

## Effect of Patient Safety Program for Nurses on Medication

### Administration

Israa Ibrahim Abu Hussein <sup>1</sup>, Neamat Mohamed ELSaied <sup>2</sup>, Sanaa Abdel-Azeem  
Ibrahim <sup>3</sup>

*MS.c. of Nursing Administration, Faculty of Nursing, Benha University, Egypt <sup>1</sup>,  
Prof. of Nursing Administration, Faculty of Nursing, Damanhour University, Egypt <sup>2</sup>,  
Prof. of Nursing Administration, Faculty of Nursing, Port-Said University, Egypt <sup>3</sup>*

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### ABSTRACT

**Background:** Patients' safety is the main concern of all health-care systems around the world; one of international patient safety goal is medication administration safety **aim:** determine the effect of patient safety training program for nurses on medication administration at Damanhour Chest Hospital. Used for applying this study **subjects and method: Design:** Quasi-experimental design. **Setting:** study was carried out at critical care unit in Damanhour Chest Hospital. **Subjects:** Sample of the study staff nurses working at above mention setting with total number 64 nurses. **Tools:** Six tools were used, **Tool I:** Nurses' knowledge regarding patient safety. **Tool II:** Nurses' knowledge regarding medication administration questionnaire. **Tool III:** Observational chick list for Nurses' skills regarding patient safety. **Tool IV:** Observational chick list for Nurses' skills regarding medication administration. **Tool V:** Nurses' attitude regarding patient safety questionnaire. **Tool VI:** Nurses' attitude regarding medication administration questionnaire. **Results:** Revealed that there were high statistically significant difference of total nurses' knowledge, skills and attitude regarding (patient safety and medication administration) during all phases of the program with P- value = 0.000 at post program and follow up compared with preprogram. **Conclusion:** patient safety program for nurses on medication administration had a positive effect on nurses' knowledge and skills regarding patient safety and nurses' knowledge, skills and attitude regarding medication administration. **Recommendations:** Develop procedures manual include procedures and techniques used in nursing care specially medication administration procedures.

**Keywords:** Patient safety, Medication administration.

## **INTRODUCTION**

Patients' safety is the main concern of all health-care systems around the world; this concern is shared and pointed out by World Health Organization (WHO) that, since 2001, requests health organizations to take urgent actions toward this aspect. Nurses, as directly responsible for assistance, play a central role for granting patients' safety (Simone, et al., 2018).

Every hospital must strive to fulfill patient safety goals. The targets of patient safety include achieving the following: accuracy of patient identification; increased effective communication; drug safety enhancements that need to be watched out; the exact location, the right procedure, the right patient operation; reduced risk of infection related to services; risk reduction of patients falling. In applying hospital safety standards, aspects of human resources have a very important role. Actually, none of the health workers in the hospital in their care have the intention of injuring their patients (Syam & Hastut, 2018).

Medication safety is one of international goal of patient safety. Medication administration is one of the important procedure occur in hospitals and an important part of delivering quality nursing care. The Medication Administration Process is, predominantly, a nursing responsibility that has been estimated to consume approximately 40% of nursing practice time. The nurse should follow the specific guidelines to enhance their medication administration safety. Medication errors are among the chief causes of harm to patients while they reside in hospitals (Ahmed, Elshimy, & Fakhry, 2021).

Medication administration is defined as preparing, giving, evaluating the effectiveness of prescription and nonprescription medications. It is also one of the most important, complexes, yet most vital processes of nursing care which requires the right knowledge and function of a competent nurse (Gorgic, Barfroshan, Ghoreishi, & Yaghoobi, 2016). The rights of medication administration include right patient, right drug, right route, right time, right dose, right documentation, right action, right form, right response, right assessment, right education, and right evaluation. Any missing for this right can lead to

medication error. Medication errors are among the chief causes of harm to patients while they reside in hospitals (Stromberg, 2020).

While, medication errors as defined by National Coordinating Council for Medication Error Reporting and Prevention, are any form of preventable error that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer. It can occur during ordering, transcription and dispensing (Ayorinde & Alabi, 2019).

In this regard Patient safety is a framework of organized activities that creates cultures, processes, procedures, behaviors, technologies and environments in health care that consistently and sustainably lower risks, reduce the occurrence of avoidable harm, make errors less likely and reduce the impact of harm when it does occur (WHO, 2021). A major area of patient safety is medication errors and adverse drug events. Knowledge that healthcare systems and processes may be unreliable and produce medical errors and harm patients is not new (JCI, 2019).

It is the nurse's role to provide the best possible quality of care and patient safety. This includes administration of the correct medication to patients and rapid detection of Medication Administration Errors (MAEs). Therefore, nursing staff are the first line in MAEs prevention. Nurses worldwide are taught clinical guidelines and policies for the administration of medications in any healthcare setting (Hammoudi, Ismaile & Abu Yahya, 2017).

So, focusing on nurses' attitudes and skills with updated safety concepts may provide insight into the design and implementation of effective system- and nurse-level interventions to minimize medication administration errors. Nurses need to recognize the challenges they face when administering medications to their patients. Because nurses consistently administer medications, they are well positioned to prevent medication errors. Nurses must be prepared to not only catch their own errors, but also the errors of healthcare providers, pharmacists, and others in the chain of medication administration (Ahmed et al., 2021).

**Significance of the study:**

Patient safety is a common goal for every healthcare provider. One of the major issues for safety is medication errors. The complexity of modern healthcare increases the risk of adverse events and harms to patients. Medication errors compromise patient confidence in the health-care system and increase health-care costs. Errors occur from lack of knowledge, substandard performance and mental lapses. To prevent errors from occurring, more emphasis should be placed on patient safety knowledge, especially for nurses. The major part of the clinical nurse's role is drug administration (AlShara, 2011). Nurses are responsible for 26%—38% of medication errors in hospitalized patients (Bates, 2007). So, this study could be helpful for staff nurses to gain their knowledge, skills and promote their attitude regarding patient safety and medication administration through educational program.

**AIM OF STUDY:**

This study aims to determine the effect of patient safety training program for nurses on medication administration at Damanhour chest hospital.

**Objectives:**

1. Assess nurses' knowledge, regarding patient safety and medication administration at Damanhour Chest Hospital pre and post program implementation.
2. Assess nurses' skills regarding patient safety and medication administration at Damanhour Chest Hospital pre and post program implementation.
3. Assess nurses' attitude regarding patient safety and medication administration at Damanhour Chest Hospital pre and post program implementation.
4. Design training program about patient safety and medication administration for nurses at Damanhour Chest Hospital.
5. Implement the training program about patient safety and medication administration for nurses at Damanhour Chest Hospital
6. Evaluate the effect of patient safety training program for nurses regarding medication administration at Damanhour Chest Hospital.

