

Staff Nurses Knowledge Regarding Utilization of Crash Cart in Hospitals at Meerut, UP

Mr. Suraj Kumar¹, Prof. Hepsi Natha²

¹Assistant Professor, Department of MSN, PDMSNC, SVSU, Meerut, (UP).

²Vice-Principal, College of Nursing, Government Medical College, Azamgarh.

Abstract:

A crash cart also known as an emergency cart code. Cart is a mobile unit stocked with essential medical equipment and supplies used in emergency such as cardiac arrests or other life-threatening events in healthcare setting. It typically includes items like defibrillators, medications, airway management tools, and various medical instruments to facilitate immediate response and resuscitation efforts when a patient's life is at risk. Drug administration is a fundamental part of every day in nursing profession. No medication is completely safe and protected in this manner. Therefore, nurses need to have an intensive and broad knowledge of the medications and its method of organization in the compelling treatment of patients whose life lies in her grasp. This study was conducted to assess the nurses' knowledge regarding utilization of crash cart. The objective of this current study was to assess the existing knowledge regarding the utilization of crash cart among staff nurses and to find out the association between the level of knowledge on utilization of crash cart among staff nurses with their selected socio-demographic variables. A quantitative research approach with exploratory descriptive design was adopted on 100 health care professionals in selected Chhatrapati Shivaji Subharti hospital at Meerut, UP. The sample were selected by using non-probability purposive sampling technique. The tool used to collect the data was to assess the knowledge regarding utilization of crash cart. The study findings shown that, out of 100, majority of the participants (74%) had good level of knowledge whereas on the other hand only (23%) had average knowledge and very less number of participants (3%) had poor level of knowledge regarding utilization of crash cart. There is no significant association between the knowledge score on utilization of crash cart with their selected socio-demographic variables. The study concluded that majority of the samples have good level of knowledge regarding utilization of crash cart.

Keywords: Utilization, crash cart, knowledge, staff nurses.

Introduction:

A crash cart also known as an emergency cart code. Cart is a mobile unit stocked with essential medical equipment and supplies used in emergency such as cardiac arrests or other life-threatening events in healthcare setting. It typically includes items like defibrillators, medications, airway management tools, and various medical instruments to facilitate immediate response and resuscitation efforts when a patient's life is at risk. The contents and organization of crash cart can vary depending on the specific needs' protocols of the healthcare facilities. Emergency trolley readily accessible to health care staff and strategically placed in sites in a hospital where patient commonly undergo acute cardiovascular

decomposition. It is a collection of emergency drug and equipment's that can be moved from one place to another and have readily available for resuscitation effort.

Intensive care area is the place where most critical patients are rushed to provide them with appropriate emergency treatment one can never predict the requirements that may come in necessary form of resuscitation equipment and every second is immensely valuable when it comes to the situation. So, it cannot be spent looking for every single item by itself many times, in a clinical scenario. It is not uncommon for such instances that end up causing complication or even death nursing are the ones who are the first line of defense in terms of taking care of a patient is such a scenario understanding the importance the researchers taken a step to assess the knowledge regarding utilization of crash cart among health care workers to plan for in-service education.

Objectives

1. To assess the existing knowledge regarding utilization of crash cart among staff nurses.
2. To find out the association between the level of knowledge on utilization of crash cart among staff nurses with their selected socio-demographic variables.

Assumption

Staff nurses working in wards, emergency ward and ICU's may have some knowledge regarding utilization of crash cart.

Delimitations:

The study is delimited to the –

- Staff nurses working in various wards, emergency ward and ICU's at CSSH, SVSU, Meerut.
- The data collection period was only for four weeks.

Research Methodology:

Research Approach: Quantitative Research Approach was adopted.

Research Design: Exploratory Descriptive Research Design was adopted.

Variables:

Research Variable: The research variable was knowledge on utilization of crash cart.

Demographic variables: The demographic variables were age, sex, educational qualification total, year of experience and area of working.

Setting of the Study: The present study was conducted in Chhatrapati Shivaji Subharti hospital, SVSU, Meerut, Uttar Pradesh.

Population: Population were the staff nurses working in Chhatrapati Shivaji Subharti Hospital, SVSU, Meerut, Uttar Pradesh.

Sample and Sampling Technique:

Sample: Samples were Staff Nurses working in Chhatrapati Shivaji Subharti Hospital, SVSU, Meerut, Uttar Pradesh.

Sampling Technique: Non-Probability Purposive Sampling Technique was used for collecting the sample.

