

Assessment of Staff Nurses' Training Needs Concerning with High Alert Medication

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Abstract

Aim: Assessing training needs of the staff nurses regarding implementing an educational program on dealing with High Alert Medication (HAM). **Subjects and methods:** The study was conducted in the International Medical Center (IMC) which affiliated to Ministry of Defence. The subjects of this study consisted of 180 nurses who are working in IMC full time with experience at least one year. 89 nurses were working in critical care units while 91 nurses were working in medical- surgical units. Data were collected using needs assessment tool. **Results:** Some topics show the lowest mean score and participants are in need to study these topics as: Side effects, contraindications, hazards, storage of HAM, international standards of patient safety and the most common nursing errors during dealing with HAM. **Recommendations:** Establish an educational program for all nurses to inform them how to deal with HAM including topics that met their educational needs. **Conclusion:** Based on the present study findings, it can be concluded that nurses are needed for establishing an educational program to gain their knowledge and Performance regarding dealing with HAM

Key words: Nurses' needs assessment. Training program. High Alert Medication

Introduction

Continuing education of the nursing staff can help in reducing medication errors. Staff education should focus on priority topics such as HAM protocols, policies and procedures related to dealing with HAM also about new medications being used in the hospital. Staff education can be an important error prevention strategy when combine with the other key elements for medication safety as using of multidisciplinary teams to care for patients receiving complex medication regimens. (Koppel et al., 2008).

Staff education can play an important role when it's combined with system-based error-reduction strategies.

Activities with the highest average include ongoing assessment of health care providers' baseline competencies and education about new medications, nonformulary medications, high-alert medications, and medication error prevention. (American Hospital Association, Health Research and Educational Trust, 2012)

Nurses' with insufficient knowledge is considered to be one of the most significant factors contributing to medication administration errors. (Tang et al., 2007). Compliance is an observable behavior that can be directly measured and is a description of submission to predetermined goals (Ragab, 2008). Moreover, it should be targeted for

specific error reduction interventions through reduce or eliminate the possibility of error, make errors visible and minimize the consequences of errors, because of medications are part of the patient treatment plan, appropriate management about it is critical to ensure patient safety (*Abdullah. et al., 2008*)

A frequently cited medication safety issue is the unintentional administration of concentrated electrolytes. This error can occur when a staff member has not properly oriented to the patient care unit or during emergencies. (*Joint Commission International Accreditation (JCI), 2012*). Needs assessment is one of the essential steps in developing self-assessment tools to measure level of nurse competence (*Mertoja R. et al 2004*).

Rational of the study:

Nurses have performance deficit and unsatisfactory level of knowledge relating some aspects of dealing with HAM (*Attia, 2012*). The present study assesses nurses' opinion regarding their needs to implementing an educational program on dealing with HAM.

Aim of the study:

Assessing training needs of the staff nurses regarding implementing an educational program on dealing with High Alert Medication (HAM).

Subjects & Methods

Research design:

A cross-sectional descriptive design was used in carrying out this study.

Setting:

The study was conducted in the International Medical Center (IMC) in Egypt, The total number of study units are ten units, they are divided into two sections:- **1- Critical care units** that included: intensive care units (ICU), paediatrics unit, operating rooms (OR), anaesthesia department, emergency room(ER), hemo-dialysis unit, and catheter lab. **2- Medical surgical units** that included: Inpatient units, radiology and outpatient department.

Subjects:

The subjects of this study consisted of 180 nurses. The inclusion criteria is all nurses who are working in IMC full time with experience at least one year, while the study exclude all trainee and student nurses. 89 nurses were working in critical care units while 91 nurses were working in medical- surgical units.

Tool of data collection:

- **Needs assessment tool:-**

This tool was developed and constructed by the researcher, reviewed by experts and pilot- tested. The researcher was guided by *Onsy N., (1998)*, *Fakhry S., (2002)* and *El-Shimy H. & Safwat A., (2002)* in developing this tool. It aimed at assessing study subjects' needs related to HAM. The tool consisted of two parts:-

Part I:

It was intended for collection of demographic characteristics of the study subjects as age, qualifications, work unit, years of experience, marital status and attending HAM training courses.

Part II:

It included 15 items to assess study subjects' needs related to HAM as identify international patient safety goals, identify HAM, types of HAM, harm of HAM, contra indication of HAM, side effects of HAM , ways of sharing doctor in prescribing HAM, methods of ordering HAM, how receiving

HAM, preparing of HAM administrating of HAM, storing of HAM, waste management, identify more common nursing medication errors and identify nurse role in medication safety.

Participants were asked to response to each item on need or not need. Item that needed by 60% of participants was included in the program.

Pilot study

Upon developing the data collection tool, a pilot study was performed on 10% of total subjects. Eighteen nurses were included in the pilot and it was conducted for: Testing the tool for clarity and relevance; determining the time needed to fill it. Based on the analysis of the pilot study, necessary modifications by addition and/or omission were done to develop the final form. Subject shared in pilot study excluded from the main study.

