

ERRORS AND ADVERSE EVENTS: THE INTERFACE WITH HEALTH PROFESSIONALS' SAFETY CULTURE

Verusca Soares de Souza¹, Andressa Morello Kawamoto², João Lucas Campos de Oliveira³, Nelsi Salete Tonini⁴, Luciana Magnani Fernandes⁴, Anair Lazzari Nicola⁴

¹RN. Undertaking doctorate in Nursing. Prof. of Nursing at Universidade Estadual do Paraná. Paranavaí, PR, Brazil.

²RN. Graduate in Nursing, State University of West Paraná. Cascavel, PR, Brazil.

³RN. Undertaking doctorate in Nursing. Prof. of Nursing at the State University of West Paraná. Cascavel, PR, Brazil.

⁴RN. Ph.D in Nursing. Prof. of Nursing at State University of West Paraná. Cascavel, PR, Brazil.

⁵RN. Ph.D in Nursing. Prof. of Nursing at State University of West Paraná. Cascavel, PR, Brazil.

⁶RN. Ph.D in Nursing. Prof. of Nursing at State University of West Paraná. Cascavel, PR, Brazil.

ABSTRACT: This descriptive study, with a quantitative approach, aimed to analyze the safety culture in relation to errors and adverse events in the perception of health professionals. It was undertaken between April and June 2014 in three units of a teaching hospital in the South of Brazil. A total of 71 health professionals participated, responding to the "Hospital Survey on Patient Safety Culture" questionnaire. Analysis took place through descriptive statistics of the dimensions which are to do with the safety culture in relation to the occurrence of errors and adverse events in this instrument. The majority of the participants demonstrated a perception of safety culture which was not favorable to communication regarding care failures and indicated a punitive culture still to be present in the institution, which may explain the underreporting of shortcomings. It is concluded that it is necessary to disseminate the nonpunitive culture in the organization, such that errors and adverse events may be reported, analyzed and corrected.

DESCRIPTORS: Patient safety; Organizational culture; Medical errors; Nursing.

ERROS E EVENTOS ADVERSOS: A INTERFACE COM A CULTURA DE SEGURANÇA DOS PROFISSIONAIS DE SAÚDE

RESUMO: Estudo descritivo com abordagem quantitativa, que objetivou analisar a cultura de segurança em relação aos erros e eventos adversos, na percepção de profissionais de saúde. Foi realizado entre abril e junho de 2014 em três unidades de um hospital de ensino do sul do Brasil. Participaram 71 profissionais de saúde, que responderam ao questionário "Hospital Survey on Patient Safety Culture". A análise ocorreu por meio de estatística descritiva das dimensões que tratam da cultura de segurança em relação à ocorrência de erros e eventos adversos do instrumento. A maioria dos participantes demonstrou percepção de cultura de segurança desfavorável à comunicação sobre as falhas assistenciais e apontou para cultura punitiva ainda presente na instituição, o que pode justificar a quantidade reduzida de notificação de falhas. Conclui-se que há necessidade de disseminação da cultura não punitiva na organização, para que os erros e eventos adversos possam ser notificados, analisados e corrigidos.

DESCRIPTORIOS: Segurança do paciente; Cultura organizacional; Erros médicos; Enfermagem.

ERRORES Y EVENTOS ADVERSOS: LA INTERFAZ CON LA CULTURA DE SEGURIDAD DE LOS PROFESIONALES DE SALUD

RESUMO: Estudio descriptivo con abordaje cuantitativo, cuyo objetivo fue analizar la cultura de seguridad acerca de errores y eventos adversos, en la percepción de profesionales de salud. Fue realizado entre abril y junio de 2014 en tres unidades de un hospital de enseñanza del sur de Brasil. Participaron 71 profesionales de salud, que contestaron al cuestionario Hospital Survey on Patient Safety Culture. El análisis ocurrió por medio de estadística descriptiva de las dimensiones que abordan la cultura de seguridad acerca de la ocurrencia de errores y eventos adversos del instrumento. La mayoría de los participantes demostró percepción de cultura de seguridad desfavorable a la comunicación sobre los errores asistenciales y apuntó para cultura punitiva todavía existente en la institución, lo que puede justificar la cantidad reducida de notificación de errores. Se concluye que hay necesidad de diseminación de la cultura no punitiva en la organización, para que los errores y eventos adversos puedan ser notificados, analizados y corregidos.

