



AN EVALUATIVE STUDY TO ASSESS NURSES' COMPETENCIES RELATED TO CARDIOVASCULAR ASSESSMENT WITH A VIEW TO PLAN INSERVICE EDUCATION IN CRITICAL CARE AREAS OF A SELECTED HOSPITAL, LUDHIANA, PUNJAB

Mrs. Poonam Paul

Assistant Professor

Govt. College of Nursing, Gandhi Nagar, Jammu

Introduction

Webster's medical dictionary defines Critical or intensive care as the specialized care of patients whose conditions are life-threatening and who require comprehensive care and constant monitoring, usually in intensive care units. **Black Joyce M.**

Critical care specialists sometimes referred to as "intensivists" see patients with the highest care needs in the hospital, those requiring eight or, more commonly, twelve to twenty-four nursing hours per day. Such patients are almost universally cared for in intensive care units (ICU's), coronary care units (CCU's) which specialize more in the intensive care of heart patients, though their beds (and nurses) may be used for non-cardiac patients when other ICU beds are filled and are considered critically ill if their vital signs are unstable or likely to become unstable. This broad definition means that patients with many different types of problems may require ICU care including those with respiratory failure, liver failure, shock, septicemia, head trauma, peritonitis, post-operative instability, etc.

All patients admitted to the ICU require standard basic hemodynamic monitoring (ECG, heart rate, blood pressure, central venous pressure, temperature, peripheral venous oxygen saturation, blood gas analysis). All critically ill patients need monitoring of intravascular volume status, and intake and output must regularly be observed.

Critical care nurses are at the forefront of critical care science and technology. Lifelong learning and the spirit of enquiry are essential for the critical care nurse to enhance professional competencies and to advance nursing practice. The critical care nurse's ability to make sound clinical nursing judgments is based on a solid foundation of knowledge and experience.

Many patients admitted to acute care areas of a hospital experience cardiovascular compromise due to conditions such as acute myocardial infarction (AMI), acute coronary syndrome or exacerbations of chronic heart failure. Additionally, patients can experience cardiovascular collapse due to bleeding or cardiac arrhythmias postoperatively. As a consequence, nurses in acute care settings need to be competent in assessing the cardiovascular status of adult patients.

As healthcare delivery changes in critical care, nursing continues to evolve and develop. Nursing skills are expanding to incorporate skills once seen as the remit of the medical profession. Nurses have now equipping themselves with the skills and knowledge that can enhance the care they provide to their patients. Assessment of patients is a major role in nursing and, by expanding assessment skills, nurses can ensure that patients receive the care most appropriate to their needs. Nurses in critical care settings are well placed to carry out a more detailed assessment, which can help to focus nursing care.

An important function of critical care nurses is to provide continuous observation of critically ill patients. Observation will reduce a patient's risk of precipitous deterioration, monitor their total dependence on support equipment and prevent their agitation or confusion leading to harm. Observation involves assimilation, interpretation and evaluation of information, including the patient's physical and psychological response to interventions, changes in condition, the significance of monitored physiological parameters and the safe functioning of equipment. Only appropriately trained and experienced nurses can provide this comprehensive level of observation.

Today the critical care nurses must have a base of knowledge that facilitates the ability to look at a wide range of issues as well as highly defined and specific pieces of information. The essence of critical care nurse lies not in special environment nor amid special equipment but in a decision-making process based on a sound understanding of physiology and psychological entities.

In accordance with the code of professional conduct (1983) each trained nurse is meant to assume the responsibility of his/her own continuing education. Nurses perceived the importance of continuing education for supporting their professional status and competence to provide quality patient care.

Statement of Problem

An Evaluative Study to Assess Nurses' Competencies Related to Cardiovascular Assessment with a View to Plan Inservice Education in Critical Care Areas of a Selected Hospital, Ludhiana, Punjab.



Objectives

1. To prepare structured evaluation and educational Performa on Cardiovascular Assessment by nurses working in critical care areas.
2. To assess nurses' level of competencies related to Cardiovascular Assessment.
3. To analyze nurses' competencies in relation to their personal and professional variables.
4. To evaluate the standard of nurses' competencies and identify deficits in order to plan and recommend inservice education on Cardiovascular Assessment.

Research hypothesis

- H1-** Cardiovascular Assessment Competency scores of nurses' with B.Sc (N) degree will be higher than those with GNM diploma.
H2- Nurses' with >3 years of clinical experience will have higher competency scores than those with lesser years of experience.

