International Journal Of

Recent Scientific Research

ISSN: 0976-3031

Volume: 7(4) April -2016

PATIENT SAFETY CURRICULUM GUIDE FOR RESIDENTS BASED ON NEEDS ASSESSMENT OF RESIDENTS, NURSES AND DIRECTORS OF RESIDENT EDUCATION

Mohammad Ali Heidarnia., Hanieh Majidi Tehrani., Jamshid Kermanchi., Mohammad Masoud Majidi Tehrani., Maryam Mohseni and Farnaz Mostofian

THE OFFICIAL PUBLICATION OF
INTERNATIONAL JOURNAL OF RECENT SCIENTIFIC RESEARCH (IJRSR)
http://www.recentscientific.com/ recentscientific@gmail.com

ISSN: 0976-3031

Available Online at http://www.recentscientific.com

International Journal of Recent Scientific Research
Vol. 7, Issue, 4, pp. 10242-10246, April, 2016

International Journal of Recent Scientific Research

Research Article

PATIENT SAFETY CURRICULUM GUIDE FOR RESIDENTS BASED ON NEEDS ASSESSMENT OF RESIDENTS, NURSES AND DIRECTORS OF RESIDENT EDUCATION

Mohammad Ali Heidarnia*., Hanieh Majidi Tehrani., Jamshid Kermanchi., Mohammad Masoud Majidi Tehrani., Maryam Mohseni and Farnaz Mostofian

Shaheed Beheshti University of Medical Science

ARTICLE INFO

Article History:

Received 06th January, 2015
Received in revised form 14th February, 2016
Accepted 23rd March, 2016
Published online 28th April, 2016

Keywords:

Clinical governance, Patient safety, Needs assessment, Educational content, Medical resident

ABSTRACT

Background and Objectives: Clinical governance is a new, systematic approach to maintain and promote the quality of care in a health care system. Risk management and patient safety are among the required components of a clinical governance system. Educating the public, the personnel and the service providers is essential for patient safety. Residents are the first priority for education due to their greater attendance and special role in treatment of patients. A comprehensive educational program about patient safety is the cornerstone of resident education. This study aimed to compile a patient safety curriculum guide for residents based on needs assessment of residents, directors of resident education and nurses.

Materials and Methods: This study compiled a patient safety curriculum guide for residents in five steps: 1. A scientific committee was established and a questionnaire was designed. 2. The questionnaires were filled by residents, nurses and directors of resident education and needs assessment was done. 3. Educational goals were set. 4. Educational topics were selected. 5. Educational content and method were suggested.

Results: A total of 191 subjects including 100 residents, 65 directors of resident education and 26 nurses responded to the needs assessment questionnaire. The main topics retrieved via factor analysis were1. Principles and concepts of patient safety and human factor, 2. Systematic thinking and effective group work, 3. Risk management and prevention of adverse events in invasive medical procedures, 4.Prevention and control of infection, 5.Familiarity with errors in other occupations, 6. Principles to promote the quality of health care services, 7. Medical malpractice and proper communication with patients

Conclusion: The selected topics in the current educational content are in accord with the key points in patient safety curricula especially the patient safety curriculum guide by the World Health Organization (WHO).

INTRODUCTION

Patient safety is a global topic affecting countries irrespective of their level of development (1). According to the definition by the WHO, patient safety refers to avoiding any injury or trauma to patients during receiving health care services (2, 3). Health care services are among the high-risk services associated with a degree of inherent unsafety. Annually, millions of patients suffer disability and injury or die due to unsafe medical services (4). Approximately, 10% of patients hospitalized in medical centers experience injury due to malpractice or medical error. This rate includes 1% mortality rate (5). A study undertaken by Harvard University in 2004 demonstrated that of 30,121 patients, adverse events occurred in 7.3 % of patients; 7% of the adverse events caused disability lasting for 6 months, 6.2% caused permanent disability and 13% caused death (6). According to a study conducted in Iran in 2006, 8% of medical treatments led to adverse events (7). The risk of hospital-acquired infections in developing countries is approximately 20 times higher than the incidence rate of such infections in developed countries. It has been estimated that in developed countries, half the peri-operative adverse events leading to patient disability and death can be prevented if patient safety protocols are properly applied (8). Medical malpractice imposes a high cost on patients and the health care system (9 billion dollars annually) and exposes the medical team to a high stress burden (9, 10).