**Hypothesis:**

The patient safety training program will have a positive effect on nurses' knowledge and skills and attitude regarding medication administration.

**SUBJECTS AND METHOD:****I. Technical design:**

Technical design of this study includes the research design, setting, subjects, and tools of data collection.

**Research design:**

Quasi-experimental research design one group (pre, and post program) was utilized to achieve the aim of the study.

**Study Setting:**

The study was carried out at critical care unit in Damanhour Chest Hospital.

**Study Subjects:**

All staff nurses are included in the study 64 staff nurses working at above mention setting regardless of age, years of experience and qualification.

**Tools of data collection:**

Data for this study was collected by using six tools:

**Tool I: Nurses' knowledge regarding patient safety questionnaire.**

This part about nurses' knowledge regarding patient safety related medication administration questionnaire. This part was used for assessing nurses' knowledge regarding patient safety; it developed in an Arabic language by the researcher after reviewing related literature (Egyptian Ministry of Health, 2016; Marchi, 2014; Sorra & Dyer, 2010; The Health Foundation, 2011; & WHO, 2009). This tool was used three times: Once before program, the second time immediately after program implementation and third time after three months of program implementation. This tool consists of 40 questions with two subscales, which are: general knowledge 25 questions (12 multiple choice questions and 13 "True" or "False"), and specific knowledge 15 questions (5 multiple choice questions and 10 "True" or "False"). The responses measured by multiple choice questions, a response with dichotomous scale "True" or "False".

**Scoring system:**

Use a dichotomous scale with scoring, true scored one, false scored zero for multiple choice questions true choice scored one and wrong choice scored zero.

The total score was determined by Marchi (2014) as following:

- Nurses have excellent information:      Score      > 90%
- Nurses have very good information:      Score  $\geq 85\%$  -  $\leq 90\%$
- Nurses have good information:          Score       $\geq 75\%$  -  $\leq 85\%$
- Nurses have fair information:            Score       $\geq 70\%$  -  $\leq 75\%$
- Nurses have poor information:          Score      < 70%

**Tool II: Nurses' knowledge regarding medication administration questionnaire.**

This tool used for assessing nurses knowledge regarding medication administration; it developed by Mohamed (2009) in an Arabic language. This tool was used three times: Once before program, the second time immediately after program implementation and third time after three months of program implementation. This tool consists of 87 questions with four subscales, which are: medication administration 36 questions (multiple choice questions), percentage of medication administration error 4 questions (multiple choice questions), why medication administration errors occur 40 questions ("True" or "False"), and why medication administration errors are not reported 7 questions (multiple choice questions). The responses will be measured by multiple choice questions, a response with dichotomous scale "True" or "False".

**Scoring system:**

Use a dichotomous scale with scoring, true scored one, false scored zero for multiple choice questions true choice scored one and wrong choice scored zero.

The total score was determined by Johnson and Thomas, (2013) as following:

- Nurses have excellent information:      Score      > 90%
- Nurses have very good information:      Score  $\geq 85\%$  -  $\leq 90\%$
- Nurses have good information:          Score       $\geq 75\%$  -  $\leq 85\%$
- Nurses have fair information:            Score       $\geq 70\%$  -  $\leq 75\%$
- Nurses have poor information:          Score      < 70%

**Tool III: Observational chick list for Nurses' skills regarding patient safety related medication administration.**

This tool used for assessing nurses skills regarding patient safety; it developed by the researcher based on related literature (Egyptian Ministry of Health, 2013; Egyptian Ministry of Health, 2016; Hafez, 2013; and Marchi, 2014) in an Arabic language. This tool consists of 34 items with two subscales which are: Patient safety and security 15 items, and infection control 19 items. They were checked on a dichotomous scale “Done” or “Not done”.

**Scoring system:**

Use a dichotomous scale with scoring, done scored one, not done scored zero.

The total score was determined by Marchi (2014) as following:

- Nurses have high skills level:        Score    > 85%
- Nurses have good skills level:        Score     $\geq 75\%$  -  $\leq 85\%$
- Nurses have low skills level:        Score    < 75%

**Tool IV: Observational check list for Nurses’ skills regarding medication administration.**

This tool used for assessing nurse skills regarding medication administration; it developed by Mohamed (2009) in an English Language. This tool consists of 21 items with seven subscales, including are: Review of physician's order in medication sheet one item, transcription of physician's oral or telephone order one item, drug preparation 2 items, administrating a medication dose 10 items, post administration of medication one item, nursing documentation 4 items, other information related to error intercepted one item and drug contraindication one item. They were checked on a dichotomous scale “Done” or “Not done”.

**Scoring system:**

Use a dichotomous scale with scoring, done scored one, not done scored zero.

The total score was determined by Gonzales, (2012) as following:

- Nurses have high skills level:        Score    > 85%
- Nurses have good skills level:        Score     $\geq 75\%$  -  $\leq 85\%$
- Nurses have low skills level:        Score    < 75%

**Tool V: Nurses' attitude regarding patient safety related medication administration questionnaire.**

This tool used for identify nurses' attitude regarding patient safety; developed by Sexton et al. (2006) in an English Language. This tool consists of 30 items with six

subscales, which are: Teamwork climate 6 items, safety climate 7 items, job satisfaction 5 items, stress recognition 4 items, perception of management 4 items and work condition 4 items. The responses will be measured in 5-point likert scale ranging from "strongly disagree to strongly agree."

**Scoring system:**

The original source for response was used five-point likert scale ranged from strongly disagree (1 score) to strongly agree (5 scores) in the positive items and the score contrasted with negative items.

The total score was determined by Sexton et al., (2006) as following:

- Nurses have excellent attitude: Score  $> 90\%$
- Nurses have very good attitude: Score  $\geq 85\% - \leq 90\%$
- Nurses have good attitude: Score  $\geq 75\% - \leq 85\%$
- Nurses have fair attitude: Score  $\geq 70\% - \leq 75\%$

**Tool VI: Nurses' attitude regarding medication administration questionnaire.**

This tool used for identify nurses' attitude regarding medication administration; developed by Johnson and Thomas (2013) in an English Language. This tool consists of 22 items with two dimensions, which are: Positive attitude dimension 12 items, negative attitude dimension 10 items. The responses will be measured in 5-point likert scale ranging from "strongly disagree to strongly agree."

**Scoring system:**

The original source for response was used five-point likert scale ranged from strongly disagree (1 score) to strongly agree (5 scores) in the positive items and the score contrasted with negative items.

