

Auditable criteria for implementing best practices in adhering to the surgical safety checklist

Cr terios audit veis para implementa o de melhores pr ticas na ades o ao *checklist* cir rgico
 Criterios de auditor a para la implementaci n de mejores pr cticas en la adhesi n a la *checklist* quir rgico


Danielle Bezerra Cabral¹  <https://orcid.org/0000-0002-1760-4113>

M gda L cia Pedrosa Pereira¹  <https://orcid.org/0000-0001-8382-9540>

Michele Suzana Fernandes²  <https://orcid.org/0000-0003-4095-7846>

Suellen Fincatto¹  <https://orcid.org/0000-0001-7937-6676>

Adriana Gracietti Kuczmainski¹  <https://orcid.org/0000-0003-4476-438X>

Arnildo Korb¹  <https://orcid.org/0000-0001-7333-0754>

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Corresponding author

Danielle Bezerra Cabral
 Email: danielle.cabral@udesc.br

Abstract

Objective: To assess adherence to the use of the hospital's Surgical Safety Checklist according to the auditable criteria of the Joanna Briggs Institute.

Methods: An observational descriptive study was conducted, using the Practical Application of Clinical Evidence System and Getting Research into Practice tools in the three phases of the study methodology: basic, educational and follow-up audits. The audits took place in the surgical center of a hospital in western Santa Catarina, Brazil. A total of 100 surgeries were eligible in the baseline audit, with the same 100 being included in the follow-up audit, and direct observation being performed by the surgical team in completing the Surgical Safety Checklist.

Results: Criteria 2 and 3 were highly compliant with best practices (81% to 93%) in the baseline audit, while Criteria 1 and 4 (45%, 49%) had low compliance. Thus, educational activities were conducted with the surgical team based on the barriers found in the basic audit. There was an increase in the compliance percentages for all criteria in the follow-up audit, and Criteria 2 and 3 obtained 100% and 99%, respectively; however, Criteria 1 and 4 continued with percentages below the expected (65% and 54%, respectively).

Conclusion: Failure to achieve 100% compliance with the audited criteria is caused by the provided care not being based on evidence-based practice. However, permanent and continuous education is expected to result in good practices at the study institution.

Resumo

Objetivo: Avaliar a ades o ao uso da Lista de Verifica o de Seguran a Cir rgica de um hospital, conforme os crit rios audit veis do Instituto Joanna Briggs.

M todos: Estudo observacional descritivo que utilizou as ferramentas *Practical Application of Clinical Evidence System* e *Getting Research into Practice* nas tr s fases previstas da metodologia: auditoria de base, educativa e auditoria de seguimento. As auditorias aconteceram no centro cir rgico de um hospital do oeste de Santa Catarina. Na auditoria de base, foram eleg veis cem cirurgias, sendo as mesmas cem inclu das na auditoria de seguimento, com observa o direta da equipe cir rgica no preenchimento completo da Lista de Verifica o de Seguran a Cir rgica.

Resultados: Na auditoria de base, os crit rios 2 e 3 tiveram alta conformidade com a melhor pr tica (81% a 93%), e os crit rios 1 e 4 (45%, 49%) apresentaram baixa conformidade. A partir das barreiras encontradas na auditoria de base, foram realizadas atividades educativas junto   equipe cir rgica. Na auditoria de seguimento, houve aumento nos percentuais da conformidade em todos os crit rios, e os crit rios 2 e 3 obtiveram 100% e 99%, respectivamente, contudo os crit rios 1 e 4 continuaram com percentuais abaixo do esperado (65% e 54%, respectivamente).

¹Universidade do Estado de Santa Catarina, Chapec , SC, Brazil.

²Hospital Regional S o Paulo, Xanxer , SC, Brazil.

Conflicts of interest: none to declare.

Conclusão: A não obtenção de 100% de conformidade nos critérios auditados é ocasionada por um cuidado assistido não baseado na prática por evidências. Contudo, espera-se uma educação permanente e continuada para realizar as boas práticas na instituição do estudo.

Resumen

Objetivo: Evaluar la adhesión al uso de la Lista de Verificación de Seguridad Quirúrgica de un hospital, según los criterios de auditoría del Instituto Joanna Briggs.

