

ORIGINAL PAPER

COMPLIANCE WITH THE PRINCIPLES OF THE PERIOPERATIVE SAFETY PROCESS IN THE CONTEXT OF THE WORK OF PERIOPERATIVE NURSES

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Abstract

Aim: The main aim was to describe the current state of perioperative safety processes with reference to perioperative nurses' work. *Design:* To achieve the stated goal, a custom-built "ad hoc" research design was created, using a combination of qualitative and quantitative methods. The findings of the exploratory qualitative survey were verified by the quantitative survey focused on in this article. *Methods:* The exploratory survey and Surgical Safety Checklist were the basis for a questionnaire which was designed to be used as a tool for investigation among a set of perioperative nurses in Czech hospitals. The target group of respondents was operating room managers, one representative per healthcare institution. The obtained data were analysed by exploratory statistical methods. *Results:* More than 96% of the healthcare institutions included in the research sample have formally established procedures: patient identification, verification of the type and side of the operation, checks for patient's history of allergies, and checks of the number of medical devices (n = 68). The survey showed that the respondents perceive safety checks to be of utmost importance in the perioperative procedure (modal value of seven on a scale from one to seven). *Conclusion:* Using the Surgical Safety Checklist should lead to safety improvements in nursing perioperative care. In most cases, the nursing safety practices formally introduced at respondents' workplaces correspond to WHO recommendations in the form of this Checklist.

Keywords: management, operating room, perioperative care, quality, Surgical Safety Checklist.

Introduction

The type of nursing care required in operating rooms is physically, mentally, and professionally demanding; the working environment of the operating rooms is characterized by risk and the threat of mistakes (Vácová, 2017). The World Alliance for Patient Safety was established in 2004 as part of the World Health Organization. The organization strives to reduce complications from surgical procedures worldwide by means of the Safe Surgery Saves Lives program (WHO, 2008). In 2007, the WHO formulated several strategies and recommended their implementation in clinical practice; the most important strategy being that which results in the correct surgical procedure being performed on the correct part of the body, and the creation of records documenting the moments immediately before the operation begins. The WHO has thereby responded to the statistics that indicate of

234 million patients operated on, seven million will suffer postoperative complications, and a million patients will die due to such complications (WHO, 2009a).

Care in operating theatres is associated with possible risks and complications not only for patients, but also for staff. The Quality and Safety Portal of the Ministry of Health of the Czech Republic (hereafter referred to as MHCR) states that within the European Union, eight to twelve percent of patients admitted to a healthcare institution are injured during the provision of diagnostic, therapeutic or nursing care (Technical Report on improving patient safety in the EU "Improving Patient Safety in the EU" commissioned by the European Commission, and published in 2008 by RAND Cooperation). Legislation on perioperative care and quality management in the Czech healthcare system is a general standard that healthcare providers should introduce and implement in order to maintain safe care; for example:

- Regulation no. 262/2016 Coll., a regulation that amends regulation no. 102/2012 Coll. on

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quality and safety assessment of inpatient healthcare.

- Bulletin of the MHCR no. 8/2012 in which the classification and methodology of adverse events monitoring in healthcare are mentioned.
- Bulletin of the MHCR no. 5/2012 with information on the minimum requirements for implementing internal quality assessment and safety systems for the health services provided.
- Bulletin of the MHCR no. 16/2015 which states the minimal requirements for implementation of internal quality and safety assessment systems, and methodical guidelines for internal quality and safety assessment systems for healthcare services provided.
- Departmental safety targets (hereinafter referred to as DST) from 2010.

The eight defined goals create a preventive framework that should reduce the risk of harm to patients and others in healthcare delivery processes. They are part of the Health Quality and Safety Action Plan, and are based on the recommendations of the Council of the European Union on Patient Safety, recommendations of the WHO, and recommendations of the World Alliance for Patient Safety (MHCR, 2018b). These goals have been adjusted for national conditions. The departmental safety targets set between June 2011 and April 2012 were announced in the form of recommended procedures for healthcare facilities, and have binding force for the organizations controlled by the Ministry of Health of the Czech Republic – e.g., for teaching hospitals (MHCR, 2018b). The Health Services Act No. 372/2011 Coll., which was amended by Act No. 147/2016 Coll., decrees that the health service provider is *obliged to implement* the internal quality and safety assessment system (also listed by the Ministry of Health, 2018a). For the implementation of this *mandatory* system, it has created “minimal requirements” which incorporate the norms for the implementation of Departmental Safety Objectives (Bulletin No. 5/2012, as amended by Bulletin No. 16/2015).