Criteria for Sample Selection:

Inclusion Criteria: Staff nurses who were

- Working in Chhatrapati Shivaji Subharti Hospital, SVSU, Meerut, Uttar Pradesh.
- Available at the time of data collection.

Exclusion Criteria: Staff Nurses who were

- On leave during the period of study.
- Not willing to participate in the study.

Sample Size:

The sample size of the present study comprised of 100 staff nurses working in Chhatrapati Shivaji Subharti Hospital, SVSU, Meerut, Uttar Pradesh.

Data Collection:

In the present study, data were collected by using self-structured closed ended knowledge questionnaire to obtain the knowledge regarding utilization of crash cart among Staff Nurses working at Chhatrapati Shivaji Subharti Hospital, SVSU, Meerut, Uttar Pradesh.

Developmental of the Tool:

The tool for the study was self-structured closed ended knowledge questionnaire to obtain the knowledge regarding utilization of crash cart among Staff Nurses working at Chhatrapati Shivaji Subharti Hospital, SVSU, Meerut, Uttar Pradesh.

Description of the Tool:

Section A: It contains 5 items such as age, sex, educational qualification, total years of experience, area of working.

Section B: Self-structured Knowledge Questionnaire to obtain the knowledge regarding utilization of crash cart among staff nurses.

Content Validity of the Tool:

The instrument used was a self-structured **Closed Ended Knowledge Questionnaire**. As it was a self-structured tool, content validity was done.

Data Collection Procedure:

The data were collection from **16-10-2023 to 30-10-2023** for a **period of 2 weeks**. The main study was conducted in Chhatrapati Shivaji Subharti Hospital, Meerut after obtaining permission from concerned authorities. The purpose of the study was explained to the samples and their willingness to participate was assured by getting written consent

ANALYSIS AND INTERPRETATION OF THE DATA

Section- A

Findings related to demographic characteristics of the samples.

Tables-I: Frequency and percentage distribution of demographic data of staff nurses regarding utilization of crash cart.

N=100

Date presented in table 1 shows the distribution of subjects according to age, sex, educational qualification, years of experience and area of working.

S.NO	DEMOGRAPHIC VARIABLE	FREQUENCY (F)	PERCENTAGE (%)
1	Age (in year)		
	a) 19-21	15	15 %
	b) 21-23	17	17 %
	c) 23-25	26	26 %
2	Sex		
	a) Male	32	32 %
	b) Female	68	68 %
3	Educational qualification		
	a) GNM	69	69%
	b) B.Sc. nursing	22	22%
	c) M.Sc. (N)/ NPCC	04	04%
4	Year of Experience		
	a) 1 year to 3 years	66	66 %
	b) 4 years to 6 years	21	21 %
	c) 7 years to 9 years	10	10 %
5	Area of working		
	a) OBG\ Pedia ward	47	47 %
	b) Medicine \ Surgical ward	24	24 %
	c) General ward	17	17 %
	d) Emergency ward \Critical care unit	12	12 %

Section-B: Assessing the level of knowledge among staff nurses regarding utilization of crash cart.

Table: II- Analysis of the level of knowledge of staff nurses regarding utilization of crash cart.

N=100

Variable	Number of Item	Maximum Score	Mean	SD
Level of knowledge	20	100	15.3	2.46

The data presents in the Table –II depicts that among 100 samples, the level of knowledge mean score was 15.3 with standard deviation (SD) 2.46.

Table: III –Frequency and percentage distribution to assess the level of knowledge of staff nurses regarding utilization of crash cart.

N=100

S.No	Level of knowledge	Frequency	Percentage%
1.	Good knowledge	74	74 %
2.	Average knowledge	23	23 %
3.	Poor knowledge	03	03 %
	Total	100	100

The above Table –III shows that majority of the participants (74%) had good level of knowledge whereas on the other hand only (23%) had average knowledge and very least no. of participants (3%) had poor level of knowledge regarding utilization of crash cart.

Section C: Finding related to the association between knowledge of staff nurses regarding utilization of crash cart with their selected socio-demographic variables.

Table: IV- Association of the level of knowledge of staff nurses regarding utilization of crash cart with their selected socio-demographic variables.