Métodos: Estudio observacional descriptivo que utilizó las herramientas *Practical Application of Clinical Evidence System* y *Getting Research into Practice* en las tres fases previstas de la metodología: auditoría basal, educativa y auditoría de seguimiento. Las auditorías se realizaron en el quirófano de un hospital del oeste del estado de Santa Catarina. En la auditoría basal, se seleccionaron 100 cirugías y las mismas 100 se incluyeron en la auditoría de seguimiento, con observación directa del equipo quirúrgico para el llenado completo de la Lista de Verificación de Seguridad Quirúrgica.

Resultados: En la auditoría basal, los criterios 2 y 3 tuvieron alta conformidad con la mejor práctica (81 % a 93 %), y los criterios 1 y 4 (45 %, 49 %) presentaron baja conformidad. A partir de los obstáculos encontrados en la auditoría basal, se realizaron actividades educativas con el equipo quirúrgico. En la auditoría de seguimiento, hubo un aumento en los porcentajes de conformidad en todos los criterios. El criterio 2 obtuvo 100 % y el 3, 99 %; no obstante, los criterios 1 y 4 continuaron con porcentajes inferiores a lo esperado (65 % y 54 %, respectivamente).

Conclusión: La no obtención del 100 % de conformidad en los criterios auditados se debe a un cuidado asistido no basado en la práctica por evidencias. Sin embargo, se espera una educación permanente y continua para realizar las buenas prácticas en la institución del estudio.

Introduction

Anesthetic-surgical care is permeated by dynamic contexts that are developed by high-level complexity practices in attending to various situations and invasive interventions, and mediated by the interaction of interdisciplinary teams, further exercised in environmental conditions dominated by agility, precision and pressure. These characteristics often lead to unsafe conditions/situations, which are defined by the World Health Organization (WHO) as an avoidable event or circumstance resulting from care not associated with the underlying disease.^(1,2)

Despite the unquestionable benefits of the approach in the health-disease process, surgical care is considerably associated with important risks of complications and death. It is in this perspective and with a view to reduce the occurrence of adverse events in patients undergoing surgical procedures that the WHO established the second global challenge for patient safety in 2009, named Safe Surgery Saves Lives. In this program, the WHO disclosed guidelines for implementing a universal surgical patient safety protocol, including the definition of the Surgical Safety Checklist.^(1,3)

The Surgical Safety Checklist is a tool structured in a formal list used to identify, compare and verify a group of procedures in the three phases: before the start of anesthesia (*sign in*), before skin incision (*time out*), and before the patient leaves the operating room (*sign out*).^(1,4-7) At the *sign in*, the patient's identity, marking of the surgical site, presentation

and signature of the informed consent form and the presence of the requested materials are verified.⁽⁸⁻¹⁰⁾ In the *time out*, there is a brief pause before the incision, during which all team members introduce themselves and state their function in the room, as well as verbally confirm the patient's identification, the surgical site, the procedure to be performed, the patient's position and possible surgery complications.⁽⁸⁻¹¹⁾ At *sign out*, the materials used in the operating rooms are checked and counted, and the patient is referred to the recovery room.⁽⁸⁾

In this sense, the benefits of adhering to the Surgical Safety Checklist are proven in a meta-analysis study in which its effectiveness was determined from three randomized controlled clinical studies (eligible and included in the study), showing a reduction in surgical complications such as respiratory (relative risk of 0.59; 95% confidence interval 0.21-1.70; $p = 0.33$), cardiac (relative risk of 0.74; 95% confidence interval 0.28-1.95; $p = 0.54$) and perioperative infections (relative risk of 0.61; 95% confidence interval 0.29-1.27; $p = 0.18$), as well as decreased surgical mortality (relative risk of 0.59; 95% confidence interval 0.42-0.85).⁽⁹⁾

A systematic review with 21 studies regarding the Surgical Safety Checklist implemented along the lines of the WHO and two others elaborated from institutional experiences pointed out that the use of the list was well understood by the surgical team, especially by nurses and anesthesiologists, in addition to the sharing of responsibilities in filling in the list items and good communication and teamwork.⁽¹⁰⁾ Thus,

between 70% and 77% of health professionals perceived that the Surgical Safety Checklist improved team communication.^(11,12)