The *Surgical Safety Checklist* is considered a simple, straightforward tool to eliminate risks in operating theatres (Filipová, Pokojová, 2011). It is based on ten principles of safe surgery (WHO, 2009a) that have been defined by practitioners of evidence-based practice (WHO, 2008). It defines specific areas of perioperative care that should be given special attention. As it focuses on the processes of care in terms of the work of surgeons, nursing care of perioperative nurses, and anaesthetic care, it has become a tool for the implementation of good

practice (WHO, 2009c). In professional terminology, it is sometimes referred to as a *perioperative safety process*, or a *perioperative safety procedure* (PSP). This process is a set of systematic control measures that should be an integral part of every surgical procedure to identify critical moments occurring immediately before, during, and immediately after the operation (Wichsová et al., 2013). It takes about three to four minutes to perform (Filipová, Pokojová, 2011). To ensure that the Surgical Safety Checklist prevents adverse events, reduces the risks of postoperative complications, and eliminates the risks associated with operations at a particular department, it is recommended to add internal standards to each facility (MHCR, 2016). Of course, the patient is a participant in the process. Their active participation should not be overlooked. Their autonomy contributes to the correct verification of the necessary information (Marx, 2013). At the same time, communication between the patient and the staff leads to the establishment of trust and a better understanding of the patient's needs.

If staff do not have, or are not familiar with, rules of procedure, many problems can arise in care processes. Ultimately, patients, employees, or facilities may be harmed (Jedličková, 2012). The importance of adopting safety procedures by personnel is conveyed by Alfredsdottir and Bjornsdottir (2008): “Although employers demand increased labor productivity, and staffing shortages in the operating room may compromise the patient's safety, the perioperative nurses' clinical and organizational knowledge and capabilities can serve to detect latent errors, and can help to avoid active mistakes,” a statement that Vácová (2017) agrees with.

Aim

The aim of the part of the research that this article focuses on was to answer the following questions:

- To find out what perioperative standards are officially set in hospitals providing acute care.
- Explore what importance do operating theatre managers attach to observance of perioperative safety standards.
- To find how do operating theatre managers perceive practical fulfilment of perioperative safety standards in everyday practice.
- Get information, which professions are responsible for specific perioperative standards in respondents' workplaces.
- And, thereby, to describe the current state of perioperative safety processes with reference to perioperative nurses' work.

Methods

Design

To meet the objectives set, a combination of qualitative and quantitative methods was used to create an “ad hoc” research design. The quantitative survey was preceded by a qualitative survey into perioperative care in nursing practice. The qualitative survey included the following methods of data collection: 1) direct, non-standardized, involved, and long-term and short-term observations; 2) non-standardized semi-structured interviews; 3) direct standardized observations in the form of nursing audits; and 4) group expert interviews. To verify the results of the qualitative survey (Pavlová, Holá, 2016), a quantitative survey was conducted. Since there is no recognised group representing nursing perioperative care professionals or nurse managers of operational disciplines in Czech healthcare facilities, it was necessary to rely on the cooperation of experts within hospitals providing acute care.

Sample

Hospitals providing acute care, regional, district and faculty hospitals, and specialised centres of multi-day and one-day surgery were approached, regardless of their specialisation. Accredited and non-accredited health-care institutions were included in the survey. The composition of the sample was based on the principle that all perioperative procedures are subject to Czech legislation, which is binding for all without distinction. Workplaces where only outpatient care is provided were excluded from the research sample (e.g., workplaces where small skin formations etc. are dealt with).

Two main criteria were chosen for the selection of the research sample: the healthcare facilities that were approached were characterized by their provision of perioperative care, and the target group was to consist of operating theatre supervisors of perioperative nurses. The questionnaire was filled in by a ward nurse / head nurse or by an operating specialization manager. Only one representative per health-care institution approached could fill in the questionnaire.

Executives formed the target group since they were expected to know how nursing processes in a clinical practice are conducted (many still perform as regular perioperative nurses), and also since they understand management regulations.

One hundred and thirty-nine Czech healthcare institutions were approached. The research sample consisted of 68 respondents, representing 68 health-care institutions from 14 regions, i.e., 49% of the 139 institutions approached.

