ORIGINAL ARTICLE

Adaptation of the safe surgery checklist in a university hospital

Maximiana Aparecida dos Reis Fonseca[1], Valéria Soares da Rocha[1], Flávia Batista Portugal[1], Daniela Campos de Andrade Lourenção[2], Raquel da Silva Paiva[1], Elry Cristine Nickel Valerio[1]

[1]*Federal University of Espírito Santo (UFES), Espírito Santo, ES, Brasil*

[2]*University of de São Paulo (USP), São Paulo, SP, Brasil*

Abstract

Introduction: The checklist is a tool that ensures important decisions and actions are taken during surgery. It contains critical items that should not be overlooked in any situation, preventing serious failures in the Surgical Center. *Objective:* To adapt the safe surgery checklist to the institution's specific context. *Methods:* This is an applied research study on technological development. The checklist was used in 24 surgeries: 12 utilized the World Health Organization's checklist, and the other 12 used lists adapted to the sector's context. These adaptations were carried out by the researcher at three different stages. After applying the lists, the professionals present in the operating room completed a semi-structured questionnaire. *Results:* The study involved 72 participants: surgeons, anesthesiologists, residents, nurses, technicians, and nursing assistants. They were involved in the three stages of checklist application: before anesthesia induction, before the surgical incision, and before the patient left the operating room. The results from the pilot test (1st phase) and the adapted checklist (2nd phase) were categorized to better understand the findings. *Conclusion:* The checklist was adapted based on the suggestions from the participants. It also served as a communication tool, providing technical guidance, preventing process failures, and ensuring effectiveness and efficiency during surgeries.
Keywords: Checklist; patient safety; perioperative care; technological development.

Resumo

Adaptação da lista de verificação de cirurgia segura em um hospital universitário

Introdução: A lista de verificação (checklist) é uma ferramenta garantidora de tomada de decisões e ações importantes em uma cirurgia. Contêm itens importantes, que não devem faltar para uma situação, evitando falhas graves no Centro Cirúrgico. *Objetivo:* adequar a lista de verificação de cirurgia segura à realidade da instituição. *Métodos:* Trata-se de uma pesquisa aplicada de desenvolvimento tecnológico, na coleta de dados aplicou-se o checklist em 24 cirurgias, em que 12 utilizaram a lista da Organização Mundial da Saúde e nas outras 12, as listas adaptadas à realidade do setor, conduzidas pela pesquisadora em três momentos, após aplicadas as listas, os profissionais presentes na sala cirúrgica participaram respondendo um questionário semiestruturado. *Resultados:* Participaram da pesquisa 72 membros: cirurgiões, anestesiologistas, residentes, enfermeiros, técnicos e auxiliares de enfermagem presentes nas três etapas da aplicação do checklist: antes da indução anestésica; da incisão cirúrgica e antes do paciente deixar a sala. Os resultados da pesquisa obtidos com o teste piloto (1ª fase) e lista adaptada (2ª fase) foram divididos em categorias para melhor entendimento dos achados. *Conclusão:* O checklist sofreu adaptações sugeridas pelos entrevistados, além de servir como instrumento de comunicação, fornecendo orientações técnicas, evitando falhas no processo, garantindo eficácia e efetividade durante as cirurgias.
Palavras-chave: Lista de checagem; segurança do paciente; assistência perioperatória; desenvolvimento tecnológico.