With regard to the costs of implementing the Surgical Safety Checklists pointed out by the systematic review, values of US\$11.00 per use and US\$12,635.00 for training employees with the operationalization of all the items on the list stands out, be it according to the WHO model or prepared by the health institutions themselves.⁽¹⁰⁾ These values refer to the year 2008. Furthermore, the perception of the surgical team about the effect of surgical delays caused by this list is high, since this was revealed as an unnecessary action in the anesthetic-surgical act in the referenced study. The completion of safe perioperative care items on the list recommended by WHO takes an average of about 2 minutes.⁽¹³⁾

Although the evidence demonstrates the significance of using the Surgical Safety Checklist for patient safety, a reflection study problematizes that operating this tool has revealed experiences with flaws and mistakes, such as the incompleteness of checklist items, low adherence, checking without verbalizing their items, reliability in the data filled in and resistance by health professionals.⁽¹⁴⁾ In this sense, the authors question the causal factors of this difficulty, pointing out that implementing the list in some health services summarily, passively and bureaucratically represents yet another form to be filled out imposed on the nursing team, and may have contributed to the low adherence to its use.⁽¹⁴⁾

The auditing processes meet the demand and need to verify adherence to the use of the Surgical Safety Checklist, as in health services it is necessary to manage quality through conformity and education audits in health, in addition to knowing the multiprofessional work process in order to guarantee behavioral changes in the safety and quality of surgical care. Verifying criteria to ensure that care is provided free of damage, malfunctions and events which should never occur (never events) is necessary for the surgical environment to be safe and reliable.

Thus, it was decided to perform the audit criteria of the Joanna Briggs Institute (JBI) based on the Evidence-Based Clinical Fellowship Program (EBCFP), conducted by the professor of the nursing

course at a university in the state of Santa Catarina, Brazil, in March 2018, offered by the University of São Paulo School of Nursing, which prepared health professionals to promote evidence-based health care, as well as to develop knowledge and skills in change management and clinical leadership according to the implementation methodology of the collaboration with the Joanna Briggs Center of Excellence. There are studies that have conducted independent and/or institutional audits from quality and risk management departments regarding adherence to the Surgical Safety Checklist, however there were no publications on audits based on JBI auditable criteria on the subject in question.^(15,16) Thus, this study sought to answer the following guiding question: Is there a commitment to the use of the Surgical Safety Checklist by the surgical team based on the JBI auditable criteria for best practices?

The recommendation for best practices regarding the effectiveness and adherence to the JBI surgical checklist was to recognize that adherence to the surgical checklist depends on its implementation by the surgical team (Evidence Grade A) and on continuing education and training about the objectives and their correct use in order to improve their adherence. This education should address possible misperceptions in its use and general safety (Evidence Grade A) and integrate the surgical checklist into existing work routines, so that it does not compromise and/or hinder the present work process (Level of Evidence A).^(17,18) Therefore, the objective of this study was to evaluate adherence to the use of the Surgical Safety Checklist of a referral hospital in cardiac surgery according to the JBI auditable criteria.

Methods

This is an observational, cross-sectional and descriptive study. Data collection was carried out from December 2018 to February 2019 with a total of 200 (100%) direct observations of surgical procedures (general, orthopedic and cardiac). The study scenario was the surgical center of a hospital in the west of Santa Catarina State, referred to by

the Ministry of Health as providing highly complex care in cardiology. The hospital has 174 beds with an average of 920 hospitalizations/month and 499 surgeries/month. The surgical center consisted of four operating rooms; one for cardiac surgery, another for emergencies and cesarean sections, and the others for other medical specializations.

The Surgical Safety Checklist was implemented in the study hospital in 2013, and was definitively instituted after training the surgical team and inserted in the patient's electronic medical record in the three operative moments, as recommended by WHO in 2009. After implementation, any divergences contained on the list were individually managed and discussed by the general nursing coordinator with the surgical team. These inconsistencies were sometimes about patient identification data and items from the operative moments at *sign in*, *time out* and *sign out*. In addition, the present study site did not have a certification process with previously defined standards or requirements, nationally or internationally, with a view to the quality and safety of the care provided to the assisted patient, nor auditable processes regarding care quality.