The total score was determined by Johnson and Thomas, (2013) as following:

- Nurses have excellent attitude: Score  $> 90\%$
- Nurses have very good attitude: Score  $\geq 85\% - \leq 90\%$
- Nurses have good attitude: Score  $\geq 75\% - \leq 85\%$
- Nurses have fair attitude: Score  $\geq 70\% - \leq 75\%$

In addition to, demographic and work data questionnaire was added: demographic and work characteristic questionnaire, which was developed by the researcher in an Arabic language after review of literature. It included demographic data such as nurse



age, gender, and education. As regarding work characteristics, these included years of nursing experience, attendance courses about patient safety and medication administration.

## **II. Operational Design:**

The operational design includes the preparatory phase validity, reliability and pilot study and field work.

### **Preparatory phase:**

Analysis of present, past local and foreign related literature and theoretical knowledge of various aspects of the study using books, journals, internet, magazines and periodicals. This analysis helped the researcher get to know the nature and frequency of the issue and led the researcher in preparing resources for data collection.

### **Validity:**

Two tools of data collections were developed by researcher and sent to five specialized university experts from Faculty of Nursing. The experts were one professors of Nursing Administration, Damanhour University, two assistant professors of Nursing Administration, Benha University, one assistant professors of Medical Surgical Nursing, Port Said University, and one lecturer of Nursing Administration, Port Said University, according to their comments, modifications were considered. Tools validate for clarity, appropriateness, and completeness of the content.

### **Reliability:**

The reliability of the proposed tools was tested utilizing Cronbach's alpha. For nurses' knowledge regarding patient safety questionnaire, Cronbach's alpha of 0.823 showed a strong significant positive correlation between the items of the tool. Also, for the nurses' knowledge regarding medication administration questionnaire, it was 0.712. While for observational chick list for nurses' skills regarding patient safety, it was 0.911, for observational chick list for nurses' skills regarding medication administration, it was 0.818. And for the nurses' attitude regarding patient safety questionnaires, it was 0.931, for the nurses' attitude regarding medication administration questionnaires; it was 0.854, which indicates accepted tools reliability.

**Pilot study:**

Before entering the actual study, pilot study was conducted on 10% of the sample (8 nurses) in order to assess the feasibility of the study process and clarity of the tools and to determine the needed time to complete the tools. The needed modifications performed.

**Field work:****Assessment phase:**

Once, permission was granted from director of Damanhour Chest Hospital, Nursing Director and the head nurses of intensive care unit of hospital to conduct the study. The researcher explained the aim, nature, and significance of the study for every nurse manager to obtain their acceptance to participate in the study.

Prior to program implementation an initial assessment of the nurses' knowledge regarding patient safety and medication administration was done using self-administration questionnaire. As well as nurses' skills regarding patient safety and medication administration was measured by the researcher through observational checklist. Moreover, nurses' attitude regarding patient safety and medication administration questionnaires was measured by self-administration questionnaires. It was filled in a period from 1st June 2019 to 15th July 2019.

The data were collected from all staff nurses at mentioned setting, data collected during morning, evening and night shifts any days of week. Through of distribution the questionnaires filling the patient safety knowledge questionnaires took 20 minutes. Filling the medication administration knowledge questionnaire took 30 minutes. The researcher remained with the nurses until questionnaires were completed to ensure objectivity of the responses and to check that all items were answered. The observation done by researcher, who accompanied the observed nurse during a preparing and administration of each dose to the patient during a three-hour period surrounding the peak workload. Filling the patient safety attitude questionnaires took 20 minutes. Filling the medication administration attitude questionnaires took 10 minutes.

**Planning phase:**

The results obtained from initial assessment of nurses' knowledge, skills and attitude were analyzed and then the educational needs were delineated. In the design

stage, to formulate educational goals, and contents, set evaluation strategies to achieve the educational goals on knowledge, skills, and attitudes regard to the patient safety program. Accordingly the training program was designed by the researcher as well as training program schedule.

**Implementation phase:**

The clinical supervision training program was carried out in a period from October 2019 to November 2019. During this phase, the total sample was divided into thirteen groups, each group containing about 5 nurses or more according to shift condition. Each group was attending seven sessions of the total ninety one sessions until it covered the entire sample.

**Evaluation phase:**

The evaluation phase took place immediate and 3 months after the implementation phase to examine through the follow up visit to asserting that they correctly change in nurses' knowledge, skills and attitude using a same pre-post (test, observation checklist and attitude assessment questionnaire).

**III. Administrative Design:**

An official approval with written letter clarifying the title, purpose and setting of the study was obtained from Director of Damanhour Chest Hospital as approval for data collection to conduct this study.

**Ethical Considerations:**

Each nurses informed about the purpose of the research and its importance. The researcher emphasized that participation in the study is entirely voluntary, and all participated nurses informed that they could withdraw from the research at any time. Anonymity and confidentiality were assured through coding the data. Informed consent took from nurses who accept to be included in the research. Approval of nurses was obtained orally after explaining the purpose of the study.

**V. Statistical Design:**

Statistical Package for Social Science (SPSS), version 25 was used for the statistical analysis of the data. Collected data were organized, coded, and entered into a

computer. The arithmetic mean was used to describe the central tendency of observations for some variables, and frequency distribution was used for each variable. Comparison of categorical variables was made using Paired t-test, P values less than 0.05 were considered statistically significant.

## **RESULTS:**

The demographic characteristics of the nurses, revealed that slightly more than half (57.85%) of nurses' their age were 21 to 31 years old with mean± SD  $29.58 \pm 3.8$ . Also, it was noticed that the majority of nurses' gender (67.2%) was females. Consequently, regarding to nurses' education, most nurses (67.2%) have nursing technical institute.

Concerning nursing years of experience, study results revealed that 45.3% had from 6 to 15 years of experience with mean± SD  $2.22 \pm 0.881$ . 47.7% of nurses attended from 2 to 3 training courses, where as 87.5% of them attended courses about patient safety and 68.8% of them attended courses about medication errors.

**Table (1):** shows that preprogram recorded poor level, 100% for all nurses where it improved to be 78.1% of excellent level post program. While this level declined to be 54.7% through follow up, with high statistically significant difference were ( $P < 0.000$ ).

**Table (2):** shows that preprogram recorded poor level, 100% for all nurses where it improved to be 71.9% of excellent level post program. While this level declined to be 42.2% through follow up, with high statistically significant difference were ( $P < 0.000$ ).

**Table (3):** shows that preprogram recorded low level, 73.4% for all nurses where it improved to be 100% of high level post program. While this level declined to be 90.6% through follow up, with high statistically significant difference were ( $P < 0.000$ ).

