Original Research

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v12i1.2024.25-36

THE IMPLEMENTATION OF PATIENT SAFETY GOALS FOR PATIENTS' SATISFACTION IN THE HEMODIALYSIS UNIT

Implementasi Sasaran Keselamatan Pasien terhadap Kepuasan Pasien di Unit Hemodialisa

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Abstract

Background: Surveys on patient safety in dialysis units uncover a range of significant patient safety issues. Hemodialysis centers are particularly vulnerable to adverse events due to a number of risk factors, such as machine malfunctions, excessive blood loss, patient falls, prescription errors, and inadequate infection control procedures.
Aim: Analyze the problem of implementing patient safety goals and describe the patients' satisfaction with the implementation of patient safety goals.
Methods: This study employs a concurrent embedded methodology with a mixed-methods design, utilizing quantitative data to complement the qualitative data. Applying the focus group discussion (FGD) technique, questionnaires and observations of hemodialysis patients' satisfaction with implementing patient safety goals were utilized to complete the data collection.
Results: According to the patient satisfaction survey, two patients were worried that their dialyzer tubes had been mixed up, earning a negative score of 5.13%. 23.07% of patients had negative results on the infection prevention risk questionnaire; 3 patients (7.69%) only seldom cleaned their hands before starting dialysis, and 6 patients (15.38%) did not.
Conclusion: The implementation of patients' identification and the reduction of infection risk through hand hygiene have not been carried out consistently, concerning patient safety goals in the hemodialysis unit.

Keywords: hand hygiene, hemodialysis, patient safety goals, patients' satisfaction, patients' identification

Abstrak

Latar Belakang: *Survei terhadap keselamatan pasien di unit hemodialisis mengungkapkan berbagai risiko keselamatan pasien yang penting. Pusat hemodialisis paling rentan terhadap kejadian buruk karena berbagai faktor risiko seperti kesalahan dialiser, kehilangan darah berlebih, pasien jatuh, kesalahan pengobatan, tindakan pengendalian infeksi yang tidak memadai dan mesin yang rusak.*
Tujuan: *Menganalisis permasalahan implementasi sasaran keselamatan pasien di unit hemodialisis dan mendeskripsikan tingkat kepuasan pasien terhadap implementasi sasaran keselamatan pasien.*
Metode: *Penelitian ini menggunakan metode concurrent embedded dengan desain mixed method dimana data kuantitatif melengkapi data kualitatif. Pengumpulan data menggunakan kuesioner dan observasi pada kepuasan pasien terhadap implementasi sasaran keselamatan pasien digunakan untuk melengkapi pengumpulan data dari teknik Focus Group Discussion (FGD).*
Hasil: *Hasil kuesioner tentang kepuasan pasien menunjukkan angka negatif 5,13% yaitu 2 pasien merasa khawatir tabung dialisernya tertukar. Pada kuesioner risiko pencegahan infeksi menunjukkan hasil negatif 23,07% yaitu 3 pasien (7,69%) kadang-kadang melakukan hand hygiene sebelum tindakan dialisis dan 6 pasien (15,38%) tidak melakukan hand hygiene sebelum tindakan dialisis.*
Kesimpulan: *Masalah yang ditemukan dalam implementasi sasaran keselamatan pasien di unit hemodialisis yaitu pelaksanaan identifikasi pasien dan penerapan pengurangan resiko infeksi dengan menjaga kebersihan tangan belum konsisten.*

Kata kunci*: hemodialisis, identifikasi pasien, kebersihan tangan, kepuasan pasien, sasaran keselamatan pasien*

Indonesian Journal of Health Administration (*Jurnal Administrasi Kesehatan Indonesia*)
p-ISSN 2303-3592, e-ISSN 2540-9301, Volume 12 No.1 2024, DOI: 10.20473/jaki.v12i1.2024.25-36
Received: 2023-05-31, Revised: 2024-01-03, Accepted: 2024-01-09, Published: 2024-06-15.
Published by Universitas Airlangga in collaboration with *Perhimpunan Sarjana dan Profesional Kesehatan Masyarakat Indonesia (Persakmi)*.

How to cite:
Ambarwati, D. and Dewi, A. (2024) "The Implementation of Patient Safety Goals for Patients' Satisfaction in The Hemodialysis", *Indonesian Journal of Health Administration*, 12(1), pp. 25-36. doi: 10.20473/jaki.v12i1.2024.25-36.

