



Received: 16-06-2023  
Accepted: 26-07-2023

ISSN: 2583-049X

## Application of 7 Right Drug Administration Principle in the Pediatric Ward of the Aceh Government Hospital

<sup>1</sup>Elsa Ismiranda, <sup>2</sup>Mayanti Mahdasari, <sup>3</sup>Muhammad Yusuf, <sup>4</sup>Yuswardi, <sup>5</sup>Putri Mayasari

<sup>1</sup> Undergraduate Nursing, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia

<sup>2, 3, 4, 5</sup> Fundamental and Management of Nursing, Faculty of Nursing, Universitas Syiah Kuala, Banda Aceh, Indonesia

Corresponding Author: **Mayanti Mahdasari**

### Abstract

**Background:** Medication error is a crucial issue of concern in the health sector worldwide because of its potential to harm patients. Medication errors often occur during the drug administration phase or are known as medication administration errors. To minimize drug administration errors, it is necessary to apply the 7 right principle of drug administration. This case study is a descriptive study that aims to determine the implementation of the 7 right principles of drug administration in the pediatric ward of the Aceh Province government hospital.

**Methods:** The data collection technique used purposive sampling with a sample of 14 nurses. Demographic data collection was carried out using a questionnaire filled out by respondents while data collection regarding the application of the 7 right principles of drug administration used the

observation method using an observation checklist sheet compiled based on the Standard Operating Procedures of the Aceh government hospital and analyzed using descriptive statistics.

**Results:** The application of the 7 right principles of drug administration (85.7%) is not optimal, with the value of each principle being different, namely the patient's right principle (85.7%) is not optimal, the right drug (100%) is optimal, the right dose (100%) is optimal, the right time and frequency (78.6%) are optimal, the right route (100%) is optimal, the right information (57.1%) is optimal, and the right documentation (92.9%) is optimal.

**Recommendations:** It is recommended that nurses be able to apply each of the 7 right principles of drug administration optimally.

**Keywords:** Medication Errors, Drug Administration Principle, Nurses

### 1. Introduction

Medication error is a crucial issue of concern in the health sector worldwide. According to the National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) in the United States, a medication error is an event that causes or leads to inappropriate drug use and has the potential to harm patients in the treatment process and under the control of health workers which should be prevented <sup>[1]</sup>. Medication errors can occur at various stages, starting from prescribing errors by doctors who treat patients, preparing and dispensing drugs (dispensing errors) by pharmacists, drug administration (administration errors) by nurses, and drug use errors by the patient himself <sup>[2]</sup>.

In a study by the British National Patient Safety Agency, it was found that most medication errors occurred during the drug administration phase (administration error), namely 50% <sup>[3]</sup>. And in a study <sup>[4]</sup> conducted in Indonesia, it was found that the incidence of administration errors was the most dominant case of medication errors occurring in inpatient wards, namely as much as 59%. Patient errors and medication errors are the most common medication errors that occur at the drug administration stage <sup>[5]</sup>. Based on the research in Malaysia, it was found that the highest prevalence of medication errors were wrong time (46.9%), wrong medication (25.4%), and wrong dosage (9.2%) <sup>[6]</sup>. Meanwhile, based on the research in Magelang, it was found that the most frequent errors were the wrong time (51.7%), wrong dosage (14.2%), wrong documentation and medication (9.9%), wrong route (8.8%) and wrong patient (5%) <sup>[7]</sup>.

Even though drug administration is a collaborative nursing action, nurses have a significant contribution to medication safety because nurses play many roles in the drug administration process <sup>[8]</sup>. Approximately 5-20% of nurse time is spent on medication administration <sup>[9]</sup>. Medication management is a crucial responsibility for nurses and requires quite complex skills. Drug management involves several aspects, namely preparation, calculation, checking/examination, drug administration, and monitoring of drug effects and drug interactions <sup>[10, 9]</sup>. Therefore, nurses need to uphold the principles of medication safety before giving medicine when giving medicine, and after giving medicine to avoid medication errors <sup>[3, 11]</sup>. The principle of

drug administration safety is to ensure that the right patient, drug, dose, time, route, documentation, and information are correct [12].

Administration of drugs to pediatric patients requires special attention because prescribing drugs to pediatric patients requires dose adjustments related to body weight and other calculations that are less common in prescribing drugs for adult patients. Minor errors in calculating drug doses in pediatric patients have a greater risk of harm [1]. In Indonesia, even at the regional level, such as in Aceh Province, there is no definite data regarding medication errors. The absence of data related to the incidence of medication errors is one of the obstacles in evaluating the safety of drug administration by health workers. Therefore researchers are interested in knowing how to apply the 7 right principles of drug administration to pediatric patients at the government hospital in Aceh Province.

