% of the prescription while dose (100%), frequency (97.9%), and duration to be taken (99.4%) was adequately mention. When understanding the antibiotics in the prescription by parents was evaluated it was noticed that only 35.7% could understand the strength mentioned on the prescription while dose(70.9%), frequency( 68.8%) , duration to be taken (79.5%) could be understood by 70 – 80 % of parents. **Conclusion:** Antibiotics usage is very high compared to the usual requirement. They are chances of higher dose of antipyretics being given inadvertently due to prescription errors. Very high usage of antihistamines is seen which has been previously proved to be harmful for small children

**KEYWORDS:** Prescription, pharmacy, understanding, pediatric.

## INTRODUCTION

Modern medicine is just as much about communication as it is about science, making it a corner stone, where understanding and context driven consultation lead the way in improved patient experience. Unfortunately various problems in understanding, interpreting and communicating have been documented across the health care<sup>1</sup>. Medicines designed for the betterment of patients health can actually prove detrimental when misused. Therefore the medicines, side effects, usage, dosage and ingredients must be properly communicated. While most doctors and pharmacist can see the importance of patient's knowledge of prescription when dealing with medicines, most of them hardly make appropriate efforts to communicate the same to them.

Alteration in the amount of drug used or reconstitution of powdered formulations may not only alter the drug response but also carries the risk of giving rise to drug resistance. As antibiotic resistance is already on the rise causing a heavy toll on health care in developing countries like India; proper prescription, dosing, dispensing and usage of drugs specifically antibiotics may become an important contribution towards our attempt in reducing drug resistance thus facilitating the achievement of a hurdle free dispensing of health care in our country.<sup>[1]</sup>

Pediatric prescription differs from adult prescription as drugs are supposed to be prescribed as per the body weight of child unlike adult prescription where the dosage is uniform for most

of the drugs. Thus it makes pediatric prescription more complex as it demands clarity from the prescription in terms of dosage, formulation, timing, frequency, and duration, as well as clarity from the pharmacists when they dispense drugs to the parents. Thus the assessment of parental knowledge of pediatric prescription is very important in determining the extent of understanding of prescription by them, which acts as a vehicle in implementing technical care.<sup>[2]</sup> Evidence shows that although health literacy interventions might help to improve the overall outcome in the patient, it may not eliminate health disparities.<sup>[2]</sup> Our study aims to bring out the inadequacies in pediatric prescriptions written by pediatric consultants if any, inability of the pharmacist to either interpret the prescribed prescription or their inability to dispense the drugs as required as well as incapability of the parent to understand the doctor's prescription or to understand the method of usage of drugs in the right manner.

This would help us to understand the root cause of misinterpretation of the prescription and also help us devise newer methods of overcoming these problems although health literacy interventions might help to improve the overall outcome in the patient, it may not eliminate health disparities.<sup>[3]</sup>

### **AIMS AND OBJECTIVES**

This study aims at evaluation of adequacy of medical prescription written by pediatric practitioner and its understanding by the parent and the pharmacist .It also aims to assess the drug dispensing at the level of pharmacist and the parental understanding of the usage of the prescribed drugs.

### **MATERIAL AND METHODS**

This is a cross sectional study done in the out-patient department of Princess Esra hospital, Hyderabad and the pharmacies attached to it from march to may 2014. It is a 1000 bedded teaching hospital, situated in Hyderabad, providing specialized tertiary level health care services to all strata of people.

A total of 232 participants were enrolled in the study, out of which 202 could be followed up at the pharmacy to analyze drug dispensing.

Parents/guardians who came to the pediatric out-patient department of the Princess Esra Hospital were included irrespective of their literacy or their child's age or sex. Those who came for immunization of their children or who were referred to other departments for further

management or those who were admitted as in-patients from out-patient department were excluded.