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Introduction

Patient safety has gained significant international attention ever since the Institute of Medicine (IOM) published the results of its study conducted in the United States in 2000. According to a "To Err Is Human" study, there were 6.6% of fatalities and 2.9% of adverse events in Colorado and Utah. In New York, the incidence rate was 3.7% and the mortality rate was 13.6% (Yasmi and Thabrany, 2018). The unexpected event rate in hospitals in many different countries was discovered to vary between 3.2% and 16.6%. In Europe, 83.5% of patients faced an infection risk. Between 50% and 72.3% of patients had some indications of medical errors (Isnainy, Gunawan, and Anjarsari, 2021).

In 25 studies conducted in 27 countries across six continents, the average adverse events were reported at 10%, about a half (51.2%) were preventable, and 7.3% were fatal (Schwendimann *et al.*, 2018). It has been reported that the accurate patient safety measures may reduce healthcare-associated infections up to 70% across the United States of America (The Lancet, 2019). The 313 outpatient records, exhibiting the highest treatment demand, contained 15.3% of the cases of adverse events. Procedure-related adverse events accounted for the majority (39.5%), treatments (21.9%), infections (10%), and diagnoses (0.1%) (Ortner *et al.*, 2021).

Hemodialysis centers are particularly vulnerable to adverse events due to a number of risk factors, such as machine malfunctions, excessive blood loss, patient falls, prescription errors, and inadequate infection control procedures. According to surveys on patient safety, there are numerous serious problems with patient safety in hemodialysis. Some studies conducted in four hemodialysis units in the United States discovered that 88 side effects occurred during 64,541 dialysis treatments in 17 months, or one case for every 733 treatments (De Paula Faria Rocha, 2022).

Numerous studies outline the goals for patient safety in hemodialysis rooms. Patient identification and tube labeling are the two processes that pose the biggest risk to patient safety. These studies show that incorrect patient identification happens in 16.1% of cases and that inadequate labeling practices are responsible for 56% of patient misidentifications (Cornes *et al.*, 2019). Other research found that hemodialysis patients older than 65 had a 47% chance of falling within a year. This number exceeds the non-dialysis senior population's annual rate of 0.3–0.7 falls per patient (De Paula Faria Rocha, 2022).

Implementing patient's safety goals is one-way hospitals can adopt to improve the quality of their medical care. The six patients' safety goals as follows: lowering the risk of infection associated with health measures; improving and effective communication; increasing medicine safety; ensuring precise location, exact procedures, and exact patient during surgery; and lowering the risk of patient falls. Hospitals can evaluate patients' safety goals and practices to identify and address safety issues that are relevant to day-to-day operations in hemodialysis units. In this study, the patients' satisfaction related to the implementation of patients' safety goals will be further examined, as will the issue of implementing patients' safety goals in the hemodialysis unit.

Method

In this study, a concurrent embedding approach with a mixed method design is utilized, in which the quantitative and the qualitative data are combined simultaneously. The study was conducted in a type D private-public hospital with 45 patients on average and 390 hemodialysis treatments per month.

The seven nurses who work in the hemodialysis unit were observed during the qualitative data collection process, which also included Focus Group Discussion (FGD). Regarding the issues with patients' safety goals, the implementation of FGD using the six patients' safety goals was also discussed.

In order to gather quantitative data from 17- point questionnaires on patients' satisfaction with the implementation of their safety goals, a purposive sampling

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technique was applied to 45 patients, resulting in 39 hemodialysis patients with stable general conditions. The scale runs from 1 (not satisfied) to 4 (very satisfied). The qualities of tangible, responsiveness, assurance, empathy, and dependability are included in the patient satisfaction questionnaire. The objective of the questionnaires is to investigate how satisfied patients are with how the six patient safety goals have been implemented. Positive responses to the questionnaires are those that indicate high levels of satisfaction or contentment; negative responses indicate lower levels of satisfaction or dissatisfaction. The six patient safety goals were referenced in the questionnaire items (Figure 1).

Result and Discussion

The aforementioned Table 1 and Table 2 show the attributes of the respondents. The majority of hemodialysis patients who responded to the survey were female (46,15%), between the ages of 61 and 75 (51,28%), with a senior high school (41,02%), employed as farmers (30,77%), and receiving hemodialysis twice a week (92,31%).

