

Perioperative Safety Process in Practice (student's contribution)

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ABSTRACT

Background: The paper describes the problems of perioperative safety process (PBP) in practice in relation to the region in which perioperative care nurses work. Realization of research was performed in 4 health facilities in the territory of the East and the West Bohemian region.

Aim: We established four goals in our research: to determine the level of awareness of respondents about PBP, whether and how long the responders used PBP in their workplaces, how perioperative care nurses perceive the utility of PBP for the patient and how responders are satisfied with setting of PBP in their workplace.

Methods: We compiled 27 – items questionnaire for our research. The resulting data were evaluated by descriptive statistics and nonparametrical Mann–Whitney test. 61 responders participated in this research. The research sample consisted of 45 perioperative care nurses and 16 anesthetic nurses from gynaecological and central operating rooms of four health facilities in the territory of the East and the West Bohemian region. The respondents agreed with the research.

Results: We found that on workplace of all respondents is used the perioperative safety process for ± 3 years (average 3.29, standard deviation 0.85). The awareness of respondents about perioperative safety process was evaluated as excellent. Most of respondents are satisfied with the setting of perioperative safety process on their workplace and they perceive the utility of perioperative safety process as very high.

Conclusion: Perioperative safety process is the integral part of every operation and it's required to be carried at all workplaces in accordance with departmental safety objective.

KEY WORDS

perioperative safety process, perioperative nurse, quality of healthcare, operative theatre, health

INTRODUCTION

Perioperative safety process (hereinafter PSP) should be a standard part of every workplace performing surgical operations today. It is usually applied to all patients undergoing diagnostic or therapeutic procedures. PSP can be described as systematic control, which is an integral part of every operational performance and whose aim is to verify critical moments occurring immediately prior to surgery, during surgery and immediately after it (1).

Perioperative care is characterized by highly specific care for clients immediately prior to surgery, during surgery and immediately after it. Whereas some unexpected or even extraordinary events may occur in the perioperative environment, there should be a standard operating procedure set up for such situations, focused on critical points in the provision of

care in the operating room. As part of risk management, some workplaces are working with so-called risk cards. Operating personnel must be familiar with every standard and follow it strictly. Due to the great demand on professions, carrying out activities in an operating tract, only highly specialized professional staff can perform these activities (2).

Haynes et al., who were among the first authors of works dealing with the streamlining of perioperative surgical care, investigated whether the introduction of nineteen itemized perioperative surgical sheet favourably affects the mortality and incidence of postoperative and anaesthesiological complications (3).

The World Health Organization (WHO) recommended several strategies to its member states in 2007. One of them was implementing a strategy to establish a correct surgical procedure to the correct

part of body as a priority in security area in the health care facility, requiring a leadership and active involvement of all healthcare workers. Another recommendation was to create protocols documenting the preoperative safety procedure immediately before surgery, which should include verification of identification of the patient, performance and side of performance (in interchangeable positions), availability and accuracy of the necessary technologies and medical devices (4). WHO compiled a simple algorithm in 2008, summarizing the basic rules relating to the safety of patients during surgery, designated as the so-called Surgical Safety Checklist. A year later, the first Czech version of this document was published (5, 6).

Information obtained during the perioperative safety procedure are recorded in the perioperative security protocol, which is part of the medical record. Surgeon doctor, anaesthetist doctor, anaesthetist nurse, perioperative nurse are among the actors of perioperative safety process. In terms of time, a procedure is not time-consuming, since its implementation takes approximately 3–4 minutes (7).

The ministerial security objectives (MSO) were announced in Czech Republic in 2010 within the Action Plan of quality and safety of healthcare, to reduce risks of harm to patients and other individuals in the process of providing health care. In relation to perioperative care, MSO 3– Prevention of confusion of the patient, sides and the performance of surgical procedures, is the most important. This aim is implemented by own standard (internal regulation) in health facilities, usually providing identification procedure in place of operation, as well as ensuring the participation of the patient on marking the place of operational performance.

According to the Bulletin 5/2012, part 5, the standard is fulfilled if a health care provider has set the uniform procedures for carrying out the correct performance, at the correct patient and in the right place, also including procedures performed outside the operating room. Furthermore, if he is using a standard marking of the place of performance and if he is using and documenting the safety procedure immediately before surgery (8).