Data collection

The results of the exploratory survey were verified by a quantitative survey. The findings of the exploratory survey (Pavlová, Holá, 2016) and the Surgical Safety Checklist (WHO, 2009a) were the basis for the questionnaire used in the research. The comprehensibility and unambiguity of the questionnaire questions, and the instructional answers, were verified by pre-research. The construction of the questionnaire was based on a publication by Farkašová et al. (2006), and Chráska's recommendations (2007), regarding, for example, how to formulate questions. The proposed questionnaire was proofread by an expert with several years' experience in quality of care in healthcare, from the senior management of Hospitals in the Pardubice Region, and an independent perioperative nurse. The questionnaire was preceded by a pre-survey focusing on the clarity of the questionnaire questions.

The questionnaire contained 32 questions. It consisted of introductory information and instructions, and demographic entries, followed by factual items, and, finally, concluding information. The questionnaire itself included three identification questions, five close polytomic selective questions, four closed-scale comparative questions, eight closed dichotomous questions, four polytomic enumeration questions, and three semi-closed and five open questions. The final questionnaire form could only be completed online, in the period between May and June 2017.

Data analysis

Only data from fully completed questionnaires (n = 68) were included in the statistical analyses. The obtained data were analysed by exploratory methods in STATISTICA® (StatSoft, 2008).

Results

Ninety-one percent of respondents stated that they had been working in operating theatres for more than a decade, 78% of respondents worked in central operating rooms, and 71% of respondents worked in a healthcare institution with a quality certificate. Thus, all had considerable experience of operating milieu, and worked in institutions with care processes organized not only according to effective legislation, but also to additional standards (e.g., accreditation of the United Accreditation Commission). Thirty-nine respondents out of 68 (57%) expressed an interest in the results.

Analysis of the results (see Table 1) was based on research objective: What perioperative standards

are officially set in hospitals providing acute care? Do these procedures involve identifying the patient and the type of procedure, checks for history of allergies, checks of the number of medical devices, and checks for correct handling of biological material, as contained in the WHO Surgical Safety Checklist (2009a), and available on the MHCR website (2009c)? How important are the checks to verify patient identity, to prevent confusion of one patient for another, to prevent confusion of type and side of procedure, and to prevent falls and decubitus, as emphasized in the Departmental Safety Targets (MHCR, 2018)?

Table 1 shows that these perioperative standards were formally established in most of the operating theatres approached. More than 90% of the workplaces had well-established procedures to identify the patient, check the number of medical devices, check the side and type of procedure, check for history of allergies, handle biological material correctly, prevent patient falls, and to check application of neutral electrodes. The questionnaire aimed to determine the occurrence of formally established perioperative standards. Forty of the 68 workplaces surveyed had established standards for all of these areas (the availability of transfusions and the preparedness of the operation team were not included in the selection).

Table 1 Percentage of respondents confirming the formal setting of perioperative standards in each hospital

Perioperative standards	Respondents confirming the formal setting of perioperative standards in each hospital n (%)
check of identity of patient	68 (99)
check of number of medical devices	68 (99)
check of side of surgery	68 (97)
check for history of allergies	68 (96)
check of type of procedure	68 (96)
check for correct handling of biological material	68 (93)
check of neutral electrode application	68 (91)
check for prevention of patient fall	68 (91)
check patient is in correct position	68 (88)
check for prevention of decubitus	68 (88)
introduction to patient	68 (81)
check for prevention of paresis	68 (78)
check for availability of transfusions	68 (1)
check of preparedness of operation team	68 (1)

Internal standards are an important tool for ensuring patient and staff safety. Considerable emphasis is placed on ensuring staff understand the importance of the introduced rules. However, the importance of abiding by standards is subject to personal opinion. Personal experience, and the environment in which standards are implemented can contribute to differences in this respect.

Respondents were asked to express their opinion on a scale from one (min) to seven (max) to indicate how highly they rate the importance of maintaining perioperative procedures in the context of the perioperative safety process (see Table 2).

Table 2 shows that, according to the vast majority of respondents, the implementation of defined procedures is of the utmost importance. The mode, the most numerous choice of values from 1–7, was seven for most procedures. Procedures that were the most significant for the respondents were the following: “check for history of allergies” (Σ 452), “check of identity of patient” (Σ 451), and “check of side of surgery” (Σ 451). Ninety-three percent

of respondents awarded a score of seven for the procedure “Check for history of allergies.” Median and average values indicate that safety procedures, namely “check of type of procedure” and “check of number of medical devices”, also scored highly. The least significant procedure was, according to the value of the average, median, mode and sum of values per variable, “introduction of staff to patient.” Within this standard, there was the greatest variance in responses (4.0), indicating low consensus. In contrast, respondents concurred on the importance of “Check for history of allergies” (variance 1.9). The mutual significance of perioperative safety procedures is shown in the cluster diagram (see Figure 1).

