Prevalence, Risk Factors and Root Cause Analysis of Medication Errors among Paediatric In-Patients at Kisii Level 5 Hospital

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ABSTRACT

Background: Medication errors are any errors in prescribing, dispensing, administration or monitoring of a drug irrespective of whether such errors lead to adverse consequences or not. They are also the single most preventable cause of patient harm. When medication errors occur, paediatrics patients have a much higher risk of death than adults. There are many factors that put children at a greater risk for medication errors, such as their variations in age and weight, high intra-patient variability, rapid changes in the pharmacokinetic properties of drugs in children. Review of literature reveals that children experience medication errors up to three times more than adults. Some studies indicate up to tenfold higher rate of medication errors in children.

Objective of the study: The main objective of the study was to determine the prevalence, types, and causes of medication errors in the paediatric inpatient wards at the Kisii level 5 Hospital

Methodology: The study was a descriptive cohort study that had qualitative and quantitative approaches. The quantitative component involved Paediatric children aged 0-5 years old admitted at the general Paediatric ward in Kisii level 5 Hospital, and entailed the prospective review of treatment sheets and files for medication related errors upon admission for a period of one month. The qualitative component included interviews of health care providers and caregivers to identify the medication error types and causes, and Focused group discussions based on root cause analysis framework with brainstorming, fishbone diagrams, and selected cases for the identification of causes and solutions for medication errors. Descriptive data analysis of characteristics of children in the sample was done. Logistic regression analysis was done to identify risk factors for dosing errors.

Results: Of the 405 treatment sheets and files reviewed, 1023 medication errors were observed. These errors were classified into various categories as documentation errors 756 (73.9%) which were more prevalent, followed by dosing errors 90 (8.8%),), monitoring errors (88, 8.6%), timing errors (58, 5.7%). The medication errors occurred frequently in male children (164, 41.2%), children less than one year (186, 45.9%) and General Paediatric ward (19648.4%). Logistic regression of dosing errors revealed that children receiving more than five medicines were 6.4 times likely to experience dosing error (OR 6.4 95%CI: 2.7-15.1, P=<0.001).Route of drug administration was a significant predictor of dosing errors with a 90% less risk of developing a dosing error for oral routes as compared to intravenous route (P= <0.001).

The interviews revealed that the major contributors to occurrences of medication errors; understaffing, non-adherence to protocols, lack of regular updateson clinical knowledge, absence of a hospital formulary and systems for detecting and reporting medication errors.

Conclusions and Recommendation: The prevalence of medication errors was significantly high and large-scale study would be appropriate to determine the extent of medication errors among children in Kenyan hospitals. The types of medication errors were similar to those reported in research. Despite majority of errors observed were less likely to cause harm, some can be potentially harmful and therefore there is need for hospitals to have strategies of detecting and
minimizing the errors

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