

Analysis of Strategies To Reduce Medication Errors In Hospitals: A Literature Review

Septian Yuda Admaja¹, Rizka Rosa DM²

^{1,2}Faculty of Public Health; Airlangga University. Surabaya

Corresponding Email: * septian.yuda.admaja-2022@fkm.unair.ac.id

About the Author

1. 1st Author : dr. Septian Yuda Admaja
Affiliation : Department of Health Policy and Administration, Faculty of Public Health Science, Airlangga University, Surabaya, Indonesia.
Mailing address : Fakultas Kesehatan Masyarakat, Kampus C UNAIR, Jl. Dr. Ir. H. Soekarno, Kec. Mulyorejo, Surabaya 60115
Email of author : septian.yuda.admaja-2022@fkm.unair.ac.id
Orcid ID : <https://orcid.org/0009-0007-1742-4079>
Google Scholar URL : https://scholar.google.com/citations?view_op=new_articles&hl=id&imq=septian+yuda+admaja#
Phone number : +6281259467002
- 2nd Author : dr. Rizka Rosa DM
Affiliation : Department of Health Policy and Administration, Faculty of Public Health Science, Airlangga University, Surabaya, Indonesia.
Mailing address : Fakultas Kesehatan Masyarakat, Kampus C UNAIR, Jl. Dr. Ir. H. Soekarno, Kec. Mulyorejo, Surabaya 60115
Email of author : rizka.rosa.dwi@fkm.unair.ac.id
Orcid ID : <https://orcid.org/0009-0009-0617-9279>
Google Scholar URL: <https://scholar.google.com/citations?user=6fIT06QAAAAJ&hl=id>
Phone number : +6281233234980

ABSTRACT

Medication errors are a critical issue in healthcare and can have a serious impact on patients. Hospitals as health care centers have a great responsibility in maintaining patient safety. The importance of reducing medication errors in hospitals is the basis for the urgency of this study. The purpose of this study is to analyze various strategies that can be implemented in reducing medication errors in hospitals. This research was conducted through a literature review method. Data was collected through searching various articles, journals, and scientific publications related to strategies to reduce medication errors in hospitals. The data collected from the literature study were analyzed comprehensively. The results showed that strategies to reduce medication errors in hospitals include electronic prescription, correct patient principle, monitoring, unit-dose dispensing system (UDD), read-back guidance using checklists, Electronic Medication Management (EMM) system, careful prescription writing, patient safety

programs, measuring the level of knowledge, attitudes and behaviors of nurses about medical errors and prevention at each stage of the medication use process.

Keywords: Prevention, Medication Error, Hospital

ABSTRAK

Kesalahan pengobatan merupakan isu kritis dalam dunia kesehatan dan dapat berdampak serius terhadap pasien. Rumah sakit sebagai pusat pelayanan kesehatan memiliki tanggung jawab besar dalam menjaga keamanan pasien. Pentingnya mengurangi kesalahan pengobatan di rumah sakit menjadi dasar urgensi penelitian ini. Tujuan dari penelitian ini adalah untuk menganalisis berbagai strategi yang dapat diimplementasikan dalam mengurangi kesalahan pengobatan di rumah sakit. Penelitian ini dilakukan melalui metode tinjauan literatur. Data dikumpulkan melalui pencarian berbagai artikel, jurnal, dan publikasi ilmiah terkait dengan strategi mengurangi kesalahan pengobatan di rumah sakit. Data yang dikumpulkan dari studi kepustakaan dianalisis secara komprehensif. Hasil penelitian menunjukkan bahwa strategi mengurangi medication error di rumah sakit diantaranya adalah dengan resep elektronik, prinsip benar pasien, monitoring, unit-dosis dispensing system (UDD), panduan read-back penggunaan daftar tilik (checklist), Sistem Electronic Medication Management (EMM), teliti dalam penulisan resep, program patient safety, mengukur tingkat pengetahuan, sikap dan perilaku perawat tentang medical error dan pencegahan pada setiap tahap proses penggunaan obat.