The seven participants in the focus group discussion (FGD) were all nurses employed in the hemodialysis unit. Surveys regarding the overall experience were given to the 39 hemodialysis patients. All patients (100%) and the 26 patients (74.36%) who accompanied by their families are funded by the social security administrative agency (BPJS). All on-duty nurses on the hemodialysis unit were informed about the implementation of the patient safety goals during the Focus Group Discussion (FGD).

Source: De Paula Faria Rocha (2022)

Figure 1. Questions about patient satisfaction with the implementation of patient safety goals

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Table 1. The characteristics of nurse respondents

Characteristic	Variable	n	(%)
Gender	Male	2	28,57
	Female	5	71,43
Education	Diploma	7	100
Hemodialysis training	Own	6	85,71
	Do not have	1	14,79

Table 2. The characteristics of respondents' hemodialysis patients

Characteristic	Variable	n	(%)
Gender	Male	21	53,85
	Female	18	46,15
Frequency/ week	One time/week	3	7,69
	Two times/week	36	92,31
Age	<40	10	25,64
	41 - 60	9	23,08
	61 - 75	20	51,28
Education	Elementary school	9	23,08
	Junior High School	7	17,95
	Senior High School	16	41,02
	Diploma	1	2,56
	Bachelor	5	12,81
	Master	1	2,56
Work	Farmer	12	30,77
	Private	10	25,64
	Unemployed	8	20,51
	Teachers	4	10,25
	Retired civil officers	4	10,25
	Tailor	1	2,56

Accuracy of Patients Identification.

The identifying procedures on the hemodialysis patients have to be improved, and all respondents agreed to do so. Occasionally, after certification, people forget to put the patients' bracelets on. Before starting hemodialysis treatment, it should be standard procedure for patients to check in, get an identity bracelet, and have their condition assessed. The nurses agreed to be more committed to putting identification into practice. One indication of this loyalty is the possibility for patients with the same name but different addresses to receive hemodialysis treatments on the same schedule. Nurse A revealed:

> *"There are cases where patients' with the same names are scheduled for hemodialysis at the same time and on the same days, so it is necessary to put on an identity bracelet so that there are no mistakes*".

Nurse B recommended using stickers with names and Medical Record numbers to identify patients on the dialyzer tubes rather than markers to prevent identity theft or misplaced barcodes. The nurse made a statement to indicate the mistaken identity:

> *"Sometimes, it can be done, but there is a possibility of human's error".*

To increase patients' confidence that their dialyzer tubes are separate from those of other patients, it is essential to verify that the patient's name on the dialyzer tube matches the name on their identity bracelets before the patient uses the dialysis machine. An alternate method of patient identification is to write the patient's

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name and the number of hemodialysis treatments on the dialyzer tube. The patient should also be told so that he/she is required to be more aware of the risks to his/her health and safety.

Improved effective communication

In order to accomplish patient safety goals, good officer-to-officer, officer-to-patient, or patient-family communication has been adopted. Effective communication between healthcare professionals has undergone a well-established procedure through books and handovers. Greater attention must be given to new patients beginning hemodialysis treatment in order to facilitate effective communication. Nurse C described this method expressed in the following utterances:

> ”*Officers always introduce themselves before conducting the procedure, for elderly patients need to be extra patient and assisted by communication with waiting families, thus strengthening the patient's sense of confidence in undergoing his/ her first hemodialysis”.*

> *"Staff-patient communication is going well; new patients always introduce themselves prior to hemodialysis, while established patients already know each other,"* said Nurse A.

Because they were already acquainted, some elderly patients were able to communicate effectively with one another with ease. WhatsApp groups have been utilized for additional communication to help patients and their families communicate. Additionally, Nurse G stated:

> *"There is a handover process, communication between officers is already underway, and the WhatsApp group also supports communication with patients and families."*

Increased medicine safety that needs to be watched out for

Emergency kits are constantly available in case they are needed, and high-alert drugs are labeled, kept in a safe place, and organized according to pharmaceutical guidelines. The pharmacist should replace that equipment right away if it is used. Its use is carefully tracked and controlled in accordance with the pharmacy unit's guidelines. To reduce mistakes, the previous medication intake is carefully reviewed before using it.