**Table (4):** shows that preprogram recorded low level, 98.4% for all nurses where it improved to be 98.4% of high level post program. While this level declined to be 75% through follow up, with high statistically significant difference were ( $P < 0.000$ ).

**Table (5):** shows that preprogram recorded very good attitude, 40.6% for all nurses where it improved to be 48.4% of very good attitude post and follow up program, with high statistically significant difference were ( $P < 0.000$ ).

**Table (6):** shows that preprogram recorded good attitude, 67.2% for all nurses where it improved to be 43.8% of very good attitude post program. While this level declined to be 40.6% through follow up, with high statistically significant difference were ( $P < 0.000$ ).

**Table (7):** revealed that total mean scores for nurses' knowledge regarding to patient safety preprogram scored, ( $15.60 \pm 2.7$ ) where it improved to be ( $37.67 \pm 1.92$ ), while this level declined to be ( $35.42 \pm 3.72$ ) through follow up, with high statistically significant difference.

Regarding to total mean scores for nurses' knowledge regarding to medication administration preprogram scored, ( $30.06 \pm 16.36$ ) where it improved to be ( $80.91 \pm 4.05$ ), while this level declined to be ( $77.22 \pm 6.31$ ) through follow up, with high statistically significant difference.

Also, total mean scores for nurses' skills regarding to patient safety preprogram scored, ( $68.06 \pm 9.39$ ) where it improved to be ( $93.70 \pm 3.17$ ), while this level declined to be ( $91.87 \pm 4.46$ ) through follow up, with high statistically significant difference.

Regarding to total mean scores for nurses' skills regarding to medication administration preprogram scored, ( $102.54 \pm 14.12$ ) where it improved to be ( $177.51 \pm 11.67$ ), while this level declined to be ( $168.15 \pm 8.57$ ) through follow up, with high statistically significant difference.

Concerning to total mean scores for nurses' attitude regarding to medication administration preprogram scored, ( $81.51 \pm 12.29$ ) where it improved to be ( $94.91 \pm 4.78$ ), while this level declined to be ( $94.01 \pm 4.96$ ) through follow up, with high statistically significant difference.

Meanwhile, total mean scores for nurses' attitude regarding to patient safety preprogram scored, ( $108.46 \pm 18.34$ ), where it declined to be ( $106.37 \pm 13.47$ ), this level continued to decline to be ( $104.68 \pm 12.8$ ) through follow up, with high statistically significant difference.

**Table (8):** Illustrates correlation matrix of nurses' patient safety knowledge, medication administration knowledge, patient safety skills, medication administration skills, patient safety attitude and medication administration attitude Scores. Negative relation with statistically significant was found between patient safety attitude and medication administration knowledge, were ( $-0.255$ ), and patient safety skills and patient safety attitude, were ( $-0.300$ ).

Also negative relation with high statistically significant was found between medication administration attitude and patient safety attitude, were (-.451).

Also positive relation with high statistically significant was found between patient safety skills and medication administration knowledge, were (.447).

**Table (1):** Total nurses’ knowledge regarding patient safety through program phases (N=64).

Total nurses’ knowledge regarding patient safety	Pre (n=64)		Post immediately (n=64)		Follow up (n=64)		(p-value)#
	No	%	No	%	No	%	
Poor knowledge	64	100.0	0	0	1	1.6	<b>.000**<sup>1</sup></b> <b>.000**<sup>2</sup></b> <b>.000**<sup>3</sup></b>
Fair knowledge	0	0	0	0	9	14.1	
Good knowledge	0	0	5	7.8	10	15.6	
Very good knowledge	0	0	9	14.1	9	14.1	
Excellent knowledge	0	0	50	78.1	35	54.7	

#: X2 Test \*: Significant \*\*: Highly significant P1: Pre versus Post P2: Pre versus Follow up P3: Post versus Follow up

**Table (2):** Total nurses’ knowledge regarding medication administration through program phases (N=64).

Total nurses’ knowledge regarding medication administration	Pre (n=64)		Post immediately (n=64)		Follow up (n=64)		(p-value)#
	No	%	No	%	No	%	
Poor knowledge	64	100	0	0	1	1.6	<b>.000**<sup>1</sup></b> <b>.000**<sup>2</sup></b> <b>.000**<sup>3</sup></b>
Fair knowledge	0	0	0	0	0	0.0	
Good knowledge	0	0	2	3.1	15	23.4	
Very good knowledge	0	0	16	25.0	21	32.8	
Excellent knowledge	0	0	46	71.9	27	42.2	

#: X2 Test \*: Significant \*\*: Highly significant P1: Pre versus Post P2: Pre versus Follow up P3: Post versus Follow up

**Table (3):** Total nurses’ skills regarding patient safety through program phases (N=64).

Total nurses’ skills regarding patient safety	Pre (n=64)		Post immediately (n=64)		Follow up (n=64)		(p-value)#
	No	%	No	%	No	%	
Low skills level	47	73.4	0	0.0	0	0.0	.000** <sup>1</sup>
Good skills level	14	21.9	0	0.0	6	9.4	.000** <sup>2</sup>
High skills level	3	4.7	64	100.0	58	90.6	.031* <sup>3</sup>

#: X2 Test \*: Significant \*\*: Highly significant P1: Pre versus Post P2: Pre versus Follow up P3: Post versus Follow up

**Table (4):** Total nurses’ skills regarding medication administration through program phases (N=64).

Total nurses’ skills regarding patient safety	Pre (n=64)		Post immediately (n=64)		Follow up (n=64)		(p-value)#
	No	%	No	%	No	%	
Low skills level	63	98.4	0	0.0	0	0.0	.000** <sup>1</sup>
Good skills level	1	1.6	1	1.6	16	25.0	.000** <sup>2</sup>
High skills level	0	0.0	63	98.4	48	75.0	.000** <sup>3</sup>

#: X2 Test \*: Significant \*\*: Highly significant P1: Pre versus Post P2: Pre versus Follow up P3: Post versus Follow up

**Table (5):** Total nurses’ attitude regarding patient safety through program phases (N=64).

Total nurses’ attitude regarding patient safety	Pre (n=64)		Post immediately (n=64)		Follow up (n=64)		(p-value)#
	No	%	No	%	No	%	
Fair attitude	19	29.7	8	12.5	10	12.5	.000** <sup>1</sup>
Good attitude	10	15.6	13	20.3	13	20.3	.000** <sup>2</sup>
Very good attitude	26	40.6	31	48.4	29	48.4	.000** <sup>2</sup>
Excellent attitude	9	14.1	12	18.8	12	18.8	.005** <sup>3</sup>