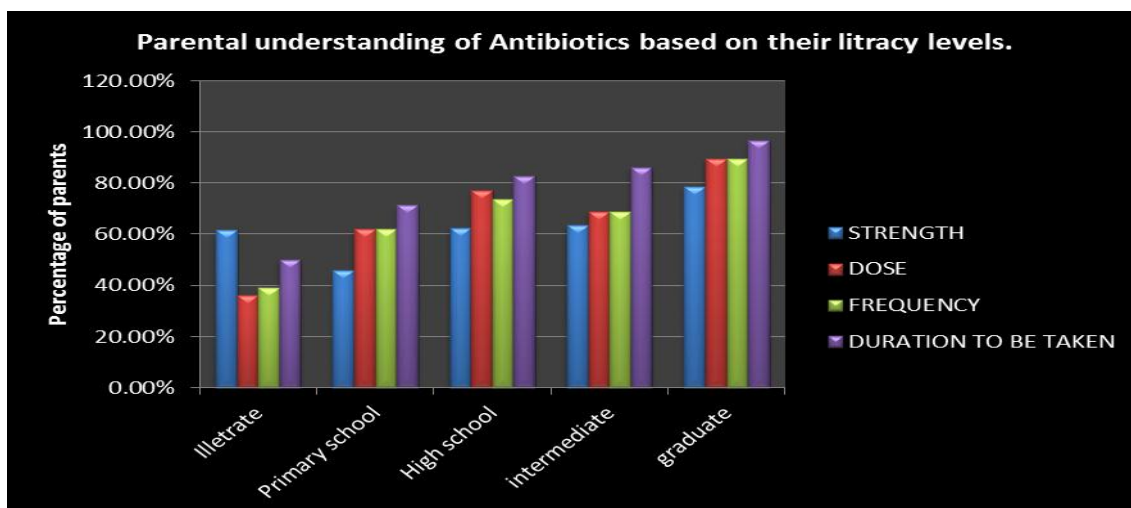
## **PROCEDURE**

The parents/guardians of the children who came to the out-patient department of the Princess Esra Hospital were enrolled after explaining the study process and taking an informed consent. The prescriptions given to them by the pediatric consultants were assessed and its details in terms of formulation, dosing, frequency, timing and duration of the use of drugs prescribed was noted in the preformed proforma. Parental understanding of the prescription was noted after receiving it from the doctor. These parents were followed up till the pharmacy. Here the understanding of prescription by the pharmacist was assessed. The qualification of pharmacists was recorded and they were assessed towards their ability to interpret the prescription, their knowledge about the uses of drugs prescribed and their efficiency in dispensing the different brands of the drugs. Their methods of dispensing the drugs were noted in the proforma. After the drugs were dispensed to the parents, their understanding of the usage of drugs was noted. Finally the parent's overall satisfaction level with whole of the process of receiving prescription from the doctor to receiving the drugs from the pharmacist and understanding their usage was assessed.

## **RESULTS**

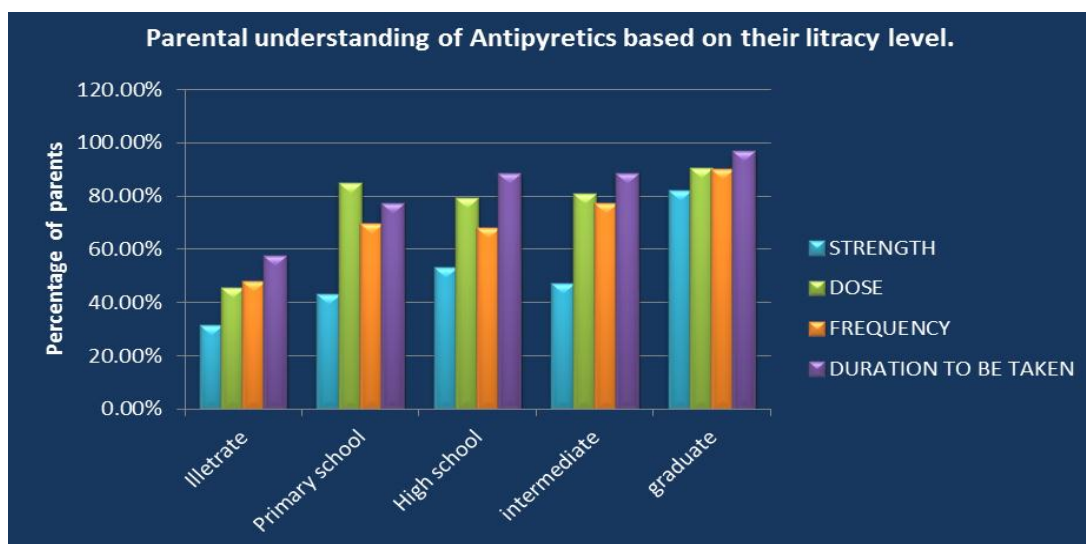
Evaluation of overall prescriptions reveals that 84.4% of the prescriptions contained antibiotics, 75.5% contained antipyretics, 71.1% contained antihistamines, 54.4% contained antitussives and expectorants and 4.7% contained nebulizations.

