

# Performance and Attitudes of Emergency Care Nurses regarding Errors related to Intravenous Injection of Medication

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## ABSTRACT

**Background:** Intravenous injection of medication is an essential nurse's skill at emergency department. Therefore errors of administration of drug depend on high efficiency of the nursing staff.

**Objective:** To evaluate performance and attitudes of emergency care nurses regarding errors related to intravenous injection of medication.

**Methods:** A study conducted between period of January 2021 to December 2021 to assess nurses attitudes and evaluate practices toward errors related to intravenous injection of medication. Descriptive approach observational design was conducted to evaluate the errors of the emergency nurses when administering intravenous medications. The present study was conducted at emergency department where nurses working. A purposive sampling consist of 30 nurses were selected according to the following criteria: (nursing staff working at emergency department, have one year experiences or more, and nurses that accept to participating in the current study). To attain the objectives of the study a constructed questionnaire was prepared by the researcher from the previous literature. Nurse demographical data and attitudes collected through interview technique. A checklist and observational technique were used to collect data for practice domain of the nurses. Study data were analyzed via the use of Descriptive statistics (e.g. Frequencies, Percentages) and inferential statistics (e.g. Chi-square and Pearson correlation) by using statistical package of social science (SPSS).

**Results:** the results demonstrate that the Most age group of the samples were between (24-28) years, female were (56.7%) of the samples, (66.7 %) of the nurses graduating from college of nursing, (90 %) of the nurses having (1-2 years) experience in emergency department, and the majority of the samples not participating in training session regarding medication administration.

**Conclusions:** the study concluded that the emergency care nurses were partially performed intravenous injection of medication practice, also the results conclude that the attitude of nurses were slightly positive regarding errors of intravenous injection of medication

**Keywords:** Performance, Attitudes, Emergency nurse, Errors, Intravenous injection

## INTRODUCTION

Errors that resulting from Intravenous Medication can happen in any phase of the drug administration processes and can be especially serious depended on the drug's chemical properties and the therapeutic complexity of its action. Intravenous route of drugs are benefits because of their rapid effects and Aptitude to support plasma drug levels that reach early target effect. Because of the immediate bioavailability of IV administered drug, At the same time, undesired effect can sequence from Intravenous drug administration Intravenous medications administered either directly to the bloodstream by route of vein to achieve rapid effect of drug or indirectly by route of infusion for irritating drug<sup>1</sup>. All medications administered intravenously it is important to be monitored closely for adverse reaction<sup>2</sup>. Nurses in all clinical setting especially in emergency department are responsible for preventing intravenous errors. Errors of medication administration repeatedly happened and are more likely to be dangerous effect and probably death<sup>3-5</sup>. Direct observational studies in hospitals have produced estimates of administration error rates between 19 to 27% of drugs administered to patients<sup>6</sup>. Errors can produce negative effect for both patients and nursing staff. A few of errors can lead to serious patient outcomes and even minor errors can leave long-

lasting effects on the nurses work<sup>7,8</sup>. Nursing staff as a major health care team can play an important role in promotion and prevention of intravenous administration of drugs. The objectives of the study are to assess nurse's attitudes toward intravenous medications errors, as well as to evaluate nurse's performance regarding intravenous injection of medication at emergency department. In the United States John Hopkins experts expect higher than 250,000 deaths yearly related to intravenous medications errors<sup>9</sup>. While the World Health Organization in the world, refers to some countries that have experienced medication errors in the range of 12- 58 percent and revealed that this errors it has become a global problem. In Iraq there are a few data about medication errors and not precise information about medication errors because they never reported, except when adverse effects occurred to patients<sup>10</sup>.

## METHODS

A study conducted between period of January 2021 to December 2021 to assess nurses attitudes and evaluate practices toward errors related to intravenous injection of medication. Descriptive approach observational design was conducted to evaluate the errors of the emergency nursing staff when administering intravenous medications.

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The present study was conducted at emergency department where nurses working. A purposive sampling consist of 30 nurses were selected according to the following criteria: (nursing staff working at emergency department, have one year of experience or more, and nurses who accept to participate in the current study). To achieve the objectives of the study a questionnaire was constructed by the researcher from the previous literature. The questionnaire consist of three parts : part one: demographical data include five items , part two: nurses attitudes toward errors include 15 items with five L. scale (Strongly Agree, Agree, Neutral, disagree, and Strongly disagree), and part 3: nurses performance regarding intravenous injection include 18 items with three Likert scale (completely performed, partially performed, not performed). Nurse demographical data and attitudes collected through interview technique. A checklist and observational technique were used to collect data for practice domain of the nurses. Three Observational technique was used to determine errors of nurses regarding intravenous injection with one-week intervals between each observation. Data were analyzed via the use of Descriptive statistics (e.g. Frequencies, Percentages, and Mean of Score) and Inferential statistics (e.g. Chi-square and Pearson correlation) by using statistical package of social science (SPSS)<sup>11-13</sup>.

