



## THE EFFECTIVENESS OF A PLANNED TEACHING PROGRAMME OF THE ASEPTIC TECHNIQUES USED DURING I/V CANNULATION AMONG THE STAFF NURSES IN BCM HOSPITAL, KHAIRABAD, U.P.

### Nursing

**Jolly Sebastian\***

Associate Professor, BCM College Of Nursing, Khairabad, Sitapur, U.P. \*Corresponding Author

**Dr. Vijay Laxmi Verma**

Associate Professor, College of Nursing, Aligarh Muslim University, Aligarh

### ABSTRACT

**BACKGROUND OF THE STUDY:** - Nurses have a pivotal role to play in reducing and preventing health care associated infections and protect their patients from the complications and hazards associated with intravenous devices, because of their links and interaction with families, patients and other health care professionals and provision of direct patient care.

**AIMS AND OBJECTIVES:** - The study was conducted to assess the effectiveness of a planned teaching programme of the aseptic techniques used during I/V (intravenous) cannulation among the staff nurses in BCM Hospital and to compare the practicing skills before and after the teaching programme with its demographic variables.

**MATERIALS AND METHODS:** - A convenient purposive sampling technique was adopted for data collection of 50 staff nurses from various departments of BCM Hospital. An observation checklist was used to find out aseptic techniques used by staff nurses during I/ V cannulation followed by a planned teaching programme to all the staff nurses. After 7days the same checklist was used as a post-test to evaluate the effectiveness.

**RESULTS:** - The subjects under the study comprised of 46 (92%) GNM and 4 (8%) were BSc nurses. The average pre-test score was 43%. The average post-test score was 80.3%. Paired't' test was applied to find the effectiveness. The mean difference between pre-test and post-test is 61.6. The 't' value was 2.48 at 0.01 level of significance. Statistically significant effectiveness of the planned teaching programme was found.

**CONCLUSION:** - The study findings denote that planned teaching programme was effective and significant improvement and better practicing skills on aseptic technique for I/V cannulation were noted among staff nurses after the teaching programme.

### KEYWORDS

I/V cannulation, Aseptic Technique, Effectiveness, Planned Teaching Programme.

### INTRODUCTION AND NEED FOR THE STUDY

Infection is the attack on body by pathogenic microorganism or the entry of any disease producing factor in the body, developing and causing damage to the body. Asepsis is freedom from infection or prevention of contact with microorganisms. Aseptic technique is a set of practices and procedures performed under carefully controlled conditions with the goal of minimizing contamination by pathogens. Peripheral intravenous cannulation is most widely used procedure in a hospital; it has also its own disadvantages when not taken proper care. These vascular access devices cause many types of complications like intravenous phlebitis, thrombophlebitis, catheter embolism, bleeding, nerve, tendon or ligament damage, needle stick injuries, sepsis etc. Each year about 2,50,000 cases of blood stream infection are linked to vascular catheters; 12% to 25% of patients with these infection die. (Wilkinson R 1996).

Banks, J. collected data from 252-bed hospital in view of how to decrease peripheral intravenous catheters infiltration as a way of enhancing durability of the peripheral intravenous catheter. The outcome of this data was significant in the decision to transform the organization's clinical practice and procedures related to peripheral intravenous catheter insertions and preservation. (Banks J. 2015).

Most hospitalised patients have placement of a peripheral venous access device, either a short peripheral catheter or a peripherally inserted central catheter. Expertise of nurses in inserting, managing, and removing these devices may reduce the likelihood of complications. The increased recognition of complications associated with the use of the devices is important to ensure continued improvements in the safety, quality, and efficiency of health care. Complications associated with short peripheral catheters and peripherally inserted central catheters include tourniquet retention, tubing and catheter misconnections, phlebitis, air embolism, device fragment embolization, and inadvertent discharge with a retained peripheral venous access device. Integration of prevention, detection, and recovery strategies into personal nursing practice promote the quality and safety of health care delivery. (Elizabeth A. M. 2017).