Resumen

Adaptación de la lista de chequeo de cirugía segura en un hospital universitario

Introducción: La lista de chequeo es una herramienta para asegurar la toma de decisiones y acciones importantes en cirugía. Contienen elementos importantes, que no deben faltar en una situación, evitando fallas graves en el Centro Quirúrgico. *Objetivo:* adaptar la lista de verificación de cirugía segura a la realidad de la institución. *Métodos:* Esta es una investigación de desarrollo tecnológico aplicado, en la recolección de datos se aplicó la lista de chequeo en 24 consultorios, en los cuales 12 utilizaron el listado de la Organización Mundial de la Salud y en los otros 12, los listados adaptados a la realidad del sector, realizado por el investigador. en tres momentos, después de la aplicación de las listas, los profesionales presentes en el quirófano participaron respondiendo un cuestionario semiestructurado. *Resultados:* Participaron de la investigación 72 integrantes: cirujanos, anestesiólogos, residentes, enfermeros, técnicos y auxiliares de enfermería presentes en las tres etapas de aplicación de la lista de chequeo: antes de la inducción anestésica; de la incisión quirúrgica y antes de que el paciente abandone la habitación. Los resultados de la investigación obtenidos con la prueba piloto (1.ª fase) y la lista adaptada (2.ª fase) se dividieron en categorías para comprender mejor los hallazgos. *Conclusión:* La lista de chequeo sufrió adaptaciones sugeridas por los entrevistados, además de servir como herramienta de comunicación, brindando orientación técnica, evitando fallas en el proceso, asegurando eficiencia y eficacia durante las cirugías.
Palabras-clave: Lista de verificación; seguridad del paciente; atención perioperativa; desarolho tecnológico.

Introduction

The checklist is a tool used to ensure that all important actions during surgery are taken. Checklists contain essential items for a situation where their absence could lead to severe failures. They are used in various fields; for example, pilots use pre-established checklists before taking off to check the aircraft's functionality and ensure the safety of the flight [1].

In healthcare, checklists can help ensure consistency and integrity in performing complex tasks. The World Health Organization (WHO) defines a checklist as a list of critical actions to ensure patient safety, with the Safe Surgery Checklist being a globally used example [2]. The checklist brings positive changes to the hospital environment and organizational climate by enhancing interaction among surgical team members, which contributes to reducing postoperative morbidity and mortality, as well as minimizing conflicts in unexpected situations [3].

The importance of the checklist also lies in improving communication among professionals in the operating room: the surgeon, anesthesiologist, and nurse are responsible for reviewing the surgical plan, with a special focus on potential intraoperative or anesthetic issues that may affect the patient. All events that present specific risks, not evident to all involved, during the resumption of actions in the surgical center are of particular concern. It is at this stage that the effective and adequate transfer of critical information to the entire team occurs [4].

The Surgical Center is considered a high-risk environment, where work processes involve complex, interdisciplinary practices with strong reliance on individual and team performance in conditions dominated by pressure and stress. These situations often result in a considerable number of overworked or exhausted professionals in most Brazilian hospitals. Therefore, it is essential to manage stress, interpersonal relationships, and healthcare practices, highlighting that the negative daily experience of the team directly affects service quality, increasing the likelihood of errors [5].

With the increase in the number of surgeries, the opportunities for incidents also rise. Among these incidents is Adverse Events (AE), which results in harm to the patient [6].

This study is justified by the premise that adopting the checklist prioritizes the safety of all, as it brings positive changes to the hospital environment and organizational climate. It promotes greater interaction among surgical team members, contributing to reducing postoperative morbidity and mortality and minimizing conflicts in unexpected situations [3].

The guiding question of the research concerns the application of the safe surgery checklist, whether it is used appropriately within the institution, and how to better involve the surgical team in the adherence to and implementation of the checklist.

The safe surgery checklist was adapted to the institution's reality. To achieve this adaptation, it was necessary to analyze the perception of surgical safety among mid-level and higher-level nursing professionals, as well as among anesthesiologists and surgeons working in the Surgical Center, and to examine whether there is an association between variables such as age, sex, position, and years of experience in the specialty.

Methods

This is an applied research with technological development and a qualitative-quantitative approach. Applied research aims to generate knowledge for practical application, directed towards solving specific problems. It involves combining basic research knowledge with technology to achieve products or processes in response to a predetermined demand [8].