Certainty of the exact location of the patient's exact procedure

Patient safety targets are more closely tied to actions in the operating room, such as placing an AV shunt, and are related to making sure the proper location and procedure are followed. Patients in the hemodialysis unit were not located. Before starting hemodialysis treatment, it is necessary to always check the positioning of the AV shunts in order to determine the correct needle piercing position.

Reduction of infection risk by evaluating the implementation of hand *hygiene* and 5 moments

The nurses on the hemodialysis unit have practiced hand hygiene; however, one of the five steps that are sometimes overlooked is simply rubbing hands together before administering treatment, even though it seems like a simple task, as nurse D disclosed:

> *”Hand rub sometimes has not been done, for example, just want to directly press or touch the monitor screen of the dialysis machine*”.

Patients and their families need to be better educated, and hand hygiene campaigns must be implemented. Patients need to be educated by all nurses, not just the hemodialysis unit's PPI coordinator. Patients with Arteriovenous (AV) shunt access should refrain from using soap and running water to wash the area of their arm that will receive the injection in addition to practicing good hand hygiene. The campaign is still going strong even though

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officers and patients have received hand hygiene training because, as Nurse E pointed out, mistakes can still happen:

> *"I sometimes forget because I arrive late though the sink is already available in front of the entrance, so it shouldn't be missed*".

Nurse F continued, saying,

> *"Infection prevention campaigns still need to be carried out because sometimes they forget, even though hand hygiene in care and patients is already running".*

Reduction of the risk of the patient falling.

Hemodialysis staff members and patients have never fallen while performing the procedure. Efforts to lower the risk of falling have continued. These include the placement of the yellow triangle risk marker on the bed, the installation of the patient initiation from the bed rail ward, and the triangle risk marker to foresee potential incidents involving slippery floors. In order to facilitate the implementation of patient safety goals in the hemodialysis unit, the nurse offered a number of recommendations and assessments of the facilities and infrastructure. nurse C stated during the FGD:

> *"Patient safety efforts are in progress, yellow triangles are installed on the bed if there is fluid, a fall risk triangle is installed, and the bed rail is installed*".

continued Nurse F:

> *"the bed rail has been installed if there is a patient initiating hemodialysis from the ward".*

Table 3. Guiding Questions for the FGD

No	Questions
1.	Accuracy of patient identification: -How do you check the patient's identity before performing the action? -How do you show the patient the bed/ dialysis machine that the patient will use?
2.	Improve effective communication -How do you communicate during dialysis with the nurses on duty? -How do you build good communication between officers and dialysis patients?
3.	Increased drug safety to watch out for -How do you manage high-alert drugs and LASA? -How do you manage concentrated electrolytes in dialysis units?
4.	Certainty of the right location, right patient, and right surgical procedure -How do you check the position of the needle prick before performing dialysis action?
5.	Reduction of infection risk -How do you organize Hand hygiene at 5 moments? -How do you use gloves when performing actions?
6.	Reduction of the risk of patients falling -Has there ever been a patient fall case? -How do you make efforts to deal with the patients fall?
7.	What is your experience in implementing the Patient Safety Goals?
8.	How are patient safety goals inhibitory factors in dialysis units
9.	What are the supporting factors of patient safety goals in dialysis units?
10.	How is the nurse's input for the process of improving the implementation of patient safety goals in the dialysis unit?

