ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 6, Issue, 06, pp.7099-7103, June, 2014

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

AN EVALUATIVE STUDY TO ASSESS THE PERFORMANCE OF STAFF NURSES REGARDING ADMINISTRATION OF INTRAVENOUS MEDICATION

[1]Amanpreet Kaur Dhaliwal, [2]Jaspreet Kaur Sodhi, [3]Kapil Sharma and [4]Mamta Choudhary

Department of Medical Surgical Nursing, INE, GTBS(C) Hospital, India

ARTICLE INFO

Article History:
Received 14th March, 2014
Received in revised form
09th April, 2014
Accepted 20th May, 2014
Published online 25th June, 2014

Key words:
Evaluation, Performance,
Intravenous medication,
Structure, Process, Outcome.

ABSTRACT

Safe, effective and ethical medication practice is an important component of client care, an evaluative study was conducted to assess the performance of staff nurses regarding administration of IV medication in Guru Teg Bahadur Sahib (C) Hospital, Ludhiana, Punjab**.** Sixty nurses were observed while administering medications by using a checklist based on Donabedian's -structure, process, outcome framework. Results showed that overall performances were lower than the expected standard and therefore needed improvement to reach upto expected standards. There were deficits in performance of nurses related to criteria of structure standard i.e. availability of articles, process standard i.e. interventions, after care of articles, evaluation and outcome standard i.e there is no extravasation, there is no phlebitis and patient is comfortable.

INTRODUCTION

Intravenous (IV) medication administration refers to the process of giving medication directly into a patient's vein. (http://www.healthline.com/galecontent/intravenous-medi cation-administration) Infection is possible at the injection site. The entire IV medication administration process must be done with sterile equipment and sterile technique. This should be done by trained professionals, due to the risk of infection. (Case-Lo Christine 2013) Medication administration is a complex multistep process that encompasses prescribing, transcribing, dispensing, and administering drugs and monitoring patient response. An error can happen at any step. Administration errors account for 26% to 32% of total medication errors— and nurses administer most medications. Recent technological advances have focused on reducing errors during administration. (Anderson Pamela 2010) The preparation and administration of intravenous (IV) medications requires competent practitioners supported by robust evidence-based practice. It also requires time and careful assessment, which encompasses: Assessment for the procedure, The practitioner's competence, The patient, The medication(s), the equipment, the environment, and other associated aspects (e.g. infusion devices). (Lavery 2011) Nurse education departments devote a high proportion of time to medication calculation skill development and testing. Annual testing is time consuming for both nurse educators and nurses, and the validity, frequency, acceptable pass mark, self-efficacy and maintenance of skills related to medication calculation testing is largely unclear. The theoretical literature focuses on drug administration errors, development of tools and techniques to improve nurses' medication calculation skills and guidelines. (Sherriff Karen 2013)

Corresponding author: Amanpreet Kaur Dhaliwal
Department of Medical Surgical Nursing, INE, GTBS(C) Hospital, India.

Need of the Study

Safe, effective and ethical medication practice is an important component of client care. As with any nursing procedure, administering, recommending and/or prescribing a medication requires knowledge, technical skills and judgment. Nurses need the competence to assess the appropriateness of a medication for a client, manage adverse reactions, understand issues related to consent and make ethical decisions about the use of medications. As well, client care environments need systems and structures that support and facilitate safe medication practice. (http://www.cno.org). Empirical literature focuses on the incidence of errors, evaluation of medication calculation skills; the relationship between test results and errors, effectiveness of strategies to improve medication calculation skills and medication calculation testing and policy. Course content and delivery are thought to influence safe medication administration; however, there has been a lack of rigorous research demonstrating the efficacy of educational models. Several studies report low levels of calculation proficiency in nurses; however, it is unclear whether medication calculation testing affects medication administration error rates. Further research is required to determine the robustness of the current

processes to assess nurses' medication calculation competence and ensure optimal patient safety. (Sherriff Karen 2013)

Statement of the Problem

An Evaluative Study to Assess the Performance of Staff Nurses regarding Administration of Intravenous Medication in Guru Teg Bahadur Sahib (C) Hospital, Ludhiana, Punjab.

Purpose

The purpose of the study is to evaluate the performance of staff nurses regarding administration of intravenous medication with a view to prepare guidelines for the intravenous medication administration.