#: X2 Test \*: Significant \*\*: Highly significant P1: Pre versus Post P2: Pre versus Follow up P3: Post versus Follow up

**Table (6):** Total nurses’ attitude regarding medication administration through program phases (N=64).

Total nurses’ attitude regarding medication administration	Pre (n=64)		Post immediately (n=64)		Follow up (n=64)		(p-value)#
	No	%	No	%	No	%	
Fair attitude	13	20.3	0	0.0	1	1.6	<b>.000**<sup>1</sup></b> <b>.000**<sup>2</sup></b> <b>.005**<sup>3</sup></b>
Good attitude	43	67.2	24	37.5	28	43.8	
Very good attitude	8	12.5	28	43.8	26	40.6	
Excellent attitude	0	0.0	12	18.8	9	14.1	

#: X2 Test \*: Significant \*\*: Highly significant P1: Pre versus Post P2: Pre versus Follow up P3: Post versus Follow up

**Table (7):** Total mean scores of nurses’ knowledge, skills and attitude regarding patient safety and medication administration through program phases (N=64).

Total mean scores	Pre (n=64)	Post program (n=64)	Follow up (n=64)	(p-value)#
	Mean±SD	Mean±SD	Mean±SD	
Nurses’ knowledge regarding patient safety	15.60±2.7	37.67±1.92	35.42±3.72	<b>.000**<sup>1</sup></b> <b>.000**<sup>2</sup></b> <b>.000**<sup>3</sup></b>
Nurses’ knowledge regarding medication administration	30.06±16.36	80.91±4.05	77.22±6.31	<b>.000**<sup>1</sup></b> <b>.000**<sup>2</sup></b> <b>.000**<sup>3</sup></b>
Nurses’ skills regarding patient safety	68.06±9.39	93.70±3.17	91.87±4.46	<b>.000**<sup>1</sup></b> <b>.004**<sup>2</sup></b> <b>.000**<sup>3</sup></b>
Nurses’ skills regarding medication administration	102.54±14.12	177.51±11.67	168.15±8.57	<b>.000**<sup>1</sup></b> <b>.004**<sup>2</sup></b> <b>.000**<sup>3</sup></b>
Nurses’ attitude regarding patient safety	108.46±18.34	106.37±13.47	104.68±12.8	<b>.000**<sup>1</sup></b> <b>.000**<sup>2</sup></b> <b>.005**<sup>3</sup></b>
Nurses’ attitude regarding medication administration	81.51±12.29	94.91±4.78	94.01±4.96	<b>.000**<sup>1</sup></b> <b>.000**<sup>2</sup></b> <b>.000**<sup>3</sup></b>

#: X2 Test \*: Significant \*\*: Highly significant P1: Pre versus Post P2: Pre versus Follow up P3: Post versus Follow up



**Table (8):** Correlation matrix of nurses’ patient safety knowledge, medication administration knowledge, patient safety skills, medication administration skills, patient safety attitude and medication administration attitude Scores (N=64).

Scores	Spearman's rank correlation coefficient					
	Patients’ safety knowledge	Medication knowledge	Patients’ safety attitude	Medication attitude	Patient safety skill	Medication skills
Patients’ safety knowledge		.163	-.186	.071	.153	-.106
Medication knowledge	.163		<b>-.255*</b>	.001	<b>.447**</b>	-.164
Patients’ safety attitude	-.186	<b>-.255*</b>		<b>-.451**</b>	<b>-.300*</b>	.129
Medication attitude	.071	.001	<b>-.451**</b>		.051	.052
Patient safety skill	.153	<b>.447**</b>	<b>-.300*</b>	.051		-.013
Medication skills	-.106	-.164	.129	.052	-.013	

(\*) statistically significant at  $p < 0.05$   
 (\*\*) Highly statistically significant at  $p < 0.01$

**DISCUSSION:**

Patient safety is the avoidance of unintended or unexpected harm to people during the provision of health care. Health care providers should be support to minimize patient safety incidents and drive improvements in safety and quality. Patients should be treated in a safe environment and protected from avoidable harm (National Health Service, 2020). One of the international goals of the patient safety is improving the safety of high-alert medications.

Medication administration is one of the important procedure occur in hospitals and an important part of delivering quality nursing care. The Medication Administration Process is predominantly, a nursing responsibility that has been estimated to consume approximately 40% of nursing practice time. The nurse should follow the specific

guidelines to enhance their medication administration safety. Medication errors are among the chief causes of harm to patients while they reside in hospitals (Ahmed et al., 2021).

According to finding of the present study total nurses' knowledge regarding patient safety through program phases, the current study showed that all of staff nurses had poor level of knowledge, where it improved to be majority of staff nurses had excellent level post program while this level declined into half of staff nurses through follow up, with high statistical significant difference.

This marked improvement, in nurses' knowledge following the training program, seems logical, when compared to pre-program, due to absent of regular training program related to patient safety received by participants, beside the limited course content they had during their undergraduate courses and after graduation, the staff gained clear knowledge regarding patient safety. Therefore, they were highly receptive and interested in acquiring knowledge when engaged in the training program. A slightly decreased in the nurses' knowledge scores after three months from program implementation. This is may be due to that staff nurses did not use the handout they received during program implementation due to lack of time to read because the heavy work load in ICU and shortage of the staff and they might have forgotten some of knowledge gained..

In support to the above finding Gaupp, Körner, and Fabry (2016) who studied "Effects of a Case-based Interactive E-learning Course on Knowledge and Attitudes about Patient Safety" his finding showed that high statistical significant improvement in study sample knowledge regarding patient safety after the learning course. Also Ortega, et al. (2020) who studied "Distance Learning and Patient Safety: Report and Evaluation of an Online Patient Safety Course" stated that the majority of nurses in his study had got poor level of knowledge regarding patient safety

Regarding total nurses' knowledge regarding medication administration, the current study showed that all of staff nurses had poor level of knowledge, where it improved to be majority of staff nurses had excellent level post program while this level declined to nearly half of staff nurses through follow up, with high statistical significant difference.

This marked improvement, in nurses' knowledge following the training program, seems logical, when compared to pre-program, due to absent of regular training program related to medication administration received by participants, beside the limited course content they had during their studying or during period of their work after graduate, all these led to the poor knowledge that nurses had before implementation of the program. Therefore, they were highly receptive and interested in acquiring knowledge when engaged in the training program. A slightly decreased in the nurses' knowledge scores after three months from program implementation. This is may be due to that staff nurses did not use the handout they received during program implementation due to lack of time to read because the heavy work load in ICU and shortage of the staff and they might have forgotten some of knowledge gained.