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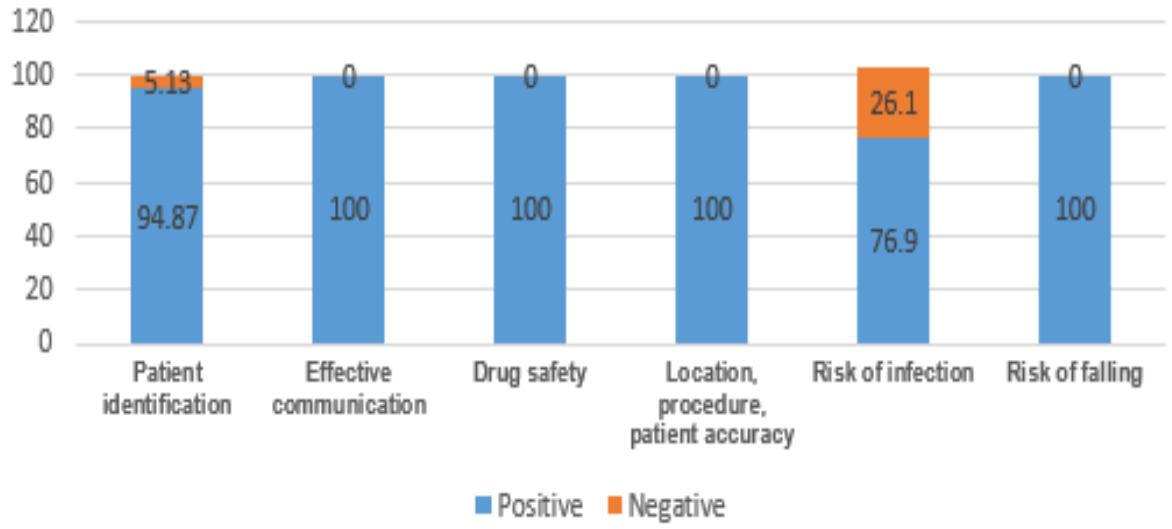
10.20473/jaki.v12i1.2024.25-36



Source: Author's Data

Figure 2. Satisfaction with the implementation of patient safety goals

These include the rails on certain patient beds, which require improvement because they are difficult to raise. In order to help patients who experience difficulty moving when using the restroom, some wheelchair facilities have been added. Long-term recommendations for the building's expansion should center on widening the distance between patient beds, ensuring easy access to the restrooms, and situating the hemodialysis unit close to the emergency room or intensive care unit.

Table 3 provides the lists of the guideline's questions discovered during the FGD to determine some issues concerning with implementing the six patients' safety goals in the hemodialysis unit.

The results of the patient satisfaction survey regarding the hemodialysis unit's execution of the patients' safety goals are presented in Figure 2. The results of the infection prevention risk questionnaire state a negative result of 26,1%, namely that the patient occasionally or does not perform hand hygiene prior to the procedure of dialysis. The patient satisfaction questionnaire shows a negative result of 5,13% in the implementation of patient identification, namely that the patient is worried that the dialyzer will be mixed up.

Discussion

By implementing the six patient's safety goals, the hemodialysis unit is required to uphold quality standards and patient's safety (Iffah, Anies and Setyaningsih, 2021).

The two patient safety aim implementations in the hemodialysis unit that are indicated in the FGD are the adoption of inconsistent patient identification and the implementation of hand hygiene programs, particularly for patients and their waiting families. Two patients expressed concern that their dialyzer tubes had been switched, accounting for a negative score of 5.13% on the patient satisfaction survey. The infection prevention risk questionnaire yielded negative results in 23.07% of cases; more precisely, table 3 shows that 3 patients (7.69%) occasionally cleaned their hands before dialysis, while 6 patients (15.38%) did not. Thirteen patients and their families (33.3%) said they did not understand the concept of patient safety. Online education about patient safety objective is necessary for patients and their families.

Based on the FGD results regarding the assessment of the implementation of patient safety goals 2, 3, 4, and 6, which are

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there effective interaction, the improving medication safety that needs to be watched out for, the certainty of the right location, the right procedure, the right-patient surgery, and lowering the patient risk of falls, the nurse reported that the dialysis procedure had gone well by the standards. Similar to this, the patients who were asked about their satisfaction with the implementation of patient safety goals 2, 3, 4, and 6 gave positive responses, such as "very satisfied" or "satisfied," and there are no patients gave a negative response, such us "less satisfied" or "dissatisfied."

One of the foundational elements of hospital safety services is accurate patient identification. In order to ensure patients' safety, the first step in any action taken on their behalf by healthcare professionals is patient identification. A great deal of errors originates from mistakes made in patient identification, and these mistakes are not uncommon (Pratiwi, 2019). Patient identification errors and the inability to identify patient injury are the main causes of patient safety accidents (Surbakti, 2020).

The College of American Pathologists studied six different kinds of miss identification between 1999 and 2000. The lack of bracelets, bracelets belonging to other patients, patients wearing multiple bracelets, contradicting patient information, incomplete or inaccurate information, and incorrect and illegible information were some examples of these types. It discovered a 2.6% error rate, with the most common error being the absence of a bracelet (71%), followed by unreadable bracelets (8%) (D'Acunto *et al.*, 2021).