Objectives

1. To assess the performance of staff nurses regarding administration of intravenous medication.
2. To identify the deficit areas in the performance of administration of intravenous medication.
3. To assess the relationship of performance of staff nurses with selected variables i.e. Age, Professional Qualification, Work Experience, Area of Work.
4. To prepare guidelines for the administration of intravenous medication.

Assumption

Staff nurses have limited knowledge regarding practice of intravenous medication administration.

Conceptual framework

The conceptual framework of this study is based on American Nurses Association Quality improvement model on the standards of care and quality indicators within the Donabedian's framework of structure, process, outcome.

METHODOLOGY

Research Approach:

Quantitative approach was adopted for the present evaluative study

Research design

For the present study Non experimental Evaluative research design was adopted to assess the performance of staff nurses related to intravenous medication administration.

Target population

The target population of this study consisted of all staff nurses of Guru Teg Bahadur Sahib (C) Hospital, Ludhiana, Punjab.

Sample & sampling technique

The sample of the study consisted of 60 staff nurses. Sample is selected by Purposive sampling technique.

Development and Description of the Research tool (s)

The tool in the form of Checklist was structured to evaluate the performance of staff nurses related to administration of IV medication. To accomplish the objectives of study, the tool consists of following parts.

Part 1: Personal data

This part consists of 4 items for obtaining personal information about subjects such as Age, Professional Qualification, Work Experience and Area of Work.

Part 2: Checklist

It includes checklist to assess the performance of staff nurses working in Guru Teg Bahadur Sahib (C) Hospital, Ludhiana regarding intravenous medication administration.
Total items are 48. Each item has given 1 mark for correct step of procedure and 0 for incorrect step.

- Maximum scores = 48
- Minimum score = 0

Criterion measurement for assessment of performance of staff nurses regarding intravenous medication administration is as follows:

Criterion measure

A. Structure Standard = Max. score =10
Expected standard met ≥ 90%
Need improvement < 90%
B. Process Standard = Max. score = 34
Expected standard met = 100%
Need improvement < 100%
C. Outcome Standard = Max. score = 4
Expected standard met = 100%
Need improvement < 100%

Part 3: Development of Guidelines

The guidelines on administration of intravenous medication was developed.

Validity of tool (s)
A self structured checklist was given to experts from the field of Nursing and content validity of tool was established.

Reliability of tool (s)
The inter rator (inter observer) reliability of the checklist was calculated which was 0.97.

Ethical consideration

Before conducting the study, Permission has taken from Ethical Committee of Institute of Nursing Education, Guru Teg Bahadur Sahib (C) Hospital, Ludhiana. It was ensured that treatment of patient was not interfered. Confidentiality and anonymity was ensured.

Data collection procedure

Prior to data collection a written permission was obtained from the Medical Superintendent of Guru Teg Bahadur Sahib (C) Hospital, Ludhiana, Punjab. The investigator did non participatory observation during intravenous medication administration. The checklist for assessment of performance related to intravenous medication administration was filled on the basis of investigator's observation, auditing of bed side documents.

RESULTS

Sample Characteristics

Maximum number of subjects (91.67%) belonged to age group of 21-30 years while only 08.33% subjects belonged to 31-40 years. As per their professional qualification, 76.67% staff nurses were GNM while 18.33% were B.Sc. (N) and other 5% were Post basic B.Sc.(N). Among 60 subjects 46.67% of the staff nurses had 0-5years of experience where as 15% had > 05 year of work experience. As per area of work, maximum staff nurses (55%) were from special units and minimum (45%) staff nurses were from general wards.

Objective 1: To assess the performance of staff nurses regarding administration of intravenous medication

Table 1. Mean Performance Score related to Intravenous Medication Administration of Staff Nurses according to Structure, Process, Outcome Standard

N = 60

	Structure		Process		Outcome	
IV Medication	Max. score=10		Max. score= 34		Max. score=4	
Administration	Mean	Mean%	Mean	Mean%	Mean	Mean%
Expected standard	-	-	-	-	-	-
Need improvement	4.98	49.83	20.26	59.60	3.85	96.25
Expected Standard –	≥90% (>9)		100% (34)		100% (4)	
Need improvement =	< 90% (<9)		<100% (34)		<100% (4)	

Table 1 depicts that mean% score of performance related to structure standard was 49.83%, whereas mean% score of performance related to process standard was 59.60%. Similarly mean% score of performance related to outcome standard was 96.25%. Mean% score of performance of staff nurses related to IV medication administration was lower than the expected levels as per the criterion measure 90% for structure, 100% for process standard & 100% for outcome criteria.

