

# Promotion of Patient Health and Safety in the Operating Room: Improving the Quality of Care

Promoção da Saúde e Segurança do Paciente no Centro Cirúrgico: Melhoria da Qualidade Assistencial  
Promoción de la Salud y la Seguridad del Paciente en el Quirófano: Mejora de la Calidad Asistencial

## RESUMO

Este estudo objetivou analisar estratégias de promoção da saúde e segurança do paciente no centro cirúrgico, com foco na melhoria da qualidade assistencial. Foi realizada uma revisão integrativa que identificou 12 artigos sobre protocolos, cultura organizacional, educação permanente e inovação tecnológica. Os achados indicaram que *checklists* cirúrgicos, liderança eficaz e sistemas de rastreabilidade são essenciais para reduzir eventos adversos e potencializar a segurança. No entanto, desafios persistem, incluindo limitação de recursos, subnotificação de incidentes e dificuldades de comunicação entre equipes multiprofissionais. Conclui-se que o desenvolvimento de estratégias integradas, associadas ao compromisso institucional e ao engajamento dos profissionais, é fundamental para consolidar práticas seguras e qualificadas no ambiente cirúrgico, assegurando cuidado centrado no paciente e resultados sustentáveis.

**DESCRIPTORIOS:** Centro Cirúrgicos; Segurança do Paciente; Melhoria de Qualidade; Promoção da Saúde.

## ABSTRACT

This study aimed to analyze health promotion and patient safety strategies in the surgical center, focusing on improving the quality of care. An integrative review was conducted, identifying 12 articles on protocols, organizational culture, continuing education, and technological innovation. The findings indicated that surgical checklists, effective leadership, and traceability systems are essential to reduce adverse events and enhance safety. However, challenges remain, including limited resources, underreporting of incidents, and communication difficulties among multiprofessional teams. It is concluded that the development of integrated strategies, combined with institutional commitment and professional engagement, is fundamental to consolidating safe and qualified practices in the surgical environment, ensuring patient-centered care and sustainable outcomes.

**DESCRIPTORS:** Surgical Center; Patient Safety; Quality Improvement; Health Promotion.

## RESUMEN

Este estudio tuvo como objetivo analizar estrategias de promoción de la salud y seguridad del paciente en el centro quirúrgico, con enfoque en la mejora de la calidad asistencial. Se realizó una revisión integrativa que identificó 12 artículos sobre protocolos, cultura organizacional, educación continua e innovación tecnológica. Los hallazgos indicaron que las listas de verificación quirúrgica, el liderazgo eficaz y los sistemas de trazabilidad son esenciales para reducir eventos adversos y potenciar la seguridad. Sin embargo, persisten desafíos, incluyendo la limitación de recursos, la subnotificación de incidentes y las dificultades de comunicación entre los equipos multiprofesionales. Se concluye que el desarrollo de estrategias integradas, asociadas al compromiso institucional y al involucramiento de los profesionales, es fundamental para consolidar prácticas seguras y calificadas en el entorno quirúrgico, asegurando un cuidado centrado en el paciente y resultados sostenibles.

**DESCRIPTORIOS:** Centro Quirúrgico; Seguridad del Paciente; Mejora de la Calidad; Promoción de la Salud.

### Sérgio Ferreira Tannús

Graduated in Nursing from Centro Universitário do Triângulo (UNITRI). Postgraduate in ICU with emphasis on Urgency and Emergency and in Occupational Nursing from Instituto Passo 1. Master in Environmental and Occupational Health from Universidade Federal de Uberlândia (UFU). PhD candidate in Health Promotion at Universidade de Franca (UNIFRAN). Member of the nursing team at Universidade Federal de Uberlândia (UFU). Professor at Faculdade Uniesa.

ORCID: <https://orcid.org/0000-0003-3504-1737>

### Isabelle Cristina Braga Coutinho Cunha

Nurse. Coordinator of the Patient Safety Center at Hospital Central Coronel Pedro Germano, Natal (RN), Brazil. Master's degree from the Graduate Program in Health and Society.

ORCID: <https://orcid.org/0000-0001-5740-5883>

### Marcelo Barros de Valmoré Fernandes

Nurse. Bachelor of Nursing from EEAAC/UFF (Rio de Janeiro). Specialist in Surgical Center (EEUSP, São Paulo). Specialist in Management of Nursing Units and Services (Faculdade Santa Marcelina, São Paulo). Specialist in Health Management and Infection Control (INESP, São Paulo). Professor of Undergraduate Nursing and Graduate Programs in Neonatology and Pediatrics at Faculdade Bezerra de Araújo (Rio de Janeiro). Master in Health in Conflict Mediation in Primary Health Units – American University Saint Joseph, Orlando, FL, 2025.