*Corresponding author: **Mohammad-Ali Heidarni***
Shaheed Beheshti University of Medical Sciences

Improving patient safety and quality of care is among the most important challenges in medicine. Patient safety curriculum guide provides an opportunity to confront this challenge. Medical residents have the greatest communication with patients. Lack of work experience and high workload may result in dangerous situations by residents. Also, their patient safety knowledge is limited in comparison to the high volume of other educational contents taught to them. Thus, teaching patient safety to residents will have valuable outcomes (11).

In a comparative study conducted in Iran in 2012, the educational content and strategic programs of patient safety instruction were compared in several medical schools in Iran, the United States, the United Kingdom and Canada. Review of the educational content and strategic programs in the mentioned countries revealed that patient safety was an important, detailed topic included in the medical curricula of the mentioned countries and the main topics such as risk management and prevention of medical malpractice had been coveredin almost all cases. In Iran, this topic is not taught to residents as a separate course, and neither the old nor the reformed curricula do not contain a unit under this title (12).

Regarding patient safety instruction to care providers, the main question is what information must be provided and what the efficient routes of information transfer are (13). Needs assessment at different levels may improve the quality of medical education and promote the efficacy of the health care system (14).

This study aimed to compile a patient safety curriculum guide for residents based on needs assessment of residents, nurses and directors of resident education.

MATERIALS AND METHODS

This was a model design study conducted in Taleghani Hospital from October 2012 to August 2013. The study population included residents, directors of residence education and nurses of Taleghani Hospital. This hospital has 15 specialty departments with approximately 141 residents working on rotations in this hospital. This hospital has almost all specialty departments; thus, the results obtained from this study can be generalized to the entire population of residents. Data were collected using a questionnaire. This study compiled a patient safety curriculum guide for residents in five steps. For this purpose, Analysis, Design, Development, Implementation and Evaluation (ADDIE) general instructional design model was used. The following steps were followed:

1. ***Step one:*** A scientific committee was established and a questionnaire was designed.
2. ***Step two:*** The questionnaire was filled out by residents, nurses and directors of resident education and needs assessment was performed.
3. ***Step three:*** Educational goals were set.
4. ***Step four:*** Educational topics were selected.
5. ***Step five:*** Educational content and instructional

Method was suggested

Step one

A scientific committee comprising of a community medicine specialist, a patient safety specialist, a nurse, a resident and a statistician was established. The questionnaire was designed in five steps as follows:

1. Review of available questionnaires in this regard: A comprehensive search was carried out in PubMed (Medline), Web of Science and Scopus databases to find published articles containing needs assessment questionnaires regarding patient safety. Also, for the purpose of acquaintance with the current educational content in this regard, the WHO and NPSA websites were searched.
2. After evaluation of the available questionnaires, a preliminary questionnaire was designed for three groups of residents, nurses and directors of resident education.
3. Assessment of the validity of the questionnaire: Three indexes were calculated for this purpose namely the inter-rater agreement, scale content validity index (S-CVI) and comprehensiveness. To calculate the mentioned three, opinions of three groups were sought: 1. Patient safety specialists (content expert)(n=11) 2. Residents and directors of resident education and nurses (lay expert)(n=9) and 3. A methodologist (n=1).
4. Optimal S-CVI for a new questionnaire has reported to be 80% in the literature. This rate was 86%, 83% and 80% for relevancy, clarity and simplicity of our questionnaire, respectively. The comprehensiveness of the questionnaire was assessed by dividing the number of specialists rated the questionnaire to be comprehensive by the total number of specialists. This rate was calculated to be 90% for this questionnaire. Reliability of the questionnaire: Reliability of the questionnaire was tested by retesting. The reliability coefficient of the questionnaire was calculated by re-testing on 20 subjects after 10 days from the first test. The correlation coefficient was found to be r=0.85, which is significant at 99% confidence interval. The obtained correlation coefficient indicates high reliability of the test.
5. Designing the final questionnaire for the three groups: The final questionnaires were designed. The final questionnaires for groups one and two (residents and directors of resident education) included four sections while the questionnaire for group three (nurses) included two sections. Due to the importance of the opinions and viewpoints of residents and directors of resident education, this part was included in their questionnaires. Their questionnaires included four sections. Section one introduced the study and explained its objectives. Section two asked for the demographic information of subjects. Section three assessed the current status and section four performed a needs assessment.