While evaluating the adequacy of the prescription written by the doctors, it was noticed that among the antibiotics prescribed strength of the antibiotics was written only for 54.6% of the prescription while dose (100%), frequency (97.9%), and duration to be taken (99.4%) was adequately mention. When understanding the antibiotics in the prescription by parents was evaluated it was noticed that only 35.7% could understand the strength mentioned on the prescription while dose (70.9%), frequency (68.8%), duration to be taken (79.5%) could be understood by 70 – 80 % of parents.

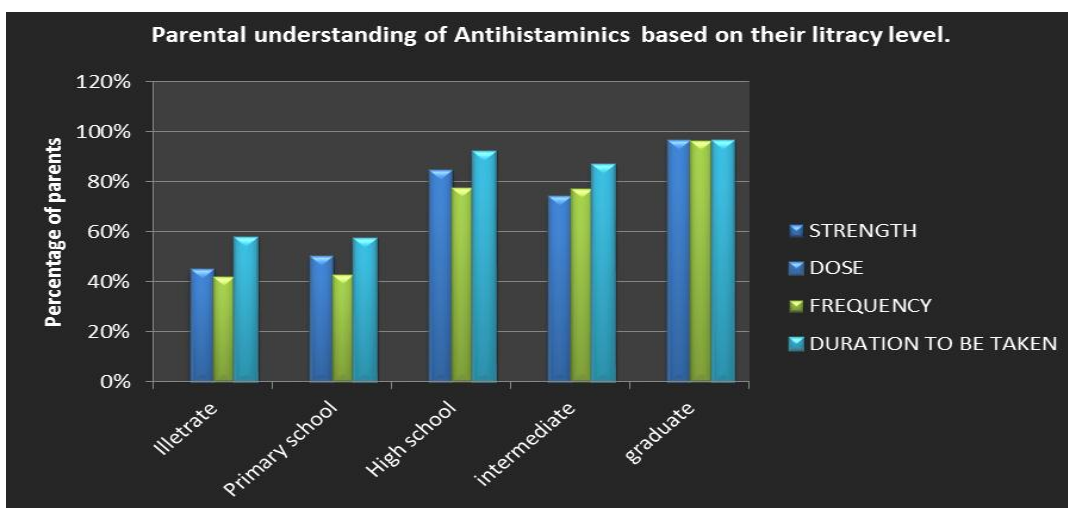
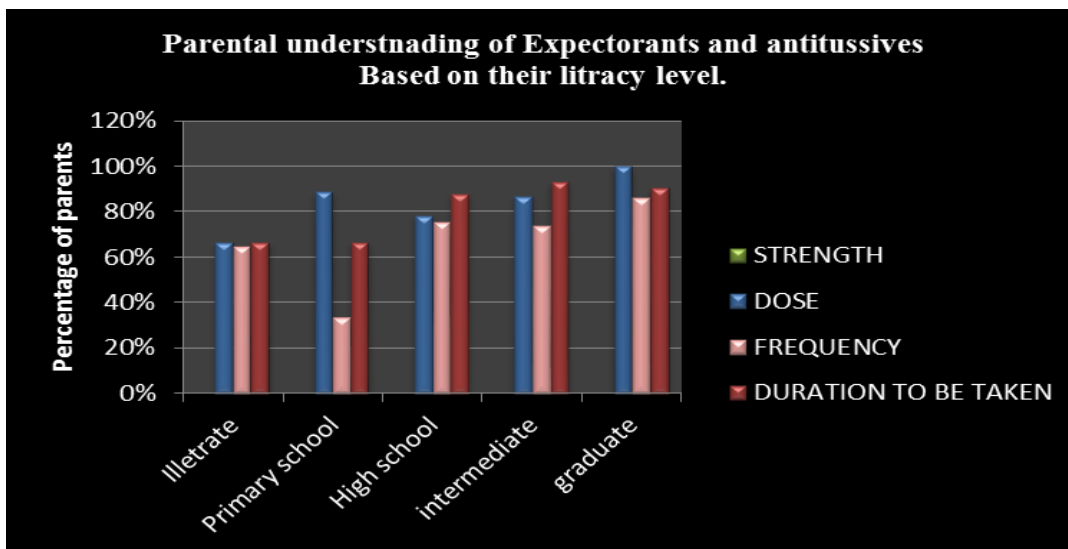


Among the antipyretics prescribed strength was written for only 67.6% of the prescriptions, while dose (100%), frequency (96.5%), duration of the drug to be taken (91.9%) was written in almost all the prescriptions.