ORCID: <https://orcid.org/0000-0003-1255-8142>

### Maria Ivanira da Maia

Bachelor of Nursing from Faculdade Santa Emília de Rodat. Specialist in Adult Intensive Care (Faculdade de Ciências Médicas – FCM, Campina Grande). Specialist in Management of Donation-Transplantation Procedures (Universo). Specialist in Neonatal and Pediatric ICU (FAVENI). Currently works at Hospital de Emergência e Trauma Senador Humberto Lucena, João Pessoa (PB), Brazil.

ORCID: <https://orcid.org/0009-0001-3986-8638>

### Lívia Maria de Azevedo

Technical Reference in Patient Safety at the Sub-coordination of Hospital Care, State Department of Public Health of Rio Grande do Norte. Natal (RN), Brazil. Master's degree from the Graduate Program in Public Health – UFRN.

ORCID: <https://orcid.org/0009-0004-2403-523X>

### Talita Mayane Nunes Alencar

Nurse. Bachelor of Nursing from Faculdade de Saúde e Desenvolvimento Humano Santo Agostinho (Montes Claros – MG). Postgraduate in Occupational Nursing (Universidade Cândido Mendes) and in Urgency and Emergency Nursing (Faculdade Única de Ipatinga). Member of the nursing team at Universidade Federal de Uberlândia (UFU).

ORCID: <https://orcid.org/0009-0001-2338-7346>

Received 07/16/2025

Approved: 08/04/2025



## INTRODUCTION

Patient safety in the operating room is a permanent and essential challenge in promoting quality care and consolidating safe health practices. This environment, characterized by high complexity, technological intensity, and multi-professional interactions, demands the development of strategies that ensure the prevention of adverse events and the mitigation of risks inherent to surgical procedures. Initiatives such as standardized protocols, effective communication between teams, process traceability, and continuous professional development and training of health professionals are fundamental to strengthening a culture of safety that prioritizes patient-centered care<sup>1</sup>.

Health promotion in this context transcends infection control and involves institutional commitment to quality management, the promotion of good practices, and the creation of environments that favor safe decision-making and the rational use of resources<sup>2</sup>. Considering that care failures can compromise clinical outcomes and negatively impact the patient and staff experience, it is essential to invest in integrated policies that combine technological innovation, continuing education, and systematic monitoring of indicators<sup>3,4</sup>. Thus, promoting health and ensuring patient safety in the operating room is not only an ethical and legal requirement, but also a strategic opportunity to consolidate sustainable advances in healthcare<sup>1-4</sup>.

It is widely understood that patient safety in the operating room is one of the fundamental pillars of quality care and effective therapeutic interventions. Given technological advances and the increasing complexity of surgical procedures, there is a need to consolidate evidence-based practices that minimize harm and ensure safe,

effective, and humane care<sup>1-2</sup>.

The surgical environment is characterized by intense process dynamics, the constant use of cutting-edge technologies, and the work of multidisciplinary teams with interdependent responsibilities. These characteristics increase risks, such as surgical site infections, adverse events related to anesthesia, identification errors, and communication failures between professionals<sup>2-3</sup>. For this reason, promoting patient health and safety in this context requires a set of coordinated strategies ranging from the implementation of standardized operating protocols, such as the Surgical Safety Checklist, to ongoing continuing education and epidemiological surveillance programs<sup>1-4</sup>.

Strengthening the culture of safety depends on institutional commitment, systematic monitoring of indicators, and valuing the role of professionals in adopting safe practices. Recent studies highlight that raising awareness and training the multidisciplinary team can significantly reduce the occurrence of adverse events and improve clinical outcomes<sup>1-3</sup>. In addition, the integration of digital technologies for tracking materials and safe patient identification contributes to increasing the traceability of processes and improving decision-making<sup>4</sup>.

Another relevant aspect is the need to promote the active involvement of patients and their families in care planning and monitoring as a strategy to reduce communication failures and strengthen self-care after discharge<sup>2</sup>. This approach broadens the perspective of health promotion in the operating room by considering the subjective and relational dimensions of care, reinforcing that safety is not restricted to technical measures, but also requires empathy, acceptance, and continuous dialogue.