OBJECTIVE OF THE WORK

The first aim of the survey was to find out the awareness of perioperative nurses about the safety perioperative process in operating rooms in the East and the West Bohemian region.

The second objective was to determine whether the perioperative safety process was performed in

the workplace in the East and the West Bohemian region, where the respondents were working. If it was, for how long.

The third objective was to determine how the nurses working in the East and the West Bohemian region evaluate the contribution of perioperative safety process for patients.

The fourth objective was to determine whether the nurses working in the East and the West Bohemian region, satisfied with the setting of perioperative safety process in their workplace.

METHODOLOGY

Reconnaissance survey was conducted anonymously via non-standardized questionnaire of our own design, which included 27 items. The first 6 items of the questionnaire had identification character. They asked for information about the workplace of perioperative nurses, their highest level of relevant education, length of experience in the operating room and eventually achieved specialization in health care. Other 4 questions examined the awareness of perioperative nurses about the perioperative safety process and next 13 questions asked for the aspects of perioperative safety process, watches by the respondents in their workplaces. The last four questions surveyed how the respondents evaluate setting of perioperative safety process in their workplaces. The questions were open, trichotomous and scale.

Table 1 Questions investigating respondents' awareness of PSP

Question	The correct answer
What does perioperative safety process mean?	The system of control carried out for each operational performance aimed at verifying the critical moments of operations.
How many phases, according to <i>WHO recommendations</i> , does the perioperative safety process consist of?	Three phases.
When are the particular stages carried out according to <i>WHO recommendations</i> ?	Before induction of anaesthesia, before making the incision, before being transported from the operating room.
Who participates in perioperative safety process, according to <i>WHO recommendations</i> ?	The anaesthetist nurse, perioperative nurse (circulating nurse, scrub nurse), anaesthetist and surgeon.

Awareness of the individual respondents on the topic of perioperative safety process was evaluated based on points scored from four questions listed in Table 1. The evaluation was excellent (1) upon reaching 4 points, very good in 3 points (2), good in 2 points (3), sufficient in 1 point (4). If the respondent did not receive any point, her awareness of the issue would be assessed as insufficient (5). Evaluation of the awareness is given in Results.

There were 61 (100%) the respondents participating in this research. The research group consisted of 45 perioperative nurses and 16 anaesthesiological nurses from the field and central operating rooms of four health facilities in the territory of the East and West Bohemian region. The study group was represented by 53 (87 %) perioperative nurses with specialization, including 41 nurses had specialization in perioperative care and 12 of them in anaesthesiology care. The average length of nursing practice of all respondents was on average 12.63 years (standard deviation 5.89), while the maximum length of practice was 37 years and minimum 3 years.

We used a nonparametric Mann-Whitney test to evaluate the resulting data, at significance level $\alpha = 0.05$, together with descriptive statistics (relative frequency). Statistical evaluation and hypothesis testing was done in STATISTICA program, version 10, StatSoft ČR s.r.o., Prague, Czech Republic (9).

RESULTS

We distributed a total of 76 questionnaires. 66 of them were returned (87%), while five questionnaires were excluded due to incompleteness. In total, 61 questionnaires were processed. The survey was conducted from June to September 2014 at four health facilities, in two regions of the Czech Republic (in the East and the West Bohemian), namely at gynaecological and central operating rooms.

Table 2 presents the evaluation of awareness of respondents about PSP. It is evident that most respondents from the East and the West Bohemian region had an excellent knowledge assessment. Based on the result of a significance level of $p = 0.519$ we state that awareness of respondents about the PSP is the same in both regions.

PSP is performed at workplaces in all 61 (100%) of respondents from the East and the West Bohemian region. The average duration of use of perioperative safety process in the workplace during the investigation period was ± 3 years, 3.29 years on average (standard deviation 0.85, median 3 years), with a maximum duration of 5 years and minimum 1 year.

Table 3 shows clearly that most respondents in both regions assess the merits of the PSP as a very significant. Part of the third objective was to determine, whether the utility of PSP varies by region. The results of statistical p -value = 0.175 indicate that the respondents assess the merits in the same way in both regions.