DESCRIPTORIOS: Seguridad del Paciente; Cultura Organizacional; Errores Médicos; Enfermería.

Corresponding author:

Verusca Soares de Souza
Universidade Estadual do Paraná
Av Gabriel Espiridião, S/N – 87700-000 – Paranavaí, PR, Brasil
E-mail: veruscoasoures@gmail.com

Received: 04/04/2015

Finalized: 02/07/2015

INTRODUCTION

In the search for quality in healthcare, ensuring patient safety is a commitment of both institutions and professionals. In this way, the reduction of the risks inherent in providing care is directly related to changes in the culture and in the work processes adopted by the health services, given that the care produced and consumed results from a complex system of relationships, which makes it possible for errors and/or adverse events to take place in the care process⁽¹⁾.

Adverse events are defined as incidents which result in harm to health⁽²⁾. In their turn, errors consist of failures in the undertaking of a planned action⁽³⁾. Although they are inserted in a common context, the terms are differentiated by the fact that the adverse events refer to the result of care, which can occur as a result of errors in the process of providing the health care⁽³⁾.

Both errors and adverse events can entail increases in the length of hospitalization, care costs and – often – legal burdens⁽⁴⁾. As a result of understanding the relationship between the occurrence of adverse events and care results, the World Alliance for Patient Safety was established, with the aim of establishing goals and world care protocols geared towards safety⁽³⁾.

It is appropriate to emphasize that the establishment of goals and protocols without the due involvement of the professional can result in failure to comply with the norms established⁽⁵⁾. In this regard, questions may be raised regarding the acritical consumption of scientific knowledge⁽⁵⁾, given that the partial implementation of care protocols, added to by lack of organizational encouragement, can compromise safety in the care, both in the ambit of the consumers (service users), and in that of the providers (professionals and services), negatively influencing the quality of the care and possibly reducing consumer satisfaction⁽⁶⁻⁷⁾.

It was through the above-mentioned understanding of the relationship between the quality and safety of the care, the behavior of the professionals and the support of the institution that the movement began for the promotion of an organizational culture geared towards the development of safe care⁽²⁾. In this perspective, the analysis of the safety culture can help one to understand the functioning of the institution, and goes beyond a quality program, as it involves elements related to people's attitudes and conducts⁽⁶⁾.

The safety culture can, therefore, be defined as an individual and organizational behavior, which continuously seeks to establish a commitment to the minimization of risks related to care and, consequently, to assist in the achieving of quality of the services provided⁽²⁾. This desirable good must be shared by all the actors present in the health organizations from the various services, ranging from primary care⁽⁸⁾ through to high complexity hospital care⁽⁶⁾.

In the light of the above, it is evident that the attitude in relation to patient safety encouraged by the health institutions can influence the systemic culture of the organization⁽²⁾, and that as a result of this it is considered that studies focusing on this culture among the professionals can provide a basis for actions for (re-) planning the care, with a view to safe care.

In relation to the importance of understanding the safety culture directed towards the occurrence of adverse events, studies which analyze this among multi-professional teams indicated the necessity for changes in the purely punitive approach directed towards the professionals^(6,9). This is because, in order to achieve a scenario of safety, it is necessary for the services to adopt the behavior of continuous learning, in which the reporting of adverse events and the analysis of their causes may be elements which trigger improvements in the care processes, the aim being to minimize the occurrence of avoidable harm to patients⁽²⁾.

In emphasizing the importance and necessity of involving health professionals in establishing the safety culture in the health institutions – in particular in relation to the occurrence of adverse events – the question is raised: What is the appearance of the safety culture in relation to health professionals' errors and adverse events? In the light of this question, this study's objective is to analyze the safety culture in relation to errors and adverse events, in the perception of health professionals.

METHOD

This is a descriptive transversal study with a quantitative approach. The research took place in the inpatient treatment units in Internal Medicine and General Surgery; Clinical/Surgical Neurology and Orthopedics; and the Surgical Center of a public teaching hospital located in a major center in the interior of the Brazilian state of Paraná, which has 195 beds which are exclusively for the use of the Unified Health System (SUS).