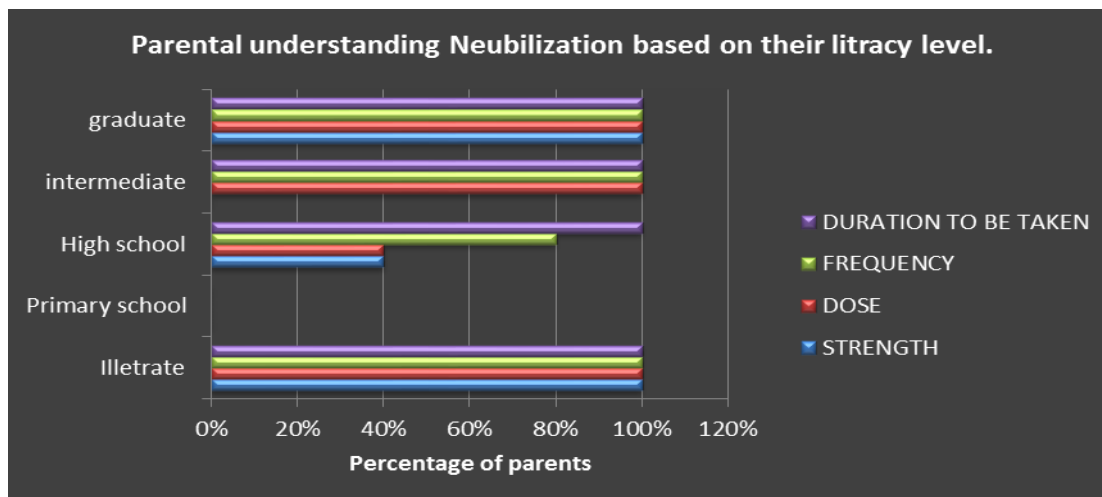
When parents understand of this was evaluated only 36.9% could understand the strength of antipyretics mentioned. While dose (77.4%), frequency (69.6%) and duration to be taken (78%) could be understood by 70 – 80% of the parents.



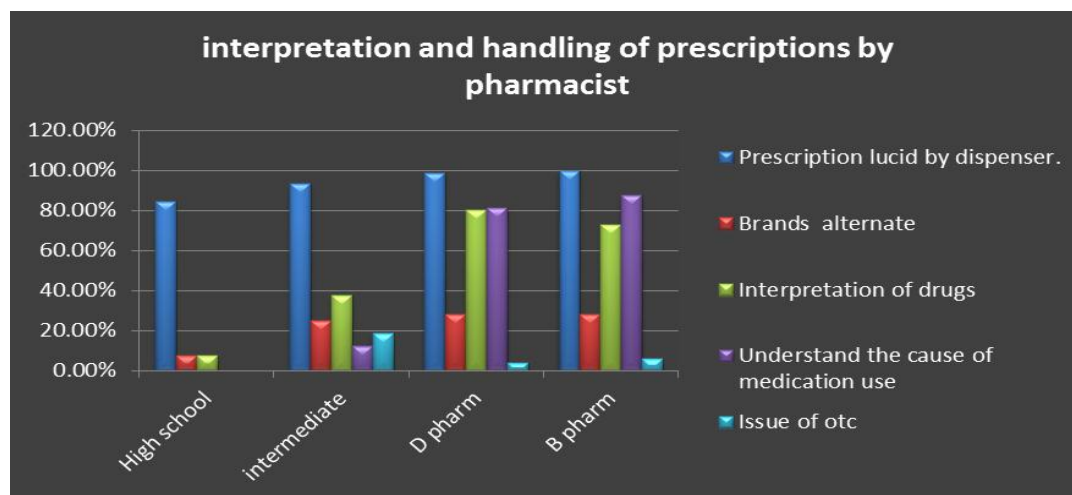
When antihistamines, antitussives and expectorants written in the prescription were evaluated, strength was not observed in them, where as dose, frequency and duration of the drug to be taken was written in almost all the prescriptions and this was understood by the 75-84% of the parents.