Healthcare Infection Control Practices Advisory Committee (HICPAC) of the Centre for Disease Control and Prevention (CDC) has Guidelines for Prevention of Intravascular Catheter-Related Infections published in 2011 and updated in 2017 recommends to educate health care personnel regarding the indications for intravascular catheter use, proper procedures for the insertion and maintenance of intravascular catheters, and appropriate infection

control measures such as hand hygiene and aseptic practice, maximal sterile barrier precautions, to prevent intravascular catheter-related infections. Periodically assess knowledge of and adherence to guidelines for all personnel involved in the insertion and maintenance of intravascular catheters. Designate only trained personnel who demonstrate competence, for the insertion and maintenance of peripheral and central intravascular catheters. (HICPAC and CDC guidelines 2017)

Intravenous cannulation is a skill that nurses should encompass. By doing so nurses can help to achieve the targets of enhancing the quality of services, reducing waiting times, improving working conditions and most importantly this skill will enable the nurses to give high quality of care, holistic care to the patient and their families. During the clinical posting and supervision in various departments of BCM hospital the researcher felt that staff nurses need to be given training for the appropriate peripheral venous cannulation techniques to improve their skill and practice.

### AIM OF THE STUDY

The aim of the study was to assess the effectiveness of a planned teaching programme of the aseptic techniques used during I/ V cannulation among the staff nurses in BCM Hospital and to compare the practicing skills before and after the teaching programme with its demographic variables.

### OBJECTIVES

1. To assess the practicing skills of aseptic techniques used during I/ V cannulation among staff nurses.
2. To compare the practicing skills before and after the planned teaching programme.
3. To find the effectiveness of a planned teaching programme of the aseptic techniques used during I/V cannulation among the staff nurses

### MATERIALS AND METHODS

In this study the researcher used a quantitative research approach and the research design selected was pre experimental study. The research hypothesis was that there will be significant improvement in practicing skill on the aseptic techniques used during I/V cannulation among staff nurses after the planned teaching programme. An observation check list was prepared with 29 criteria to assess the practicing skills and steps of I/V cannulation based on CDC (Centre for Disease Control) guidelines on aseptic techniques of I/V cannulation. The tool is

validated with experts' opinions and suggestions. Pilot study was conducted with 5 subjects who possessed the same characteristics for the main study. Karl Pearson's correlation co-efficient formula was used to find the effectiveness, and the result showed noticeable improvement from 43% (pre-test) to 78% (post-test). The pilot study was useful in testing the feasibility of the study. The planned teaching programme and the observation checklist were found to be reliable.

The researcher gave a brief introduction about the study and obtained consent from the hospital administration and nursing administration. Samples were selected using a non-probability convenient purposive sampling technique. 50 staff nurses who met the criteria for selection were chosen according to their availability from various departments of BCM Hospital. Pre-test was done to the subjects to find out aseptic techniques used by staff nurses during I/V cannulation, and followed by the planned teaching programme, and post-test was done after 7 days to the same subjects with same observation checklist to evaluate the effectiveness. The data obtained was analyzed using descriptive and inferential statistics. Chi-square test was applied to find the association between practicing skills and selected variables. 't' test was applied to show the gain in practicing skills score.

**RESULTS**

The subjects under the study comprised of 46 (92%) GNM and 4 (8%) were BSc nurses. The pre-test score was 43% and post-test score was 80.2%.