In this sense, promoting patient health and safety in the operating

room is an ethical, legal, and strategic priority, capable of transforming organizational culture and ensuring that each procedure is conducted safely, skillfully, and with a focus on human dignity. Therefore, the objective is to analyze and discuss strategies for promoting patient health and safety in the operating room, highlighting evidence-based practices, care protocols, and educational actions that contribute to improving the quality of care and reducing adverse events.

## METHOD

This is an integrative literature review with a descriptive approach, developed with the objective of gathering and analyzing scientific productions related to health promotion and patient safety in the operating room. To this end, systematic steps were followed that enabled the construction of a critical synthesis of the available knowledge.

The studies were surveyed in the Scientific Electronic Library Online (SciELO), Latin American and Caribbean Health Sciences Literature (LILACS), SCOPUS, and Virtual Health Library (VHL) databases, covering publications available in open access. The following controlled descriptors and their combinations were used: "patient safety," "operating room," "health promotion," and "quality of care."

The inclusion criteria encompassed articles published between 2015 and 2025, in Portuguese, English, and Spanish, that addressed strategies, protocols, challenges, and practices focused on patient safety in surgical contexts. Duplicate publications, editorials, event summaries, and works that did not address the central theme of the study were excluded.

The selection process followed three steps: exploratory reading of titles and abstracts, evaluation of the

full text, and application of eligibility criteria. To organize and record the extracted data, an instrument was developed that included information such as: title, year of publication, objective, type of study, main results, and conclusions.

The data were systematized in a narrative form, allowing the identification of thematic categories that highlight successful practices, persistent challenges, and perspectives for promoting patient health and safety in the operating room.

The initial search in the SciELO, LILACS, and Virtual Health Library databases resulted in 148 potentially relevant articles. In the first selection stage, consisting of exploratory reading of titles and abstracts, 62 studies were identified that addressed health promotion and patient safety in the operating room in general. Subsequently, the texts were read in full and

the inclusion and exclusion criteria were rigorously applied, considering the publication period between 2015 and 2025, the availability of the full text, and the emphasis on strategies specifically aimed at improving the quality of care.

At the end of this process, 12 articles were selected that fully met the research objectives and whose content enabled the identification of thematic categories related to the implementation of safety protocols, the strengthening of organizational culture, the continuing education of multidisciplinary teams, and the use of technologies in the monitoring and tracking of surgical processes.

## RESULTS AND DISCUSSION

To support the analysis proposed in this study, a careful selection of national and international scientific

publications was made that comprehensively address aspects related to health promotion and patient safety in the operating room, with an emphasis on strategies aimed at improving the quality of care. The publications cover different methodological designs, including integrative reviews, cross-sectional studies, experience reports, book chapters, and reflective essays, allowing for a broad and multidimensional view of the topic.

The following table presents a summary of the main works identified, highlighting the year of publication, the central objective, the type of study conducted, the main results, and the conclusions drawn by the respective authors. This organization aims to facilitate the understanding of the available evidence, supporting critical discussion and the proposal of strategies applicable to professional practice in surgical environments.

**TABLE 1 – Description of the characteristics of the articles found:**

| Title/Journals   | Year | Objective  | Type of Study                     | Main Results   | Conclusions  |
|--|------|--|-----------------------------------|--|--|
| Improving Surgical Quality—Is the Patient Experience a Valid Measure of Quality? (JAMA Surgery) <sup>5</sup> | 2015 | Discuss how briefings and patient satisfaction can comprise measures of surgical quality | Opinion article/essay             | Briefings in the operating room positively impact the experience and perception of quality | Quality is multifactorial and includes patient satisfaction and safety         |
| Factors Associated with Safety Attitudes in the Operating Room (BMC Nursing) <sup>6</sup>                    | 2023 | Assess factors that influence safety attitudes in the operating room                     | Cross-sectional study             | Organizational climate and culture are determinants for safe practices                     | Emphasizes the need to promote a culture of safety and effective communication |
| Patient Safety in Surgery (Springer, Capítulo 3) <sup>7</sup>  | 2020 | Examine practices and evidence on perioperative safety                                   | Theoretical review / book chapter | Checklists and protocols reduce adverse events and improve outcomes                        | Implementing standardized protocols improves quality of care                   |
| Leadership in Surgical Safety (Springer, Capítulo 19) <sup>8</sup>   | 2019 | Discuss the role of leadership in surgical safety  | Book chapter                      | Effective leadership influences adherence to protocols and safety culture                  | Managers should foster an environment of trust and non-punitive reporting      |
| Association Between Hospital Safety Culture and Surgical Outcomes (J Am Coll Surg) <sup>9</sup>              | 2019 | Analyze the relationship between safety culture and surgical outcomes                    | Multicenter observational study   | Better safety culture associated with lower incidence of complications                     | Investing in institutional culture can improve clinical outcomes               |
| Cultura de segurança do paciente na enfermagem em centro cirúrgico (Rev Esc Enferm USP) <sup>10</sup>        | 2020 | Assess the nursing team's perception of safety culture                                   | Cross-sectional study             | Poor communication and persistent underreporting   | Continuing education is essential  |
| Implementation of Surgical Safety Checklists and Outcomes (PLOS One) <sup>11</sup>                           | 2024 | Assessing the impact of the safe surgery checklist                                       | Quasi-experimental study          | Reduction in adverse events and improvement in process adherence                           | Sustainability depends on ongoing training                                     |