Fieldwork

The data obtained from December 2012 for two weeks. In the beginning the researcher met all the staff nurses to explain the purpose and the benefits of the study and take their approval to join the study and signed the consent. The researcher divided the research sample into 12 groups included 15 nurses in each one and held the test to one group per day. The form was distributed to the nurses in the classroom on daily basis (6 days per week)

in the presence of the researcher. The researcher explained how to fill needs assessment sheets and sought their cooperation. The researcher checked each one to ensure its completeness. The same technique was applied in all sessions. The needs assessment took one hour from 11 am to 12 pm.

Ethical consideration:

Prior to the pilot study an approval was obtained from the Scientific Research Ethical Committee from Faculty of Nursing, Ain Shams University also the acceptance of each nurse who was included in the study in a written consent form. Approval of general manager of the hospital obtained to start the study. Consent form obtained from each participant assured that confidentiality and privacy considered during the study and have right to withdraw from the study at any time.

Statistical analysis:

Data entry and statistical analysis were done using statistical software package (SPSS version 16.0). Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables.

Result

Frequency distribution of participants (n=180) according to their demographic data as evident in **table (1)** that represents about half of the studied nurses (53.9%) had age less than 25 years, more than (50%) them were married. Less than three quarter of them (72.2%) were graduated from nursing school, more than half of them having work experience 5 years or more (61.1%). Half of them work

in medical/surgical units (50.06%). About one fifth were attending training course related dealing with HAM. The result shows that there is a highly statistically significant difference between nurses' knowledge as regard dealing with HAM according to their age, qualification, work unit, years of experience, marital status and attending training course ($P < 0.01$).

Table (2) represents nurses' opinion regarding their previous study of Suggested Program topics where the following topics show the lowest mean score respectively and participants don't need to study these topics which are: Hospital waste management (11.6 ± 32.1), The way of

receiving High Alert Medication (38.8 ± 48.8), The way of Ordering High Alert Medication (40.5 ± 49.2), Administration of high alert medication (46.6 ± 50.0). On the other side participants' were in need to study the following topics: Side effects of high alert medication (93.3 ± 25.0), Contraindications of high alert medication administration (91.1 ± 28.5), Hazards of high alert medication (87.7 ± 32.8), Storage of high alert medication (86.6 ± 34.0), International standards of Patient safety inside the hospitals (85.5 ± 35.2) & Most common nursing errors during dealing with high alert medication (83.8 ± 36.8).

Table (1): Distribution of Studied Nurses Regarding Personal Characteristics (n=180)

Age in years	No	%
18- 24	97	53.9
25-30	64	35.6
> 30	19	10.6
Marital Status	No	%
Single	74	42.2
Married	106	57.8
Education	No	%
Technical Nursing Diploma	50	27.8
School Nursing Diploma	130	72.2
Years of Experience	No	%
< 5	70	38.9
≥ 5	110	61.1
Work area	No	%
Critical care units	89	49.4
Medical Surgical units	91	50.6
Attending Training program	No	%
Yes	41	22.8
No	139	77.2

Table (2): Percentage distribution of the studied nurses regarding their needs about dealing with HAM (n=180)

Topics	Not Needed		Needed	
	No.	%	No.	%
International standards of Patient safety inside the hospitals	26	14.4	154	85.6
Define of HAM	51	28.3	129	71.7
Types of HAM	39	21.7	141	78.3
Hazards HAM	22	12.2	158	87.8
Contraindications of administration ofHAM	16	8.9	164	91.1
Side effects of HAM	12	6.7	168	93.3
Nurse role when prescribing HAM	102	56.7	78	43.3
The way of ordering HAM	107	59.4	73	40.6
The way of receiving HAM	110	61.1	70	38.9
10- Preparation of HAM	78	43.3	102	56.7
11- Administration of HAM	96	53.3	84	46.7
12- Storage of HAM	24	13.3	156	86.7
13- Hospital waste management regardingHAM	159	88.3	21	11.7
14- Most common nursing errors during dealing with HAM	29	16.1	151	83.9
15- Nurse role in preventing HAM errors	51	28.3	129	71.7
Total Mean Score	180	100	180	100

learning needs assessment has a fundamental role in education and training.

Discussion

Dealing with HAM poses significant risks to patients who treated with it so that requires special and diligence knowledge and performance. System cannot alone protect patients from harm; nurses who use system safeguards 24 hours per day and who apply practical strategies protect patients from harm (*Robin, 2011*). The present study displays nurses' needs regarding their previous study of suggested program topics; In this regard, *Maloney & Kane, (2005)* have emphasized that the needs assessment tool must assess true knowledge deficit and meet staff felt needs. Identification of these felt needs would produce greater motivation for learning. Because of the

The present study results show that more than three quarters of nurses not needed to study waste management regarding HAM. This could be due to continuing education and supervision related the compliance to the hospital regulation related waste management. The present study shows that less than half of the study sample performing right in preparation and administration of HAM during pre intervention, while their needs assessment reflected that they thought they are perform it in a right way. This is in line with *Hughes & Andro, (2008)* who stated that the administration errors comprise a significant proportion of all errors and yet, beyond that fact there isn't much known

about the causes or about the effectiveness of proposed solutions.