Assuming that the importance of compliance with perioperative standards in the context of the perioperative safety process is at its maximum (modal value of seven), it could be said that the individual standards reveal their own significance within the perioperative safety check. As can be seen in Figure 1, “introduction of staff to patient” stands

Table 2 Perception of the importance adhering to perioperative safety standards on a scale 1 (min) – 7 (max), (n = 68)

Variable	mean	median	mode	modal frequency	min.	max.	variance	Σ variable
introduction of staff to patient	4.6	5	6	16	1	7	4	316
check of identity of patient	6.6	7	7	63	1	7	2	451
check of type of procedure	6.6	7	7	61	1	7	2.1	448
check of side of surgery	6.6	7	7	63	1	7	2	451
check for history of allergies	6.6	7	7	63	1	7	1.9	452
check patient is in correct position	6.5	7	7	59	1	7	2.2	442
check for prevention of patient fall	6.5	7	7	59	1	7	2.2	444
check of neutral electrode application	6.5	7	7	59	1	7	2.3	442
check for prevention of decubitus	6.4	7	7	55	1	7	2.2	437
check for prevention of paresis	6.4	7	7	53	1	7	2.3	435
check of number of medical devices	6.6	7	7	62	1	7	2.2	447
check for correct handling of biological material	6.5	7	7	59	1	7	2.3	443

Σ = sum, sum of values

out from the other procedures, and was probably the least significant for the respondents. The reason for that may be that it is not a standard part of the WHO Surgical Safety Checklist (2009a). Nevertheless, table 1 indicates that the procedure “introduction of staff to patient” was well established at 81% of institutions.

The static indicators in Table 3 (see below) show the degree of fulfilment of recommended perioperative

procedures according to the respondents' subjective evaluation. Respondents were asked to express their opinion on a scale from one (min.) to seven (max.), with one indicating that perioperative safety procedures were not adhered to in the workplace, and seven indicating full compliance with recommended safety procedures.

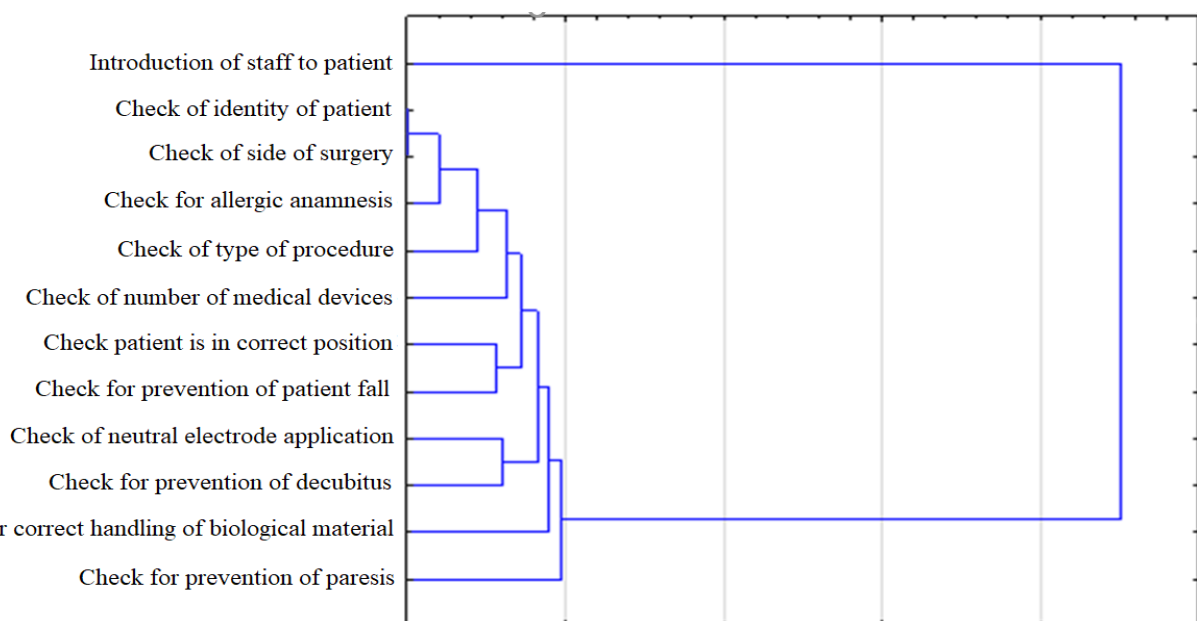


Figure 1 Diagram of a cluster analysis of each standard (n = 68)