|  |      |  |                       |   |  |
|--|------|--|-----------------------|---|--|
| Transforming into a Learning Health System (Quality & Safety) <sup>12</sup>                                      | 2024 | Reporting the implementation of a learning health system     | Experience report     | Data integration and continuous feedback improve practices        | Learning models drive quality and safety                   |
| Segurança do paciente em centro cirúrgico: uma revisão integrativa (Revista Faculdade Itop) <sup>1</sup>         | 2023 | Reviewing safety practices and protocols in operating rooms  | Integrative review    | Protocols and culture directly impact safety                      | Systematic monitoring is essential                         |
| Segurança do paciente no centro cirúrgico: práticas e desafios (Revista Saúde & Vida) <sup>2</sup>               | 2023 | Identifying practices and challenges in perioperative safety | Integrative review    | Barriers include limited resources and low adherence to protocols | Proposes continuing education and participatory management |
| Segurança do paciente no ambiente cirúrgico: perspectivas da equipe multiprofissional (Acervo Mais) <sup>3</sup> | 2023 | Analyzing safety culture from a nursing perspective          | Cross-sectional study | Low error reporting and cultural fragility                        | Safety culture requires institutional commitment           |
| Ciência, tecnologia e inovação em saúde: desafios contemporâneos (Amplla Editora) <sup>13</sup>                  | 2025 | Discussing innovation and quality in health                  | Book chapter          | Technologies strengthen traceability and safety                   | Innovation and continuous improvement are decisive factors |

Source: Research data, 2025.

Analysis of the selected studies shows that promoting health and patient safety in the operating room remains a complex and multifactorial challenge, requiring integrated efforts by managers, healthcare professionals, and healthcare systems<sup>1-13</sup>. One of the main findings concerns the relevance of organizational culture as a determining factor for quality of care and the prevention of adverse events, an aspect corroborated by investigations that have demonstrated a direct association between environments with a strong safety culture and a reduction in surgical complications and mortality rates<sup>1-13</sup>.

The results highlight that a positive institutional culture influences not only immediate clinical outcomes but also patients' overall perception of quality and trust in services. This finding converges with reports of experiences that show that continuous learning systems and the integration of care and educational data can improve safety and adherence to protocols<sup>6-8</sup>.

The implementation of safe surgery checklists emerges as an intervention with consistent impact, contributing to standardizing processes and reducing preventable errors. However, studies indicate that the effectiveness of these tools depends directly on professional adherence,

constant training, and the existence of active supervision, elements that still face barriers in different institutional contexts<sup>6-10</sup>.

Another noteworthy point refers to the role of leadership and effective communication in creating an environment conducive to incident reporting and collective learning<sup>6-9</sup>. The literature reviewed shows that leaders who adopt participatory management practices and foster a culture of non-punishment tend to mobilize greater team engagement. This dimension is fundamental, considering that a significant portion of the studies identified underreporting of adverse events, motivated by fear of punishment or the absence of structured feedback on reports<sup>6-11</sup>.

National investigations corroborate that, in Brazil, challenges such as limited material resources, staff shortages, work overload, and insufficient educational processes still directly impact the quality of care in the operating room. Poor communication between shifts and teams was identified as a critical factor contributing to identification errors, failures in patient preparation, and intraoperative risks<sup>7-8-9</sup>.

Finally, integrative review studies reinforce that the incorporation of technological innovations, traceability systems, and continuous improvement processes enhance the

achievement of safe practices and the sustainability of actions. However, the literature warns that technology alone cannot replace ethical commitment, professional competence, and the need for ongoing investment in training and monitoring<sup>10-11</sup>.