Rationale

- Baumann Andrea and Bourbonnais Frances have reported that knowledge and experience of critical care nurses were the most important factors influencing rapid decision making in crisis situation for critically ill patient.
- Role of qualification and experience in enhancing nurses' knowledge and skills further supports needs for continuous inservice education.

Delimitations

The Study was planned to be limited to staff nurses working in critical care areas of Christian Medical College & Hospital, Ludhiana Punjab.

Operational Definitions

Nurses: Male or female professionals who have completed basic nursing education programme (degree or diploma) are registered to practice nursing and presently working in selected critical care areas of Christian Medical College and Hospital Ludhiana, Punjab.

Critical Care Areas: Critical care areas are defined as ICCU, Step down unit/Intermediate care unit, CTU/R.R, Medical ICU'S and Surgical ICU.

Competencies: Advanced abilities to recall/apply knowledge of policies/protocols concepts and exhibit skills related to Cardiovascular Assessment according to structured assessment performa.

Cardiovascular Assessment: Collection of information about selected functions of heart and blood vessel by following sequence and systematic techniques of physical examination, observation of clinical manifestations such as angina, altered breathing, fluid accumulation and hemodynamic monitoring in terms of structure, process and outcome standard criteria.

Level of Standard: Grading of performance demonstrated by staff nurses as per the set criteria on a structured assessment performa.

Plan of Inservice Education: Blueprint of teaching-learning content/activities and evaluation performa prepared for the employed nurses to improve their assessment competencies in critical care areas.

Conceptual Framework

The study approach demanded an appropriate evaluation model to meet the objectives of research. The conceptual framework of this study is based on ANA quality cycle model (1975) and concepts from Donabedian's framework (1996) of structure, process and outcome.

Research Methodology

• Research approach & Research design

The research approach indicates the broad-based procedure for collection and analysis of data in a particular situation. The research design refers to the plan and organization of scientific investigation for conducting the study. A well-conceived and properly executed research design enhances the investigator's confidence in the research project. For the present study quantitative approach and non-interventional-evaluative design was planned to achieve the objectives.

- **Dependent Variable-** Competencies related to Cardiovascular Assessment.

- **Independent Variable** - The independent variables of this study were the personal i.e. age, gender and professional variables such as qualification, training institute, years of experience, and area of work.

Selection of Field for the Study

The study will be conducted on nurses in selected critical care areas of CMC hospital, Ludhiana, Punjab.



Population

The target population of this study will be nurses working in critical care areas.

Sample and Sampling Technique

Purposive sampling technique will be used to select the sample of minimum 80 nurses working in ICCU, Step down unit/intermediate care unit, CTU, ICU - 1, 2, 3, and Neuro ICU of a selected hospital, Ludhiana, Punjab.

Description of Tool

A structured questionnaire is used to assess the knowledge of staff nurses related to cardiovascular assessment. The tool consists of three parts:

Part 1: Demographic data

This part consists of items for obtaining personal information about subjects such as age, gender, professional qualification, training institute, years of experience, area of work.

- **Description of tool**

A Structured Cardiovascular Assessment performa was prepared for evaluating the competencies of staff nurses working in critical care areas. The tool consists of two parts:

Section I: Demographic data

Section II: Structured competency performa of Cardiovascular Assessment

Section I: Demographic data

This part consists of items for obtaining personal information about subjects such as age, gender, professional qualification, training institute, years of experience, area of work.

Section II: Structured competency performa of Cardiovascular Assessment

The structured competency performa consists of 62 criteria for assessing nurses' competencies. These are organized as:

- Structure criteria
- Process criteria
- Outcome criteria

In structure part, 22 criteria are included to assess the knowledge in terms of ability to recall facts and application of concepts related to Cardiovascular Assessment.

In process part, 36 criteria for assessing steps of procedure are included to assess the specific skills of staff nurses related to technique of Cardiovascular Assessment.

In outcome part, 4 criteria are included related to satisfaction, efficiency, patient centred approach and interpretation of findings.

Assessment of competencies will be based on:

- Scoring of individual criteria : score '1' assigned if standard criteria is fully satisfied, if not '0' or no score awarded. Maximum Score= 62, Minimum Score=0
sum of obtained scores for Structure, Process and Outcome criteria.
- Competency levels.
- Overall standard of competencies

- Criterion measure

A. Criterion measure for evaluating strengths and deficits related to Cardiovascular Assessment among nurses

Criteria	Nurses with competencies (Score '1')		Nurses with deficits in competencies (Score '0')	
	n	%	n	%
1-62				

If >50% of nurses are showing lack of competency on a particularly criteria it will be taken as deficit on that criteria.