The research was conducted in the Surgical Center (CC) of a university hospital located in the state of Espírito Santo in 2021. The institution is managed by the Empresa Brasileira de Serviços Hospitalares (EBSERH), and according to the institutional organizational chart, the CC is part of the functional unit named "Surgical/ Post-Anesthesia Recovery Unit (RPA) and Central Sterilization and Material Supply (CME)," with subunits including the CC/RPA complex and the CME. The CC/RPA has a capacity of 10 operating rooms and 12 RPA beds, performing approximately 14,000 surgeries per year, of varying complexity.

The study involved 72 surgical center professionals: nursing staff, surgeons, anesthesiologists, and their respective residents present during the checklist application.

The study was submitted to the Ethics Committee of the Center for Health Sciences at the Federal University of Espírito Santo through the Plataforma Brasil. Following the guidelines of Resolution No. 466/2012 of the National Health Council, which pertains to research involving human subjects, it was approved by the Ethics Committee on December 25, 2020, with the ethical approval number 4.484.585 CAAE: 40233220.1.0000.5071. The ethics committee approval process began with the signing of the Institutional Consent Form by the hospital's superintendent. Study participants were informed about the research objectives, and after clarification, those who agreed signed the Free and Informed Consent Term (TCLE).

The techniques used in the study were divided into two phases:

First Phase: This phase involved a pilot test through the application of a Safe Surgery Checklist form proposed by the WHO. The model was printed and applied by the researchers in 12 surgeries. For each form (checklist) applied, a semi-structured questionnaire on the checklist items was added.

The semi-structured questionnaire, created by the researchers, consisted of 12 closed questions (multiple choice) and 7 open questions aimed at collecting information about the applicability of the WHO checklist. At least three professionals present in the operating room—one surgeon, one anesthesiologist, and one nursing professional—answered the questionnaire in an interview format.

After analyzing the data collected from the application of the checklist in surgeries, an adapted checklist was created based on the feedback from the interviewees.

Second Phase: This phase involved applying the adapted checklist in an additional 12 surgeries to better observe the implementation process of the revised checklist. A technological resource was used for this purpose. A board was placed in each operating room where the checklist was attached, facilitating communication and visualization of the items according to the three suggested stages: Identification (before anesthetic induction), Confirmation (before the surgical incision), and Record (before the patient leaves the operating room).

In this phase, the semi-structured questionnaire, developed by the researchers, was also used to evaluate whether the adaptation of the new checklist was suitable for local conditions from the perspective of the research participants.

The data collected in both phases of the research were organized and analyzed in an Excel spreadsheet, tabulated, and presented in the form of tables and transcriptions of interviewee responses. To achieve this, the researchers conducted an exhaustive reading of the texts to ensure representativeness of the selected sample. During the preparation of this material, the researchers transcribed all responses in full to facilitate data manipulation. All phases of the study were developed considering the learning and improvement model known as the PDSA cycle. This quality tool can be used to implement an activity/process through four important steps: planning, execution, study, and action [1].

Results

The study involved 72 members of the surgical team, including surgeons, anesthesiologists, residents, nurses, technicians, and nursing assistants, who were present during all three stages of the checklist application.

In this research, surgical safety was assessed among healthcare professionals assigned to the Surgical/RPA Unit and CME of a public teaching hospital working in the elective Surgical Center, and compared across variables such as age, sex, position, and years of professional experience.

The results from the pilot test (1st phase) and the adapted checklist (2nd phase) were categorized to better understand the findings, as described below:

Characterization of Research Participants in the First and Second Phases of Safe Surgery Checklist Application: In the first phase, there was a predominance of male participants (20), while in the second phase, there was a predominance of female participants (21). Regarding age, in both phases, the majority were between 30 to 39 years old (48%). The most common years of professional experience in the surgical center were between 5 to 10 years (42%) (Table 1).

In both phases of the checklist application, it was observed that the predominant age range was 30 to 39 years. Regarding professional experience, the most common range was between 5 and 10 years. As for gender, there was a predominance of males in the first phase and females in the second phase. However, the results did not show significant variation in terms of the gender of the participants.