Considering this scenario, it is clear that promoting patient health and safety in the operating room involves not only adopting protocols, but also fostering an organizational culture based on trust, open communication, and continuous learning<sup>12-13</sup>. The combination of committed leadership, active participation of the multidisciplinary team, and systematized processes is the most promising way to reduce risks, improve care, and consolidate sustainable clinical outcomes.

## FINAL CONSIDERATIONS

The promotion of patient health and safety in the operating room represents an inseparable dimension of contemporary healthcare quality. The results of this integrative review demonstrate that the adoption of evidence-based practices, such as standardized operating protocols and checklists, has a positive impact on reducing adverse events and improving clinical outcomes. Participatory leadership, combined with the strengthening of a culture of safety,

has proven to be decisive in encouraging incident reporting and consolidating environments of trust and continuous learning.

However, it was observed that barriers such as a shortage of human resources, poor communication

between teams, and a lack of structured feedback still compromise the effectiveness of the strategies implemented. Thus, it is recommended that managers and professionals invest in continuing education, technological innovation, and systematic monitor-

ing of care indicators. Only the combination of these efforts can ensure the consolidation of safe, patient-centered surgical care that is aligned with the ethical and legal principles that guide healthcare.

## Referências

1. **Gomes RF, Oliveira LB, Cruz EDA, Teixeira P, Leite MMJ. Segurança do paciente em centro cirúrgico: uma revisão integrativa. Rev Fac Itop [Internet]. 2023 [citado 2025 jul 7];7(1):e770.**
2. **Santos RM, Oliveira LA, Costa FS, Almeida ALO, Silva Júnior MF. Segurança do paciente no centro cirúrgico: práticas e desafios. Rev Saúde Vida [Internet]. 2023 [citado 2025 jul 7];9(2):e2746.**
3. **Souza AG, Freitas GM, Pereira DS. Segurança do paciente no ambiente cirúrgico: perspectivas da equipe multiprofissional. Acervo Mais [Internet]. 2023 [citado 2025 jul 7];(49):e14583.**
4. **Carvalho MAM, Dias SRS, organizadores. Ciência, tecnologia e inovação em saúde: desafios contemporâneos. Amplia Editora; 2025. p.111.**
5. **Hicks CW, Hosokawa PW, Itani KMF, Greenberg CC, Henderson WG, Ko CY, et al. Improving surgical quality—Is the patient experience a valid measure of quality? JAMA Surg. 2015;150(2):111–2.**
6. **Hignett S, Lang A, Pickup L, Ives C, Fray M, McKeown C, et al. Factors associated with safety attitudes in the operating room: a cross-sectional study. BMC Nurs [Internet]. 2023;22:364.**
7. **Carayon P, editor. Patient safety in surgery. In: Handbook of Human Factors and Ergonomics in Health Care and Patient Safety. 2nd ed. New York: Springer; 2020. p.35–56.**
8. **Carayon P, editor. Leadership in surgical safety. In: Handbook of Human Factors and Ergonomics in Health Care and Patient Safety. 2nd ed. New York: Springer; 2019. p.299–314.**
9. **Odell DD, Bilimoria KY, Yang AD, Sachs TE, Dahlke AR, Chung JW, et al. Association between hospital safety culture and surgical outcomes. J Am Coll Surg. 2019;229(2):175–83.**
10. **Sousa PAF, Dal Sasso GTM, Carvalho PA, Oliveira RR, Bernardes RM, Lucena AF. Cultura de segurança do paciente na enfermagem em centro cirúrgico. Rev Esc Enferm USP [Internet]. 2020;54:e03619.**
11. **Smith MW, Dueweke AR, Kirwan C, Loret de Mola RM, Cohen ME. Implementation of surgical safety checklists and outcomes: a multicenter study. PLoS One [Internet]. 2024;19(5):e0304159.**
12. **Provost SM, Lanham HJ, Leykum LK, McDaniel RR Jr, Pugh J. Transforming into a learning health system: a report on implementation. Jt Comm J Qual Patient Saf [Internet]. 2024;50(5):279–88.**
13. **Carayon P, Wood KE. Patient safety – the role of human factors and systems engineering. In: Carayon P, editor. Handbook of Human Factors and Ergonomics in Health Care and Patient Safety. 2nd ed. New York: Springer; 2019. p.15–33.**