B. Criterion measure for assessment of competency levels

Knowledge	Score	%
Good	> 17	>77.3
Average	11 - 17	50 - 77.3
Below average	<11	<50
Highest obtainable score (knowledge) = 22		
Skills		
Good	>39	>97.5
Average	27-39	67.5-97.5
Below average	<27	<67.5
Highest obtainable score (skill) = 40		

C. Criterion measure for evaluating standard of competencies related to Cardiovascular Assessment

Standard of competencies	Mean Score %
Met	> 90
Not Met	<90
Maximum score (competency) = 62	
Minimum score (competency) = 0	

Result

Table - 1

Distribution of staff nurses according to competencies in term of the level of knowledge and skills related to cardiovascular assessment

N=80

Criteria	Competencies		Staff nurses	
	Levels	Score	n	%
Knowledge (22)	Good	>17	0	0
	Average	11 – 17	61	76.25
	Below Average	< 11	19	23.75
Skills (40)	Good	>39	0	0
	Average	27-39	1	1.25
	Below Average	<27	79	98.75

Maximum Score of Competency Assessment Performance = 62

Table 1. depicts that majority of staff nurses (76.25%) exhibited average competencies related to knowledge criteria regarding Cardiovascular Assessment. Also, majority of staff nurses (98.75%) exhibited below average competencies on skills related to Cardiovascular Assessment.

Table 2

Percentage distribution of staff nurses according to expected standard of competencies

N=80

COMPETENCY STANDARD	CRITERION MEASURE	STAFF NURSES	
		n	%
Met	≥ 90%	0	0
Not Met	≤ 89%	100	100



Maximum score = 62
 Minimum score = 0

Table 2. Depicts that all (N=80) the staff nurses (100 %) did not meet the expected standard (competency score i.e> 90%) related to cardiovascular assessment.

Table 3
Mean and Rank Order of Staff Nurses' Competency Score according to types of Standard Criteria for Cardiovascular Assessment

Standard criteria	Types Highest obtainable score	N=80		
		Competency score	%	rank
		Mean		
Structure	22	11.85	53.86	2
Process	36	14.80	41.11	3
Outcome	4	2.58	64.38	1
Overall	62	29.23	47.14	-

Maximum Score= 62
 Minimum Score =0
 Maximum Expected Standard = >90%
 Minimum Expected Standard = <90%

Table 3. indicates that staff nurses exhibited highest competency in outcome standard criteria (score = 64.38%) getting the 1st Rank followed by 53.86% score in structure criteria and placed at 2nd Rank and least in process standard criteria (41.11%), placing it at 3rd Rank.

Hence, it could be inferred that although staff nurses exhibited highest competency in outcome standard criteria. yet it was much below the expected standard of 100%, indicating the need for inservice education on structure, process and outcome aspects of Cardiovascular Assessment.

Major Findings

The analysis of the data revealed following findings:

Findings related to variables of samples

- Majority of staff nurses young female nurses in the age group 21-30 years, with diploma in nursing, were trained from institutes other than CMC hospital, having <2 years of total professional experience and currently working in cardiac care areas of hospital. The personal and professional variables and characteristics of study subjects were in proportion to the target population thus truly representing it, for generalization of research findings.

Findings related to assessment of competencies of staff nurses related to Cardiovascular Assessment.

- Maximum number of staff nurses 76.25% had average knowledge related and 98.75% staff nurses had below average skill related competencies of doing Cardiovascular Assessment. These findings supported the need for inservice education for enhancement related to competencies of nurses.
- Majority of the staff nurses exhibited highest competency in outcome standard criteria (score = 64.38%) getting the 1st Rank followed by 53.86% score in structure criteria and placed at 2nd Rank and least in process standard criteria (41.11%), placing it at 3rd Rank.



Findings related to evaluation of nurses' competencies.

- All (N=80) the staff nurses (100 %) did not meet the expected standard (competency score i.e., > 90%) related to Cardiovascular Assessment. The staff nurses lack the expected competencies related to Cardiovascular Assessment. Hereby indicating need for inservice education.