**2. Methods**

This case study is non-experimental quantitative research with a descriptive design. The data collection technique used is accidental sampling. Data collection was carried out with two enumerators who were Nursing Professional Education students currently undergoing the Nursing Management stage and had previously received briefings from researchers regarding data collection procedures. The case study was conducted from 21 to 25 March 2023 in the pediatric ward of the Aceh Province government hospital with 14 nurses as respondents from a total population of 21 nursing staff (18 nurses and 3 midwives). The sampling technique used is non probability sampling with purposive sampling method. The inclusion criteria used are that the respondent must be a nurse. The method of collecting data on the characteristics of the respondents was using a questionnaire which was filled in directly by the respondents, while data related to the application of the 7 right principles of drug administration was carried out by the observation method using an observation checklist sheet compiled based on Standard Operating Procedures at the Aceh Province government hospital. Data are grouped using 2 categories, namely optimal and not optimal. It is categorized as optimal if the respondent applies each point on the observation sheet, and not optimal if the respondent does not apply all the points listed on the observation sheet applying the 7 right principles of drug administration.

**3. Results**

Based on the data analysis on the characteristics of the respondents, the following results were obtained:

**Table 1:** Respondent Characteristic

S. No	Characteristic	F	%
1.	Age		
	21-40 Years (Early Adult)	13	92,9
	41-65 Years (Lately Adult)	1	7,1
2.	Gender		
	Female	14	100
3.	Education Level		
	Associate Degree of Nursing	8	57,1
	Bachelor of Nursing Applied Science	1	7,1
	Nursing Profession	4	28,6
	Nursing Magister	1	7,1
4.	Length of Work		
	< 5 Years	5	35,7
	≥ 5 Years	9	64,3

5.	Employment status		
	Civil Servant	6	42,9
6.	Government Employee with Work Agreement	8	57,1
	Patient Safety Goals Training History		
	Yes	6	42,9
	No	8	57,1

Based on table 1, it is known that most nurses are in the early adult stage (21-40 years) as much as 92.9% and 100% of respondents are female. The highest level of education for nurses, namely Associate Degree of Nursing was 57.1% and the longest working time is (≥ 5 years) as much as 64.3%. The most employment status of nurses is Government Employees with a Work Agreement of 57.1%. Then most of the nurses (57.1%) had never attended training on patient safety objectives before.

**Table 2:** Distribution of 7 right Drug Administration Principles Application

S. No	Drug Administration Principle	Category	F	%
1.	7 right Drug Administration Principle	Optimal	2	14,3
		Not Optimal	12	85,7
2.	Right Patient	Optimal	2	14,3
		Not Optimal	12	85,7
3.	Right Drug	Optimal	14	100
		Not Optimal	0	0
4.	Right Dose	Optimal	14	100
		Not Optimal	0	0
5.	Right Time and Frequency	Optimal	11	78,6
		Not Optimal	3	21,4
6.	Right Route	Optimal	14	100
		Not Optimal	0	0
7.	Right Information	Optimal	8	57,1
		Not Optimal	6	42,9
8.	Right Documentation	Optimal	13	92,9
		Not Optimal	1	7,1

Based on Table 2 above, as many as 12 nurses (85.7%) have not optimally applied the 7 right principles of drug administration. As many as 12 nurses (85.7%) have not optimally applied the right patient principles when administering drugs, 14 nurses (100 %) had optimally applied the right medication, 14 nurses (100%) had optimally applied the right dose, 11 nurses (78.6%) had optimally applied the right time and frequency of administration, 14 nurses (100%) had optimally applied the right route, 8 nurses (57.1%) have optimally applied the right information, and as many as 13 nurses (92.9%) have optimally applied the right documentation.

**4. Discussion**

Based on the results of this research study, it can be conclude that 85.7% of nurses in the pediatric ward of the Aceh Province government hospital had not optimally applied the 7 right principles of drug administration, as many as 12 nurses (85.7%) had not optimally applied the right patient principles, only 11 nurses (78, 6%) who have optimally applied the principle of right time, and only 8 nurses (57.1%) who have applied the principle of right information. It shows that most nurses have not implemented the Standard Operating Procedures set by the hospital. Researchers argue that one of the factors that most influence the application of the 7 right principles of drug administration is the application of the nursing management function. The management functions are influential namely

planning, directing, and controlling/supervising.

