Original Article

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Investigating the Effect of Senior Managers' Compliance in Reporting Nurses' Treatment Errors in Pediatric Wards

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Abstract

Background: The occurrence of medical errors in therapeutic centers is important due to its critical nature in terms of health, patient safety, and notable clinical and economic outcomes. One of the solutions to manage this problem in the field of nursing is error reporting and recording. Error reporting, on one hand, improves patient care quality and safety and; on the other hand, provides valuable information to prevent future errors. Therefore, considering the importance of error reporting, the aim of this study was to determine the effect of senior managers' compliance in reporting nurses' treatment error in pediatric ward of Shahid Sadoughi Hospital in Yazd.

Materials and Methods: This interventional study included all nurses working in pediatric wards. The intervention was defined as various safety management drivers and encouragement of staff to report errors without any fears or concerns from senior managers. The error reports was recorded and comprised before and after intervention. For daat anlysis, SPSS (version 21) was run.

Results: Following the intervention, over the course of a year, a total of 327 errors were reported. With respect to wards, 36.9% of errors occurred in pediatric oncology ward, 40% in PICU, 25.6% in pediatrics, 8% in emergency department of pediatrics, and 15.9% in NICU. However, only 32 errors were reported during the last year. Data analysis indicated a significant increase in error reporting following the intervention (P-value = 0.021). Furthermore, the results showed that mostly errors occurred in morning shift. Considering the error type, medication error was the most frequent; and considering the reason, non-compliment with the principles of drug adminstration got the highest frequency.

Conclusion: The most important step in reducing errors is to eliminate the obstacles against reporting errors by creating a situation in which each nursing staff can honestly report his/her error. Therefore, regarding a significant difference before and after the intervention, it is recommended that senior managers consider medical treatment error reporting as their priorities.

Keywords: Error Reporting, Medical Error, Nurse, Pediatric

Introduction

Patient safety is one of the main concerns of health care centers. In the same vein, many studies have been carried out on various types of medical errors, including medication errors, complications and surgical infections, defective screening of cancers, falling patients from the bed, etc. (1, 2). The occurrence of medical errors in hospitals is very important due to the critical nature of patient health and safety and can brings about significant clinical and economic consequences in a way that affect the mortality index. Research has shown that 3 to 17 percent of hospitalized patients suffer from medical error-induced complications (3). Studies have shown that medication errors are the most common avoidable medical error for patients. One out of every three medication errors is done by the nursing staff while giving the medication to the patient. Since medication

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orders are important part of the patient's treatment process, ignoring the correct principles of its administration can lead to problems such as inappropriate and unsuccessful treatment and even can include lawsuit (4). The incidence of unwanted medication errors in children is three times more than that of adults (1, 5). Furthermore, children are more at risk than adults in confronting the complications of medical errors since they have insufficient communication skills and unexplained physiological status, including the lack of kidneys and liver development in the disposal of drugs, the need for weight-based drug dosing involving multiple calculations, dilution of stock solutions (1, 6).

Research has shown that issues such as lack of pharmacological knowledge, errors in the calculation of medication dosages, inaccurate examination of the patient, and incorrect identification of the patient, the failure to observe the scheduled protocols, illegible handwritten prescriptions, and the similarity in the shape, packaging, and names of drugs are among the important reasons for medication errors. On the other hand, issues such as lack of time, fatigue, insufficient number of personnel, lack of equipment, environmental factors, work experience, etc. are among hidden reasons that indirectly contribute to medical errors (1, 3, 4, 7). One of the ways to manage errors in the field of nursing is to report and record errors. Reporting medical errors reduces the incidence of similar errors and their adverse consequences. Error reporting, on one hand; improves the patient care quality and safety and; on the other hand, provides valuable information to prevent future medical errors (8). Studies have shown that a number of factors inhibit error reporting, including managerial, ethical, and environmental factors as well as fear of error reporting consequences and failure in reporting processes. Among the most important management factors are the inadequate response of nursing directors and the existence of relevant legal issues (3, 7). Reporting error is important, even reporting errors that are not harmful to the patient can play an important role in error prevention and quality enhancement (9). Measures to reduce medication errors by authorities require information about the nature of the error obtained from the treatment team reporting (3). Therefore, the present study was conducted to investigate the role of the organization senior managers on rate of medical errors reporting.