This study was based on Evidence-Based Practice, which combines the best scientific evidence with clinical experience, thereby seeking critical and reflective decision making to be applied in health care and thus implement the best practices in health services.⁽¹⁹⁾ Among international centers that use Evidence-Based Practice, JBI promotes and supports the synthesis, transfer and use of evidence by identifying viable, appropriate, meaningful and effective health practices to assist in improving health results globally.⁽²⁰⁾ This study followed the method recommended by the best practices for adhering to the use of the Surgical Safety Checklist, supported by scientific evidence from the JBI, and striving for quality in the studies used according to its Degree of Recommendation and its Evidence Levels. It was accordingly structured in three phases.

Phase 1 – Baseline audit

The professionals were invited to participate in the research and signed an Informed Consent Form prior to beginning the observation phase. These pro-

professionals were surgeons, anesthetists, the nurse coordinator of the surgical center, the hospital nursing manager and nursing technicians (circulating and surgical instrumentalist). Thus, the audit team was established by these professionals and coordinated by a nursing student from the Nursing Course at the Higher Education Center at the State University of Santa Catarina. She was responsible for measuring compliance in the adherence to the use of the surgical checklist by the multidisciplinary team, according to the recommendations of the best practices made available by the JBI, along with the assistance of the professor. The basic audit was carried out by the researcher for 15 days after communicating with the surgical team about the objectives of the project to implement best practices. The data were collected through systematic and non-participant observation in a non-probabilistic sample, totaling 100 surgical procedures (general, orthopedic and cardiac). Emergency surgeries were excluded due to the researcher's concern to not affect the team's work dynamics in high-risk situations. A semi-structured questionnaire built by the researcher using the JBI Practical Application of Clinical Evidence System (PACES) program was used for auditable criteria in accordance with Evidence-Based Practice. The criteria used are presented in Table 1.

Table 1. Auditing criteria

1. It is strongly recommended that the checklist should involve the entire surgical team. Its use should be made to improve patient safety.
2. It is recommended that the surgical team introduce themselves (pausing) to the patient before anesthetic induction.
3. The surgical team received education and training on the use of the surgical checklist. Its use is important in the safety culture.
4. Surgical checklists are used to foster a safety culture and not to replace other initiatives that contribute to that culture.

Source: Translated and adapted by Dias M. JBI Evidence Summary. Evidence-informed practice at the point of care. Surgical safety checklists. The Joanna Briggs Institute EBP Database, 2018.(21)

The analysis of descriptive data was performed by means of percentage values of the audited criteria that were in compliance and non-compliance using Microsoft Excel® 2013 and Microsoft Word® 2013.

Phase 2 – Educational

This moment is characterized by reflection on the results of the basic audit, elaborating and implementing strategies to improve clinical practice. The results

of the baseline audit were presented to the surgical center team (doctors, anesthetists, nurses and coordinating doctors of the surgical center, circulators and instrumentalists), discussing obstacles and the proposed strategies to improve compliance for each audited criterion. Stakeholders, including the surgical team and the nursing manager, were invited to participate in conversation circles or individual conversations or meetings in the surgical center's staff break room to discuss the baseline audit data. The data were presented in graphs to the surgical team and to the nursing manager, and then improvement strategies were discussed to obtain an increase in the percentage of all audited criteria. The quality of the criteria by JBI must have a percentage above 75%. The JBI's Getting Research into Practice (GRiP) tool was used to document the barriers found, the strategies implemented and the resources needed to overcome these barriers, aiming to improve compliance to the audited criteria. Members of the surgical team who were on sick leave or absent from work were excluded from the study. Inclusion criteria were all professionals who were not on any kind of leave during the data collection period.

Phase 3 – Follow-up audit

The post-implementation audit was carried out 1 month immediately after the basic audit for 15 consecutive days. This phase aimed to evaluate the results of the implemented interventions. Thus, 100 surgical procedures (general, orthopedic and cardiac) were observed with the same surgical team as the basic audit and in the same way, also using the same criteria and data collection instrument. The results of the compliance percentages for each criterion audited were compared before and after the implementation of best practices, thus enabling to verify the impact of this study on clinical practice. The data were computed using Microsoft Excel® 2013 and Microsoft Word® 2013.