Table 3 Descriptive statistics on the feasibility of perioperative safety standards in practice (n = 68)

Variable	mean	median	mode	modal frequency	min.	max.	variance	Σ variable
introduction of staff to patient	4.3	4	5	21	2	7	2.3	295
check of identity of patient	5.3	5	5	43	1	7	2.2	361
check of type of procedure	5.3	5	5	41	1	7	2.2	358
check of side of surgery	5.3	5	5	42	1	7	2.2	360
check for history of allergies	5.3	5	5	41	1	7	2.0	361
check patient is in correct position	5.2	5	5	39	1	7	2.4	352
check for prevention of patient fall	5.2	5	5	40	1	7	2.2	353
check of neutral electrode application	5.1	5	5	40	1	7	2.6	348
check for prevention of decubitus	5.0	5	5	34	1	7	2.7	339
check for prevention of paresis	5.0	5	5	35	1	7	2.7	339
check of number of medical devices	5.3	5	5	42	1	7	2.1	360
check for correct handling of biological material	5.2	5	5	39	1	7	2.3	355

Σ = sum, sum of values

The median, average and mode for most of the variables was around five. We may assume that the individual procedures are routinely performed in everyday practice. Respondents perceive “check for history of allergies” (Σ 361) and “check of identity of patient” (Σ 361) to be the procedures most often fulfilled. The survey also showed that the procedures “check of the side of surgery” and “check of the number of medical devices” are regularly applied (both Σ 360).

Respondents pay little regard to the process of “introduction of staff to a patient.” The procedure of “introduction of staff to patient” is the least implemented (see Figure 1 and Table 3). The result suggests that it is not a common standard in the work of perioperative nurses. The smallest variance in opinion (2.0) can be seen in the procedure “check for history of allergies.” The largest variance (2.7) is observed in the procedures “check for prevention of decubitus” and “check for prevention of paresis.” Although perioperative safety procedures are considered to be of the utmost importance, their actual implementation in common practice is lower (see Table 3).

The fourth goal was to determine which professions are responsible for implementing perioperative safety standards at the 68 institutions. The question was included since such information is not clearly defined by the legislation. The only mention of a particular profession with regard to formulated perioperative procedures is found in decree 55/2011 Coll. on

activities of health professionals and other specialists (later amended by regulation 391/2017 Coll.), which states that perioperative nurses are responsible for the position and fixation of a patient on the operating table. Departmental Safety Target 1) – “Clear of identity of patient”; DST 3 – “Prevention of confusion of patients, and type and side of surgical procedure”; and DST 4 – “Prevention of falls”, all deal with the issues in general, rather than with regard to particular professions. The WHO Surgical Safety Checklist contains only a recommendation to assign particular practices to particular professions.

The physician is responsible for the whole operation. As can be seen in Table 4, surgeons have a large share in preventing confusion of type or side of procedure (on average 47%). However, within the group of respondents, the majority of perioperative procedures fall within the scope of perioperative nurses. According to respondents, “check of identity of patient” and “check for history of allergies” are the responsibility of anaesthetist nurses in practice. Anaesthetists’ share of participation in the process of patient identification amounts to 41%; while their participation in the process of detection of history of allergies is 29%. The last column of Table 4 shows the percentage of workplaces in which the whole operating team is responsible for safety procedures – i.e., perioperative nurses, anaesthetist nurses, surgeons, and anaesthetists. For example, according to 12% of respondents, all of the operating team perform the process of identifying the patient. The obligation to identify the patient is given to each

healthcare professional, as stated in Decree 102/2012 Coll., as amended, in the Departmental Safety Targets, in the Surgical Safety Checklist and in the internal guidelines that are based on these regulations (WHO; 2009a; MHCR, 2015).

Thirty-nine out of 68 respondents who answered the questionnaire (57%) expressed interest in the results.

