Medical error is one of the serious issues in the health care settings. Medication errors contribute significantly to medical errors harm at least 1.5 million people every year. Many medication errors related studies have been conducted in adult patient care settings.

Paediatric medication error is one of the most common and preventable medical error. Medication errors were reported to be as high as 68.5 percent of the medical errors. Medication use in paediatric setting is a very challenging task. Physiological immaturity and variable body weight make the medication use process more complicated. Dosing complexities unique to paediatrics put children at high risk for both medication errors and for serious consequences as a result of these errors. Paediatric medication errors were reported to be 5.7 per 100 orders, with most of these occurring at the ordering stage (79%). Prescribing error rate per medication order in paediatric setting was reported to be 30 percent, whereas, pediatric drug administration errors were reported to be as high as 31 percent.

Nurses are the ultimate potential barrier against patient harm. Error, if not corrected at the nurse’s level in medication use process, can lead to serious patient harm. Most of the previous studies were skewed towards assessing the dose errors, omission and time-related errors. Present study, attempted to explore various important aspects of prescribing and drug administration was guided by clinical audit cycle (Fig 1) to identify defects in medication use process. Understanding these defects has important practical implications for coping with the ever present risk of mishaps in clinical practice.

Objectives
1. To investigate the prevalence of paediatric medication errors.
2. To identify therapeutic drug category frequently associated with medication errors.

Review of literature
Paparella (2009) found 18 percent of serious preventable medication errors to be the result of not having essential information at the time of prescribing, dispensing, and administering medications. Weighing and documenting paediatric weights only in kilograms has been repeatedly recommended in the literature as a strategy to decrease medication errors not only in the emergency department, but throughout the inpatient units.

Parihar & Passi (2008) identified medication error as the most common medical error in paediatric setting. In 1286 children, medication errors were 313 (68.5%), those related to treatment procedures were 62 (13.6%) and to clerical procedures 82 (17.9%). Common medication error types were: prescribing dose errors (45.5%), drug administration errors (17.7%), incorrect medication (3.3%) and incorrect route (0.8%). Morbidity due to medical error was nil in 375 (82%), mild in 49 (10.7%), moderate in 22 (4.8%) and severe in 11 (2.4%) errors.

After a systematic literature review using PubMed, EMBASE and CINAHL databases included 31 articles for data extraction, Miller et al (2007) found that medication errors occurred across the entire spectrum of prescribing, dispensing, and administering in the paediatric setting. The epidemiological estimates of the relative percentages of pediatric error types were: prescribing 3-37 percent, dispensing 5-58 percent, administering 72-75 percent and documentation 17-21 percent.

Methods and Procedures
Research setting and sample: The study was conducted is a 32 bedded paediatric in-patient unit of All India institute of Medical Sciences (AIIMS), New Delhi, India.

Study population: Child prescriptions and drugs prescribed and administered in-patient unit constituted the study population. Emergency prescriptions, verbal drug orders, stat orders, and all other drugs administered by the paediatricians themselves were excluded from the study.
Sampling technique and sample size requirements: Sample was selected by simple random sampling using random number list. Bed numbers (1-32) of selected setting were randomised and kept in sealed coded envelops (N= 216) which were blinded to the researcher. Prescription and drugs of Bed number revealed in each sealed envelope was considered as the sample unit. Total 202 prescriptions (having 1129 drugs) were evaluated.

Tools:
Tool I: Self-structured observational checklists

Data collection procedure: After selecting the prescriptions, height and weight of children measured using stadiometer and history of any drug allergy confirmed, a copy of each prescription was done and drugs were first evaluated using BNFC-2007 guidelines and child relevant information/history. Data was collected in audit checklist. Treatment book was evaluated for transcription of drugs. Nurses were observed while they prepared and administered drugs to the respective children. Finally, drug documentation charts were evaluated and information was collected on observational checklist.

Ethical clearance: Ethical clearance was obtained from Ethics Committee of AIIMS and written informed voluntary consent taken from the nursing staffs before data collection. Confidentiality and anonymity of the data was ensured through allotment of unique code to the prescriptions. Errors having potential to cause patient harm were intercepted prior to actual administration of drug.

Data analysis: Data was analysed using statistical package: SPSS-15. Results were expressed as percentage with 95 percent confidence interval (CI) in figure and tables.

Findings and Interpretation
Data was collected for 5 months (July 2010 to November 2010) in three shifts of duty (morning/evening and night). The 55, 12-hour observation periods included 202 prescriptions containing 1129 reviewed written drug orders and 696 observed doses.

Prevalence of medication error was 60.2 percent in one or more aspects of medication use (Fig 2).

Of 202 prescriptions containing 1129 drugs, 50 prescriptions (24.7%) had general prescrip-
Drug specific prescription errors were 259 (22.9%) of 1129 drugs. Common prescription errors were dose error and omission of route errors (Table 1).

Total of 35 (3.1%) transcription errors were identified in 1129 drugs and omission of duration of administering IV drugs was the commonest error type (n=20).

On observations of 696 drugs administration, 559 (80.3%) errors were observed in one or more aspects of drug administration. Majority of drug administration errors were due to the fact that the drugs were not administered by the nurses but by the parent/attendant (Table 2).

Total 365 (52.4%) documentation errors were identified of 696 drug administration observations. Inaccurate documentation of time was the commonest error type (Table 3).

Antibiotics use was found to be frequently associated with medication errors. About 36 percent (n=338) of antibiotics use were associated with prescription errors and 75 percent (n=224) of antibiotics use were associated with drug administration errors.

## Conclusion
Medication errors of minimal patient risk were identified across the entire spectrum of medication use with high prevalence during drug administration suggesting need for improving the system policy and procedures. Majority of medication errors were related to the use of antibiotics.

## References