Objective 2: To identify the deficit areas in the performance of administration of intravenous medication.

Table 2. Mean Percentage Score of Performance of Nurses related to IV Medication Administration according to deficits in Structure Standard

N=60

Structure Criteria	Performance score			
	Max Score	Mean	Mean %	Deficits %
S1 Availability of articles	10	4.98	49.83	50.17

Maximum score = 10
Minimum score = 0
Table 2 depicts that 50.17% deficit was found in meeting structure criteria.

Table 3. Mean Percentage Score of Performance of Nurses related to Process Standard according to evidences of deficits in Process Criteria during IV Medication Administration

N=60

Process criteria	Max Score	Performance score Mean Score	Mean %	Deficit %	Rank order
P1- Assessment	6	6	100	0	-
P2- Implementation	19	6.41	33.73	66.27	1
P3- After care of articles	5	4	80	20	2
P4- Documentation and Recording	1	1	100	0	-
P5- Evaluation	3	2.85	95	5	3

Maximum score = 34
Minimum score = 0
Table 3 depicts that for IV medication administration, maximum deficits were found in meeting of process standard in P2 criteria i.e. implementation 66.27% (ranked 1), followed by after care of articles 20% (ranked 2), followed by evaluation 5% (ranked 3).

Table 4. Mean Percentage Score of Performance of Nurses related to Outcome Standard according to evidences of deficits in Evaluation during IV Medication Administration

N=60

Outcome criteria	Score	Performance score Mean	Mean %	Deficit %
O1.1 There is no allergic reaction to the patient	1	1	100	0
O1.2 There is no extravasation	1	0.95	95	5
O1.3 There is no phlebitis	1	0.95	95	5
O1.4 Patient is comfortable	1	0.95	95	5

Maximum score = 4
Minimum score = 0
Table 4 depicts that nurses lacked in outcome criteria during IV medication administration i.e. there is no extravasation, there is no phlebitis and patient is comfortable 5% respectively.
Objective 3: To assess the relationship of performance of staff nurses with selected variables i.e. Age, Professional Qualification, Work Experience, Area of Work.

It was found that there was no significant relations between mean performance score with age, professional qualification, work experience and area of work.

DISCUSSION

The results depicts that mean % score of performance related to structure standard was 49.83%, whereas mean % score of performance related to process standard was 59.60%. Similarly mean % score of performance related to outcome standard was 96.25%. Mean % score of performance of nurses related to IV medication administration was lower than the expected levels as per the criterion measure 90% for structure, 100% for process standard & 100% for outcome criterion. Maximum deficit % was found in meeting structure criteria in S1 i.e. availability of articles 50.17%. Maximum deficits were found in meeting of process standard in P2 criteria i.e. implementation 66.27% (ranked 1), followed by after care of articles 20% (ranked 2), followed by evaluation 5% (ranked 3). Deficit found in the outcome criteria during IV medication administration i.e. there is no extravasation, there is no phlebitis and patient is comfortable 5% respectively. It was found that there was no significant relations between mean performance score with age, professional qualification, work experience and area of work. This finding is supported by Abbasinazari *et al.* (2013) who reported that, no significant correlation was found between the frequency of errors and nurses' demographic data. Similarly, Fahimi *et al.* (2008) concluded that no significant correlation was found between the rate of error and the nurses' age, sex, qualification, work experience, marital status, and type of working contract.

Conclusion

Overall performance of nurses related to IV medication administration according to structure, process and outcome standards were lower than the expected standard and therefore needed improvement to reach up to expected standards.

Limitations

1. A small purposive sample of only 60 nurses would limit the generalizability of the results.
2. It was confined to one institution only i.e. GTBS(C) Hospital, Ludhiana.

Implication of the study

The findings of this study have some very important implications for the nursing profession i.e. clinical practice, nursing education, nursing administration and nursing research.