Table 4 Relative frequency of answering question who is responsible for perioperative standards (n = 68)

Perioperative standards	Perioperative nurse	Anaesthetist nurse	Surgeon	Anaesthetist	Whole operating team
check of identity of patient	37 %	62 %	22 %	41 %	12 %
check of type of procedure	51 %	19 %	44 %	16 %	9 %
check of side of surgery	53 %	18 %	49 %	15 %	9 %
check for history of allergies	35 %	59 %	16 %	29 %	9 %
check patient is in correct position	66 %	6 %	29 %	4 %	4 %
check for prevention of patient fall	75 %	21 %	10 %	6 %	6 %
check of neutral electrode application	87 %	4 %	4 %	3 %	3 %

Discussion

The themes of safety, quality management, and management of risks of perioperative care have been widely discussed in recent years. They are included in national and international quality improvement programs (such as Safe Surgery Saves Lives, RBC, etc.). It not only demonstrates the importance of the topic, but also the efforts to strengthen the prospects of achieving quality care in the future. The authors of this paper believe we currently lack a comprehensive description of requirements and specific criteria to clearly delineate the minimum standards of perioperative care.

Legislation and methodical guidance on providing perioperative care are formulated in very general terms. For example, bulletin no. 16/2015 states that within the third Departmental Safety Target, the provider should have procedures for performing interventions correctly. However, no concrete requirements are specified for the process, and no requirements are assigned to specific professions in practice. The bulletin contains inaccurate information that the provider is obliged to use, and requires that they document the preoperative safety procedure immediately prior to surgical procedures, with reference to the safety of surgical procedures checklist, published on the Quality Portal of the Ministry of Health of the Czech Republic (2015). The checklist is based on the Surgical Safety Checklist issued by the WHO (2009a), and defines perioperative rather than preoperative safety procedures. Minimum evaluation standards and quality indicators were introduced into Czech law by Decree 102/2012 Coll., as amended. This Decree, together with the Departmental Security Goals,

became the basis for general recommendations on how to monitor and improve the quality of nursing perioperative care.

The aim of the paper was to describe the current state and principles of adherence to the perioperative safety process in a Czech context. The investigation focused on which perioperative standards are formally established in acute care hospitals. Since healthcare is characterized by differences between each state, it is not certain that the perioperative safety procedure (as modelled by WHO, 2009a) ensures universal prevention of the most common perioperative risks. The existence of the standards – “check identity of patient” and “check of number of medical devices” was confirmed by ninety-nine percent of respondents (n = 68). More than 96% of workplaces have procedures in place to check for history of allergies, type or side of procedure, and the precise site of incision. In the light of WHO recommendations (2009b) and respondents’ answers, these practices can be considered of prime importance. Respondents consider checking the identity of the patient, and checking the side (and site) of surgical incision to be the most important perioperative procedures. Filipová and Pokojová (2011) are of the same opinion. According to Filipová and Pokojová (2011) the fundamental aspects of the safety procedure include verification of the patient’s identity, the side of the procedure, and the availability and correctness of the necessary technologies and other medical devices. Ninety-three percent of respondents, including perioperative nurses, also attach highest significance to checking for history of allergies.

Although respondents perceive that compliance with safety procedures is of the utmost importance (modal value of seven on a scale from one to seven), they also claimed that perioperative safety standards were not self-evident (modal value of five). Levy et al. (2012) reached a similar conclusion during a seven-week observation. He observed the level of compliance with the WHO Surgical Safety Checklist in 142 paediatric surgical cases, finding that even though safety procedures were carried out in 100% of cases, none were performed perfectly. The most frequently performed procedures (99%) included confirmation of patient's name and procedure. While items in the second stage of the safety procedure, performed just before skin incision, were met in 97% of cases, other safety procedures were performed in less than 60% of cases. Despite the fact that the perioperative safety process had been introduced in workplaces, several safety procedures were not performed at all, or were performed unsatisfactorily. Levy et al. (2012) believe that unsatisfactory performance may reflect poor implementation and insufficient explanation of why they are so important. Hoplíček (2009), who also found that the perioperative safety process was not properly performed at all points, argues this is due to the fact that the entire surgical group was not present at the beginning of the first phase when anaesthesia was administered. The authors of this paper believe that these problems can be eliminated by changes in routine. According to a study by Haynes et al. (2009), the introduction of the WHO Surgical Safety Checklist into clinical practice is an effective measure that has a major impact on reducing the incidence of complications. They claim that after its implementation, the number of postoperative complications decreased by 4%. On the other hand, if it is not incorporated into normal practice or not used properly to its full extent, perioperative risks can lead to adverse events.

Although the survey does not work with a representative sample, and the results cannot be generalized, the conclusions it reaches about the implementation of perioperative safety standards, and their fulfilment in practice by 68 Czech acute care institutions are interesting.