The above-mentioned units have, respectively, 28 and 26 beds, and five operating rooms. In general, they receive patients for high complexity care, as the hospital is a specialized center for neurological care; trauma; treatment of HIV/AIDS; and clinical emergencies, for a population of approximately 2 million inhabitants.

All the health professionals who worked on a daily basis and in all the work shifts in the units investigated were considered for participation in the investigation, these being: nurses, nursing technicians, auxiliary nurses, physicians, pharmacists, physiotherapists, and residents in nursing, medicine, pharmacy and physiotherapy.

For the nursing professionals, who were the only staff with a fixed work schedule, the following exclusion criteria was established: absence from the unit due to leave or any other reason. Professionals who failed to fill out the data collection instrument after three requests to do so were considered to have refused to participate. As the other professionals whose participation was anticipated did not have fixed work schedules, the inclusion criteria was established that these should be present in the units during the data collection period.

After the application of the inclusion and exclusion criteria, all the professionals (171) who worked in the units were invited to participate in the investigation, following clarification of the study's aim, handing in of the questionnaire and provision of the Terms of Free and Informed Consent for reading and signing in two identical copies also signed by the researcher. Potential participants were approached in their workplaces at the beginning of all the different shifts in the units until the previously included sample was met. At the end of the shifts, the researcher returned to the fields of investigation to collect the questionnaires.

Based in the criteria of eligibility and approach procedure, the sample was made up of 71 health professionals who answered the questionnaire, which corresponded to 42% of the sample, a value considered high for studies which involve the need to return previously handed out questionnaires⁽¹⁰⁾.

Data collection took place between April and June 2014, through the self applied questionnaire titled "Hospital Survey on Patient Safety Culture" (HSOPSC), adapted from the instrument previously translated and validated for the Brazilian context⁽¹¹⁾. Added to the

above-mentioned instrument were variables encompassing the sociodemographic and work-related characterization of the participants.

The HSOPSC contains 42 questions related to the patient safety culture, grouped into 12 dimensions⁽¹¹⁾. The decision was made to analyze the following dimensions: "Feedback and communication about error"; "Nonpunitive response to error"; and "Frequency of reporting adverse events which are reported in the various modalities"⁽¹¹⁾, starting from the prerogative that these dimensions better depict the interviewees' perceptions in relation to the interface between safety culture and errors and adverse events, and that this contributes to achieving the previously-established objective.

The instrument used includes items which are evaluated based on a five-point Likert scale, with answer categories arranged in degree of agreement. The evaluation of each dimension and item is estimated based on the percentage of answers. Higher or lower percentage values indicate positive/negative attitudes in relation to the patient safety culture, depending on the statement referred to in the evaluation item⁽¹¹⁾. The degree of agreement is indicated by the ratings "N" – never; "R" – rarely; "S" – sometimes; "NA" – nearly always; and "A" – always; and also, "SD" – strongly disagree; and "D" – disagree; "Nt" – neutral; "Ag" – agree; and "SAg" – strongly agree.

The data collected through the administration of the questionnaire for the characterization of the sample and of the instrument were organized in electronic spreadsheets using Microsoft Excel, version 2007. After that, the material was submitted for descriptive statistical analysis, with the use of the same technological tool. The sociodemographic variables and those referent to work were used for depicting the sample's profile, and the variables obtained in the evaluation of the items of the instrument were used for analysis of the perception of the safety culture in relation to the errors and adverse events.

The project of this investigation was submitted for the consideration of the Research Ethics Committee of the State University of West Paraná, and was allowed to proceed under Opinion N. 558.430/2014.