N=100

S. No	Socio-demographic variables.	Level of knowledge of staff nurses			X2 value			
		Good knowledge	Average knowledge	Poor knowledge	Df	Calculate Value	P. Value	Table Value
1.	Age (in years)				6	10.54	.1035	12.59
a)	19-21	08	05	02				
b)	21-23	11	05	01				
c)	23-25	18	07	01				
d)	25 above	14	22	06				
2.	Sex				2	0.257	.8792	5.99
a)	Male	06	23	03				
b)	Female	11	52	05				
3.	Educational qualification							
a)	GNM	09	50	10				

b)	B.Sc. nursing	08	12	02	6	9.20	.1626	12.59
c)	M.Sc. (N)/ NPCC	02	01	01				
d)	Any other specialties area	01	03	01				
4.	Years of Experience				6	2.69	.8464	12.59
a)	1 year to 3 yea	13	47	06				
b)	4 years to 6 years	04	14	03				
c)	7 years to 9 years	02	07	01				
d)	> 9 years	01	01	01				
5.	Area of working				6	16.15*	.0129	12.59
a)	OBG\ Pedia ward	07	38	02				
b)	Medicine \ Surgical ward	09	14	01				
c)	General ward	05	10	02				
d)	Emergency ward \ Critical	08	03	01				

*At $P < 0.05$ level of significance

The above table shows the association between the knowledge of staff nurses regarding utilization of crash cart with their selected socio-demographic variables.

There is no significant association between the knowledge of staff nurses regarding utilization of crash cart with their selected socio-demographic variables such as age (in year), sex, educational qualification and years of experience except the area of working which was associated with the knowledge of staff nurses. The calculated values are more than the tabulated values at $P > 0.05$ level of significance. Hence, the alternate hypothesis H_1 failed to accept and null hypothesis H_{01} is accepted.

Discussion:

The improvement in these results could be attributed to the conduct of educational sessions on the emergency equipment that equipped the nurses with appropriate knowledge and practices regarding emergency cart system, with valuable insight to enhance the standard of patient care and safe procedure to maintain the crash carts and the level of standardization. In this study, the findings shows that majority of the participants (74%) had good level of knowledge whereas, on the other hand, only (23%) had average knowledge followed by (3%) with poor level of knowledge among staff nurses regarding utilization of

crash cart and there was no significant association between the knowledge of staff nurses regarding utilization of crash cart with their selected socio-demographic variables.

Conclusion:

It also showed that achieving change in clinical practice was challenging, in the management of emergency equipment so that regarding the checking and maintenance of emergency equipment could be adopted. This descriptive study has highlighted that the procedures being followed or recommended should be standardized in all the clinical areas of the hospital except the quantity of items which should be defined according to the workload and past utilization. The areas of improvement entitle to the nursing staff with increased responsibility and accountability for improving management within the departments. It has to be accepted that with continuous sensitization and administrative support, can be achieved even with the current workload. Nurses a well- equipped, adequately stocked, properly managed crash cart is of vital importance.

Nursing Implications:

The finding of the study have certain implication for nursing service, nursing education, nursing administration, and nursing research.

Any research study is successful and is worth the researcher's efforts only when it is actually helpful to others working in the similar area or topic. The findings of this study can actually implicated in the field of nursing including areas like: education, practice, administration & research. Also, it is not only limited to nursing, but is also useful for other department of any healthcare institution as it will help other to understand the need for improved knowledge as well as practice of nurses especially working in critical care unit for better patient outcomes and thereby, improvement in the efforts of the health care team towards the patients.

Nursing Service:

1. Availability and accessibility of written guidelines for crash cart practices in the hospital.
2. Emphasizing the important of continuing nursing education.
3. VATP can be introduced in the orientation programme for staff nurses to improve the knowledge.
4. Follow up of nurse's compliance towards strict crash cart control team.
5. Availability of posters for reminding nurses to comply with standard precaution.

Nursing Administration:

1. The present study can be utilized by the nursing administration to get an idea for conducting skill competency programme in their clinical settings so that they can also assess the scientific understanding and practice of their nurses ,and also can provide them education to improve their knowledge and skills.
2. The administrators can implement better policies for the in- service education of their nurses regarding the area of the study.

Nursing Education

1. The Video Assisted teaching programme can be used to educate the nursing student to improve their knowledge and practice.

2. The nursing curriculum can include advanced teaching areas on utilization of crash cart to promote learning.

Nursing Research

1. These findings can be utilized for conducting research on various aspects of knowledge practices.
2. Emphasis should be given to the utilization of the research finding.
3. Other aspects of crash cart can be tested to improve the quality of patient care.

Limitations:

1. This study aimed to assess the level of knowledge among staff nurses on knowledge regarding to crash cart.
2. This study was confined to a small number of staff nurses i.e.100 which limits the generalization of the findings.
3. The study sample was selected by using a non-probability purposive sampling technique which limits the generalization of the findings.