Step two: The questionnaire was sent to 141 residents, 93 directors of resident education, and 28 nurses. A total of 262 questionnaires were administered. After collection of questionnaires, data were entered in SPSS and analyzed in three steps as follows:

1. Demographic information of residents and directors of resident education mentioned in the first section of the questionnaire were expressed.
2. The second part of the questionnaire included assessment of the current status. The perspectives of residents and directors of resident education were compared in this respect.
3. The third part of the questionnaire was analyzed in two steps. First, the mean score of each question was calculated and compared for needs assessment using the perspectives of residents, directors of resident education and nurses. The total mean score was calculated as well. In the second step, factor analysis was carried out to choose the educational content.

Step three: The educational goals of patient safety were set. Setting educational goals simply determines the path and direction of an educational program. Educational goals were determined by reviewing accredited educational programs about patient safety.

Step four: Educational contents were chosen based on the set goals and the needs assessment performed.

Step five*:* The educational content and method of instruction were suggested.

RESULTS

Of 262 questionnaires administered, 191 were filled out and returned (response rate=73%) by 100 residents, 65 directors of resident education, and 26 nurses.

Demographic information of residents and directors of resident education: This part was filled out by residents and directors of resident education.

Table1 The frequency distribution of demographic information of residents and directors of resident education

	Resident (n=100)	**Directors of resident education (n=65)**
	Age	
Range	29-39	49-68
Mean	33	58
	Gender	
Female	50(50%)	20(30.8%)
Male	50(50%)	45(69.2%)
	Field of education	
Surgery	10(10%)	4(6.2%)
Non-surgery	90(90%)	96(93.8%)

Evaluation of patient safety status from the perspectives of residents and directors of resident education: The second part of the questionnaire included 8 closed questions assessing the current status of patient safety. Comparison of the responses of the two groups of residents and directors of resident education by chi square test revealed that the two groups had similar opinions regarding the current status and no significant difference existed in this regard.

Needs assessment

The following questions gained the highest mean score in needs assessment of the three groups of residents, nurses and directors of resident education:

Residents: 1. Principles of patient safety and its role in decreasing the incidence of adverse events, 2. the principles of prevention and control of hospital-acquired infections following receiving health services, 3. ten important goals for a safe surgery

Directors of resident education: 1. The principles of prevention and control of hospital-acquired infections following receiving health services, 2. Principles of patient safety and its role in decreasing the incidence of adverse events, 3. Routes of cross-contamination and infection transmission

Nurses: 1. Relationship of patient safety with human factor, 2. Principles of patient safety and its role in decreasing the incidence of adverse events, 3. Familiarity with malpractice in the health care system

RESULTS OF ANALYSIS

Factor analysis was conducted for questionnaire data; 28 main variables of the questionnaire decreased to 7 variables or factors. Considering the structural specifications in the correlations of these variables, hidden variables were interpreted and educational contents were chosen.

1. ***Step three:*** The educational goals were set using accredited educational programs and curricula for patient safety

Table 3 Patient safety educational goals

1. Creating a comprehensive educational curriculum to enhance instruction of patient safety
2. Prepare residents to perform safe procedures in the workplace
3. Informing the directors of resident education about the key factors of patient safety
4. Creating a safe and equipped environment for instruction of patient safety to residents
5. Creating a team work spirit to provide patients with safe health care services

2. ***Step four:*** Educational contents were chosen based on the set goals and needs assessment performed.