RESULTS

As mentioned, in the light of the eligibility criteria used, a total of 71 health professionals participated, all of whom worked in the units

Table 1 – Sociodemographic and work-related characteristics of the health professionals. Cascavel, PR, Brazil, 2014

Variable	n (%)
Job	
Nurse	9 (12.7)
Nursing technician	20 (28.2)
Auxiliary nurse	12 (16.9)
Physician	7 (9.9)
Pharmacist	1 (1.4)
Physiotherapist	2 (2.8)
Resident in Nursing	5 (7)
Resident in Physiotherapy	4 (5.6)
Resident in Pharmacy	1 (1.4)
Resident in Medicine	10 (14.1)
Sex	
Female	47 (66.2)
Male	24 (33.8)
Age	
20 - 30	17 (23.9)
31 - 40	23 (32.4)
41 - 50	14 (19.8)
51 - 59	1 (1.4)
Did not answer	16 (22.5)
Length of service in institution	
Less than 1 year	15 (21.2)
1 – 5 years	19 (26.7)
6 - 10 years	12 (16.9)
11 - 15 years	20 (28.2)
More than 15 years	5 (7)

investigated. Thus, Table 1 presents the data for the sample's characterization according to job, age, sex, and length of service in the institution.

In its turn, Table 2 summarizes the results obtained in relation to responses regarding the dimensions of the patient safety culture, namely "Feedback and communication about error" and "Frequency of reports of events which are reported".

Table 3 presents the results obtained through analysis of the "Nonpunitive responses to errors" dimension of patient safety culture.

Table 4 shows the distribution of the number of reports of notification of adverse events which were filled out, reported, and handed in by professionals in the last 12 months, in accordance with the role performed.

DISCUSSION

Among the 71 health professionals who participated in the present study, 46 belonged to the category of nursing (nurse, nursing technician, auxiliary nurse, or resident in nursing), which corresponds to 64.8% of the total number of subjects investigated (Table 1). The predominance of this professional category explains the sociodemographic characteristics found, given that 56.3% of the workers were young adults and that 66.2% were female; which corroborates the literature⁽⁹⁾ and the history of the profession, which associates the figure of the woman with care provision.

In relation to length of time in the work, 52.1% of the professionals had worked in the institution for more than six years. This data may be explained by the characteristic of the study locale, given that this is a public teaching hospital and that a large part of those contracted to work in the institution do so through an open public examination*, which provides a professional with stability and consequently reduces turnover⁽¹²⁾.

Table 2 presents the distribution of the frequency of the responses to the items which make up the dimensions of the safety culture, it being the case that the first dimension analyzed addresses Feedback and communication regarding errors which take place in the units. It should be emphasized that lack and/or failure of communication is recognized by the professionals as one of the factors which impedes patient safety from being effective⁽¹³⁾. In this aspect, in the light of the results found and the literature consulted, the need is observed to promote greater involvement of the professionals responsible for the direct care to the patient in the planning of safety actions.

The first item in the dimension of Feedback and communication regarding errors raises questions regarding professionals' knowledge in relation to the changes implemented as a result of reported adverse events. In this item, emphasis is placed on the high concentration of negative answers ("never" and "rarely"); and the fact that the option of "always" was not marked (Table 2). This data leads one to reflect that in this institution it is not yet a routine practice to communicate to the professionals in relation to the changes implemented.

*In order to work in a state hospital as a permanent contract staff member with benefits such as a generous pension, it is necessary to sit an open examination. Translator's note.

Table 2 – Distribution of the frequencies of the responses in the dimensions of patient safety culture: “Feedback and communication about error” and “Frequency of reports of events which are reported”. Cascavel, PR, Brazil, 2014

Item/Dimension		(N)	(R)	(S)	(NA)	(A)	TOTAL*
<i>Feedback and communication about errors</i>							
The professionals receive feedback about the changes implemented as a result of reported adverse events	n	8	26	29	7	-	70
	%	11.4	37.2	41.4	10		100
The professionals are informed regarding errors which occur in this unit	n	8	22	27	10	3	70
	%	11.4	31.4	38.6	14.3	4.3	100
The professionals discuss ways for preventing errors from occurring again	n	8	23	24	12	3	70
	%	11.4	32.9	34.3	17.1	4.3	100
<i>Frequency of reports of events which are reported</i>							
When an error occurs, it is noted and corrected before the patient has been affected- with what frequency is it reported?	n	11	24	17	8	10	70
	%	15.7	34.3	24.3	11.4	14.3	100
When an error occurs which does not have the potential to harm the patient, with what frequency is it reported?	n	11	24	17	9	8	69
	%	16	34.8	24.6	13	11.6	100
When an error occurs which could harm the patient, but the patient is not affected, with what frequency is it reported?	n	9	26	17	11	6	69
	%	13	37.7	24.6	16	8.7	100