When the nebulizations prescribed were analyzed although prescription written by the doctor was complete in all areas of strength, dose, frequency and duration, only 54.6% of the parents could understand the strength, 72.7% could understand the dose, 81.1% could understand the frequency, 90.9% could understand the duration of the drug to be taken.



When the parental understanding of the prescription was evaluated based on their literacy level. As it was noted that as the literacy level of the parents increases from illiteracy to graduation there was a gradual increase in the understanding of medication's strength, dose, frequency, and duration of the drug to be taken specifically for the antibiotics and antipyretics. The neubilizations prescribed were equally understood by all the parents irrespective of their literacy states.



When the near by drug stores were checked for the education standards of the drug dispenser, it was shown that 80% of them were not licensed as pharmacist and had just high school to higher secondary education.

When the understanding of pediatric medical prescription by the drug dispenser based on their educational level was analyzed it was seen that though prescription appeared lucid to most the drug dispenser irrespective of their education level it was seen that clear interpretation of the individual drugs was lacking in the drug dispenser with lower educational levels (pharmacist not licensed). Dispensing of alternate brands increased as the education level increased and understanding the cause of medication use was seen only in those who were licensed pharmacist. Issue of over the counter drugs was the highest by the pharmacist who had only higher secondary education as the qualification.

## DISCUSSION

Our study revealed the pediatric use of antibiotics is inappropriately high raising concerns of antibiotic resistance.<sup>[3]</sup> The efficacy of antibiotic treatment is available in the literature keeping this in mind and taking into account, epidemiological and microbiological data over prescription of antibiotics can be avoided C moorthi et al Most of the upper respiratory and



diarrheal infections in pediatric age group are of viral origin, in spite of this our study revealed 84% of the prescriptions contained antibiotics. Similar to the trends in north India (81%) as quoted in the study by Akhter et al.<sup>[4]</sup> and quite opposite to the south east Asian trends which show 30% usage.<sup>[5,6,7,8,9]</sup> The Indian trends reveal antibiotics in 45-50% of prescriptions in a study conducted by Priti Chaudhary et al.<sup>[10]</sup>

This indicates that antibiotics are being misused even in a tertiary level hospital like the one in our study where bulk of patients is seen day in and day out.

The current study showed 75.5% usage of antipyretics with 85% usage of antibiotics, this indicates empirical antibiotics were prescribed even in the cases of without fever. More over more than 30 % prescriptions lacked the strength of antipyretics to be dispensed. Our study also shows 71.1% of the prescriptions contained antihistamines, while 60-70% of these contained first generation antihistamines. Knowledge of the best scientific evidence fails to reveal safety of first generation antihistamines in children especially in infants as showed in the study conducted by A del cuvillo et al.<sup>[11]</sup>

As opposed to available data which reveal around 50-55% of antitussives use<sup>[12]</sup> in the pediatric prescriptions, antitussives use in our study was seen in 54.4%. Evidence revealed efficacy of antitussives as questionable in children in a study conducted by Allen E et al.<sup>[12]</sup>

When the adequacy of prescription written by doctor was analyzed it was revealed that only half of the antibiotic prescriptions contained strength and of this only 2/3<sup>rd</sup> of parents could understand the strength.

Similarly strength of the antipyretics was written in 2/3<sup>rd</sup> prescriptions and of this 2/3<sup>rd</sup> again only 2/3<sup>rd</sup> of parents could understand the strength. While dose, frequency and duration of the drugs was adequately mentioned in the prescription, the same was not properly conveyed to the parents as only 70-80% of them could understand them. This indicates inadequacies on the part of the doctor in writing the prescription as well as indicates inadequate efforts to convey what is written in the prescription to the parent and at the same time poor efforts were made to cross check that which was explained to parents during the writing of the prescription. Hardly any studies were done in India to assess the parental understanding of the prescription, those done in the western world revealed lacunae in prescribing pattern which needed to be addresses.<sup>[13]</sup>



It was seen that 80% of the drug dispenser were not qualified enough and this could pose a threat to the society as this may create disparity between the formulation and the type of drug prescribed and the actual drug dispensed to the parents. It was also seen that drug dispensers with just higher secondary education were dispensing over the counter drugs maximally. This mishandling of pediatric medical prescription can lead to serious medication errors which pose health hazard to children who are biologically more susceptible to even a small amount of unlicensed drugs or unsafe dose of over the counter drugs compared to adults.