Another descriptive/exploratory study analyzed the perception of nursing teams from surgical centers in two public hospitals in the Federal District regarding the importance and benefits of the safe surgery checklist, the training received on the subject, as well as safety and difficulties with using the tool. This study concluded that a lack of clear understanding, the benefits of the checklist, and insufficient training for its use may explain the insecurity and difficulties identified in the research [9].

Table 1 – *Characterization of Research Participants in the Two Phases – Pilot Test (1st Phase) and Adapted Checklist (2nd Phase). Vitória – ES, 2021*

		1st phase		2nd phase	
		N	%	N	%
Gender	Female	6	44%	21	58%
	Male	20	56%	15	42%
	Total	36	100%	23	100%
Age range	20 to 29 years old	13	36%	6	16%
	30 to 39 years old	17	48%	18	48%
	40 to 49 years old	3	8%	8	22%
	50 years old or older	3	8%	5	1%
	Total	36	100%	36	100%
Professional Category	Nurses	1	3%	3	8%
	Nursing technicians	10	28%	9	25%
	Nursing assistants	1	3%	0	0%
	Surgeons	5	14%	8	22%
	Surgery residents	7	19%	4	11%
	Anesthetists	8	22%	10	28%
	Anesthesiology residents	4	11%	2	6%
	Total	36	100%	36	100%
Time working in the surgical center	From 01 to 4 years	3	36%	8	22%
	From 05 to 10 years	15	42%	5	42%
	From 11 to 20 years	6	17%	9	25%
	Over 20 years	2	5%	4	11%
	Total	36	100%	36	100%

Source: Survey data, 2021.

Analysis of Knowledge about Surgical Safety by Research Participants in the First and Second Phases of Checklist Application: In the analysis of professional knowledge during the first phase with the application of the safe surgery checklist in the version proposed by the WHO, it was observed that most participants reported always investigating important items for patient safety before starting the surgical procedure. The items with the least frequency of investigation before surgery, according to the collected data, were: the presence of adornments and prosthetics; shaving; and signed consent form. The items with the highest adherence to investigation, both in the first and second phases of application, were: patient identification, presence of allergies, and surgical positioning.

In the second phase, the pattern remained consistent, with the majority of participants reporting always investigating important items for patient safety before starting the surgical procedure. In addition to the items mentioned in the first phase, participants also noted blood reserves (Table 2).

Regarding the analysis of professional knowledge, we can observe that most participants focused on items more emphasized by the media, safety goals, and patient safety programs, such as identification, presence of allergies, and laterality, while giving less importance to items such as adornments and prosthetics, shaving, and signed consent form. It is worth noting that when addressing patient safety, all items to be checked are of great importance for the quality of care, and no item should be considered more important than another, as the creation of a checklist is based on expert consensus and the best scientific evidence regarding the steps that need to be verified [1]. Another study states that actions for infection prevention and control are proven to be effective [10].

Table 2 – *Frequency of assessment of surgical safety items by research participants in the two phases - pilot test (1st phase) and adapted list (2nd phase). Vitória – ES, 2021*

	1st phase						2nd phase					
	Always		Sometimes		Never		Always		Sometimes		Never	
	N	%	N	%	N	%	N	%	N	%	N	%
Patient identification	31	86,1%	5	13,9%	0	0%	35	97,2%	1	2,8%	0	0%
Use of prophylactic antibiotics	24	63,9%	8	22,2%	4	13,9%	20	55,5%	14	38,9%	2	5,6%
Surgical laterality	27	75%	9	25%	0	0%	23	63,9%	12	33,3%	1	2,8%
Presence of adornments/ prostheses	17	52,8%	17	41,7%	2	5,5%	19	52,8%	10	27,8%	7	19,4%
Preoperative hair removal	14	38,8%	11	30,6%	11	30,6%	4	11,1%	24	66,7%	8	22,2%
Exams	25	69,4%	7	19,4%	4	11,2%	23	63,9%	10	27,8%	3	8,3%
Allergies	32	88,9%	3	8,3%	1	2,8%	31	86,1%	4	11,1%	1	2,8%
Blood reserve	17	47,2%	14	38,9%	5	13,9%	12	33,3%	19	52,8%	5	13,9%
Positioning	31	86,1%	4	11,1%	1	2,8%	30	83,3%	6	16,7%	0	0%
Signed consent form	12	33,3%	9	25%	15	41,7%	11	30,6%	16	44,4%	9	25%
Medications in use	25	69,4%	6	16,7%	5	13,9%	23	63,9%	9	25%	4	11,1%
Preexisting conditions	27	75%	6	16,7%	3	8,3%	24	66,7%	10	27,7%	2	5,6%

Source: Survey data, 2021.