Table 3 – Distribution of the frequencies of the answers relating to the “Nonpunitive responses to errors” dimension of patient safety culture. Cascavel, PR, Brazil, 2014

Item		(SD)	(D)	(Nt)	(Ag)	(SAg)	TOTAL*
The professionals consider that their errors may be used against them	n	1	8	10	44	6	69
	%	1.4	11.6	14.5	63.8	8.7	100
When an adverse event occurs, it is the professional who is focused upon, rather than the problem	n	1	15	15	35	3	69
	%	1.5	21.7	21.7	50.7	4.4	100
The professionals are worried that their errors will be recorded in their employee profiles	n	1	12	11	43	3	70
	%	1.4	17.0	16.0	61.4	4.2	100

In the same above-mentioned dimension, when the professionals were questioned as to whether they receive information regarding the errors which take place in the unit, and whether they discuss ways of preventing the shortcomings from reoccurring, only three professionals stated that this conduct was always taken. It is emphasized that it falls to the management to investigate and analyze the occurrence of errors and adverse events with the teams, as this conduct contributes to the implementation of strategies which reduce and intercept the shortcomings identified⁽³⁾. To this end, the fact that the professionals demonstrated that the obstacles existing in the work process are not discussed corroborates the perception of a culture which is not favorable to patient safety.

Understanding that the mechanisms which lead to the occurrence of the shortcoming – through the analysis of the processes which triggered the error – makes it possible for preventive actions to

be planned, and for an educational environment to be established⁽⁶⁾. In this study, however, professionals state that they do not report the occurrence of adverse events when this event does not directly affect the patient (Table 2).

In order for it to be possible to provide a collaborative environment for the sake of patient safety, the establishing of effective lines of communication, and the support of the managers, can be presented as a strategy. This is because verticalized and formal lines of communication are related to management practices based in classical and autocratic administration; and, in the context of the health services, these can lead to distance between the professionals responsible for the direct care and their managers, evidencing the unequal distribution of power through the exacerbated formalization of the organization chart and, consequently, causing rigid and impersonal work relations⁽¹⁴⁾.

Table 4 – Notifications of adverse events, by role performed in the institution, in the previous 12 months. Cascavel, PR, Brazil, 2014

Category		None	1-May	6-Oct	Nov-15	Over 20	TOTAL
Nurse	n	3	5	-	1	-	9
	%	33.3	55.6		11.1		100
Nursing technician	n	16	4	-	-	-	20
	%	80	20				100
Auxiliary nurse	n	8	4	-	-	-	12
	%	66.7	33.3				100
Physician of the medical staff	n	5	2	-	-	-	7
	%	71.4	28.6				100
Pharmacist	n	-	1	-	-	-	1
	%		100				100
Physiotherapist	n	1	-	1	-	-	2
	%	50		50			100
Resident in Medicine	n	9	1	-	-	-	10
	%	90	10				100
Resident in Nursing	n	3	2	-	-	-	5
	%	60	40				100
Resident in Physiotherapy	n	4	-	-	-	-	4
	%	100					100
Resident in Pharmacy	n	1	-	-	-	-	1
	%	100					100

The lack of effective lines of communication is recognized as one of various situations which promote the triggering of errors in the routine of the work and which reduce adherence to the reporting of adverse events on the part of the professionals, due to fear of possible punishment⁽⁶⁾, which can impede the encouragement of the safety culture in this aspect. In accordance with the previous statement, 72.5% of the professionals considered that their errors could be used against them; and 65.6% stated that they were scared that their errors would be recorded in their employee profiles (Table 3). These findings ratify a study which aimed to ascertain the frequency of adverse events and the existence of punishment according to the perception of the nurses in the intensive care unit, which states that a punitive culture still persists in that department⁽¹⁵⁾.

The search for those responsible for the errors, instead of the analysis of the processes which culminated in the error, may be considered as a counterproductive conduct and one which is inefficient in the search for safe care. This thought is corroborated by research which aimed to evaluate the quality of the care process of a public emergency service which indicated that excellence is not obtained by identifying and punishing the

guilty parties, but rather by preventing and/or analyzing errors/nonconformities, promoting improvements in the care processes⁽¹⁶⁾.