In the function of planning the need for the number of nursing staff, the researchers considered that in the pediatric ward of the Aceh Province government hospital, this function still needed improvement because the number of nurses provided was relatively small when compared to the number of patient beds. The room has 26 beds that function properly, while the number of nurses in the ward is 21 people. When viewed from the formula for the need for nurses based on the ratio of beds and nurses based on the type of hospital stipulated in the Decree of the Minister of Health of the Republic of Indonesia number 262 of 1979, the need for nurses in type A hospitals is 2 to 3 nurses for every 2 beds<sup>[13]</sup>. It means that the minimum requirement for nurses in that room is 26 nurses and the maximum requirement is 39 nurses. It shows that the ward does not even meet the minimum needs of nurses, while there is a shortage of 5 nurses in the ward. It certainly requires special attention because the responsibilities and workload of nurses are quite a lot. The World Health Organization (WHO) states that one of the factors that influence the incidence of medication errors is excessive workload and fatigue<sup>[1]</sup>. It is supported by research<sup>[14]</sup> which found that the high workload of nurses can affect the quality of nurse performance while providing nursing care to patients.

In addition to the planning function, the directing function also has a significant influence on implementing nursing care in inpatient rooms<sup>[15]</sup>. Direction is the process of guiding, giving instructions, and instructions to subordinates to work according to a predetermined plan<sup>[16]</sup>. In this study, it was found that as many as 8 nurses (57.1%) had never received training related to patient safety goals. The researcher argues that the factor of patient safety target training that has not been given to all nurses is a factor that influences the number of nurses who have not optimally implemented the 7 right principles of drug administration. WHO also mentions that a lack of therapeutic training can cause medication errors<sup>[1]</sup>.

Education and training programs for health workers are needed to reaffirm their duties and responsibilities and increase their understanding of drug safety attitudes<sup>[17]</sup>. It is supported by the results of research which found that the lack of adequate training of health workers contributed to the occurrence of medication errors<sup>[18]</sup>. In addition to providing training, supervision can also be carried out by nursing managers who can also influence the application of the safety principles of drug administration. It is supported by research<sup>[19]</sup> which found a significant relationship between head of room supervision and nurse performance. Another management function that also plays a role in the quality of nurse performance is the controlling function. The controlling function plays a very important role in improving the quality of nursing services through monitoring and evaluation activities<sup>[20]</sup>. The controlling function also aims to identify deficiencies and errors so that improvements can be made<sup>[16]</sup>.

Furthermore, in the results of this study, it was found that 13 nurses (92.9%) had optimally applied the right principles of documentation. Although most nurses have optimally applied the right principles of documentation, there are still nurses who have not optimally applied the right principles of documentation. As is well known, documentation is a communication tool between health workers to convey information related to the management of health services,

including drug administration<sup>[21]</sup>. If the documentation is not written completely, communication between health workers will not work properly, and poor communication between health workers is one of the factors that can cause medication errors<sup>[1]</sup>.

Then from this study, 14 nurses (100%) of the pediatric ward at the Aceh Province government hospital had optimally applied the right drug principle, 14 nurses (100%) had optimally applied the right dose principle, 14 nurses (100%) had optimally applied the right route principle. It shows that all nurses have applied the principles of the right drug, the right dose, and the right route optimally. Researchers argue that age is a factor that influences the optimal performance of nurses in applying several safety principles of drug administration. When viewed from the age, of 92.9% of nurses are in early adulthood. Early adulthood is a productive age and is the stage of building a career<sup>[22]</sup>. It is supported by the results of a study<sup>[23]</sup> which found a relationship between age and the application of the 6 rights principles. It is known that nurses with early adulthood tend to apply the 6 rights principles more correctly than nurses with late adulthood.

In addition to the age factor, the researchers argue that the length of service factor also influences the optimal performance of nurses in applying some of the drug safety principles. The longer they work, the more skilled and experienced a person in carrying out their work<sup>[23]</sup>. When viewed from the length of service, as many as 64.3% of nurses have worked for  $\geq 5$  years. It shows that most nurses have had a long working period.

## 5. Conclusion

Based on the results of the case study, 85.7% of the application of the 7 right principles of drug administration in the pediatric ward of the Aceh Government Hospital is in the not optimal category. It is hoped that this research can serve as review material for the field of nursing and hospital nursing committees so that they can conduct regular training related to patient safety goals for nurses, and for the head of the room it is hoped that the head of the room will carry out periodic controls regarding the performance of the implementing nurse in applying the 7 right principles of drug administration, and for nurses to be able to improve the quality of their performance in terms of patient safety by applying the 7 right principles of optimal drug administration.