This result is congruent with Alhashemi, Ghorbani, and Vazin (2019) who studied improving knowledge, attitudes, and practice of nurses in medication administration through enteral feeding tubes by clinical pharmacists stated that overall knowledge of nurses increased significantly after the training program in the case group. Also El shimy, Abdalla, Gaber, and Abo El Maged (2006) they investigating "The Effect of Training Program on Reduction of nurses Medication Errors" through developing, implementing, and evaluating an in-service training program for reduction of nurses medication errors. This improvement was mostly retained after 3-months, with slight decline, although still higher compared to pre-implementation level.

The current study showed that majority of staff nurses had low level of skills regarding patient safety, where it improved to be all of staff nurses had high level post program while this level declined to majority through follow up, with high statistical significant difference. This is may be due to the implementation of patient safety program played important role in developing nurses' medication administration skills because it was planned and implemented according to their pre assessed need. Furthermore, simplification of well-presented information by suitable educational aids increased their interest and desire to acquire medication administration knowledge and practice. The availability of using combined method of teaching helped nurses to reach to adequate level of knowledge and skills. Abo Gad (2008), in their study, supported that using combined method of teaching provides opportunities for participants to learn according to their own style.

Also Kim, Yoon, Hong, and Min (2019) who studied "Effects of a patient safety course using a flipped classroom approach among undergraduate nursing students" found Pre- and post-test results demonstrated a significant increase in nurses' students' patient safety skills. These results come inconsistent with Stomski, Gluyas, Andrus, Williams, and Hopkins (2018) who studied "The Influence of Situation Awareness Training on Nurses' Confidence about Patient Safety Skills" mentioned that no significant differences in nurses' skills about patient safety were identified within settings between Pre and post educational intervention.

The current study showed that majority of staff nurses had low level of skills regarding medication administration, where it improved to be majority of staff nurses had high level post program while this level slightly decreased to be three quarter through follow up, with high statistical significant difference. This result may be due to nurses know important to follow medication administration instruction for each medication throw training program, demonstrate aseptic technique to each medication, and know the bad effect can occur to patient when make medication administration errors.

This result is congruent with Alhashemi, et al. (2019) them finding show Mean scores and percentages of nurses with acceptable practice regarding researcher observations was significantly improved in the control group post training program. This result come in agree with Ragheb (2016) who studied "Effect of Training Program on Reduction of nurses Medication Errors" reported that the majority of nurses were significant improvements in the nurses' skills regarding medication administration across all phases.

The current study showed that nearly third of staff nurses had very good attitude regarding patient safety, where it improved to be nearly half of staff nurses had very good attitude post program and through follow up, with high statistical significant difference.

This results is congruent with Gaupp, et al. (2016) his finding showed that high statistical significant improvement in study sample attitude regarding patient after the learning course. Also, Syam and Hastut (2018) who studied "Relationship between Knowledge and Attitude with Implementation of Patient Safety Targets in RSUD

Yogyakarta" found that there is relationship between nurse attitude and the implementation of patient safety program.

The current study showed that nearly two third of staff nurses had good attitude regarding medication administration, where it improved to be nearly half of staff nurses had very good attitude post program While this level declined to nearly third of them through follow up, with high statistical significant difference. This is may be due to the course content of that program included important interesting subject to intended to develop their nursing career.

The program objectives were improving the nurses learning domain: cognitive (knowledge), affective (attitude) and psychomotor (skills) as proposed by Riley (2000). So, the success of present patient safety program resulting from combining and the unifying of its concepts from the three domains. As well as, improve medication administration. This result is congruent with Alhashemi, et al. (2019) who stated that nurses' attitudes in the case group had changed significantly after the training program in the case group.

The current study was hypothesized that patient safety program will have a positive effect on nurses' knowledge and skills and attitude during medication administration in Damanhour chest hospital. The results of the study were support the research hypotheses, as the current findings of this study revealed that there were statistical significant differences in mean scores of nurses regarding nurses' knowledge and skills regarding patient safety and nurses' knowledge, skills and attitude regarding medication administration.

These result supported by Gaupp, Dinius, Drazic, & Körner (2019) who studied " Long-term effects of an e-learning course on patient safety" finding patent safety knowledge in the intervention group improved significantly after the intervention and remained high after one year. This result come in agree with Ragheb (2016) who stated that were significant improvements in the nurses' knowledge regarding medication administration across all phases, where less than fifth of nurses had knowledge preprogram, improved to majority of nurses post immediate and decreased slightly to be four fifth of nurses 3 months post program implementation.

This result were confirmed by Gillespie, et al. (2018) who studied " Evaluation of a patient safety program on Surgical Safety Checklist Compliance" stated there were significant improvements in the observed checklist across all phases, where completion rates ranged from less than four fifth to majority following program implementation. Also Abo Gad (2008) stated that high statistical significant difference was found between pre & post program implementation in relation to low skills level, moderate skills level, and high skills level. In support to above finding Motycka, et al. (2018) who studied "Using Inter Professional Medication Management Simulations to Impact Student Attitudes Toward Teamwork to Prevent Medication Errors" them finding show significant improvement in attitudes post training toward medication administration was seen across all phases.

The current study showed that high attitude regarding patient safety was found preprogram and has decreased slightly immediately post program, while lowest knowledge was found through follow up. this is may be due to during implementation phase the hospital allocated to become the first isolation hospital for COVID-19 patient in El Beheira Governorate, nurses fear from infection with a virus COVID-19 especially after death of first infected nurse in the hospital, ICU capacity was 17 beds after hospital allocated to become isolation hospital for COVID-19 patient the capacity became 31 beds with a same number of nurses.

This study also come in the line with Gaupp, et al. (2019) emphasize there was no sustainable significant effect on attitudes towards patient safety. Meanwhile Brasaite, Kaunonen, and Suominen (2015) who studied "Healthcare professionals' knowledge, attitudes and skills regarding patient safety" reported that was statistical significant improvement in nurses' attitude regarding patient safety.

Concerning correlation between nurses' patient safety knowledge, medication administration knowledge, patient safety skills, medication administration skills, patient safety attitude and medication administration attitude Scores, the present study showed that negative relation with statistically significant was found between patient safety attitude and medication administration knowledge.

This result comes in the line with Safarpour, et al. (2017) who investigated "Patient Safety Attitudes, Skills, Knowledge and Barriers Related to Reporting Medical Errors by Nursing Students" found the higher score of knowledge of study sample on patient safety was in negative correlation with lower scores in the attitude towards patient safety. This result comes inconsistent with Jeonghye and Myonghwa (2014) who studied "Knowledge, Attitude, and Confidence on Patient Safety of Undergraduate Nursing Students" found there was a significant positive correlation among knowledge and attitude on patient safety.