The critical analysis of the context, and the educational actions, are conducts which are recognized by the nurses responsible for risk management programs as best practice for patient safety⁽¹⁷⁾. As a result, using the occurrence of events as an opportunity for guiding professionals in relation to ethical, legal and social implications of the occurrence of failures can raise the awareness of health teams regarding the importance of reporting their occurrence; however, the professionals interviewed show that the reporting of errors and adverse events is not a common practice in the context investigated.

The statement prior to Table 4 is reinforced. It presents the number of notifications of adverse events by professional category and evidences the possible reduced number of communication of care failures, in particular among physiotherapy and pharmacy residents, who stated that they had not reported any adverse event in the last 12 months. This is relevant, as, as is well known, residency is still a stage of training of the professionals, and because of this can serve as

support for the incorporation of a culture which is favorable to safety, including the notification of failures.

A low number of notifications of adverse events may be related to the system adopted by the institution, which is computerized and results in the need for the professional to identify him- or her-self when reporting the error/adverse event. Indeed, a similar study undertaken in a large hospital in the South region of Brazil investigated the notification of adverse events; it was possible to observe that having a notification system in which the professional who notifies the incident needs to be identified can lead to underreporting⁽¹⁸⁾.

It is believed that the low number of notifications of adverse events may be related to the professionals' perception regarding punitive responses to their failures (Table 3). Studies which aimed to measure the climate of safety among multi-professional teams indicate that change is necessary in the purely punitive approach directed towards the professionals, as it is necessary to understand the care complexity which permeates the health systems in order thus to correct the shortcomings in the processes^(1,6).

The nursing team presented the highest number of notifications, when compared to the other categories (Table 4). The reason behind this data may be linked to the facts that the category represents the largest contingent in the human capital in the hospital institutions; it permeates all the care processes undertaken; and in the recognition of this team in its important role in the care, although it confronts great resistance, based in the model of health marked by medical hegemony⁽¹⁹⁾.

Possibly, it falls to leadership to adopt receptive attitudes and establish effective lines of communication with those who provide the direct care, and in this way the team may jointly seek strategies for the notification and analysis of errors and adverse events. This is because the analysis of the occurrence of these undesirable events guides new practices and in this way avoids the repetition of the failures⁽¹⁹⁾.

The investigation of the adverse events also allows educational actions to be established, both in education at work, and in technical courses at undergraduate and postgraduate levels. It is emphasized that the Brazilian National Patient Safety Policy (PNSP) stipulates the inclusion of content on safety in the process of professional

training⁽²⁾, which reinforces the need to broaden the scope of teaching regarding safety, beginning during professional training⁽²⁰⁾. In this aspect, one is led to the hypothesis that professionals who are trained (in formal education and at work) in harmony with the precepts of patient safety will adhere to the culture supporting this good in an effective way.

CONCLUSION

Through this study, it was possible to identify that the professionals receive information regarding the occurrence of errors and adverse events, and regarding the changes implemented as a result of care failures in the units studied, with low frequency. Further, notification of errors and adverse events is low, and a large proportion of the professionals indicates that the institution still has a punitive attitude to the occurrences.

It is concluded that it is necessary for there to be greater support for the professionals, on the part of their leaders, in relation to errors and adverse events, as the safety culture can be a reflection of the service's management. In addition to this, the support of the institution can mean encouragement such that errors may be reported, analyzed and corrected – thus impeding their repetition.

As the main limitation of the study, one can cite the absence of inferential statistical analysis. In contrast to this, it is believed that this study contributes to the advance in the area of health as it presents an important perspective on the safety culture in the hospital environment, which is its interface with the errors and adverse events; and this can support decision-making which favors measures undertaken for the sake of safety in the hospital care in this aspect.

Finally, it is suggested that further research should be encouraged, with different methodological approaches and/or research objects, such as for example qualitative studies which aim to reveal the various taboos which permeate errors and adverse events.

ACKNOWLEDGMENTS

The authors express their thanks to the Center for Biological and Health Sciences, of the State University of West Paraná, for their support in the undertaking of this research.