Nursing practice

- IV medication administration is a procedure that is frequently performed by nurses in ICUs and wards. It is an imperative requisite of a professional nurse to perform IV medication administration with a standard protocol to prevent complications and to promote recovery.
- The nurse is committed to maintaining high standards of practice and promoting an understanding of the nature of the role. Upholding the dignity of individuals is the essence of practice.
- Nurses as professionals need to be accountable for improving the standard of practices for this they need to evaluate their practices.
- The findings of study reveal that expected standard was not met in nurses' performance related to IV medication administration. There exists gap between knowledge and practice. Hence nurses must keep up their knowledge at par with practice and bridge up gap between knowledge and practice.
- Nurses should take responsibilities for upgrading their own knowledge on regular basis by attending to in service education arranged by authorities, reading current journals, and research studies on IV medication administration.

Nursing administration

- Nursing has become complex and highly varied practice discipline with a rapidly growing, well developed, well documented and humanistic knowledge base.
- Staff development is essential for maximizing the potentials of employees to achieve personal and institutional goals. Administrative support should be provided for conducting staff development programmes. Nursing administration should anticipate the need of time and prepare nurses to serve community.
- Nursing administration at institutional level should evaluate the nursing practices as well as performance appraisal must be carried out on regular basis, enabling the administrators and nurses to be aware of level of excellence and deficits. Findings should be reported and discussed in departmental and professional meetings.
- It is responsibility of nursing administration to formulate rules and regulation to implement evidence based nursing practice.

Nursing education

- The nursing curriculum should lay stress on various aspects of basic and advanced nursing procedures such as IV medication administration and revise them based on various research findings.
- The nurse is committed to education and advancement of profession. Education is the key for development of excellent nursing practice. Hence nurses must keep their knowledge at par with recent advance and new technologies to raise standards of nursing profession.
- Ongoing educational and professional growth are essential for keeping abreast with the new developments in services, policies and technologies to provide quality nursing care in changing scenario and it should begin from the nurses' training period.
- Nurses must contribute to core of professional knowledge by conducting and participating in research.
- As the students learn from what they observe in the clinical areas therefore staff nurses should be role model and demonstrate excellent practices.
- Students should be oriented to importance of quality improvement, evaluation and research from the very beginning.

- Besides theoretical knowledge practical application need to be emphasized. Student should be encouraged to make use of research methodology for developing problem solving skills.

Nursing research

- Nursing is a dynamic profession. Research can lead to higher status. All nurses must continuously learn the ways and mean of contributing to nursing researches.
- Findings of this study provide baseline data about knowledge of nurses related to IV medication administration.

Recommendation

Structured guidelines on administration of intravenous medications developed by the investigator should be used as standards not only for the practice but also for in-service education and follow up study could be conducted to evaluate the changes in structure, process, and outcome standard.

REFERENCES

Abbasinazari M, Hajhossein Talasaz A, Mousavi Z, Zare-Toranposhti S.Evaluating the frequency of errors in preparation and administration of intravenous medications in orthopedic, general surgery and gastroenterology wards of a teaching hospital in tehran. 2013. http://www.ncbi.nlm.nih.gov/pubmed/24250594 accessed on 12/11/2013.

Anderson Pamela, Townsend Terri. Medication errors. American Nurse Today. March 2010; 5(3). http://www.americannursetoday.com accessed on 07/01/13.

Case-Lo Christine. Intravenous medication administration. Available from - http://www.healthline.com/health/intravenous-medication-administration/ Accessed on August 9th, 2013.

College of Nurses of Ontario. Practice Standard: Medication, Revised 2008. http://www.cno.org accessed on 11/01/13.

Definition. http://www.healthline.com/galecontent/intravenous-medication-administration accessed on 07/01/13.

Fahimi F., Ariapanah P., Faizi M., Shafaghi B., Namdar R., Ardakani MT. Errors in preparation and administration of intravenous medications in the intensive care unit of a teaching hospital: an observational study. Australian Critical Care. 2008; 21(2): 110-6. http://bfuhs.ac.in/ULID/HSLIBNET/hslibnet.html accessed on 10/02/13.

Lavery I. Intravenous therapy: preparation and administration of IV medicines. British Journal Of Nursing [serial on the Internet]. (2011, Mar 7), [cited September 22, 2013]; 20S28-34. Available from: CINAHL Plus with Full Text.

Sherriff Karen, Wallis Marianne, Burston Sarah. Medication calculation competencies for registered nurses: a literature review. Australian Journal of Advanced Nursing; 28(4):75-77. http://www.ajan.com accessed on 08/01/13.

****