

Medication Error Prevention Activities for Pediatric Cancer Patients

- Focusing on Chemotherapy Administration and Establishing a Safe Medication Environment

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Introduction

In the case of pediatric patients, the likelihood of medication errors is high due to factors such as incorrect drug dosage, insufficient pediatric medication information, and operation of medication infusion pumps. When medication errors occur, limited communication and the immature metabolism and excretion functions of children can lead to significant harm. Particularly for pediatric patients with blood tumors, the vast and complex information regarding the administration of anticancer drugs and transplantation-related medications increases the probability of medication errors compared to other pediatric patients. The higher frequency of administering high-risk drugs, such as anticancer agents, also amplifies the severity of harm in case of medication errors. Therefore, our team aimed to provide safe medication nursing for pediatric blood tumor patients by analyzing the root causes of medication errors and planning improvement activities.

Method

We analyzed the causes of medication errors in pediatric blood tumor patients from the perspectives of healthcare professionals, patients, information, and environment. Conducted campaigns for improving patient identification awareness, including attaching 'patient bracelets' and 'medication label' stickers to the mobile medication system, along with competency assessments. Activities included pre- and post-surveying patient identification awareness, re-education through pre- and post-surveys, on-site monitoring, monitoring mobile medication system usage rates, rewarding outstanding users, conducting ward conferences, providing specialized oncology education, creating and distributing FAQ materials, conducting ad-hoc education based on requests from individuals or wards, updating anticancer sheets, and monitoring medication label attachment rates for continuous infusion pump use.

Result

The medication error rate decreased by 66.6%, and correct awareness of mobile medication system usage increased by 2%. The mobile medication system usage rate surpassed 90%. A total of 57 anticancer sheets were updated, 10 pediatric blood tumor patient medication FAQ materials were created, and 82 individuals completed education on pediatric blood tumor patient care. The medication label attachment rate for continuous infusion pump use exceeded 80%.

Conclusion

The most significant achievement of the improvement activities was the reduction in medication error incidents and the enhancement of the mobile medication system's performance. There was improvement in the recognition of mobile medication system usage and overall satisfaction among internal customers, particularly in terms of subjective stress experienced by nurses caring for pediatric blood tumor patients, satisfaction with educational materials, accessibility, understanding, and practical assistance. Additionally, the inquiry method saw a decrease in the proportion of phone inquiries, while the search ratio for hospital information system training materials increased, indicating the effectiveness of the produced educational materials. Although the goal of achieving a 3% improvement in external customer satisfaction was not met, it was suggested that dissatisfaction with environmental factors might have influenced scores in other areas. Furthermore, activities such as the development of educational materials for pediatric blood tumor patients and the implementation of specialized professional training had a positive impact. This not only enhanced the knowledge of nurses regarding anticancer treatments but also facilitated the refinement of guidelines for the accurate administration of anticancer agents to pediatric blood tumor patients through updates to the anticancer sheets.

Key Metrics		Targets		Results	
Number medication errors	→	10% reduction compared to the previous period	→	Decreased by 66.6%	
Appropriate awareness of using a mobile medication system when taking medication	→	10% reduction compared to the previous period	→	2% improvement	
Mobile medication system usage rate when dosing	→	Achieved 90% or more 90%	→	January: 87.5% February: 87.4% March: 88% April: 88.1% May: 85.4% June: 85.08% July: 89.81% August: 88.8% September: 90.89% October: 92.12%	
Internal customer satisfaction	→	Proactive 'stress score' 5% reduction	→	4.0% reduction	
External customer satisfaction (Nurse area, medication and treatment process area)	→	3% improvement compared to the previous period	→	0.7% improvement	
Number of anti-cancer sheet updates	→	50+ updates	→	57 cases	
Number of pediatric hematologic tumor patients medication FAQ materials produced	→	More than 10 productions	→	10 cases	
Number of people who have completed training related to the nursing of pediatric hematologic cancer patients	→	Cumulative number of people 80 or more	→	82 people	
When using a continuous infusion pump usage rate of medication labels with drug stickers	→	Achieve 80% or more	→	April: 87.5% July: 100% October: 100%	