Since 2004, the WHO has launched a Global Patient Safety Alliance, aiming to raise awareness among healthcare professionals and political commitment to improve healthcare, making it safer, supporting the advancement of public policies, and inducing better care practices among member states. Thus, the Global Challenge aimed to elevate quality indicators in health services worldwide to high standards, including: prevention of surgical site infections, safe anesthesia, safe surgical teams, and surgical care indicators [11].

In seeking support for the topic, it was observed in the study that, given the surgical center is a highly complex environment where any failure can be fatal, it is crucial to structure the care provided in a systematic and objective manner, with a multidisciplinary strategy in which professionals communicate clearly and globally [6]. Considering this unique structure and aiming to meet international safety goals, the safe surgery checklist becomes mandatory and essential in surgical care of any complexity [12].

Opinions and suggestions from participants about the checklist: Most professionals believe that the checklist improves safety in the surgical process, as shown in the following statements:

"Systematizes the processes and prevents errors due to team inattention. Increases focus on the patient and their safety." (P28)

"Reading aloud helps identify mistakes." (P10)

"Yes, with more than one professional checking, it reduces the chances of error." (P17)

"Reduces the incidence of errors and complications." (P31)

"The checklist provides quality and reliability of the service." (P15)

When asked about communication during the application of the checklist, 44 professionals felt that the list promoted a positive change, while 28 did not perceive any change, as highlighted in the excerpts below:

"Yes, the anesthetic team was more attentive, and the pediatrician asked the team to wash their hands before putting on gloves." (P8)

"There was increased communication, which helped reduce the chances of errors." (P6)

"Yes, especially when calling the team by name." (P35)

"I haven't observed that yet." (P12)

"Everyone checked the surgical laterality." (P20)

In analyzing the best way to apply the checklist in the operating room, respondents suggested that the best application would be on a board, followed by printed paper. Only 7 professionals thought the checklist should be applied in both ways.

"Board, for better visibility and participation of all involved." (P23)

"On a board, it is more dynamic." (P2)

"On a board, but printed would be for record-keeping and archiving." (P16)

"Regardless of the format, it benefits everyone." (P30)

"I prefer printed paper to attach to the medical record (a legal safety document), but both formats are effective." (P5)

Half of the participants suggested changes to the checklist, as exemplified below:

"Would use printed paper and before the patient enters the operating room,

with a separate checklist for each team (surgical and anesthesia)." (P37)

"Location of the surgical site marker and whether preoperative hair removal was performed at the surgical site." (P2)

"Include in the admission sector the anesthesia consent form and requirement for pre-anesthesia consultation for elective patients." (P11)

"Use a dedicated pen for marking the surgical site and check the removal of prostheses and adornments before anesthesia induction." (P4)

"Fix a safe surgery board in each operating room, so information about surgical safety is visible to the entire team." (P35)

After applying the adapted checklist, the team assessed what would be necessary for its implementation in the sector. Training and team meetings were frequently suggested:

"Encourage and train all teams working in the operating room, showing how important and necessary it is." (P29)

"Meetings with the team, implement in one room first or with one specialty, then expand to all after the team is more adapted to the new reality. Encourage everyone's adherence by showing positive results proven in other institutions." (P7)

"I believe that the surgical routine should wait for the nursing team to complete the checklist and only start the surgery with checked items." (P3)

"Keep in mind all the checklist items and start with the preparation of patient care in the outpatient setting, confirming checklist data during hospital admission." (P33)

"Require everyone to apply it, hold the team accountable, which will ensure its execution." (P9)

Studies have shown that surgical safety is considered a widespread and significant issue globally. In developed countries, the importance and improvements in processes are well understood. However, in developing countries, difficulties are evident, with deficiencies in infrastructure, equipment, supplies, and the quality and reliability of medications. Additionally, there are issues with organizational management, infection control, inadequate training and education of personnel, and particularly underfunding [11].