Table 4 shows satisfaction of perioperative nurses with settings of PSP at their workplace by region (West Bohemia and East Bohemia). Most respondents from the East and West Bohemia region are very satisfied with the settings of PSP at their workplace. Respondents, who were less satisfied with the settings of PSP, reported such reasons as repetition of the same questions asked, time-consuming character and worse collaboration with doctors. Another part of the research was to determine whether satisfaction with the setting of PSP varies in different regions. The results of statistical p -value = 0.024 indicate that satisfaction of perioperative nurses is different in individual regions. Perioperative nurses from the West Bohemian region are more satisfied with the settings of perioperative safety process in their workplace than perioperative nurses from the East Bohemian region.

Table 2 Evaluation of knowledge of the respondents

Category	East Bohemia		West Bohemia		M-W Test p-value
	n_i	f_i (%)	n_i	f_i (%)	
Excellent	28	90	25	83	0.519*
Very good	2	7	3	10	
Good	1	3	2	7	
Sufficient	0	0	0	0	
Insufficient	0	0	0	0	

Legend: n_i – absolute frequency, f_i – relative frequency, p – level of significance, t-test, * $p > 0,05$

Table 3 Utility of the perioperative safety process

Category	East Bohemia		West Bohemia		M-W Test p-value
	n_i	f_i (%)	n_i	f_i (%)	
Excellent	2	6	0	0	0.175*
Very good	0	0	0	0	
Good	0	0	1	3	
Sufficient	0	0	0	0	
Insufficient	29	94	29	97	

Legend: n_i – absolute frequency, f_i – relative frequency, p – level of significance, t-test, * $p > 0,05$

Table 4 Satisfaction with setting of perioperative safety process

Category	East Bohemia		West Bohemia		M-W Test p-value
	n_i	f_i (%)	n_i	f_i (%)	
Excellent	0	0	0	0	0.024*
Very good	1	3	0	0	
Good	7	23	1	3	
Sufficient	0	0	0	0	
Insufficient	23	74	29	97	

Legend: n_i – absolute frequency, f_i – relative frequency, p – level of significance, t-test, * $p > 0,05$

DISCUSSION

The PSP process is a very important element contributing to improving the quality of patient care in the health sector, in this case the patients undergoing surgical operations in the operating rooms. The results of this investigation show that PSP is already taking place in all workplaces of surveyed respondents during the investigation period. The Action Plan of quality and safety of healthcare from MSO, which has been launched in 2010, appears to be significant from the time perspective. The results of the survey show that perioperative safety process has been performed at workplaces of respondents since about three years, which means that it was introduced within a year after the publication of the Action Plan.

PSP as a whole takes place in three stages. Phase A (SIGN IN) is performed in the operating room prior to introducing anaesthesia to the patient. During this phase, especially anaesthesiology team initiates questioning. The team checks whether the patient confirmed his identity, place of surgery and the approval with it. The indication of the place of performance is verified, as well as any allergies of the patient, breathing difficulties or expected risk of increased blood loss. Furthermore, the medication and anaesthesia machine is controlled and the functional pulse oximeter is applied. This phase may be further

divided into a period of obtaining information from the patient. The information is collected either at the time of transfer of the patient to the operating room or before induction of anaesthesia. If a discrepancy is detected when passing the patient on the surgery wing, then this patient should not be transported to the room. Phase B (TIME OUT) starts just before the skin incision. During this phase, identification of the patient and accuracy of cut position is checked again. Especially at the side operations, the place of surgery should be marked with a felt-tip. Furthermore, antibiotic prophylaxis is checked, anticipated risks during the operation are determined, and, if necessary, preparedness of image documentation is verified. In case of any disagreement in phase A or B, the patient must not be operated until everything is verified. Phase C (SIGN OUT) is the last phase of the process and is performed before transporting the patient from the operating room. At this stage, the operating team re-evaluates the progress of surgery. The surgeon, together with a scrub nurse, performs a numerical control of instruments, masks and other material used. Collected histological material is controlled as well. All instruments are checked and possible defects are reported. Surgeon with the anaesthesiologist carry out the consultation concerning possible changes in postoperative care, according to the cur-

rent state of the patient and prescribe medication for the immediate postoperative period (1, 5).

Awareness of nurses of perioperative care was rated as excellent by 88% of respondents. Answer at the level of 4 – sufficient and 5 – insufficient was not recorded among addressed respondents. This may be due to the fact that respondents really perform the PSP in their workplaces. Another reason may be the fact that this issue is addressed in congresses of perioperative nurses and it is part of the Perioperative Care educational program.

