

NURSES' COMPLIANCE IN APPLYING INDEPENDENT DOUBLE CHECK IN DRUG ADMINISTRATION

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ABSTRACT

Independent Double Check (IDC) is a strategy that plays a key role in medication safety. Studies have shown that its use can detect up to 95% of medication errors reducing incidents related to drug administration. Despite this benefit, not all nurses have implemented it. This study aims to describe nurses' compliance in applying IDC at a private hospital in West Indonesia. The study used the descriptive quantitative method and purposive sampling was utilized in choosing 52 respondents. Data were collected from the respondents working in two inpatient wards where the highest number of medication errors occurred. A checklist was used to observe the nurses administer medications to patients in three occasions. The analysis of data employed univariate analysis method. The results showed that 35 (67.3%) of the respondents implemented IDC before medication administration, while 17 (32.7%) did not implement it. However, those who implemented IDC did not contribute to the reduction of medication errors in these wards. The authors recommend that further studies be conducted to investigate the factors associated with nurses' compliance and non-compliance in applying IDC, and the relationship between nurses' compliance to IDC and incidents of medication errors.

Keywords: *Independent Double Check, Medication Administration, Medication Error, Nurses' Compliance*

INTRODUCTION

The Health Ministry of the Republic of Indonesia stressed the importance of patient safety and recognized that it is a global issue (KEMENKES RI, 2017). It supports the International Patient Safety Goals (IPSG) which identified six patient safety goals namely: 1) identify patient correctly; 2) improve effective communication; 3) improve the safety of high alert medication; 4) ensure correct site; 5) correct procedure and correct patient surgery; and 6) reduce risk of health care associated infection and reduce risk of patient harm resulting from falls (The Joint Commission, 2016).

Medication errors are the most common type of medical errors in hospitals (World Health Organization (WHO), 2015). In the United States, at least one incident of medication error occurs among hospitalized patients daily, and an estimated 7000 people die annually from medication errors. Medication errors may involve all health care members such as doctors, pharmacists and nurses. These may occur during the prescribing, dispensing and administering of medications.

The first goal of patient safety is to identify patients correctly. This is observed by nurses when performing nursing care functions including the administration of

medications since they are often involved in medication administration to patients. A review by Salmasi et al., (2015) reported that medication administration errors occurred from around 15.2% to 88.6% of errors committed on patients. This finding concurred with study by Ernawati et al., (2014) who reported that more than half of 20.4% of medication errors among inpatients were drug administration errors. This may have been associated with poor coordination of care, hospitalization and cost-related barriers to medical services (World Health Organization (WHO), 2015).

A quality improvement in health care report from a private hospital in Indonesia showed that there were 99 incidents of medication errors in 2017. The highest percentage of medication error was wrong time administration (34%) followed by wrong dose administration (25%). In 2018 there were 68 incidents of medication errors with the same causes mentioned in the previous year, 30% because of drugs administered at the wrong time and 20% because of wrong dose administered. Furthermore, from June to July 2019 there were seven incidents of medication errors. The Health Ministry set the standard for medication errors at 0% while the private hospital in West Indonesia had 5% as its standard for medication error.

This discrepancy in set standards need to be addressed so that patient safety is upheld.

One of the strategies to prevent medication errors is by performing the IDC, a strategy adapted by the Institute for Safe Medication Practices (Institute for safe Medication Practices (ISMP), 2019). It is a strategy widely promoted in health care to detect any potentially dangerous errors before reaching patients. Independent Double Check can detect up to 95% of errors and only miss about 5% of errors. If the IDC is done correctly. The error rate of 5% in a process (1 in 20) can be reduced to 0.25% (1 in 400) according to Baldwin, et. al. (2014). Independent Double Check is believed to prevent any mistake or incident related to medication error The IDC should be done when a second nurse verifies a medication with or without the presence of a first nurse (Windsor Regional Hospital (WRH), 2017).

Before the data collection, author had interviewed seven nurses about medication error, five nurses mentioned that they did not perform the IDC for medication administration, instead they did a double check medication with other nurses, by stating the medication's name only without checking the medication record. IDC pre-

medication administration is one standard operational procedure in the hospital. However, the nurse did not carry this procedure as it supposed to. Therefore, the authors would like to describe the nurses' compliance of IDC in the private hospital.

METHOD

This study was a quantitative research using the descriptive approach. Data were collected from 52 nurses chosen through purposive sampling in two inpatient wards of a private hospital in west Indonesia. The inclusion criteria included having worked in the two inpatients units with the highest incidents of medication errors, had been working for a minimum of three months, and agreed to participate in this study.