Recommendation:

1. This study can be replicated in large sample so that findings can be generalized for a large population.
2. A similar study can be conducted in different setting.
3. A follow-up study can be conducted to assess the level of knowledge among health care worker on crash cart.
4. A comparative study can be conducted to assess the knowledge and practice of nurses on knowledge and practice between accredited & non accredited hospitals.
5. An experimental study can be undertaken with control group.
6. The study can be replicated for different categories of health care workers.
7. Developing the Standard Operating Procedures in-service education could improve the system of checking, replacing and repairing the equipment of the emergency trolleys. This would help to increase accountability.
8. Stand by manual equipment like portable oxygen, ambu bags should be available in case of electricity failures. Regular audits should be done by nurse administrators of specific emergency trolleys and the outcomes of these audits should be recorded for future comparative purposes.
9. The emergency trolley's location should be in identical locations. So that remedial actions can be instituted. Minimizing the complexity of the emergency trolley, standardizing the equipment, standardizing the checklist, enhancing nurses, knowledge levels, identifying deficits and immediate replacement of emergency equipment would reduce time delays and errors during CPR.

References

1. Benner, P., Sutphen, M., Leonard, V., & Day, L. (2009). Educating nurses: A call for radical transformation (Vol. 15). John Wiley & Sons.
2. Gladstone, J. (2008). Drug Administration Errors: A study into the factors underlying the occurrence and reporting of drug errors in a District General Hospital. *Journal of Advanced Nursing*, 22(4), 628-637.
3. Shannon, K. (2012). What Are the Contents of an Emergency Cart? 1999.

4. Neumar, R. W., Otto, C. W., Link, M. S., Kronick, S. L., Shuster, M., Callaway, C. W., ... & Passman, R. S. (2010). Part 8: Adult advanced cardiovascular life support 2010 American Heart Association guidelines for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation*, 122(18 suppl 3), S729-S767.
5. McLeod, M. C., Barber, N., & Franklin, B. D. (2013). Methodological variations and their effects on reported medication administration error rates. *BMJ quality & safety*, 22(4), 278-289.
6. Delgado, E., Grbach, W. J., Kowiatek, J., & DeVita, M. (2011). Equipment, Medications, and Supplies for an RRS. In *Textbook of Rapid Response Systems* (pp. 291-311). Springer New York.
7. Todd, D., Nannini, V., Kelling, T., & Orr, D. L. (2011). Office accreditation experiences with 3 accrediting agencies and suggestions for changes in private oral and maxillofacial surgery facility evaluations. *Journal of Oral and Maxillofacial Surgery*, 69(1), 258-270.
8. Thampi SV. Effect of structured teaching programme on knowledge regarding crash cart system among staff nurses Chethipuzha India. *IJSR*. Jan 2019; 8(1):956–59.
9. Kaushik A, Mancheri N. Comparative study to assess the knowledge and expressed practice of staff nurses and student nurse regarding crash cart. *Int.J.Nurs.Midwif.Res.* 2019; 6 (01) 3-6.
10. Paramesha, Kumar VG, Vishakanta Murthy DG. A study to assess the effectiveness of self-instructional module of knowledge on utilization of emergency crash cart system in hospital among 4th year B.Sc nursing students of selected nursing colleges in Mysore. *Asian J Nur Edu and Research* 2016; 6 (02) 209-213.
11. Karavasiliadou S, Athanasakis E. An inside look into the factors contributing to medication errors in the clinical nursing practice. *Health Sci J* 2014; 8 (01) 32.
12. Lamkhede RD. Effectiveness of planned teaching programme on knowledge of emergency drugs among staff nurses. *Sinhgad e J Nurs* 2014; 4 (01) 38-41.
13. Neumar, R. W., Barnhart, J. M., Berg, R. A., Chan, P. S., Geocadin, R. G., Luepker, R. V., & Nichol, G. (2011). Implementation strategies for improving survival after out-of-hospital cardiac arrest in the United States: consensus recommendations from the 2009 American Heart Association Cardiac Arrest Survival Summit. *Circulation*, 123(24), 2898-2910.
14. Wilson, B. L., Phelps, C., Downs, B., & Wilson, K. (2010). Using human factors engineering in designing and assessing nursing personnel responses to mock code training. *Journal of nursing care quality*, 25(4), 295-303.
15. Hazinski, M. F., Nolan, J. P., Billi, J. E., Böttiger, B. W., Bossaert, L., de Caen, A. R., ... & Jacobs, I. (2010). Part 1: Executive Summary 2010.