In light of the movement that began in the early 2000s, ensuring the quality of care has become a longstanding focus across all healthcare sectors, and adapting tools that contribute to patient safety is undoubtedly a crucial factor in the environment where care is provided [12].

Below (Figure 1) are the changes suggested by the interviewees to be made to the checklist, adapting them to the institution's reality.

Figure 1 - *Suggested changes to the checklist after conducting the research*

STEPS	Changes/Inclusions	Recommendations/Improvements
1 - Before Anesthetic Induction	Whether preoperative hair removal was performed at the surgical site.	Prevent performing hair removal in the operating room during the surgery, which increases the chances of infection at the surgical site.
	Whether dental prostheses and adornments were removed.	Avoid risk of choking and injuries caused by burns due to metal in the electro cautery current.
	Whether fasting was done properly	Prevent risk of aspiration and possible suspension of the surgical procedure.
2 - Before Surgical Incision	Whether the electro cautery grounding pad is properly placed	Avoid potential burns due to energy conduction during surgery.
	What prophylactic antibiotic was administered and the time it was given, instead of asking if it was administered in the last hour.	Avoid errors in specimen identification and ensure that the request was made properly for forwarding to the destination.
3 - Before the Patient Leaves the Operating Room	For surgical specimens, in addition to checking that they are properly identified, record on the checklist which sample it is and whether the surgeon made the request (request number).	Avoid errors in specimen identification and ensure that the request was made properly for forwarding to the destination.
	The record of the performed procedure should be checked before the patient leaves the operating room for anesthetic recovery, to avoid errors or duplication in the records.	Ensure the correct recording of the procedure, even if changes in technique or surgical intervention occurred after the surgery.

Source: Survey data, 2021.

The Surgical Safety Checklist organizes the verification of critical care elements, incorporating best practices into the multidisciplinary routine during the surgical process. It highlights the need for interaction and integration among team members so that the tool facilitates various tasks rather than complicating them [13].

Typically, critical items are checked by one team member in the presence of others, aloud. On the checklist, each important item that has been implemented is verified. For the checklist to be effective, it must be designed to be brief, clear, and precise. If it is too lengthy, professionals may not use it, and its primary function of standardizing actions may be lost. Checklists should be clear enough for everyone to understand what is being verified and precise enough to ensure that the steps being checked are crucial to achieving the desired outcome.

Other authors report that the use of checklists is

extremely important in preventing adverse events, as it involves three stages of checking: before anesthetic induction, before surgical incision, and before leaving the operating room, drawing attention to any detail. It is a low-cost operational tool and easy to implement [14].

When analyzing the best way to apply the surgical safety checklist in the researched setting, whether on paper or on a board, the majority considers the board application more appropriate, with 66% in the first phase and 64% in the second phase, due to better visibility and team interaction. Some participants (19%) suggested using both (board and paper) to keep a record of the tool in the patient's medical record.

Discussion

It has become evident that important aspects of patient safety in the Operating Room need to be worked on and improved. This highlights the need not only to adapt the Surgical Safety Checklist but also to propose the organization of its implementation process and the development of educational technology to raise the team's awareness of using this effective and scientifically proven tool.

Since the team itself can be considered a critical factor in the proper execution of the protocol, there is evidence of the need for training the team involved in using the checklist, emphasizing the importance of its correct use in an organizational culture focused on safety and providing the best patient experience [14].

It is also important for leadership to focus on raising awareness within their institutions towards a common goal, ensuring high-quality patient care and a healthy work environment for staff, with organization and efficiency in all provided care [15].