Also, the present study showed that negative relation with statistically significant was found between patient safety skills and patient safety attitude. This result comes inconsistent with Seong-Soo, and Hee-Young (2015) who studied "The Attitude of Patient Safety and Patient Safety Management Activity in Nursing Students" stated that there was a positive correlation among attitude of patient safety and practice regarding patient safety. This result comes in the line with Mohammed (2016) who found that there are no statically significant correlation between nurse's knowledge and practice regarding patient safety. Also Zytone (2009) who studied "Effect of Training Program on Nurses Knowledge and Performance Related to Nursing Care of Post-Operative Open Heart Patients in ICU at Zagazig University Hospital" exhibited that highly a positive correlation was established between staff nurses knowledge and practice regarding patient safety.

Also positive relation with high statistically significant was found between patient safety skills and medication administration knowledge. Meanwhile Abo Gad (2008) stated that statistically significant was found between medication administration knowledge and medication administration attitude.

## **CONCLUSION:**

Based on the results of the present study and research hypothesis, the study concluded that the patient safety program for nurses on medication administration had a positive effect on nurses' knowledge and skills regarding patient safety and nurses' knowledge, skills and attitude regarding medication administration.

**RECOMMENDATIONS:**

The finding of the present study suggested the following recommendations:

**For practice:**

Develop procedures manual include procedures and techniques used in nursing care specially medication administration procedures.

**For hospital:**

- Encourage and stress nurses self-improvement, self-learning and continuous updating themselves.
- salience of job resources and gain their motivational potential when employees are confronted with high job demands (e.g. workload, emotional demands, and mental demands) for example, increase number of staff nurses who work in intensive care unit and Prime importance for implementation an effective reward system and promote non-punitive environment.
- Encourage social support from colleagues and supervisors, performance feedback, skill variety, and autonomy, start a motivational process that leads to work engagement, and consequently to higher performance and attitude.

**Further research:**

- Investigating the various faculty teaching styles, focus on the distractions and barriers that put nurses at risk and psychological stress while administering medications in the intensive care unit setting.

**References**

Abo Gad, R. A. (2008). Risk Management of Common Errors in Administration of Medication, unpublished Ph.D. thesis. Tanta University, Faculty of Nursing, Egypt.

Ahmed, A. S., Elshimy, H., & Fakhry, S .F. (2021). Training Strategies: Effect on the Nurse Interns' Medication Administration Safety. *Egyptian Journal of Health Care*, 12(3), 226-239.

Alhashemi, S. H., Ghorbani, R. & Vazin, A. (2019). Improving knowledge, attitudes, and practice of nurses in medication administration through enteral feeding tubes by clinical pharmacists. *Adv Med Educ Pract.* 2019(10), 493–500.



AlShara, M. (2011). Factors contributing to medication errors in Jordan: a nursing perspective. *Iranian Journal of Nursing and Midwifery Research*, 16(2), 158-161.

Ayorinde, M. O., & Alabi, P. I. (2019). Perception and contributing factors to medication administration errors among nurses in Nigeria. *International Journal of Africa Nursing Sciences*, 11 (2019), 100-158.

Bates, D. (2007). Preventing medication errors: a summary. *American Journal of Health-System Pharmacy*, 64(14), 3-9.

Brasaitė, I., Kaunonen, M., & Suominen, T. (2015). Healthcare professionals' knowledge, attitudes and skills regarding patient safety: a systematic literature review. *Scandinavian journal of caring sciences*, 29 (1), 30-50.

Egyptian Ministry of Health. (2013). *Egyptian healthcare accreditation program standards for hospitals* (2nd ed.), (pp. 52-78). Cairo, Egypt: Egyptian Ministry of Health.

Egyptian Ministry of Health. (2016). *Egyptian National Infection Control Guideline* (4th ed.), (pp 60-125). Cairo, Egypt: Egyptian Ministry of Health.

El Shimy, H., Abdalla, S., Gaber, E., & Abo El Maged, N., (2006). The Effect of Training Program on Reduction of nurses Medication Errors at Assiut University Hospital. *AAMJ*, 4 (2), 91-189.

Gorgich, E.A.C., Barfroshan, S., Ghoreishi, G., & Yaghoobi, M. (2016). Investigating the causes of medication errors and strategies to prevention of them from nurses and nursing student viewpoint. *Global Journal of Health Science*, 8 (8), 220-227.

Gaupp, R., Körner, M. & Fabry, G. (2016): Effects of a case-based interactive e-learning course on knowledge and attitudes about patient safety: a quasi-experimental study with third-year medical students. *BMC Medical Education*, 16 (172), 623-657.

Gaupp, R., Dinius, J., Drazic, I. & Körner, M. (2019). Long-term effects of an e-learning course on patient safety: A controlled longitudinal study with medical students. *Plos one journal*, DOI 10.1371/journal.pone.0210947.

Gillespie, B.M., Harbeck, E.L., Lavin, J., Hamilton, K., Gardiner, T., Withers, T.K., Marshall, A.P. (2018). Evaluation of a patient safety program on Surgical Safety Checklist Compliance: a prospective longitudinal study. *BMJ journal*, 7 (3), 55-67.

Hafez, E.A, (2013). *Ain Shams University Hospital Polices and procedure for Patient Safety* (pp1-25). Ain Shams University, Cairo: Egypt.

Hammoudi,B.M., Ismaile,S. & Abu Yahya,O. (2017). Factors Associated with Medication Administration Errors and Why Nurses Fail to Report them. *Caring sciences*, 32 (3), 1038-1046.

JCI -Joint Commission International (2019). *International Patient Safety Goals* (pp 1-17). Oak Brook: Joint Commission International.

Jeonghye,p.& Myonghwa,p. (2014). Knowledge, Attitude, and Confidence on Patient Safety of Undergraduate Nursing Students. *The Journal of Korean Academic Society of Nursing Education*, 20 (1), 5-14.

Johnson, J. & Thomas, M. (2013). Medication errors :knowledge and attitude of nurses in Ajman. *UAE Reviews of Progress; 1* (4), 2321-3485.

Kim, Y. M., Yoon, Y. S., Hong, H. C., & Min, A. (2019). Effects of a patient safety course using a flipped classroom approach among undergraduate nursing students. *Nurse Education Today*, 79 (August 2019) 180-187.

Marchi, N. M., (2014). *Fostering patient safety knowledge, skills and attitude with Bachelor of Science in nursing student using active learning strategies* (p75). Payne Bolton School of Nursing Case Western Reserve University, Cleveland, Ohio: Frances.