Materials and Methods

This descriptive-analytic study was performed with the aim of investigating the effect of senior managers' compliance in reporting nurses' treatment error in pediatric ward of Shahid Sadoughi Hospital in Yazd during 2017. For this purpose, an error reporting form was designed and distributed among the nurse staff to voluntarily report their errors. This form comprised three parts. The first part gathered information about the patient's profile (family name, ward, hospitalization date, age, and date of the error), the second part was allocated to the personnel information (shift, position, and error-induced damage), and the third one pertained to error type, causes of the error occurrence, and description of the error. Given that the rate of error reporting was very low in 2016, safety management drivers were designed and implemented so that a team of senior hospital managers, including the head of the hospital, manager, manager of the nursing office, and safety expert, etc held short meetings with all the personnel of each hospital ward such as doctor, nurse, resident , etc. The personnel were asked to report any error without feeling fear to the hospital in order to resolve that problem and reduce the errors. They were assured that they would not be punished or blamed for any error report and even those who report the errors are financially encouraged and would be awarded a bonus. Error reporting

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methods were also improved to achieve employee comfort and trust by using telephone to report error to clinical supervisor and safety expert, using a paper to report error to safety expert or head nurse , and using hospital electronic system and a short message service (SMS). Finally, the data were analyzed by SPSS (version 16).

Results

Based on the results of the study, 116 nurses participated in this study; all were women with a minimum age of 22 years old and a maximum age of 45 years. The mean age of participants was 31 years old with standard deviation of 5. Minimum work experience of the participants was 1 year and the maximum was 25 years with an average of 6.5. All participants had baccalaureate degree in nursing. Considering marital status, 82 were (70%) married while 12 (30%) were single. Ten percent of the nurses worked in the morning shift and the rest of them had round shifts. Forty three of the nurses (37%) worked in NICU, 22 (19%) in the pediatric ward, 21 (18%) in PICU, 17 (15%) in the pediatric oncology ward, 13 (11%) in the pediatrics emergency department. According to the results of the study, in 2012, 32 errors were reported, of which 4 were occurred in pediatric ward, 5 in NICU, 15 in pediatric oncology ward, and 8 in pediatric emergency department. The results of the study indicated a significant increase concerning the number of errors reported in 2012 and 2017 (P.value = 0.021). In 2017, 327 errors were reported, of which 36.9% were occurred in pediatric oncology ward, 40% in PICU, 25.6% in pediatrics, 8% in pediatric emergency department, and 15.9% in NICU (Table I).

The results of this study showed that 82.3% of errors were reported by nurses, 7.6% of errors were reported by medical assistants, 4% by laboratory staff, 4% by medical practitioners, and 2% by medical students. Regarding wards in which the errors were reported by nurses, 32% of the errors were reported by NICU nurses, 26% by pediatric oncology nurses, 22% by pediatric nurses, 13% by NICU nurses, and 7% by pediatric emergency department. The results of the study showed that 37.9% of errors occurred in the day shift and 35.8% in the night shift. In the pediatric oncology department, 58% of errors occurred in the day shift and 24% in the night shift. In the pediatric ward, 53% of errors occurred at night shift and 34% in the day shift. In pediatric emergency department, 57% of errors occurred at morning shift and 23% in the evening shift. In NICU, 43% of errors occurred at day shift and 29% at the night shift. In PICU, 43% of errors occurred at the evening shift and 41% in the night shift. In the analysis of the type of error, the results showed that 68% of reported errors were medication errors, 16% were care and treatment errors, and 8% were recorded. Examining medication errors, 32.5% related to the incorrect registration of the drug by the nurse during the transcription, 25.6% related to administration of incorrect drug, 22.9% related to administration of incorrect dosage, 10% related to administration of to another patient, and 4% related to incorrect administration of the drug. Considering the wards, it was found that the most common medication error in the pediatric oncology ward related to administration of incorrect drug and then to incorrect drug registration. The results of this study showed that 41% lack of compliance with the principles, 24% inadequacy, 9.5% inaccuracies and 8.9% in the workload of the personnel (Table II).) With respect to reasons for error occurrence, it was revealed that 49% of the errors occurred due to failure to observe the principles of medication administration, 24% due to insufficient accuracy, 9.5% due to illiteracy of the registration, and 8.9% due to workload of the personnel.