Table 4 Educational topics extracted by the needs assessment of residents, nurses and directors of resident education

1. Principles and concepts of patient safety and human factor
2. Systematic thinking and effective group work
3. Risk management and prevention of adverse events in invasive medical procedures
4. Prevention and control of infection
5. Familiarity with errors in other occupations
6. Principles to promote the quality of health care services
7. Medical malpractice and proper communication with patients

3. ***Step five:*** Educational content and method were suggested in a 2-day workshop.

DISCUSSION

In this study, the process of compiling patient safety curriculum for residents was described. We sought the opinions of residents, directors of resident education and nurses to suggest an applicable patient safety curriculum. The main educational topics retrieved in this study were: 1. Principles and concepts of patient safety and human factor, 2. Systematic thinking and effective group work, 3. Risk management and prevention of adverse events in invasive medical procedures, 4. Prevention and control of infection, 5. Familiarity with errors in other

occupations, 6. Principles to promote the quality of health care services, 7. Medical malpractice and proper communication with patients.

In a study by Jansma *et al*, in 2010, five topics were retrieved by needs assessment including 1.Patient safety principles, 2.Human factors, 3.Efficient group work (communication), 4.Cooperation for safer service, 5.Legal position of patient safety. Comparison of our study with that of Jansma *et al*. revealed complete agreement in four topics (18). However, they missed an important topic namely the promotion of quality of health care services. We did not include the legal issues related to patient safety in our study, which is a limitation of our study and considering its significance, this topic must be included in the patient safety curriculum. In a study by Jose *et al*, in 2011(11). The four main topics extracted via needs assessment were: 1. Principles of patient safety, 2. Role of human factor in patient safety, 3. Promotion of patient safety and 4.Taking responsibility of the malpractice. Comparison of their results with ours indicates that all the topics discussed in their study have been covered in ours. Moreover, their study lacked teamwork; while this is an important topic since all health care services are provided in a teamwork frame.

The curriculum designed by the WHO in 2011 contains 11 topics including 1.Definition of patient safety, 2.Human factor, 3.Familiarity with the system and effect of its complexity on patient care, 4.Concept of team and teamwork, 5. Learn from the risk to prevent adverse events, 6.Perception and management of clinical risks, 7.Using quality promotion methods to improve the quality of care, 8.Communication with patients and their companions, 9.Infection prevention and control, 10.Patient safety and invasive procedures, 11.Promotion of drug safety. Comparison of the educational content suggested in the current study with that of the WHO revealed that our topics had been covered in the WHO curriculum. The only topic mentioned in the WHO curriculum that has not been included in our study is the topic of drug safety. In a study by Jonathan *et al*, the following 10 topics were suggested: 1. Definition of patient safety and medical malpractice, 2. Technology and patient safety, 3. Human factors, 4. Patient-physician relationship, 5. Internal communication of the medical team, 6. Learning from mistakes, 7. Informing the patient and family members about the malpractice, 8. Financial and legal consequences of malpractice, 9. Malpractice as an important topic in medical education, 10. Need for systematic thinking. Comparison of their study with ours indicates that their study lacks an important topic namely promoting the quality of care, which is fundamental in clinical governance. Also, they included the topics of financial and legal consequences of malpractice and also technology and patient safety; which were not included in our suggested educational content. The national curriculum of patient safety taught online includes 10 topics: 1. Science of patient safety, 2. Promotion of patient safety by systematic thinking, 3. Recognizing and decreasing the risks, 4. Balanced responsibility of the system and individuals in a safe environment, 5. Enhanced knowledge and activity about patient safety among physicians and staff, 6. Strategy of involving the executive chiefs and clinical instructors, 7. Principles and strategies to involve patients and their families in the course of treatment, 8. Methods to assess clinical performance and outcome, 9. Role of information technology in patient safety, 10. National perspective: policy, regulations and environment. Comparison of the national curriculum of patient safety with the educational content suggested in our study demonstrated that the national curriculum, similar to those suggested by Jansma and Jonathan, did not include the important topic of promotion of quality of care. Also, the national curriculum included the topic of information technology and national perspective, which have not been included in our suggested curriculum.