Patient identification is the process of precisely and reliably providing information about the patient's identity across the whole course of care and matching a patient to the planned intervention (Riplinger, Piera-Jiménez and Dooling, 2020). Blood draws from dialysis patients occur frequently, which raises their risk of infection, side effects, and medical errors.

During hemodialysis, accurate identification helps prevent unfavorable side effects like incorrect blood type transfusions, dialyzer tube switching, and medication administration errors. Precise patient identification is the first step in ensuring that a particular patient receives the right care, which is very important. The patient identification and tube labeling measures pose the greatest risk to patient safety. Some studies claim that incorrect patient identification happens in 16.1% of cases and that incorrect labeling practices are to blame for 56% of patient misidentification. To identify the patient, use open-ended questions that require three separate pieces of information. Labeling the tubes, whether prior to or following sampling or electronically linking the patient's identity to the tube label ought to be carried out in the patient's presence. The likelihood of patient misidentification will be reduced as a result of this combination (Cornes *et al.*, 2019). Hemodialysis patients who report that two patients (5.13%) remain anxious about having their dialyzer tubes changed out might feel more satisfied with their care if they use this flexible identification approach. The results in Table 4 demonstrate that other patients are unconcerned because they and their families do not see how important patient safety is. Thirteen patients, or 33.33% of the total, stated they had no idea about patient safety to address the concerns brought up and enhance the processes for identifying hemodialysis patients in the hemodialysis unit, some work needs to be done. Even though most of the nurses working in the hemodialysis unit are familiar with the principles of patient safety, some of them continue to hold unfavorable opinions about the use of patient-identifying bracelets. This is due to the perception among patients, their families, and medical staff that they already know one another, making it safe for them to not wear identification bracelets in the hemodialysis unit (Kusumastuti, Hilman and Dewi, 2021). When there are patients with the same name on the same hemodialysis schedule, even when personnel and patients know one another, there is still a chance of misidentification.

Hemesath *et al.*'s research indicates that staff awareness-raising education approaches improve adherence to the mandate to check patient identity bracelets.

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Analysis and observation of the attachment indicators on patient identity bracelets displayed an increase from 42.9% to 57.8% and from 81.38% to 94.37%, respectively, between January and April 2013 and September and December 2014 (Hemesath *et al.*, 2015). Corrective action is necessary for the identification of patients in the hemodialysis unit. As suggested by the nurse during the FGD, "The proposal for patient identification on the dialyzer tube that has been using markers can be replaced by using stickers with the name and medical record number filled to prevent the risk of identity writing or bar codes being lost and peeled." New regulations and training for medical personnel are introduced along with new technology, like particular stickers (bar codes) for dialyzer tubes.

The second problem that arises in the FGD is the uneven application of hand hygiene, especially for patients or their families. Hand hygiene practices are the most important factor influencing the spread of nosocomial viruses among hospital staff members. Hand hygiene is the most basic and time-tested strategy for preventing infections. Hand hygiene is a cost-effective and efficient way to lower hospital infections.

Patients on hemodialysis are at serious risk from blood-borne viruses such as the hepatitis C virus (HCV). Globally, hemodialysis patient reports an estimated 20,000 new HCV cases as outbreaks annually. The primary contributing factor to nosocomial HCV transmission during hemodialysis is the healthcare workers' lack of adherence to infection control protocols. In order to minimize access-related problems and maintain the dialysis equipment, nurses are essential to the treatment of vascular access. Although it is generally accepted that wearing gloves and practicing proper hand hygiene is important during vascular access procedures for hemodialysis, there isn't enough concrete evidence to support these common-sense precautions. Using occult blood detection techniques in hemodialysis units, a prospective study was conducted in Mongolia to evaluate the possibility of invisible blood contamination of gloved nurses' hands during vascular access. Patient with hemoglobin 5.27 was detected in a total of 60.13% (273/454) samples (Li *et al.*, 2022).