## 6. References

1. World Health Organization. Medication Errors: Technical Series on Safer Primary Care. Geneva, World Health Organization, 2016, 1-28.
2. Al-Warofi YM. Clinical Case Studies on Medication Safety. London, Elsevier, 2023, 109-172.
3. Jember A, Gebre M, Messele A, Demeke T, Hassen M. Proportion of Medication Error Reporting and Associated Factors among Nurses: A Cross Sectional Study. BMC Nursing. 2018; 17(9):1-8.
4. Ernawati DK, Lee YP, Hughes JD. Nature and frequency of medication errors in a geriatric ward: an Indonesian experience. Therapeutics and clinical risk management. 2014; 10:413-421.
5. Tariq RA, Vashisht R, Shinha A, Scherbak Y. Medication dispensing errors and prevention, 2023. [updated 2023 May. 2; cited 2023 May. 20]. Retrieved

- from:  
<https://www.ncbi.nlm.nih.gov/books/NBK519065/>
6. Shitu Z, Aung MMT, Kamauzaman THT, Rahman AFA. Prevalence and characteristic of medication errors at an emergency department of a teaching hospital in Malaysia. *BMC Health Serv Res.* 2020; 20(56):1-7.
  7. Setiarta D, Huriyah T. Medication error incidence (parenteral therapy) at government hospital in Magelang. *Dunia Keperawatan: Jurnal Keperawatan dan Kesehatan.* 2020; 8(3):328-336.
  8. Nurhayati. *Keselamatan Pasien Dan Kesehatan Kerja Dalam Keperawatan.* Banda Aceh, Syiah Kuala University Press, 2021, 83-89.
  9. Härkänen M, Blignaut, A, Vehviläinen-Julkunen K. Focus group discussions of registered nurses' perceptions of challenges in the medication administration process. *Nursing & Health Science.* 2018; 20(4):431-437.
  10. Kavanagh C. Medication governance: preventing errors and promoting patient safety. *Br J Nurs.* 2017; 26(3):159-165.
  11. Setiawan H, Handayani PA, Arnianti, Panma Y, Rokhman A, Sholikhah S, *et al.* *Keperawatan Dasar.* Yogyakarta, Rizmedia Pustaka Indonesia, 2023, p151.
  12. Lestari S. *Farmakologi Dalam Keperawatan.* Jakarta, Bppsdm Kemenkes RI, 2016, 11-27.
  13. Husna C, Darmawati, Rahayuningsih SI, Martina, Fithria, Nurhasanah, Maulina, *et al.* *Proses Keperawatan & Soal Uji Kompetensi Ners Indonesia.* Banda Aceh, Syiah Kuala University Press, 2021, p275.
  14. Manuho E, Warouw H, Hamel R. Hubungan beban kerja dengan kinerja perawat dalam pemberian asuhan keperawatan di instalasi rawat inap c1 RSUP Prof. Dr. Rd Kandou Manado. *Jurnal Keperawatan,* 2015; 3(2):1-8.
  15. Zulkarnain. Analisis pelaksanaan fungsi manajemen pengarahan kepala ruangan dengan kinerja perawat dalam menerapkan asuhan keperawatan di ruang rawat inap RSUD Bima. *Jurnal Ilmu Sosial dan Pendidikan.* 2019; 1(2).
  16. Wardaningsih E, Darwis N. *Manajemen Keperawatan.* Klaten, Penerbit Lakeisha, 2022, 126-127.
  17. Hallit S, Hajj Aline, Shuhaiber P, Iskandar K, Ramia E, Sacre H, *et al.* Medication safety knowledge, attitude, and practice among hospital pharmacist in Lebanon. *J Eval Clin Pract.* 2019; 25(2):323-339.
  18. Alemu W, Belachew T, Yimam I. Medication administration errors and contributing factors: A cross-sectional study in two public hospitals in Southern Ethiopia. *International Journal of Africa Nursing Science,* 2017, 68-74.
  19. Ginting D, Manurung, M. Hubungan supervisi kepala ruangan dengan kinerja perawat pelaksana di ruang rawat inap rumah sakit umum daerah Dr. Djasamen Saragih Pematangsiantar. *Jurnal Publikasi Kesehatan Masyarakat Indonesia.* 2017; 4(1).
  20. Ratanto, Rahmah NM, Wati NMN, Martyastuti NE, Soliha, Rachmawati DS, *et al.* *Jambi: PT. Sonpedia Publishing Indonesia,* 2023, 1-90.
  21. Carpenito-Moyet L. *Nursing Diagnosis Application to Clinical Practice.* 14th edn. Philadelphia, Lippincott Williams & Wilkins, 2013.
  22. Fauziyah N. *Pelibatan pasien dalam manajemen asuhan keperawatan: Patient engagement in nursing care management.* Pekalongan, Penerbit NEM, 2021, 29-30.
  23. Rubiyanti N, Fatimah FS, Sarwadhmana RJ. Hubungan karakteristik individu perawat dengan penerapan prinsip benar pemberian obat di RS PKU Muhammadiyah Yogyakarta Unit II. *Indonesian Journal of Hospital Administration.* 2021; 4(1):20-24.