REFERENCES

1. Nascimento NB, Travassos CMR. Medical errors and violation of rules and standards in health: a theoretical discussion in the area of patient safety. *Physis*. 2010; 20(2):625-51.
2. Ministério da Saúde (BR). Portaria n. 529, de 01 de abril de 2013. Institui o programa nacional de segurança do paciente. *Diário Oficial da União, Brasília*, 02 abr. 2013.
3. Ministério da Saúde (BR). Agência Nacional de Vigilância Sanitária. Documento de referência para o Programa Nacional de Segurança do Paciente. Brasília, 2014.
4. Rutberg H, Risberg MB, Sjö Dahl R, Nordqvist P, Valter L, Nilsson L. Characterisations of adverse events detected in a university hospital: a 4-year study using the Global Trigger Tool method. *BMJ Open*. 2014; 4(5). Disponível: <http://bmjopen.bmj.com/content/4/5/e004879>
5. Malik AM. Qualidade e avaliação nos serviços de saúde: uma introdução. In: Feldeman LB, D'Innocenzo M, organizadores. *Indicadores, auditorias e certificações: ferramentas de qualidade para gestão em saúde*. São Paulo: Martinari; 2010. (p. 21-36)
6. Mello JF, Barbosa SF. Patient safety culture in intensive care: nursing contributions. *Texto contexto - enferm*. 2013; 22(4):1124-33.
7. Freitas JS, Silva AEBC, Minamisava R, Bezerra ALQ, Sousa MRG. Quality of nursing care and satisfaction of patients attended at a teaching hospital. *Rev. Latino-Am. Enfermagem*. 2014; 22(3):454-460.
8. Paese F, Sasso GTMD. Patient safety culture in primary health care. *Texto contexto - enferm*. 2013; 22(2):302-310.
9. Rigobello MCG, Carvalho REFL, Cassiani SHB, Galon T, Capucho HC, Deus NN. The climate of patient safety: perception of nursing professionals. *Acta Paul. Enferm*. 2012; 25(5):728-735.
10. Thomas JR, Nelson JK, Silverman SJ. *Métodos de pesquisa em atividade física*. Porto Alegre: Artmed; 2012.
11. Clinco SDO. *O hospital é seguro? Percepções de profissionais de saúde sobre segurança do paciente [dissertação]*. São Paulo (SP): Escola de Administração de Empresas – Faculdade Getúlio Vargas; 2007.
12. Stacanto K, Zilli PT. Fatores geradores de rotatividade dos profissionais de saúde: uma revisão de literatura. *Rev adm saúde*. 2010; 12(47):87-99.
13. Ques AAM, Montoro CH, González MG. Strengths and threats regarding the patients safety: nursing professionals opinion. *Rev. Latino-Am. Enfermagem*. 2010; 18(3):42-49.
14. Montezeli JH, Peres AM, Bernardino E. Desafios para a mobilização de competências gerenciais por enfermeiros em pronto socorro. *Cienc Cuid Saúde*. 2014;13(1): 137-144.
15. Claro CM, Krocokcz DVC, Toffolletto MC, Padilha KG. Adverse events at the intensive care units: nurses' perception about the culture of no-punishment. *Rev. Esc. Enferm. USP*, 2011; 45(1):162-7.
16. Silva LG, Matsuda LM. Um olhar para a qualidade no processo de atendimento em um serviço de urgência público. *Cienc Cuid Saúde*. 2012; 11(suppl):121-128.
17. Costa VT, Meirelles BHS, Erdmann AL. Best practice of nurse managers in risk management. *Rev. Latino-Am. Enfermag*. 2013; 21(5):1165-1171.
18. Lorenzini E, Santi JAR, Bão ACP. Patient safety: analysis of the incidents notified in a hospital, in south of Brazil. *Rev. Gaúcha Enferm*. 2014; 35(2):121-127.
19. Magalhães ANM, Riboldi CO, Dall'Agnoll CM. Planning human resources in nursing: challenge for the leadership. *Rev Bras Enferm*. [Internet] 2009; 62(4) [acesso em 10 jul 2015]. Disponível: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-7167200900040002020.
20. Bogarin DF, Zanetti ACB, Machado JP, Gabriel CS, Bernardes A. Segurança do paciente: conhecimento de alunos de graduação em enfermagem. *Cogitare enferm*. 2014; 19(3):491-7.