Implications of the study

The findings of present study indicated that None of the staff nurses (N=100) could meet the competency standard of 90-100%. So, there is need to improve their competencies related to Cardiovascular Assessment. The study findings have certain important implications for the nursing profession i.e., nursing education, nursing administration, nursing practice and nursing research. In these areas nurse's roles are very essential to implement the new techniques and procedures. Nurses act as a care giver, educator, researcher and supporter. Nurses can bring high quality practice to health care delivery system; consideration should be given for integration of education and practice. So, she must be sound in knowledge regarding their profession.

Nursing education

Education is the key for development of excellent nursing practice. Nurses must be lifelong learners and inservice education should be given provided. It helps in improving the competencies of the staff nurses. It is not beneficial for the staff development but also promotes health of faculty and institution.

Nursing administration

Nursing administration at institutional level should evaluate the staff nurses according to their specialty or working area. Administrative support need to be provided to conduct inservice education programmes for the staff nurses. The administrator should comprehend the needs and motivate the staff nurses for conducting and attending the inservice education programme by providing all possible facilities including time, sufficient staffs, financial support and material for conducting the programme in a cost-effective way. The administrator must be ensured about ongoing programmes, orientation programmes etc. Each ward should have protocols, standards and guidelines for the specialized nursing procedures e.g Cardiovascular Assessment Performa. in order to develop the course content for inservice education there is need for evaluation of special learning needs.

Nursing practice

Nursing professional should render services according to changing needs of the society. The nurses need to have proper knowledge and skills regarding care of the client. By applying proper knowledge and skills nurses can increases the level of competencies and quality nursing care.

Nursing research

One of the standards of professional performance is research the findings of the study will provide the evidence about competency level regarding Cardiovascular Assessment by staff nurses. These evidences will act as catalyst to carry out more extensive research on a large subject in different areas of hospital. Through publication of research findings, the staff nurses must be encouraged for new learning.

• Recommendations

Based on the findings of the study following recommendations are offered:

1. The proposed plan for Inservice education can be modified and implement for improving the competencies of staff nurses.
2. Comparative study can be undertaken on competencies of staff nurses between two different critical care units such as ICU's and ICCU working in critical care areas.
3. To assess the effectiveness of inservice education given to the staff nurses.

• Conclusion

- None of the staff nurses (N=100) could meet the competency standard of 90-100%. Majority of nurses exhibited deficits in knowledge and skills related to assessment of vital signs, neck vein distension, oxygenation, palpation and percussion technique. Therefore, it indicates the need for inservice education.

- Majority of staff nurses (n=79) who exhibited below average skills. Whereas Majority of staff nurses (n=61) who exhibited average knowledge related to Cardiovascular Assessment. These findings also project the standard of staff nurses' competencies.

-As these staff nurses working in critical care areas. So, they should have good competency in term of knowledge and skills related to Cardiovascular Assessment emergencies and complications for timely interventions. Nurses competency standard can be enhanced through continuous Inservice education. Researcher found the need of Inservice education to the staff nurses working in critical areas.



References

1. Black JM. Medical & Surgical Nursing. 8th ed. New Delhi: Elsevier, 2005.
2. Lerner SE. Medical- legal experience, expertise & insight: Pulmonary and Critical Care Medicine, <http://www.drlerner.com/articles/reviewed> on 2012.
3. Christian K and Werdan K. Department of Medicine: Hemodynamic monitoring, <http://www.ncbi.nlm.nih.gov/> reviewed on 2001.
4. Hynes P. Standards for Critical Care Nursing Practice. 4th ed. London: Canadian Association of Critical Care Nurses, 2009.
5. Leanne M. Assessing cardiovascular status: A guide for acute nurses, Collegian: journal of the Royal College of Nursing Australia Jan 2005;12(1):34-40.
6. Cox CI and McGrath A. Intensive Critical Care Nursing: Cardiac and circulatory assessment in intensive care units. The official Journal of the British Association of Critical Care Nurses Dec 1998;14(6):283-7.
7. Galley J. Guidance for nurse staffing: Nurse staffing in critical care in London, <http://www.rcn.org.uk/reviewed> on 2001.
8. Gallo H. Critical Care Nursing. 6th ed. Philadelphia: J.B Lippincott Company, 1994.
9. Hogston. Quality Nursing Care: A Qualitative Enquiry. Journal of Advanced Nursing Sept 1995;21(1):116-124.
10. Woodruff David W. ed4nurses: Cardiovascular assessment in Eau Claire, <http://www.ed4nurses.com/reviewed> on 8/4/2012.
11. I Poonam Paul Assist Prof. Medical Surgical Nursing in GOVT. college of Nursing Gandhi Nagar, Jammu hereby confirm that this is my original work.