It is crucial to highlight that the checklist serves as legal support for professionals, patients, and healthcare institutions, considering that significant and unacceptable errors can be prevented by conducting the checklist in all its stages [16]. The results indicate that the application of the Surgical Safety Checklist is considered effective by healthcare professionals, contributing to patient safety. However, there is a tendency to focus more on items that are already widely publicized and established, such as patient identification and the presence of allergies, to the detriment of other equally important items, such as the removal of adornments and the signing of the consent form. This suggests a need for increased awareness and continuous training on the importance of all checklist items to ensure safe and high-quality care.

Previous studies support these findings, highlighting that a lack of clear understanding of the checklist and insufficient training may explain the difficulties encountered in its implementation. Therefore, the research suggests the need for adaptations to the checklist and the development of educational technology to sensitize the team to the proper use of this tool.

Participants' opinions also suggest improvements in the way the checklist is applied, such as using boards for better visibility and the need for printed records for legal purposes. These suggestions reinforce the importance of an effective application adapted to the specific needs of the institution.

Conclusion

The study made it clear that improving safety in surgical procedures requires raising awareness and knowledge among the team regarding surgical acts. Studies conducted in various hospitals across different countries and socioeconomic contexts have demonstrated the advantages of implementing the checklist but face challenges in the acceptance by the surgical team.

The nursing team can adopt this safety tool to benefit both professionals and patients in the Operating Room. Most professionals agree that the checklist improves safety and recommend its use in all surgical rooms.

The WHO advises and recommends changes to the checklist according to the reality of each institution, including issues such as hair removal, removal of dental prosthetics, and proper fasting, among others. The suggested changes were considered for implementing new work processes, including the Surgical Circuit and the Quality Seal in University Hospitals managed by EBSERH. The adapted checklist was evaluated by management as feasible for implementation in the unit, with the checklist's use to be determined with the team. The researcher was invited to participate in the awareness and training process for professionals on applying the checklist, discussed in a meeting with representatives from each professional category in the surgical center team.

Following this study, there is a need to develop strategies to strengthen surgical safety in the researched sector to improve the quality of care provided. As a limitation of the study, the application of the tool to only part of the professional team is noted. It is suggested to expand the research to the entire team working in the Surgery/RPA and CME Unit, regardless of the type of activity performed; as well as to conduct longitudinal studies to evaluate the team's behavior over time after the proposed interventions, aiming to assess the improvement in the culture regarding surgical safety.

Author Contributions

Study Conception and Design: Fonseca MAR, Rocha VS, Lourenção DCA; Data Collection: Fonseca MAR; Data Analysis and Interpretation: Fonseca MAR, Paiva RS; Statistical Analysis: Fonseca MAR.; Portugal FB; Manuscript Writing: Fonseca MAR; Critical Review of the Manuscript for Important Intellectual Content: Lourenção DCA, Valerio ECN.

References

1. Ruggiero AM, Lolatto G. A jornada da acreditação: série 20 anos. São Paulo: ONA; 2021.

2. WHO. World Health Organization. World Alliance for Patient Safety: Forward Programme, 2008-2009. Genebra: WHO; 2009.

3. Haynes AB, Edmondson L, Lipsitz SR, Molina G, Neville BA, Singer SJ et al. Mortality Trends After a Voluntary Checklist-based Surgical Safety Collaborative. Annals of Surgery, Dec 2017; 266(6): 923-929. doi: 10.1097/SLA.0000000000002249.

4. Empresa Brasileira de Serviços Hospitalares. Ministério da Educação. Plano de Segurança do Paciente 2020. Núcleo de Segurança do paciente, Campina Grande: EBSERH – Empresa Brasileira de Serviços Hospitalares, 2020, 1(2): 1-13. Disponível: https://www.gov.br/ebserh/pt-br/hospitais-universitarios/regiao-nordeste/huac-ufcg/acesso-a-informacao/programas-e-projetos/planodeseguranadopaciente_2020.pdf.