Kata Kunci: Pencegahan, Kesalahan Pengobatan, Rumah Sakit

INTRODUCTION

Medications play a very important role in the delivery of health care and contribute significantly to health improvement when used correctly and appropriately. However, it is important to remember that medication can also be a frequent cause of error and has the potential to cause adverse events in the healthcare process (Roughead et al, 2016). Reports from the United States Pharmacopoeia indicate that more than one million cases of medication errors occur in the hospital setting, with an estimated death toll of around 7,000 as a result of medication errors. Medication error (ME) is an adverse patient event, resulting from the use of drugs while in the care of health workers, which could have been prevented (Timbongol, 2016).

Medication errors can occur at any phase of treatment, involving prescribing, transcribing, dispensing, and administration (Ministry of Health, 2014). Errors in administering medication can lead to adverse consequences such as damage, serious risks, and even death, which can be triggered by a lack of manpower and inadequacy in managing administration in the process of writing prescriptions or administering drugs (International Alliance Of Patients Organizations, 2018).

Hospitals as health care centers have a very important role in maintaining patient safety (Rikomah, 2017). The term "patient safety" refers to a method hospitals utilize to improve the safety of patient care and reduce the likelihood of patients suffering harm from medical mistakes (Salawati, 2020). The reduction of medication errors in hospitals is very crucial, therefore, efforts to reduce medication errors in hospitals are urgent to ensure the safety and quality of health services to patients. This is the fundamental basis that gives urgency and

significance in conducting this study. The goal of this research is to identify effective methods for decreasing medical blunders in healthcare facilities.

RESEARCH METHOD

This research was conducted through the literature review method. According to Leedy, a literature review is an explanation that must include statements from previous researchers regarding similar research conducted. Therefore, the literature review is based on the steps of development research (Wibowo, 2021). Data was collected through searching various articles, journals, and scientific publications related to strategies to reduce medication errors in hospitals. Data collection was done by identifying and evaluating the strategies that have been proposed, the steps to implement them, and the results and benefits achieved from the implementation of these strategies. The main data sources were Google Scholar, PubMed, and ScienceDirect, which are leading platforms for scientific publications and medical research. Articles were only included if they were published within the previous 10 years, were written in either Indonesian or English, and had titles and abstracts that were directly related to the issue of ways to prevent drug mistakes in hospitals. Data collected from the literature study were analyzed comprehensively.