The 95% of respondents sees the perioperative safety process as very beneficial for patient. It follows that these respondents are aware of the importance of the preventive measures. This fact is confirmed by studies of Haynes et al., ascertaining whether the introduction of the checklist will reduce the incidence of postoperative complications and the number of deaths in the perioperative period. The results of the survey show that the death rate was reduced from 1.5% to 0.8%. Complication rate then decreased from 11% to 7%. Their conclusion is therefore that organizational and communication deficiencies can be a source of potentially preventable perioperative complications (10). Another survey that confirms the utility of perioperative safety process, is a research conducted in 2007-2010 in Ireland. The PSP integration into practice was accepted with criticism in Beaumont Hospital. However, the local senior professors and doctors agreed that the perioperative safety process was efficient. Its quality performance depends on how the surgical team is willing to perform the various steps from the checklist (11).

The 85% of respondents evaluated their satisfaction with setting of PSP at workplaces as very good, although perioperative nurses of West Bohemia showed significantly higher satisfaction. Respondents, who were less satisfied with the settings of PSP, reported such reasons as repetition of the same questions asked, time-consuming character and worse collaboration with doctors.

If there is a situation that PSP cannot be executed due to urgent performance, or if the patient does not want to cooperate, then this fact must be recorded in the perioperative safety protocol. The procedure for this case should be indicated in an internal regulation of the medical facility.

LIMITS

A smaller number of respondents may be limiting for the research, together with the application of own non-standardized questionnaire.

CONCLUSION

Results of the survey show that perioperative nurses are well aware of the perioperative safety process and they are aware of its benefit for patient's safety in the operating room. It is possible, that structure of PSP will be modified in the future, based on newly conducted studies so that all participants of the process were satisfied. We already know some shortcomings, which may be adapted in the future. However, the importance of the perioperative process safety at workplaces performing surgical procedures is necessary.

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REFERENCES

1. Wichsová J, et al. Sestra a perioperační péče. Praha: Grada; 2013.
2. Jedličková J, et al. Ošetrovateľská perioperační péče. Brno: Národní centrum ošetrovateľství a nelékařských zdravotnických oborů; 2012.
3. Mantz J, Dahmani S, Paugam-Burtz C. Výsledky perioperační péče. In: Cvachovec J, editor. Current Opinion in Anaesthesiology – české vydání. 2010; 1(2):36-43.
4. Ministerstvo zdravotnictví České republiky. Prevence záměny orgánu, strany výkonu či pacienta – Řešení otázek bezpečnosti pacientů. Svazek 1, Řešení 4 [Internet]. 2007 [cited 2014 Oct 26]. Available from: http://www.mzcr.cz/kvalitaabezpeci/dokumenty/prevence-zameny-organu-strany-vykonu-ci-pacienta_4978_2378_20.html
5. Fakultní nemocnice Hradec Králové. Program kvality. Bezpečí pacientů [Internet]. 2011 [cited 2014 Oct 27]. Available from: <http://www.fnhk.cz/pacient-a-jeho-blizci/program-kvality/bezpeci-pacientu>
6. WHO: World Alliance for Patient Safety. Implementation manual surgical checklist (First edition). [Internet]. 2008 [cited 2014 Oct 30]. Available from: www.who.int/entity/patientsafety/safesurgery/tools_resources/SSSL_Manual_final-Jun08.pdf?ua?=1
7. Filipová M, Pokojová R. Předoperační bezpečnostní proces – úskalí implementace. Sestra. 2011; 21(2):34-6.
8. Ministerstvo zdravotnictví České republiky. Resortní bezpečnostní cíle [Internet]. 2012 [cited 2014 Oct 14]. Available from: <http://www.mzcr.cz/>

kvalitaabezpeci/obsah/resortni-bezpecnostni-cile-
_1837_15.html

9. STAT SOFT. STATISTICA© [Internet]. Praha: 1984 [cited 2014 Oct 25]. Available from: <http://www.statsoft.cz/o-firme/profil-spolecnosti>
10. Haynes A, Weser T, Berry W. A surgical safety checklist to reduce morbidity and mortality in a global [Internet]. Pub Med – Medline Database. 2009 [cited 2014 Nov 4]. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19144931>
11. Weightlein, G. The Surgical Safety Checklist. Royal College of Surgeons in Ireland Student Medical Journal. 2011;1(4) [Internet]. [cited 2015

Jan 7]. Available from: <http://www.rcsismj.com/4th-edition/surg-checklist>

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