The study met the requirements of the Research Ethics Committee Involving Human Beings according to the terms of the Resolution National Research Ethics Commission/National Health Council 466/2012, registered and approved under process CAAE 88803418.1.0000.0118.

Results

Phase 1 – Baseline audit

The results of the baseline audit identified that only Criteria 2 and 3 had high compliance with best practices (81% to 93%). Criteria 1 and 4 showed low compliance, ranging from 45% to 49% and falling below the expected value, which was 75% (Figure 1).

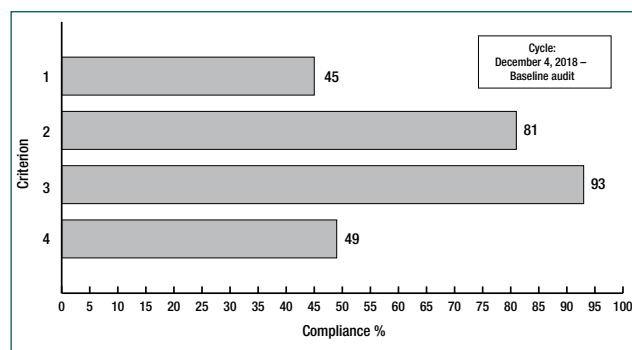


Figure 1. Compliance with the best practices for the basic audit (%) according to criteria set out in Table 1: (1) the implementation of the Surgical Safety Checklist must involve a multidisciplinary health team; (2) the health team should be educated on various aspects of the checklist and how to use it; (3) the Surgical Safety Checklist is used to augment and not to replace other initiatives that contribute to the safety culture; (4) measures that are sensitive to the quality of the checklist practice have been used to identify areas for improvement in implementation.

Phase 2 – Educational

The JBI's GRiP tool was used to document the barriers found, the strategies implemented and the resources needed to improve compliance to the audited criteria. The educational phase took place 7 days after the last day of the basic audit, in which the researcher met with the nursing manager, the coordinating nurse of the surgical center, the medical coordinator of the surgical center and the anesthesia coordinator in the morning and afternoon. The nursing team discussed the continued insertion of the Surgical Safety Checklist in the patient's electronic medical record by hospital staff, as they were responsible for referring patients to the hospital's surgical center reception. There was a dialogue with the medical coordinator of the surgical center about the incentive for an assertive and clear verbal communication between the surgeon and the patient and the surgical team in the three operative mo-

ments. Furthermore, there was continued stimulus of the approaches already taken by the anesthesiologists to the patients before the anesthetic induction, in which they asked about allergies, fasting time and the surgical procedure to be performed, in addition to evaluating the patient’s airway. Despite the non-conformities resulting from the baseline audit, professionals in surgery, anesthesia and nursing were shown to be proactive and emphatic in improving surgical safety. All team members were trained and recognized the importance of effective communication between the team and the completeness of the Surgical Safety Checklist record.

Phase 3 – Follow-up audit

The data from the follow-up audit proved to be satisfactory, as the compliance rates for all the audited criteria increased. Specifically, 100% compliance with the criteria related to the education and training of nursing professionals regarding the use of the Surgical Safety Checklist was observed (Figure 2).

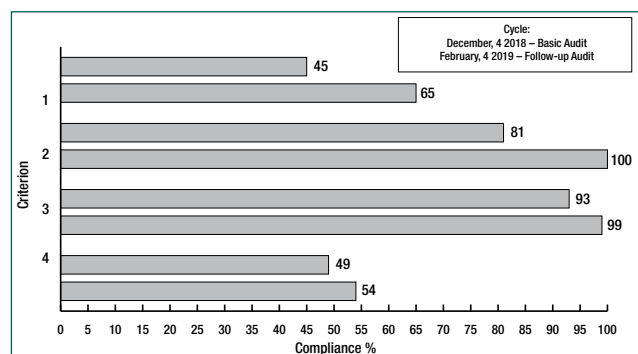


Figure 2. Results of the baseline and follow-up audit (%) according to criteria parameterized in Table 1: (1) the implementation of the Surgical Safety Checklist must involve a multidisciplinary health team; (2) the health team should be educated on various aspects of the checklist and how to use it; (3) the Surgical Safety Checklist is used to augment and not to replace other initiatives that contribute to the safety culture; (4) measures that are sensitive to the quality of the checklist practice have been used to identify areas for improvement in implementation.