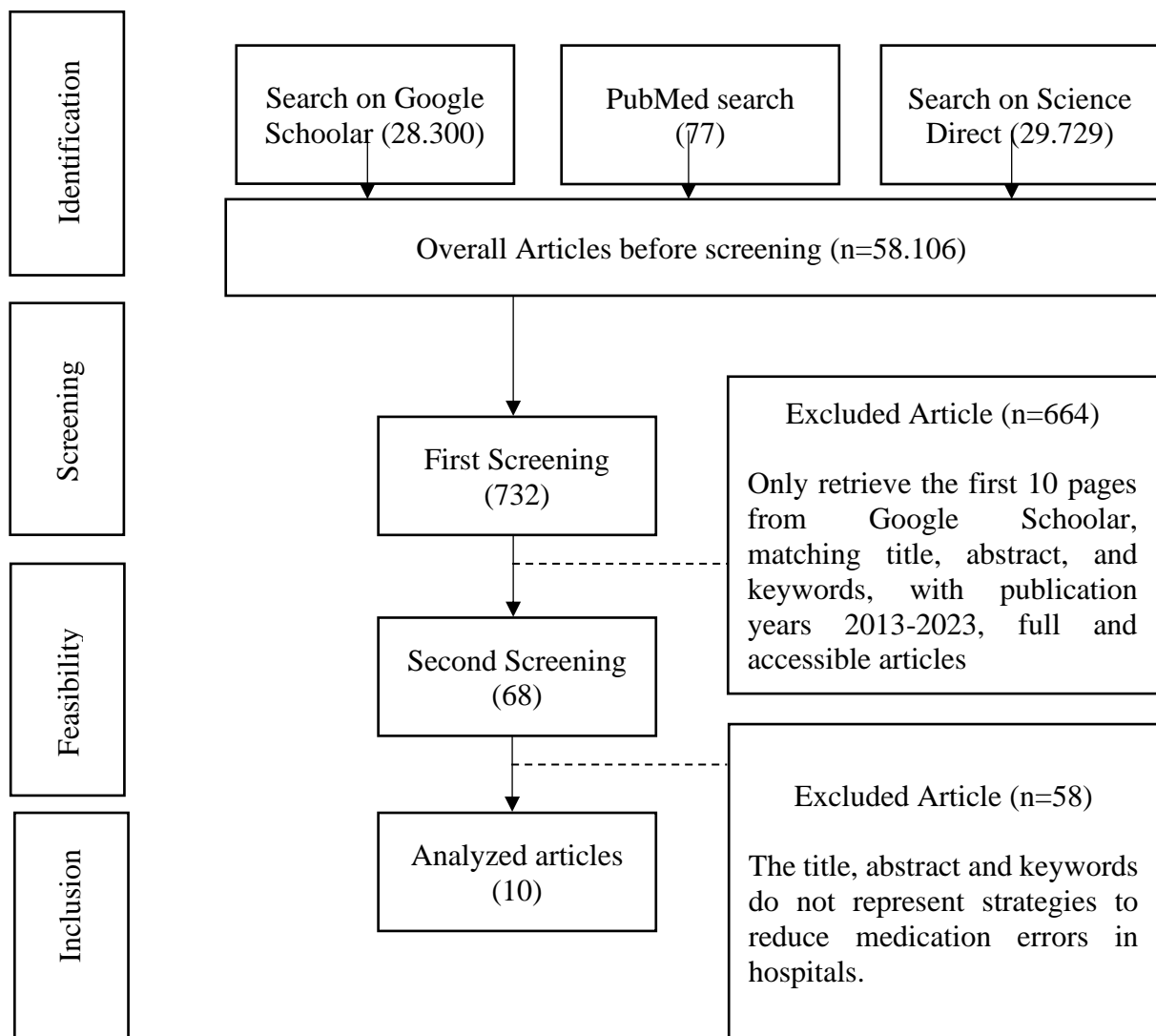


Figure 1. PRISMA-LvR Research Diagram

Table 1
Research Result Literature Review

Nu	Name, Year	Journal Title	Research Objectives	Object of Research	Research Results
1	Widiastuti, M. S., & Dwiprahasto, I. (2014).	<i>Jurnal Manajemen Pelayanan Kesehatan</i> , 17(1), 30-36.	This study aims to describe the use of electronic prescribing systems in improving medication safety through the reduction of prescribing errors, to analyze other factors that cause prescribing errors, and to evaluate physician acceptance of the e-prescribing system.	RS Danura (not its real name), a private hospital in central Jakarta.	Errors in writing prescriptions are one common cause of medical malpractice, and electronic prescribing may help mitigate this problem, while reducing errors due to doctor decision making requires additional support systems and clinical pharmacy interventions to improve medication safety. Perceived benefits of electronic prescribing systems influence the use of electronic prescribing systems more than perceived convenience.
2	Fatimah, F. S., & Rosa, E. M. (2016).	<i>JNKI (Jurnal Ners dan Kebidanan Indonesia)(Indonesian Journal of Nursing and Midwifery)</i> , 2(1), 32-41.	The purpose of this research is to learn whether or not the SBAR communication patient safety training program at PKU Muhammadiyah Yogyakarta Hospital Unit II has been successful in minimizing	PKU Muhammadiyah Yogyakarta Hospital Unit II	Patient safety training based on the SBAR model (accurate patient, service, drug, time, assessment, information, and evaluation) is successful in minimizing injectable drug delivery mistakes at PKU Muhammadiyah Yogyakarta Hospital Unit II.