Before the data collection, the authors sent a letter to the Chief of Nursing Service seeking permission to conduct the study, and to the Head of the Quality Improvement Department to access data on medication errors. After the approval by both departments was given, the researchers met all the respondents and explained the objective of the study. Nurses were notified that they would be observed during actual medication administration. The IDC checklist used in the hospital was the same tool used by the researchers. This checklist

had 'yes' and 'no' answers pertaining to the steps in IDC. Each nurse was observed three times during medication administration to their patients. They were considered compliant if all the 'yes' answers in the checklist were ticked. During the three observation times. The Cohen's kappa coefficient was applied to check the perception of all writers and the kappa coefficient value obtained was $k = 0.667$ with a standard error of 0.287.

RESULTS

The respondents' demographic data are shown in table 1. The demographic data included gender, age, educational attainment, and work experience.

Table 1. Demographic Data (n=52)

Category	Frequency (n)	Percentage (%)
Age		
21-30	43	82.7
31-40	7	13.5
41-50	1	1.9
>50	1	1.9
Total	52	100
Gender		
Female	48	92.3
Male	4	7.7
Total	52	100
Educational Attainment		
S1	32	61.5
DIII	20	38.5
Total	52	100
Work Experience		
<1 year	8	15.4
1-2 years	18	34.6
3-5 years	17	32.7
6-10 years	8	15.4
>10 years	1	1.9
Total	52	100

Table 1 shows that majority of nurses are females (92.3%) while only four (7.7%) were males. Most of the respondents were young adults and within the 21-30 years old (82.7%) range and only one (1.9%) was more than 50 years old. Most have earned a Bachelor's in Nursing degree (61.5%); and more than half have been working for 1-5 years.

Table 2. Nurses' Compliance In Applying IDC (n=52)

Category	Frequency	Percentage (%)
Compliant	35	67.3 %
Non Compliant	17	32.7 %
Total	52	100 %

The results in table 2 revealed that majority of the nurses were observed to be compliant in applying the IDC before medication administration (67.3%), while 17 (32.7%) were non-compliant.

DISCUSSION

Medication errors occur because of several factors. One factor that might contribute to medication errors is nurses' experience. The more experienced the nurses, the fewer medication errors they would make. (Wang et al., 2015). Other factors such as Interruptions, distractions, distortions and the unfamiliar use of abbreviations can also contribute to medication errors (Flynn et al., 2016; Hewitt et al., 2016;

Schwappach et al., 2016; Tariq & Scherbak, 2019). Interruption is occur when nurses give drinking water to patients, receiving phone calls, interactions with patients, co-workers and patient's family (Flynn et al., 2016). Schwappach et al., (2016) on the other hand reported that busyness, being in a hurry, noise, problems with finding a colleague to countercheck, fatigue, and overcrowded patient units are also factors that interfere in the performance of a proper IDC. All these may contribute to the possibility of medication error as nurses have many tasks in the clinical area. The heavy workload and many responsibilities may lead to fatigue and consequently make them prone to make mistakes.

According to Douglass et al., (2018), Independent Double Check is considered more effective in preventing medication errors compared to a single check medication. However, IDC is viewed as time consuming compared to a single check which is more time saving enabling nurses to work faster as they do not need to find other nurses to check on their work (Chua et al., 2019). Single checking is also perceived as a strategy that can reduce nurses' interruption and frustration. This finding agrees with a qualitative study

done by Hewitt et al., (2016), that among 85 health care teams which found that some of the health care workers confirmed that double checking medication is a procedure that wastes time. They added that implementing double checking does not fully guarantee the absence of committing errors in medication administration.

Although not doing IDC did not always result in medication errors, however IDC can reduce the possibility of medication errors incidents. Consequently, it is suggested to study factors associated to the incident of medication errors. However, in this study, the authors did not intend to assess the relationship between the nurses' compliance in implementing IDC to the incident's medication errors. Even though majority of the nurses are compliance in implementing IDC, medication error in the private hospital were still occurred.

Therefore, it has not met the standard for medication error based on Ministry of Health which supposed to be 0%. This is the limitation of this study, that the author did not study further the possibility of interruption that may contribute to the medication incidents in this hospital. Though the number of nurses' compliance

in IDC management is above 60%, there was still seven incidents of medication error occurred during June to July 2019.

CONCLUSION

Most of the nurses (67.3%) in private hospital complied by applying IDC in medication administration while 32.7% were still not compliant. There were still incidents of medication error which occurred between June to July 2019. It is likely that the high number of nurses' compliance to the IDC did not lead to a reduction of incidents of medication errors. Thus the authors recommend the conduct of studies to investigate the factors associated with nurses' compliance and non-compliance in applying IDC, and the relationship between nurses' compliance to IDC and incidents of medication errors.

ETHICAL CLEARANCE

This study has been approved ethically with the No. 006/RCTC-EC/R/MRCCC/VI/2019.

CONFLICT OF INTEREST

No conflict of Interest

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