**Table 1: Pre-test And Post-test Practicing Skills Score Percentage On The Basis Of Professional Qualification n=50**

Variables	Practicing Skills Score in Percentage	
	Pre-test	Post-test
Professional Qualification		
GNM	43%	80%
BSc	44%	86%

**Figure 1:- Shows Pre-test And Post-test Practicing Skills Score Percentage On The Basis Of Professional Qualification**

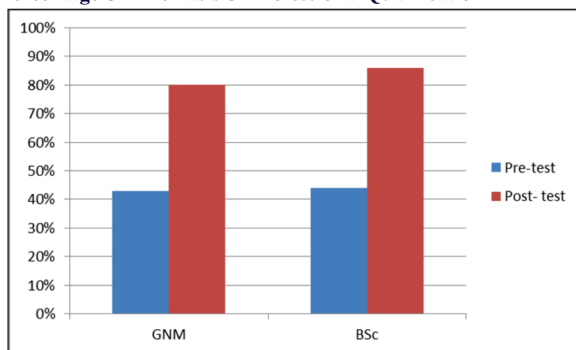


Table 1 & Figure 1 shows that the pre-test percentage of practicing skills of GNM nurses were 43% and BSc nurses were 44% and after the planned teaching programme the post-test practicing skills increased to 80% in GNM and 86% in BSc nurses.

**Table 2:- Pre-test And Post-test Practicing Skills Score Percentage On The Basis Of Years Of Experience n=50**

Variables	Practicing Skills Score in Percentage	
	Pre-test	Post-test
Years of Experience		
Below 6 Months	42%	81%
6 months – 1 year	42%	78%
1 year – 2 years	44%	82%
2 years – 3 years	45%	76%

**Figure 2:- Shows Pre-test And Post-test Practicing Skills Score Percentage On The Basis Of Years Of Experience**

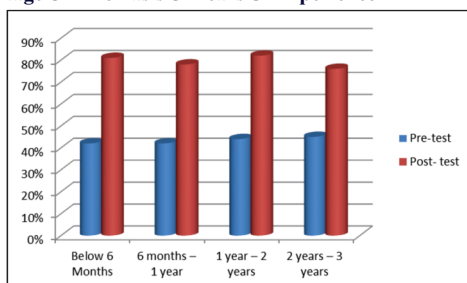


Table 2 & Figure 2 shows that the staff nurses with the experience of below 6 months obtained 42% in pre-test and 81% in post-test, 6 months - 1 year experienced staff nurses obtained 42% in pre-test and 78% in post-test; 1 year - 2 years experienced staff nurses obtained 44% in pre-test and 82% in post-test and 2 years - 3 years experienced staff nurses obtained 45% in pre-test and 76% in post-test.

**Table 3:- Paired 't' Test Showing The Significant Difference Between Pre And Post-test Of Practicing Skills Score On Planned Teaching Programme On Aseptic Techniques In I/v Cannulation n=50**

Mean Practicing Skill Score	Mean Difference	SD	DF	SE	't' value
Pre-test					
43%					
Post-test	61.6	2.976	49	0.256	2.48
80.2%					

T (49) = 4.101; \* = significant

Table 3 shows that there is increased level of practicing skill score after the planned teaching programme. The mean practicing skill score was 43% and post-test score 80.2%. The mean difference is 61.6, standard deviation is 2.976, standard error is 0.256 and the 't' test value of paired 't' test is 2.48. Difference between pre-test and post-test practicing skill score was statistically significant at 0.01 level 't' (49) = 2.48, p > 0.01.

**DISCUSSION**

The present study intended to find out the effectiveness of planned teaching programme on I/V cannulation among the staff nurses of BCM hospital. The objective of the study was to assess the practicing skills of aseptic techniques used during I/V cannulation among staff nurses and compare the practicing skills before and after the planned teaching programme. Assessment of the practical skill was done with observation checklist as pre-test score was 43%. A planned teaching programme was conducted after a pre-test assessment. After 7 days a post-test was done with same checklist and the score was 80.2%. To find the effectiveness of the planned teaching programme paired 't' test was applied on pre and post- test scores. The mean difference between pre-test and post-test practice skill score is 61.6. The 't' value was 4.101 at 0.05 level of significance and therefore, this result showed that the planned teaching programme was effective.

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