The significance of hand hygiene spurred the extensive investigation, and it was discovered that despite its ease, affordability, and simplicity, officer's behavior was less than anticipated. A cross-sectional study of nursing staff attitudes and knowledge regarding hand hygiene compliance was conducted in six secondary hospitals in Kuwait. Out of the 765 nurses who participated in the study, 524 (68.5%) could list the five necessary steps for good hand hygiene. Only 25% of nursing staff adhere to hand hygiene, despite having a good understanding of certain aspects of it; self-reported attachment rates of 69.5% varied significantly (p= 0.001) amongst hospitals. In a Saudi Arabian nursing study, 74.6% of nurses agreed with the statement that wearing gloves reduces the need to wash their hands, while 73.7% disagreed. Wearing gloves as a substitute for good hand hygiene practices is still common among nurses, even though this idea is generally accepted by them (Al-Anazi *et al.*, 2022).

Strategies to reduce non-compliance rates, enhance patient safety and quality of care, and look into factors that influence the process, such as related policies and behavioral issues, are required. Furthermore, nursing managers need to understand how providing models affects day-to-day operations (Hammerschmidt and Manser, 2019).

Nurses and other healthcare professionals should receive interventions that emphasize the importance of adhering to hand hygiene guidelines. In this research employee acceptance is still low despite the fact that most healthcare facilities provide multiple training sessions on proper hand hygiene practices. The most important first step in creating programs for behavior change is investigating why people do the things they do and what makes them change. Therefore, determining the root causes of inadequate hand hygiene is essential to altering this behavior. Staff members wash their hands less frequently

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for a variety of reasons, according to nurses. These include poor hygiene habits, ignorance, carelessness, routine tasks, a lack of equipment for washing and drying hands, crowded wards, poor cleaning supplies, flaws in the management system, and perceived social pressures.

The nursing profession is crucial to maintaining patient safety because of its prominent position and constant interaction with patients. While performing their responsibilities to safeguard patients in hospitals, nurses can find novel ways to improve the quality of care they provide and the satisfaction of their patients. Therefore, in order to promote a culture of safety in the field, it is essential to increase knowledge through monitoring, education, and evaluation (Indrayadi, Oktavia and Agustini, 2022).

Conclusions

The accuracy of patient identification is where the first patient safety objective in the hospital service safety begins. The following step of the activation process will benefit from accurate patient identification. A mistake made during the patient identification process will be the main cause of the problem at the next step. In order to prevent errors caused by patient misidentification, hospitals must enhance their patient identification system.

Hand hygiene-related topics require further research, especially in the behavioral domain. Asepsis procedures and good hand hygiene are critical for maintaining vascular access, which is required for safe care participation. These social factors include healthcare personnel, patients, and waiting families.

The hemodialysis unit's implementation of patient safety has left the patients feeling content. Nonetheless, there are still two patients concern regarding patient identification and adherence to hand hygiene practices for infection risk reduction, both of which require ongoing improvement. Positive criteria of very satisfied and satisfied were generally expressed by the patients.

Abbreviations

FGD: Focus Group Discussion, HCV: the hepatitis C virus, HD: Hemodialysis, BPJS: *Badan Penyelenggara Jaminan Sosial* (Social Security Administrative Agency), PPI: *Pencegahan dan Pengendalian Infeksi*, AV Shunt: Arteriovenous Shunt.

Declarations

Ethics Approval and Consent Participant

Respondents were addressed before the survey's objectives and purposes, and verbal consent to participate in the study was taken from them. The study was approved by The Health Research Ethics Committee, Universitas Muhammadiyah Yogyakarta No. 176/EC-KEPK UMY/IV/2023.

Conflict of Interest

The authors declare that there is no potential conflict of interest concerning the authorship and publication of this article.

Availability of Data and Materials

Not applicable

Authors' Contribution

DA started the idea. DA and AD conducted a literature review, developed methodologies, interpreted data, and wrote submitted manuscripts. All authors certify they have complete access to study data supporting the publication, have read and approved the manuscript, and take full responsibility for its content.

Funding Source

The authors did not receive support from any organization for the submitted work and no funding was received to assist with the preparation of this manuscript.

Acknowledgment

We would like to thank the Muhammadiyah University of Yogyakarta for granting research permission and the hemodialysis unit of Aisyiyah Muntilan Hospital as a research object that produces data that can contribute to the realization of patient safety.

Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
10.20473/jaki.v12i1.2024.25-36

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Indonesian Journal of Health Administration
(Jurnal Administrasi Kesehatan Indonesia)
p-ISSN 2303-3592, e-ISSN 2540-9301
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