## CONCLUSION

1. Antibiotics usage is very high compared to the usual requirement.
2. They are chances of higher dose of antipyretics being given inadvertently due to prescription errors.
3. Very high usage of antihistamines is seen which has been previously proved to be harmful for small children.
4. In spite of no proven efficacy antitussives and expectorants are widely used.

## Recommendations

1. Antibiotics usage should be in strict adherence to the guidelines provided in national and international pediatrics forums.
2. Prescription should be typed and properly explained to the parents before leaving the out patient department.
3. It should be ensured that the drug dispensing person is qualified enough to Handle pediatric prescriptions.
4. Steps should be taken to ensure the medical prescription is adequate in all areas, the pharmacists dispersing the medication are qualified persons and lastly the parents are able to understand the usage of different types of drugs they receive from the pharmacy.
5. Strength of antipyretics specifically need to be mention.
6. Antihistamine and expectorants use should be minimized and restricted to older children and adolescents.

## REFERENCES

1. *Michael H. Farrell et al.* Assessment of Parental Understanding by Pediatric Residents During Counseling After Newborn Genetic Screening. *Arch Pediatr Adolesc Med.* 2008; 162(3): 199-204.

2. Mary Ann Abrams, Perri Klass and Benard P. Dreyer. Health Literacy and Children: Recommendations for Action. *Pediatrics* 2009; 124; S327. DOI: 10.1542/peds.2009-1162I.
3. C. Moorthi1, P. Rachel Paul, A. Srinivasan and C. Senthil kumar. Irrational use of antibiotics in paediatric prescriptions: A pilot study at community pharmacy in Erode City. *Der Pharmacia Lettre*, 2011; 3(3): 171-177.
4. M S akhtar et al. Drug Prescribing Practices In Paediatric Department Of A North Indian University Teaching Hospital. *asian j pharm clin res*, 2012; 5(1): 146-149.
5. Ginsberg G, Hattis D, Sonawane B, Russ A, et al., *Evaluation of Child/Adult Pharmacokinetic Differences from a Database Derived from the Therapeutic Drug Literature*, *Toxicol Sci* 2002; 66: 185-200.
6. Tzimis L, Kafatos A, *Drug utilization and nutrition patterns among children from indigent and emigrant families in Crete, Greece*, *Public Health*, 2000; 114: 393-397.
7. World Health Organization. How to investigate drug use in health facilities: Selected drug use indicators. Geneva, World Health Organization 1993. WHO/DAP 1993; 1: 1-87.
8. Cazzato T, Pandolfini C, Campi R, Bonati M, *The ACP Puglia-Basilicata Working Group. Drug prescribing in out-patient children in Southern Italy*, *Eur j Clin Pharmacol* 2001; 57: 611-616.
9. Straand J, Rokstad K, Heggedal U, *Drug prescribing for children in general practice. A report from the More & Romsdal Study*, *Acta Paediatr* 1998; 87: 218-24.
10. Priti Chaudhary, Arti Bahl, Anil Kumar, Trends of prescribing and utilisation of antibiotics in the paediatric out-patient population of a secondary care hospital in Gurgaon, India. *Ind J of Med Specialities*. <http://dx.doi.org/10.7713/ijms.2014.0004>
11. A del Cuvillo et al. Use of antihistamines in pediatrics. *J Investig Allergol Clin Immunol* 2007; 17(2): 28-40.
12. Allan E. Shefrin et al. Use of over-the-counter cough and cold medications in children. *Canadian Family Physician* november 2009; 55: 1081-1083.
13. Kenzie A. Cameron et al. Measuring patient's self efficacy in understanding in using prescription medication. *Patient Educ Couns*. 2010; 80(3): 372-6. doi: 10.1016/j.pec.2010.06.029. Epub 2010 Jul 21. PubMed PMID: 20650594; PubMed Central PMCID: PMC3184839.