			injectable medicine delivery mistakes.		
3	Kusumahati, E., Anggriani, A., & Anik, C. (2018).	<i>Medical Sains: Jurnal Ilmiah Kefarmasian</i> , 3(1), 59-66.	The goal of this research is to examine the prevalence of medication mistakes and identify their underlying causes so that they may be addressed and ultimately reduced.	Bandung Hospital	The most risky errors are the drug taking and data entry stages, How to overcome repeated medication errors indicates system errors, it is necessary to monitor to be tested in the outpatient department, especially for BPJS patients in preventing failures in the hospital.
4	Yulianti, N., Malini, H., & Muharni, S. (2019).	<i>NERS Jurnal Keperawatan</i> , 15(2), 130-139.	This study aims to examine and analyze the factors that contribute to the role of nurses in preventing Medication errors at Awal Bros Hospital Batam.	Awal Bros Hospital Batam	The adoption of a unit-dose dispensing system (UDD) and electronic aids like barcodes are two further suggestions for hospitals to use in order to improve medication safety on the inpatient floors of Awal Bros Hospital Batam.
5	Maharjana, I. B. N., Kuswardhani, T., & Purwaningsih, C. I. (2014).	<i>Jurnal Farmasi Klinik Indonesia</i> , 3(2), 37-43.	The purpose of this research was to determine whether the Read-Back method aided by the Checklist might effectively minimize the risk of prescription mistakes in hospitals.	Teaching Hospital in Bali	Read-back instructions Medication mistakes, which may have serious consequences, can be reduced from 45.54 percent to 10.17 percent when checklists are used as a means of efficient communication.

6	Indriani, S. (2019).	<i>Surya: Jurnal Media Komunikasi Ilmu Kesehatan</i> , 11(03), 33-39.	The goal of this research was to see whether the use of EMM may help reduce drug mistakes in a healthcare setting.	Hospitals in Indonesia	Digital solutions are being used by an increasing number of healthcare facilities and providers. Hospitals that use electronic medication management (EMM) systems report higher levels of satisfaction with the overall quality, safety, and support of medication management. This involves helping medical professionals use technology for pharmaceutical administration tasks such as prescribing, ordering, receiving, reconciling, dispensing, and setting up.
7	Maalangen, T., Citraningtyas, G., & Wiyono, W. I. (2019).	<i>Pharmacon</i> , 8(2), 434-441.	This research aimed to examine the prescription and dispensing phases of medication errors in an internal outpatient polyclinic.	Bhayangkara Tk. III Anado Hospital	Actions to prevent the occurrence of Medication Error in Bhayangkara Hospital, namely the prescription writer should be more careful in writing prescriptions, there is also a need for cooperation between pharmacists and doctors, education / learning is needed to develop knowledge.
8	Aziz, A., Putra, S., &	<i>Jurnal Manajemen Kesehatan</i>	The purpose of this study is to investigate and analyze the role of doctors in preventing and	RSI NU Demak Regency	Overcoming medication errors at NU Demak Regency Hospital by implementing a patient safety program is carried out with a recording

	Jati, S. P. (2018).	<i>Indonesia</i> , 6(1), 81-90.	overcoming medication error cases at NU Islamic Hospital (RSI) Demak Regency.		and reporting system, monitoring and evaluation so that it can be implemented according to guidelines.
9	Samaranayake, N. R., Cheung, S. T. D., Chui, W. C. M., & Cheung, B. M. Y. (2013).	<i>International journal of clinical pharmacy</i> , 35, 432-438.	This research aims to study interception patterns to address medication errors throughout the medication use process.	Tertiary care hospitals in Hong Kong	Most mistakes may be avoided by taking precautions at every step of using a drug. Due to a lack of safeguards, many drug mistakes end up in the hands of the patient. Therefore, more interventions are needed to prevent medication errors.
10	Setiasih PI, & Junadi P. (2017).	Journal of Indonesian Health Policy and Administration. 2(2): p. 25-29.	This study aims to determine whether FMEA is effective in reducing medical errors.	Hospitals in Indonesia	Efforts to prevent medical errors that occur in hospitals are to identify potential failures of services before they occur, this can be done by knowing the quality of human resources (HR) of nurses by measuring the level of knowledge, attitudes and behavior of nurses about medical errors.