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Table I. Number of recorded errors before and after intervention

	2012		2013	
Ward	Number of Errors	percentage	Number of Errors	percentage
Pediatric Oncology	15	11	95	36.965
Pediatric 2	4	3.1	66	25.681
Emergency pediatrician	8	0.8	21	8.1712
NICU	5	3.8	41	15.953
PICU	0	0	104	40.467
total	32		327	

Table II. The cause of the recorded errors in term of different sections of the pediatric wards

	Error reporting the causes of the incident						
	Pediatric Oncology	**Pediatric 2**	**Emergency pediatrician**	**NICU**	**PICU**	**total**	**percentage**
Insufficient accuracy	24	22	7	4	23	80	24
Volume of work	13	8	3	4	1	29	8.9
Being illegible	7	11	4	4	5	31	9.5
Failure to observe the principles	36	20	10	15	52	133	4.1
Lack of correct identification	4	2	1	5	5	17	5.2
Insufficient awareness	2	1	1	4	8	16	4.9
Low staffing experience	6	1	0	9	5	21	6.42
total	92	65	26	45	99	327	100

Discussion

The occurrence of the error indicate the lack of a safety culture and an unfavorable work condition for nurses, system problems can be prevented through the reporting of various types of errors. In principle, paying attention to the error reporting provides valuable information to prevent future errors. Clinical errors are serious threat to patient safety and they are posed as a major concern in the provision of health care (10, 11). In the current study, senior executive's compliance in considering systemic approach to deal with errors led to significant increase in the number of reported errors by the nurses. It is worth mentioning that in the systemic system, no punishment is imposed on the nurse, and the root analysis of the error is done for prevention; and we pay attention to the performance of the entire team. However, in the individual approach, we only look for the individual who committed the error and try to reduce the incidence of errors by punishment and forfeit that are usually effectless (9, 12). The researchers have noted the major reasons for the lack of error reporting; namely, the useless of the error reporting from the staff's point of view and the fear of accusing, criticizing, and punishment by the managers (7, 10). Nevertheless, other reasons are involved, including stigmatize a nurse to be imprudent, blame of a nurse by the patient and or his/her relatives, concern about the effect of the error on the patient condition, and legal issues (10). The timely and accurate error reporting by the staff is considered to be one of the factors affecting the safety of patients. In other words, identifying events threatening patient's safety, analyzing the trends of these events, and developing corrective remedies for improving the system can lead to improved patient safety (8). The results of the study showed that nurses reported more errors, which is similar to other studies, because nurses constitute the

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largest and most affiliated group of hospital staff and play a major role concerning patient care (6, 13). The error report was more in the morning shift than in the night shift which can be explained by reasons such as easier access to the patient's doctor and the surgeon in the morning, and in the event of an error, nurses preferred to report an error to the head physician to prevent its complications. Furthermore, other reasons can be the busy work environment in the morning shift and special and invasive procedures in the morning, etc (8). Error reporting in the night shift causes fatigue and disorientation among colleagues due to the long and tedious twelve-hour shift. Moreover, the number of nurses in the night shift is fewer than morning shift and even this number reduces after midnight and all of these factors led to more error in this shift (6, 8). The results of the study showed that the medication errors were the most common type of error, of which the error of registration, incorrect medication, and incorrect dosage were the most common reported cases that is consistent with other studies (6, 10, 14-16). In general, the nurses are the largest group of staff in the hospital and their main responsibilities, which makes up more than 40 percent of their time, is medication administration. The large number of error reporting among nurses also can be due to environmental noise, personality factors such as tiredness, labor, etc. Medication errors increase costs and destroy the trust of the patient and his family to the nurses as well as the hospital, and damage the nursing profession (15, 17). In examining the causes of the reported errors, non-observance of the principles of medication administration, carelessness, high volume of work, and illegible handwritten prescriptions were major issues that is similar to other studies (18). Illegible handwritten prescriptions are one of the reasons that mislead nurses and can be repeated many times for a patien(8, 19, 20). Others have shown that poor working conditions of the personnel, such as a large workload, a low number of personnel, a busy ward, etc. affect the error incidence in the hospitals (8, 21). The most important step in addressing the obstacles to reporting errors is the creation of an environment in which each employee honestly and without fear report his/her errors. This kind of environment needs appropriate interaction between staff and senior hospital managers and staff training regarding the importance of reporting errors to voluntarily report their errors. Another influential measure to reduce the incidence of medical errors is adjusting the working conditions of the staff and resorting to computerized prescription.

Conclusion

The most important step in reducing errors is to eliminate the obstacles for reporting errors a long with providing an environment in which each nursing staff can honestly report her/his error. Therefore, given the significant difference in terms of medication error rates before and after the intervention, senior managers are recommended to prioritize treatment error reporting in their plans.

Conflicts of interest

The authors declare no conflict of interest.

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