CONCLUSION

The topics included in our suggested patient safety curriculum were in accord with the key concepts mentioned in the WHO curriculum for patient safety. Evaluation of the available curricula in the literature revealed four topics of technology and patient safety, legal consequences of medical malpractice, national perspective of patient safety and drug safety. These topics were not taken into account in the needs assessment of residents, directors of resident education and nurses. Since the mentioned four topics are important, they must be included in future studies and curricula.

Acknowledgement

The authors would like to thank the president and administrator of Taleghani Hospital.

References

1. Halligan Aidan, Donaldson Liam. Implementing clinical governance: turning vision into reality. BMJ 2001; 322:1413.
2. Johnstone M, Kanitsaki O. Culture, language and patient safety: making the links. International Journal for Quality in Healthcare 2006; 5: 383-88
3. Nash D, Goldfarb N. The Quality Solution: The Stakeholders Guide to Improving Health Care. 1st Edition, Jones & Bartlett Publishers: UK, 2006
4. Donaldson Liam. Global Priorities for Patient Safety Research. Available at: http://www.who.int/patientsafety/research/priorities/global_priorities_patient_safety_research.pdf
5. Reynolds John, Stevenson Peter. Practical Patient Safety. Available at: http://www.oup.com/us/catalog/general/subject/Medicine/PrimaryCare/?view=usa&ci=9780199239931#http://psnet.ahrq.gov/resource.aspx?resourceID=11764
6. Brennan TA, Leap L, Laird NM *et al*. incidence of adverse events and negligence in hospitalized patients. N Engl J Med, 2004.
7. Ahmadi.M. Comparative study of the Ministry of Health standards for hospitals with Joint Commission International hospital accreditation standards. Hakim Research Journal 2008; 10(4): 45- 52
8. World health organization. 10 facts on patient safety. Available at: http://www.who.int/features/factfiles/patient_safety/patient_safety_facts/en/index.html
9. Colla JB, Bracken AC, kinney LM, Weeks WB. Measuring patient safety climate: aeview of surveys. Quality & safety in health Care, 2005; 14:364-366

10. Matsubara, Shinichi, Hagihara, Akihito, Nobutomo, Koichi. Development patient safety climate scale in Japan. *International Journal for Quality in Health Care*. 2008; 20:211-220
11. Jansma Jose´ D, Wagner Cordula, Bijnen Arnold B. A Patient Safety Curriculum for Medical Residents Based on the Perspectives of Residents and Supervisors. J Patient saf, 2011.
12. MajidiTehrani H, AbachizadehKambiz. The position of "patient safety" in the curriculum of medical education and strategic plans: comparative study 2012
13. Cummins D, Vangeest J. an educational need assessment for improving patient safety. available at: http://s197607105.onlinehome.us/download/EdNeedsAssess.pdf
14. Grant J. Learning needs assessment: assessing the need. BMJ 2002 January 19; 324(7330): 156-9.
15. Yarmohamadian M, Bahrami S. [Need assessment in health and educational organizations]. Isfahan:Medical University of Isfahn. 2004. [Persian]
16. Miraei M. Pishnahadenezamm and barayeerteghaemodavemeherfeeiepezeshkanvatamdidep arvaneietebabateanhadar Iran. [Dissertation]. Tehran: Shahid Beheshti University of Medical Sciences. 2005. [Persian]
17. D Voss John, B May Natalie. Changing Conversations: Teaching Safety and Quality in Residency Training Academic Medicine, Vol. 83, No. 11, November 2008
18. Jansma Jose D, Wagner Cordula, Bijnen Arnold B. Residents' intentions and actions after patient safety education. BMC Health Services Research 2010; 10:350
19. Aboumatar Hanan J, Thompson David, Wu Albert. Development and evaluation of a 3-day patient safety curriculum to advance knowledge, self-efficacy and system thinking among medical students. BMJ QualSaf 2011; 10.1136

****

How to cite this article:

Mohammad-Ali Heidarni *et al*.2016, Patient Safety Curriculum Guide For Residents Based on Needs Assessment of Residents, Nurses and Directors of Resident Education. *Int J Recent Sci Res.* 7(4), pp. 10242-10246.

TSSN 0976-3031