Conclusion

The paper focuses on observance of the principles of the perioperative safety process in the context of the work of perioperative nurses. Quality management of perioperative nursing care is a topical issue. The results indicate that the operating theatre environment and the provision of perioperative care

present a number of risks that need to be minimized by systemic measures and the attentiveness of staff. The Surgical Safety Checklist (WHO, 2009a) should be used to improve the safety of operations. The procedures that have been formally implemented at respondents' workplaces do correspond to WHO recommendations (2009a). More than 96% of the healthcare institutions in the study group have established procedures for checking the identify of patients, checking the type and side of the procedure, checking the patient's history, and checking the number of medical devices (n = 68). The study confirmed that the respondents perceive the safety checks within the perioperative procedure to be of the utmost importance (modal value of seven on a scale from one to seven). However, they admit that their actual implementation is lower in everyday practice (modal value of five on a scale from one to seven).

The World Alliance for Patient Safety (WHO, 2009b) deems the Surgical Safety Checklist a simple tool, designed to minimize perioperative risks, promote better internal communication and better teamwork among clinical disciplines, and enhance perioperative safety. Surgeons, anaesthesiologists, nurses, and quality and safety management experts were involved in its creation. Together, they defined a set of the most important safety steps that could be used in any operating room around the world. The Surgical Safety Checklist is not presented as an official principle, but as a source for anyone who wants to support the quality and safety of surgical procedures, perioperative care, and patient safety (WHO, 2009b). However, it does not contain any safety procedures precisely defined for the work of individual teams – anesthesiologic, surgical, and nursing. It does not mention, for example, checking of neutral electrode placement to prevent burns; it does not include procedures for safe positioning to prevent decubitus, prevention of paresis, prevention of fall, or adequate management of temperature.

A tool that thoroughly demonstrates the necessary safety measures in perioperative nurses' work is presented by Pavlová (2018) in the form of a checklist, together with a manual for its use. First, it defines recommendations that should support the safety of nursing procedures, and, at the same time, it provides a control mechanism to assess the extent to which important nursing steps and actions in the perioperative process are actually carried out. Healthcare safety is a priority that can be strengthened by systematic measures leading to continual improvement in quality, and by constantly encouraging operating room staff to follow the internal standards, report adverse events, and use

appropriate tools to enhance care, such as the WHO Surgical Safety Checklist (2009a) and the Pavlová Checklist (2018).

Ethical aspects and conflict of interest

The authors declare that there was no conflict of interests in the survey.

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Author contributions

Conception and design (PP, JH), data collection (PP), data analysis (PP), data interpretation (PP, JH), manuscript draft (PP, LŠ), critical revision of the manuscript (JH, LŠ), final approval of the manuscript (JH).

References

Act No. 372/2011 Sb., *o zdravotních službách a podmínkách jejich poskytování*. Praha: MZČR; 2011. (in Czech)

Alfredsdottir H, Bjornsdottir K. Nursing and patient safety in the operating room. *Journal of Advanced Nursing*. 2008;61(1):29–37.

Bulletin MHCR č. 5/2012 Sb., *minimální požadavky pro zavedení interního systému hodnocení kvality a bezpečí poskytovaných zdravotních služeb*. Praha: MZČR; 2012. (in Czech)

Bulletin MHCR č. 8/2012 Sb., *metodika sledování nežádoucích událostí*. Praha: MZČR; 2012. (in Czech)

Bulletin MHCR č. 16/2015 Sb., *minimální požadavky pro zavedení interního systému hodnocení kvality a bezpečí poskytovaných zdravotních služeb – Interní systém hodnocení kvality a bezpečí poskytovaných zdravotních služeb – metodický návod pro sebehodnocení*. Praha: MZČR; 2015. (in Czech)

Decree MHCR č. 102/2012 Sb., *o hodnocení kvality a bezpečí lůžkové zdravotní péče*. Praha: MZČR; 2012. (in Czech)

Farkašová D et al. *Výzkum v ošetrovatelství*. 1 vyd. Martin: Osveta; 2006. (in Czech)

Filipová M, Pokojová R. Předoperační bezpečnostní proces – úskalí implementace. *Sestra*. 2011;21(2):34. (in Czech)

Haynes AB, Weiser TG, Berry WR, Lipsitz SR, Breizat AH, Dellinger EP, Herbosa T, Joseph S, Kibatala PL, Lapitan MC, Merry AF, Moorthy K, Reznick RK, Taylor B, Gawande AA; Safe Surgery Saves Lives Study Group. A Surgical Safety Checklist to reduce morbidity and mortality in a global. *The New England Journal of Medicine*. 2009;360(5):491–499.