RESULTS AND DISCUSSION

All articles compiled in this literature review used data extraction tables to detail information related to previous studies that focused on strategies to reduce medication errors in hospitals. The following are the research points obtained from these 10 articles. Electronic prescribing has a significant role in reducing errors in the prescription writing process, while addressing errors arising from doctors' medical decisions requires additional support systems and clinical pharmacy intervention to improve medication safety. Perceptions of the benefits of an electronic prescription system were found to have a greater impact on its implementation than perceptions of its convenience (Widiastuti & Dwiprahasto, 2014). This finding is in line with research conducted by Indriani (2019), which shows that many hospitals and health institutions have turned to digital technology as a solution. One such solution is the Electronic Medication Management (EMM) System, which plays a role in improving the quality and safety of medication management in the hospital environment. EMM covers various stages of patient care, from prescriptions by doctors, drug orders issued by pharmacists, to drug administration by nurses. As a further recommendation to improve drug safety at Awal Bros Hospital Batam, the implementation of unit-dose dispensing system (UDD) and the use of barcode technology can be considered (Yulianti et al., 2019).

Patient safety training represents a very important investment in the healthcare sector. The aim is to protect and improve the well-being of patients, while also improving the overall quality of medical care. One of the ways taken to prevent medication errors is through patient safety training. For example, the use of effective SBAR communication in nurses has been shown to reduce the rate of injection medication errors at PKU Muhammadiyah Yogyakarta Hospital Unit II based on the principles of correct patient, service, drug, time, assessment, information, and evaluation (Fatimah & Rosa, 2016).

Another study (Samaranayake et al., 2013) showed that preventive measures at each stage of the medication use process can help reduce most errors. Most medication errors reach patients due to the lack of safeguards to prevent them. Therefore, more interventions are needed to prevent medication errors. The results of this study are consistent with the findings of (Maharjana et al., 2014) which showed that the use of read-back guidance with checklists as a form of effective communication can reduce medication record filling errors in medical records that have the potential to cause medication errors, with a decrease from 45.54% to 10.17%.

Several important steps have been identified to address recurrent medication errors in hospitals, as found in the study (Kusumahati et al., 2018). These include the expansion of more thorough prescription writing, closer collaboration between pharmacists and doctors, and education or learning aimed at improving knowledge. Furthermore, in an effort to overcome medication errors at NU Hospital Demak Regency, a patient safety program is implemented through a recording and reporting system, as well as monitoring and evaluation according to guidelines (Aziz et al., 2018). It is also important to prevent medical errors by identifying potential failures in services before they occur, as found in the study (Setiasih & Junadi, 2017). This can be achieved through understanding the quality of nurses' human resources (HR) by measuring their level of knowledge, attitude, and behavior related to medical errors.

LIMITATION OF THE STUDY

If additional databases had been searched, it's possible that more relevant results would have been found for this literature review. Only ten papers published in the recent decade were

selected for this study, demonstrating the paucity of research on hospital medication error prevention measures and the need for more investigation.

CONCLUSIONS AND SUGGESTIONS

The results of the study showed that some of the strategies to reduce medication errors in hospitals include the use of electronic prescriptions, application of the right patient principle, monitoring activities, unit-dose dispensing (UDD) system, read-back guidelines utilizing checklists, implementation of Electronic Medication Management System (EMM), thoroughness in prescription preparation, patient safety programs, evaluation of nurses' knowledge level, attitude, and behavior related to medication errors and preventive measures at each stage of medication use. Future researchers who are interested in continuing the study in analyzing strategies to reduce medication errors in hospitals, here are some suggestions that can be considered:

1. **Human Factors in Medication Error**
Examines the role of human factors in the occurrence of medication errors, including fatigue, stress, and interactions between members of the healthcare team. How these factors can be identified and managed to reduce the risk of errors.
2. **Comparative Research**
Conduct comparative research between hospitals in different countries or regions, to see how differences in health systems and regulations affect the medication error reduction strategies implemented.

ETHICAL CONSIDERATIONS

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Conflict of Interest Statement

The authors of this article have stated that they have no conflicts of interest to disclose in relation to its writing and publication.

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