## RESULTS

**Table 1: Level of attitudes regarding medication administration errors (N=30)**

No.	Item	Finding	Sig.
1	Level of attitudes	3.26	Positive attitude

Negative attitude=(1 – 2.50) , Positive attitude (2.51 - 5)

**Table 2: Level of performance regarding medication administration injection (N=30)**

No.	Item	Finding	Sig.
1	Level of performance	2.17	Moderate performance

Bad performance=( 1 – 1.66), moderate performance=( 1.67 – 2.33), good performance (2.34 - 3 )

**Table 3: Association between level of attitude and demographical data of sample**

no.	variable	total	chi-square	crit. $\chi^2$	df.	sig.
1	age	30	13.48	15.51	8	NS
2	gender	30	10.66	9.49	4	Sig.
3	Educational level	30	18.36	15.51	8	Sig.
4	Training session	30	21.42	9.49	4	Sig.

Sig.= Significant, NS= Not Significant, Df.= Degree of freedom

Table 3: indicate that the association between attitude and sample's demographical data (gender, educational level, and participate in training session) was significant at p-value  $\leq 0.05$ . and was not significant between attitude and age of samples.

**Table 4: Association between level of performance and demographical data of sample**

no.	variable	total	chi-square	crit. $\chi^2$	df.	sig.
1	age	30	12.26	9.49	4	Sig.
2	Gender	30	4.46	5.99	2	NS
3	Educational level	30	14.12	9.49	4	Sig.
4	Training session	30	6.11	5.99	2	Sig.

Sig.= Significant, NS= Not Significant, Df.= Degree of freedom

Table 4: revealed that the association between performance and sample's demographical data (age, educational level, and participate in training session) was significant at p-value  $\leq 0.05$ . and was not significant between attitude and gender of samples.

**Table 5: Correlation between attitude and performance**

Pearson Correlation	level of attitude	Level of practice
	1	
Level of Attitude	Sig. (2-tailed)	.223
	N	30
Level of Practice	Pearson Correlation	.223
	Sig. (2-tailed)	.236
	N	30

Table (5): shows that the Correlation between of attitude and of performance was weak positive correlation.

## DISCUSSION

The current results of study indicate that the emergency nursing staff working in emergency department showing error of injection of intravenous medication during performing the procedure. The most obvious skills errors found were nurses not introducing their self to the patients as well as not explaining the procedure to the patients, the main reason for these probably mistakes due to the nature of emergent cases that are available in the emergency wards in addition to the shortage of nursing staff in the workplace. Lack of devises such as syringe pump or infusion pump may potentially increase the rate of errors. According to the results of Ehsani et al 2013 factors that affecting medication errors were found as using abbreviated names of medication (48.9%), similarities among drug names (23.4 %), different medicinal dosages (19.1 %), and fatigues resulted from hard work (19.1 %). The study showed that the skills and attitudes of nurses working at emergency wards were moderately reported<sup>14</sup>. The results in line with (Westbrook et al 2011 in which the results revealed high proportion of injection errors indicate that the level of skills and attitude as well as general information were inadequately<sup>15,16</sup>. Promoting nurses attitudes and proving good training session for skills for nursing staff resulting in increased clinical experiences. This findings agree with study conducted by Ehsani et al 2013, showed that the incidence of errors reported among nursing staff was much lower than the medication errors they made, and this indicates that there is a gap between the actual rate of medication errors and the rate of reporting among nursing staff. Fifty percent nurses observed of intravenous performance were calculating the dosage incorrectly, inadequate handwashing pre and post the procedure, and incorrect applied of tourniquet above injection site. In relation to level of performance and attitudes, slightly performance level observed regarding skills of intravenous injection and slightly positive attitudes related to error of injection intravenously. This findings agree with study conducted by Abd Elmaged et al 2020. To ensure safe administration of medicines, nurses working in all setting of the hospital, especially in emergency must have positive attitudes towards administration of medications, the nurses' attitudes is very important when administering medicines. Just as the lack of knowledge is important, it affects the way the medicine is given to the patient, Negative attitudes also affect the incorrect administration of medications, and thus affect the health of patients<sup>17,18</sup>. Oh, and Yoon 2007 mentioned that lack of attitude and knowledge for medication with neglecting in adjust intravenous medication that considered human related factors including in in injection errors. Reflecting a lack of preparedness of nurses they giving medication. Also, Oh and Yoon 2007 believed that lack of knowledge and attitude of drugs lies behind

most injection errors reported by nursing staff<sup>19</sup>. Today, one of the most popular topics of discussion in healthcare systems today is reducing medication errors as well as improving patient safety. Despite the quality of service and the growing interest in healthcare services and patient safety, Medication Errors are still frequent in the emergency department. In current study it was shown that the risks of medication errors amongst nurses are increased and medication errors are a major problem for nursing in the emergency department.

## CONCLUSION

**The study concluded that moderately poor practice and slightly positive attitudes lead to errors related to intravenous injection of medication.**

**Authorship Contribution:** All authors share equal effort contribution towards (1) substantial contributions to conception and design, acquisition, analysis and interpretation of data; (2) drafting the article and revising it critically for important intellectual content; and (3) final approval of the manuscript version to be published. Yes.

**Potential Conflict of Interest:** None

**Competing Interest:** None

**Acceptance Date:** 24 February 2022

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