Avoidance of medication errors is one of the areas of considerable importance in nursing practice. The study results revealed that participants not need to study some topics as how sharing doctor in prescribing of HAM. This might be due to their thought that the step of prescribing medication belongs to physician and the nurses do not have a dynamic role in this issue. More than three quarters of study sample were in need to study topics as side effects, contraindications, hazards, storage of HAM, also international standards of patient safety inside the hospitals. This could be due to lack of information provided to nursing student during formal undergraduate training. This result is in an agreement with *Geoffrey, (2004)* who has emphasized that unsatisfactory knowledge level in some topics may be due to lack of chance to learn or practise it in undergraduate phase. This agrees with *Grant & Stanton (2000)* who has reported that learning needs assessment is a crucial stage in the educational process that leads to changes in practice, and has become part of government policy for continuing professional development. This is in line with *Walton & Elliott (2006)* who have stated that education and validation of competency are critical components in the quest to improve patient safety.

At the very least, all health-care workers must be competent to deliver *safe* care, and their organization must have mechanisms to check this. Furthermore *Grissinger & Globus (2005)* has claimed that with inadequate nursing education about patient safety and quality of medication management, nurses are continually challenged to ensure that their patients receive the right medication at the right time.

Conclusion

Based on the present study findings, it can be concluded that staff nurses had knowledge and performance deficit regarding different dimensions of dealing with HAM as, side effects, contraindications, hazards, storage of HAM, international standards of patient safety and the most common nursing errors during dealing with HAM. Establishing an educational program for nurses is suggested to gain their knowledge and Performance regarding dealing with HAM.

Recommendations

Based upon the results of the current study the following recommendations are suggested:- Establish an educational program for all nurses to inform them how to deal with HAM including topics that met their actual educational needs. Establish a standard of reward or promotion for nurses who follow the hospital policies related to dealing with HAM.

References

- Abdullah A; Abbas E; Bassiun N; & Baddar F. (2008):** Perception of Front-line Healthcare Providers toward Patient Safety: A Preliminary Study in Cairo University Hospital, Master degree in medical and surgical nursing thesis PP 130- 142
- American Hospital Association Health Research and Educational Trust (2012):** Hospital Statistics, Chicago.
- Attia, S.A (2012):** Nurses' Performance Regarding Intraven. Infusion of High

- Alert Medication. Unpublished Master Thesis, Ain Shams University PP. 11-48
- El-Shimy H.M.& Safwat A.M.(2002):** Training Needs Assessment for the Nurses in the orientation program: Tool development and validation. The Egyptian Medical Journal; 26(4); 184-190
- Fakhry S.F(2002):**Nurse Interns' Role: Leaders and Interns perspectives. Unpublished Master Thesis, Faculty of nursing, Ain Shams University. p.p 1-3, 43-45, 110
- Geoffrey, R. (2004):**328doi: <http://dx.doi.org/10.1136/bmj.328.7446.999> (Published 22 April 2004) The need for needs assessment in continuing medical education *Cite this as:BMJ2004;328:999*
- Grant J. and Stanton F. (2000):**The effectiveness of continuing professional development. Edinburgh: Association for the Study of Medical Education; 2000. (ASME medical education booklet.)January 19; 324(7330): 156–159.
- Grissinger M. and Globus N.J. (2005):** Save Haven: How to make Drug delivery safer. LPN; 1(3): 19-21
- Hughes R.G. and Andro M. (2008):** Patient Safety and Quality: An Evidence-Based Handbook for Nursespp 1:61
- Joint Commission International (JCI), (2012):** International patient safety goals. Improve the safety of high- alert medication. Available at: <http://www.jointcommissioninternational.com>
- Koppel, R., Wetterneck, T., Telles, J., and Karsh, B. (2008):** Workarounds to barcode medication administration systems: their occurrences, causes, and threats to patient safety. J Am Med Inform Assoc.; 15(4): 408-423.
- Maloney D. and Kane J. W. (2005):** An Innovative Solution to assessing staff learning needs. The Journal of Continuing Education in Nursing ; 26(2): 67-72.
- Meretoja, R., Isoacho H., Kessler, V., Kane, J. and Iino-Kilpi H. (2004):** Nurse Competence Scale: Development and Psychometric Testing. Journal of Advanced Nursing; 47 (2): 124: 133.
- Onsy N.R. (1998):** Impact Of Internship Training Experience on Nursiers' Skill Acquisitions. Unpublished Master

Thesis, High Institute Of nursing, Ain Shams University. p.p 91-95

Ragab.G, (2008): Measuring compliance of nurses working in fever hospitals with isolation precautions, Master thesis, Faculty of Nursing, Assuit University. P 11-13.

Robin, D. L. (2006): Using failure mode and effects analysis for safe administration of chemotherapy to

hospitalized cancer patient. JtComm J Qual Patient Saf ; 32: 161e 66.

Tang, F.I., Sheu, S.J., Yu, S., Wei, I.L., Chen, C.H., (2007): Nurses relate the contributing factors involved in medication errors. Journal of Clinical Nursing 16, 447–457.

Walton MM, Elliott SL. (2006): Improving safety and quality: how can education help? Med J Aust; 184(10): S60-S64.