5. Gundim SM, Isabel ALA. Qualidade de vida da equipe de enfermagem do centro cirúrgico no trabalho. HRJ [Internet]. 6º de janeiro de 2022 [citado 2º de março de 2022]; 3(14):2-19. Disponível em: https://escsresidencias.emnuvens.com.br/hrj/ article/view/407

6. Agência Nacional de Vigilância Sanitária. Organização PanAmericana da Saúde – Opas. Protocolos de Segurança do Paciente I. Módulo 2. UNB: Brasília, Anvisa, 2018. Disponível: https://repositorio.enap.gov.br/bitstream/1/6383/6/Unidade%203%20-%20Cirurgias%20Seguras%20Serv%20de%20Sa%C3%Bade.pdf.

7. Tostes MFP, Galvão CM. Lista de verificação de segurança cirúrgica: benefícios, facilitadores e barreiras na perspectiva da enfermagem. Rev. Gaúcha Enferm. [Internet]. 2019 [citado 2019 Fev 28]; 40 (spe): e20180180.

8. Gil AC. Como Elaborar Projetos de Pesquisa. 7ª edição, São Paulo: Atlas, 17 jan. 2022.

9. Miranda CCP, Costa QGM, Rocha IL, Silva MR, Ramos AAGJ, Rocha IL, Santos MV, Brandão VF, Pereira SO, Marquez PT, Borges BVA, da Silva FV, Alves GSM. Checklist de cirurgia segura: conhecimento e desafios da equipe de enfermagem. HRJ [Internet]. 6 jan. 2022 [citado 2 mar. 2022]; 3(14):641-58. Disponível em: https://escsresidencias.emnuvens.com.br/hrj/ article/view/344.

10. Fernandes FSA, Rocha IL, Ramos AAGJ, Silva MR, da Costa QGM, Virginia NI, de Souza LDL, Yonaha PM, Pereira SO, Fernandes GM. Mitos e verdades do controle de infecção hospitalar: conhecimento da enfermagem perioperatória de um hospital terciário. HRJ [Internet]. 6 jan. 2022 [citado 3 mar. 2022]; 3(14): 218-39. Disponível em: https://escsresidencias.emnuvens.com.br/ hrj/ article/view/379.

11. Silva CSO, Pinheiro GO, Freitas BC, Figueiredo BM, Macedo WTP, Silva ECL. Checklist de cirurgia segura: os desafios da implantação e adesão nas instituições hospitalares brasileiras. Rev. Espaço Ciênc. Saúde. 2017;5(2):72-86.

12. Hayashi BP. Check-list de cirurgia segura e por que devemos fazer. Pubmed. 2022 [citado em 28 jan. 2022];s/d. Disponível em: https://pebmed.com.br/ check-list-de-cirurgia-segura.

13. De Almeida RE. Checklist de cirurgia segura: avaliação de conformidade em procedimentos pediátricos de hospital do Distrito Federal. 2018. 151 p. Dissertação (Mestrado) – Departamento de Enfermagem, Faculdade de Ciências da Saúde, Universidade de Brasília, Brasília, 2018.

14. Silva EFM, Calil ASG, Araújo CS, Ruiz PBO, Jericó MC. Conhecimento dos Profissionais da saúde sobre Checklist de Cirurgia Segura. Arquivos de Ciências da Saúde. 2017; 24(3):71-78. doi: 10.17696/2318-3691.24.3.2017.731.

15. Ribeiro KRA et al. A importância da enfermagem no uso da lista de verificação de cirurgia segura. Connection Line, 2017 1(17): 103-115. Disponível em: http://www.periodicos. univag.com.br/index.php/CONNECTIONLINE/article/viewFile/382/5 94.

16. Ribeiro L, Fernandes GC, Souza EG, Souto LC, Santos ASP, Bastos RR. Checklist de cirurgia segura: adesão ao preenchimento, inconsistências e desafios. Rev. Col. Bras. Cir. 2019; 46(5):e-20192311 doi: https://doi.org/10.1590/0100-6991e-20192311.