Mohamed, N. A., (2009). Medication administration errors and their determination in ICU of El-shatby University Hospital unpublished Ph.D. thesis. Alexandria University, High Institute of Public Health, Egypt.

Mohammed, S.A., (2016). Nursing Guidelines and Its Effects on Nurses' Knowledge and Patient Safety Regarding Nosocomial Infection Control Measures in Burn Unit. *IOSR Journal of Nursing and Health Science*, 5 (5), 6-16.

Motycka, C., Egelund, E. F., Gannon, J., Genuardi, F., Gautam, S., Stittsworth, S., Young, A., & Simon, L. (2018). Using inter professional medication management simulations to impact student attitudes toward teamwork to prevent medication errors. *Currents in Pharmacy Teaching and Learning*, 10 (7), 982-989.

National Health Service. (2020). *Patient safety incident management system* (p9). UK, London, Skipton House.

Ragheb, S. E., (2016). Effect of Training Program on Reduction of nurses Medication Errors unpublished Ph.D. thesis, (pp 62-102). Zagazig University, Faculty of Nursing, Egypt.

Riley, J. B. (2000). *Communication in nursing* (4th ed), (pp16-18). St. Louis, Mosby Inc.

Safarpour,H., Tofighi,M., Malekyan,L., Bazyar,J., Varasteh,S., Anvary,R. (2017). Patient Safety Attitudes, Skills, Knowledge and Barriers Related to Reporting Medical Errors by Nursing Students. *International Journal of Clinical Medicine*, 8 (1), 11.

Seong-Soo,H. & Hee-Young,K., (2015). The Attitude of Patient Safety and Patient Safety Management Activity in Nursing Students. *Journal of the Korea Academia-Industrial cooperation Society*, 16 (8), 5458-5467.

Sexton, J. B., Helmreich, R. L., Neilands, T. B., Rowan, K., Vella, K., Boyden, J., Roberts, P. R., & Thomas, E. J. (2006). The Safety Attitudes Questionnaire: Psychometric properties, benchmarking data, and emerging research. *BMC Health Services Research*, 6 (1), 44-56.

Simone, D. E., Giannetta, N., Auddino, F., Cicotto, A., Grilli, D., & Muzio, M. D, (2018). Medication Errors in the Emergency Department: Knowledge, Attitude, Behavior, and Training Needs of Nurses. *Indian J Crit Care Med*, 22(5): 346–352.

Sorra, J. S., & Dyer, N. (2010). Multilevel psychometric properties of the AHRQ hospital survey on patient safety culture. *Bio Med Central Health Services Research Journal*, 10 (3), 199-209.

Stomski, N., Gluyas, H., Andrus, P., Williams, A., & Hopkins, M., (2018). The influence of situation awareness training on nurses' confidence about patient safety skills: A prospective cohort study. *Nurse Educ Today*; 63:24-28.

Stromberg, H., (2020): *Dewit's Medical-Surgical Nursing: Concepts and Practice* (4th ed.), (pp 48-81). Saunders.

Syam, N. S. & Hastut, S. K. (2018). Relationship Between Knowledge and Attitude with Implementation of Patient Safety Targets in RSUD Yogyakarta. *Jurnal Medicoeticolegal dan Manajemen Rumah Sakit*, 7 (3), 205-211.

The Health Foundation, (2011). *Measuring safety culture* (pp 1-41). London: The Health Foundation.

WHO, (2009). *Patient safety curriculum guide for medical schools*. Paris: WHO Regional Office for Europe.

WHO (2021). *Global patient safety action plan 2021–2030, towards eliminating avoidable harm in health care* (pp 23-62). Geneva: World Health Organization; 2021. Licence: CC BY-NC-SA 3.0 IGO.

Zytone , H., (2009). Effect of Training Program on Nurses Knowledge and Performance Related to Nursing Care of Post-Operative Open Heart Patients in ICU at Zagazig University Hospital unpublished Ph.D. thesis, (pp.124-29). Zagazig University, Faculty of Nursing, Egypt.

## تأثير برنامج سلامة المرضى للمرضى على إعطاء الدواء

اسراء ابراهيم أحمد أبو حسين، نعمات محمد السيد، سناء عبد العظيم ابراهيم

ماجستير في إدارة التمريض كلية التمريض جامعة بنها، أستاذ إدارة التمريض كلية التمريض جامعة دمنهور،  
أستاذ إدارة التمريض كلية التمريض جامعة بورسعيد

### الخلاصة

الخلفية: يمكن أن تقلل سلامة الأدوية من مخاطر إلحاق الضرر بالمرضى بل يمكن ان تمنعها ايضا. هدف الدراسة: تهدف الدراسة إلى تحديد تأثير برنامج سلامة المرضى للمرضى على اعطاء الأدوية بمستشفى صدر دمنهور. الموضوعات والطريقة: تصميم البحث: شبه تجريبي. أجريت الدراسة في وحدة العناية المركزة بمستشفى صدر دمنهور. عينة الدراسة: قد تضمنت جميع المرضى العاملين بـمكان البحث اثناء فترة الدراسة و هم 64 مريض. الأدوات: تم استخدام ست أدوات ، الأداة الأولى: استبيان عن معرفة المرضى فيما يتعلق بسلامة المريض. الأداة الثانية: استبيان عن معرفة المرضى فيما يتعلق بإعطاء الدواء. الأداة الثالثة: قائمة مراقبة لمهارات المرضى فيما يتعلق بسلامة المريض. الأداة الرابعة: قائمة مراقبة لمهارات المرضى فيما يتعلق بإعطاء الدواء. الأداة الخامسة: اتجاه المرضى فيما يتعلق بمقياس سلامة المريض. الأداة السادسة: اتجاه المرضى من مقياس إعطاء الدواء. النتيجة: أوضحت أن هناك تحسن ذو دلالة إحصائية مرتفعة مرتبطة بمعلومات ومهارات وسلوك المرضى فيما يتعلق بـ (سلامة المريض وإعطاء الدواء) بعد البرنامج مباشرة و ايضا بعده بثلاثة اشهر مقارنة بمستواهم قبل البرنامج مع قيمة  $P < 0.000$ . الخلاصة: كان لبرنامج سلامة المرضى تأثير إيجابي على معرفة ومهارات المرضى فيما يتعلق بسلامة المرضى. كما كان له تأثير إيجابي على معرفة المرضى ومهاراتهم وسلوكهم فيما يتعلق بإعطاء الأدوية. توصية: وضع دليل إجراءات يتضمن الإجراءات والتقنيات المستخدمة في الرعاية التمريضية خاصة إجراءات إعطاء الدواء.

الكلمات المرشدة: سلامة المرضى ، إعطاء الدواء.