Discussion

The audit of this study evaluated four criteria for compliance with current practices with the best

evidence available in the literature. Our observations infer the difficulties related to adhering to safe surgery procedures by the multiprofessional team (Criterion 1), and possibly influence the incompleteness of the electronic record of the Surgical Safety Checklist (Criterion 4). Therefore, findings below the 75% compliance level are better discussed to elucidate this low compliance.

Criterion 1 (implementation of the Surgical Safety Checklist must involve the multidisciplinary health team) revealed low compliance (65%) in the follow-up audit regarding adherence to using the list. There was no identification of safe surgery in the three operative times in 35% of the observations made, which is justified by the fact that these surgeons entered the operating rooms after anesthetic induction and did not communicate with the team during the operation. Considering communication as a fundamental aspect during any surgery, it is considered that there was eventually not enough time between the time of the educational phase and the follow-up audit (15 days) to structure the feedbacks with the surgeons in order to achieve the desired compliance.

A study carried out in India in which the Surgical Safety Checklist was audited in 600 observations (200 at *sign in*, 200 at *sign out*, and 200 at *time out*) evidenced active involvement of the three members of the surgical team (surgeons, anesthesiologists and nurses), especially at the surgery *time out* (78%) on the list.⁽¹⁶⁾ The audit of this study took place 5 years after implementing the list, as there was a need to structure both the team and the hospital. The findings also showed that surgeons used the checklist proactively in the three surgical moments (98.5% at *sign in*; 59% at *time out*; and 88.9% at *sign out*). The items on the list’s *time out* in this study were about the verbal confirmation of the patient and demarcation of laterality, antimicrobial prophylaxis, imaging exams and filling out the pathology form.⁽¹⁶⁾ For further argument about adherence to Verification of Surgical Safety by the surgical team, one study evaluated 875 health professionals (nurses, surgeons and anesthesiologists) via an online form on the frequency and satisfaction in using the list after its implementation in a university hospital, verify-

ing that 99.4% of the evaluated professionals used the list. Still, 88.3% specified that they use it between 91% and 100% in all surgeries performed.⁽¹⁵⁾

In an analysis of which professionals most frequently used the Surgical Safety Checklist, there were no significant differences between surgeons and anesthesiologists ($p = 0.212$), or among anesthesiologists and nurses ($p = 0.451$).⁽¹⁵⁾ Thus, these studies reinforce the importance of multiprofessional involvement, with the physician being a fundamental actor in changing the safety culture in the operating room, as unsafe decisions can be made without their active day-to-day participation, not in the least because the medical partnership is an essentially interdisciplinary phenomenon in surgical care.⁽²²⁾ The active involvement of the surgical team in the implementation phase and in evaluating the Checklist of Surgical Safety is important, with continuous training being proposed in order to obtain presuppositions regarding adherence to the use of the list and data compliance.^(23,24) In addition, the continuous training of the team in using the list can break multiple barriers regarding misuse, non-use or incomplete execution of the list, and furthermore collective work seems to be a salutary point in the effectiveness of communication.

In this perspective, the findings of Criterion 2 of the performed audit revealed that all circulating people, especially newcomers at the institution, received training on the use of the list, and also affirmed that it is extremely important for the surgical progress because you cannot let the patient leave the operating room without checking all the *sign out* items, for example. Surgical teams should be trained by the leaders (hands-on leadership) to implement the Surgical Safety Checklist, and from time to time the surgical safety protocols should be reviewed to avoid possibly forgetting their use.⁽²⁵⁾ It is necessary to implement a systematic work of observation and to improve the use of the Surgical Safety Checklist in order to evaluate its use, and so that if there is a need to change the content, this be done to strengthen the implementation team.