Hoplíček J. *Praktická aplikace mezinárodního protokolu prevence*. 1. vyd. Praha: Univerzita Karlova; 2009. (in Czech)

Chráška M. *Metody pedagogického výzkumu*. 1 vyd. Praha: Grada Publishing; 2007. (in Czech)

Jedličková J. *Ošetrovatelská perioperační péče*. 1. vyd. Brno: NCONZO; 2012. (in Czech)

Levy SM, Senter CE, Hawkins RB, Zhao JY, Doody K, Kao LS, Lally KP, Tsao K. Implementing a surgical checklist: more than checking a box. *Surgery*. 2012;152(3):331–336.

Marx D. Lidské zdroje jako nástroj prevence rizik ve zdravotních službách. In *6. podzimní konference prezidia ČAS: Pracovní podmínky zdravotníků – výsledky rozsáhlého šetření ČAS*. Brno: Česká asociace sester. Praha: Spojená akreditační komise, o.p.s, Karlova univerzita; 2013. Available from: <https://www.cnna.cz/docs/akce/marx.pdf> (in Czech)

MHCR. *Hodnocení kvality a bezpečí zdravotních služeb*. Praha: MZČR; 2018a [cited 2018 Jul 18]. Available from: http://www.mzcr.cz/kvalitaabezpeci/obsah/hodnoceni-kvality-a-bezpeci-zdravotnich-sluzeb_2919_29.html. (in Czech)

MHCR. *Resortní bezpečnostní cíle*. Praha: MZČR; 2018b, [cited 2018 Jul 18]. Available from:

http://www.mzcr.cz/KvalitaABezpeci/obsah/resortni-bezpecnostni-cile-_2922_29.html. (in Czech)

Pavlová P, Holá J. Study of the design, validation and evaluation of nursing audit tool in perioperative care. *Profese online*. 2016;9(1):23–30.

Pavlová P. *Kvalita perioperační péče z pohledu ošetrovatelství*. 1. vyd. Pardubice: Univerzita Pardubice; 2018. (in Czech)

StatSoft. *Stručný manuál k ovládání programu STATISTICA*. 1 vyd. Praha: StatSoft; 2008. (in Czech)

Technická zpráva o zlepšování bezpečnosti pacientů v EU. (Improving Patient Safety in the EU.) RAND Cooperation; 2008. *Úřední věstník Evropské unie*. Doporučení Rady o bezpečnosti pacientů včetně prevence a kontroly infekcí spojených se zdravotní péčí; 2009C. Available from: file:///C:/Users/ppavlova/Desktop/Doporu%C4%8Den%C3%AD_Rady_EU_v_cz.pdf (in Czech)

Vácová J. Pád pacienta jako jedno z perioperačních rizik. *Logos Polytechnikos*. 2017;1(8):74–86. (in Czech)

WHO, World Alliance for Patient Safety. *Forward Programme 2008–2009: Implementation manual surgical safety checklist*. France: WHO Press; 2008 [cited 2017 Dec 11]. Available from:

www.who.int/patientsafety/information_centre/reports/Alliance_Forward_Programme_2008.pdf

WHO. *Guidelines for Safe Surgery*. Geneva: WHO Press; 2009a.

WHO, World Alliance for Patient Safety. *Implementation Manual: WHO Surgical Safety Checklist 2009, Safe Surgery Saves Lives*. Geneva, Switzerland: WHO Press; 2009b. Available from:

http://apps.who.int/iris/bitstream/10665/44186/1/9789241598590_eng.pdf

WHO. *Kontrolní seznam – bezpečí chirurgického výkonu*; 2009c [cited 2018 Jul 18]. Available from:

http://webcache.googleusercontent.com/search?q=cache:oTTSFctiHLMJ:www.mzcr.cz/KvalitaABezpeci/Soubor.ashx%3FsouborID%3D17487%26typ%3Dapplication/pdf%26navez%3DKontroln%25C3%25AD_seznam_-_bezpe%25C4%258D%25C3%25AD_chirurgick%25C3%25A9ho_v%25C3%25BDkonu%5B1%5D.pdf+&cd=1&hl=cs&ct=clnk&gl=cz (in Czech)

Wichsová J, Příkryl P, Pokorná R, Bittnerová Z. *Sestra a perioperační péče*. 1. vyd. Praha: Grada Publishing, a.s.; 2013. (in Czech)