In view of the aspects involving the audit, it is worth mentioning that the processes which incorporate continuous feedback in real time are crucial

for care to be efficient, effective and safe.^(10,19) In operational terms, nurses are encouraged to invite instructors and circulators, anesthesiologists and surgeons to provide continuous feedback on the content and execution of the Surgical Safety Checklist, in addition to individual perceptions about the daily use of the list. When face-to-face meetings are not feasible, feedback can be conducted via e-mail.⁽²⁶⁾ Thus, it is worth noting that the Surgical Safety Checklist is a useful reminder when members of the perioperative team adhere to safety protocols, however it does not solve all safety problems; among them, assertive and clear communication between the team in intraoperative procedures, the team's adherence to safety protocols and the reduction of sentinel effects.^(27,28)

Regarding Criterion 4 (sensitive measures for quality of practice in the Surgical Safety Checklist have been used to identify areas for improvement in the implementation) of the performed audit, gaps in the complete filling of this list are evident, especially in the initial part, as it was observed that the inpatient sectors did not fill it in. There was a dialogue with the nursing manager about this issue in our educational process approach, pointing to the possible resolution of the daily conferences on the list in the electronic medical record before the patient entered the operating room reception. The rate of filling out the list after the follow-up audit was 54%, which is in accordance with the literature, and showed incompleteness of the records on the Surgical Safety Checklist of 76% at the *sign out* time among the 660 surgical observations performed.⁽¹⁶⁾ The completion rates of records for the Surgical Safety Checklist in another study ranged between 53.2% and 60.6%, with inference of carrying out quality audits for possible changes in the items of the list, as well as a constant involvement of the surgical team, as it is realized that each criterion can favor adherence and therefore a safe environment for both patients and the surgical team.⁽²⁹⁾

In this sense, it is common to have a certain misunderstanding about the proper use of the Surgical Safety Checklist and who would be responsible for asking and filling in its items, since health services generally have a significant number of checks, and

the list can cause checking fatigue, reducing the reliability of the recorded data.⁽²³⁾ Also, there is the adoption of inadequate training or standardized videos or posters, which can be impeding factors in adhering to its use, because studies suggest that team training anchored by team-based learning improves perception, knowledge and compliance in adhering to the execution of the surgical list.^(15,30) Although it was not proposed to discuss Criterion 3 due to the high compliance achieved by criteria of the JBI (93%), it is necessary to express that the list provides the team with the opportunity to review events and intraoperative results and discuss postoperative plans for the successful recovery of patients.⁽³¹⁾ It is necessary to have continuous training before, during and after implementing the Surgical Safety Checklist to obtain high compliance percentages with its use in order to provide quality documentation and efficiency of human and material resources.

Conclusion

The objectives of this study on evaluating adherence to the use of the Surgical Safety Checklist by the surgical team of a cardiac reference hospital were partially achieved based on the criteria audited by the Joanna Briggs Institute. In addition, the failure to achieve full compliance with some criteria was due to the fact that this was a one-off audit, meaning it was only conducted during the project's execution period. There was no research evaluating adherence to the use of the Surgical Safety Checklist before its implementation process. The literature shows signs that adherence is possible over time, as long as there is more investment in training surgical teams to foster an evidence-based safety culture and thus redefine this scenario, along with higher compliance rates with auditable criteria. The proactive participation of all members of the surgical team, especially of the perioperative nurse, should be established in the safety culture, since our study did not obtain full involvement of the surgeon in the intraoperative period. Therefore, we aim to use a standardized and systematized approach to guide the team on the

pertinent information of the patient, since adherence to the use of a checklist enhances improvement in patient safety as this individual moves to the next phase of treatment, ensuring that all team members are aware of intraoperative events. In this sense, it is possible to obtain a safer surgical process based on teamwork, internalization and expansion strategies, effective management of processes and the full engagement of people. Overall, the study was assessed as having moderate compliance, which provides key elements to sustain clinical change through evidence-based practice. Thus, it is necessary to carry out additional audits to maintain clinical practice based on the best scientific evidence for safe surgery.

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Collaborations

Cabral DB, Pereira MLP, Fernandes MS, Kuczmainski AG and Korb A substantially contributed to the study design, analysis and interpretation of data, writing and critical review of intellectual content and approval of the final version to be published.

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