

Barriers to adherence to good practices for the prevention of surgical site infections*Barreras para la adherencia a buenas prácticas preventivas contra las infecciones del sitio quirúrgico**Barreiras para adesão às boas práticas preventivas de infecção de sítio cirúrgico***Railza de Alcantara****Albuquerque¹**

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***Corresponding author:**priscilabosco@yahoo.com.br**Submission:** 04-02-2026**Approval:** 05-12-2026**Abstract**

The aim was to map the barriers faced by nursing staff in their professional practice regarding adherence to preventive measures for surgical site infections. This study is a scoping review of 15 studies retrieved on February 14, 2023, from databases and grey literature: MEDLINE via PubMed; LILACS/BDENF/SciELO via BVS; SCOPUS; EMBASE; and CINAHL via EBSCO. It was registered on the Open Science Framework (osf.io/325nk). The scoping review enabled the identification and understanding of eight barriers to adherence to best practices by the nursing team: insufficient knowledge regarding recommended measures and practices; workplace environment and interpersonal relationships; lack of institutional guidelines; low motivation for behavioral and cultural change; limited professional experience; absence of feedback and supervision of professional practice; scarcity of supplies; and the non-existence of surgical site infection assessment systems. The findings indicate a need for strategies to enhance knowledge and provide updates regarding preventive measures, their implementation, and their consolidation into the clinical practice of surgical nursing teams to promote a culture of safety and reduce surgical site infections.

Descriptors: Perioperative Nursing; Nursing, Team; Surgical Wound Infection; Patient Safety; Infection Control.

Resumen

El objetivo fue identificar las barreras que enfrenta el personal de enfermería en su práctica profesional para la adherencia a las medidas preventivas contra la infección del sitio quirúrgico. Se trata de una revisión exploratoria de 15 estudios recuperados el 14 de febrero de 2023 de bases de datos y literatura gris: MEDLINE vía PubMed, LILACS/BDENF/SCIELO vía BVS, SCOPUS, EMBASE y CINAHL vía Ebsco. Registrada en el Open Science Framework (osf.io/325nk). La revisión exploratoria permitió identificar ocho barreras para la adherencia a las mejores prácticas por parte del equipo de enfermería: conocimiento insuficiente sobre las medidas y prácticas recomendadas, entorno laboral y relaciones interpersonales, falta de directrices institucionales, baja motivación para el cambio conductual y cultural, menor experiencia profesional, ausencia de retroalimentación y supervisión de la práctica profesional, escasez de suministros y falta de sistemas de evaluación de la infección del sitio quirúrgico. Los hallazgos indican la necesidad de mejorar y actualizar las estrategias con respecto a las medidas preventivas, su implementación y su consolidación en la práctica clínica del equipo de enfermería quirúrgica para promover una cultura de seguridad y reducir la infección del sitio quirúrgico.

Descriptores: Enfermería Perioperatoria; Grupo de Enfermería; Infección de la Herida Quirúrgica; Seguridad del Paciente; Control de Infecciones.

Resumo

Objetivou-se mapear as barreiras enfrentadas pela enfermagem em sua prática profissional à adesão às medidas preventivas de infecção de sítio cirúrgico. Trata-se de revisão de escopo de 15 estudos buscados em 14 de fevereiro de 2023 nas bases de dados e na literatura cinzenta - MEDLINE via PubMed, LILACS/BDENF/SCIELO via BVS, SCOPUS, EMBASE e CINAHL via Ebsco. Registrada no *Open Science Framework* (osf.io/325nk). A partir da realização da revisão de escopo foi possível a compreensão e identificação de oito barreiras para adesão às boas práticas pela equipe de enfermagem: conhecimento insuficiente acerca das medidas e práticas recomendadas, ambiente e relações interpessoais no ambiente de trabalho, carência de diretrizes institucionais, pouca motivação para mudança de comportamento e cultura, menor tempo de experiência profissional, ausência de *feedback* e supervisão da prática profissional, escassez de insumos e inexistência de sistemas de avaliação de infecção de sítio cirúrgico. As descobertas indicam a necessidade de estratégias de aperfeiçoamento e atualização no que diz respeito às medidas preventivas, à sua implementação e à consolidação na prática clínica da equipe de enfermagem cirúrgica de modo a promover a cultura de segurança e a redução da infecção do sítio cirúrgico.

Descritores: Enfermagem Perioperatória; Equipe de Enfermagem; Infecção de Sítio Cirúrgico; Segurança do Paciente; Controle de Infecções.



Introduction

A Surgical Site Infection (SSI) is defined as a complication inherent to a surgical procedure that affects the incision, tissues, or cavities manipulated during the intervention in either hospitalized or outpatient settings¹. According to the National Health Surveillance Agency (ANVISA), a surgical site infection (SSI) can manifest within the first 30 days or up to 90 days after the surgical procedure, depending on whether implants, prostheses, or orthoses are used, and is characterized by purulent drainage or discharge from the incision, organ, or cavity^{1,2}. It is, therefore, a serious adverse event that, in addition to delaying the patient's recovery, contributes to increased length of stay and hospital costs, significantly impacting quality of life and morbidity and mortality³. In Brazil, among healthcare-associated infections (HAIs), surgical site infection (SSI) is the third most frequent, with an incidence of 11% within the 30 days following the procedure⁴.

Surgical site infection (SSI) is multifactorial, involving factors both intrinsic and extrinsic to the patient. Intrinsic factors are directly related to the individual, such as their immune system and the presence of chronic diseases. In contrast, extrinsic factors fall within the scope of interventions managed by the healthcare team, including the environment, surgical technique, hand hygiene, patient skin antisepsis, operating room temperature control, staffing levels during the procedure, and appropriate surgical antibiotic prophylaxis⁵. Although the cause is multifactorial, the surgical team's potential to control surgical site infections (SSIs) through best practices and standardized protocols is recognized⁶. In this regard, global strategies were established by the World Health Organization (WHO) to improve the quality of care and reduce harm to surgical patients⁵. An important milestone in the timeline of measures developed for patient safety was the Safe Surgery Checklist, implemented in 2009, which had a positive impact on internal communication and infection rates⁷.

The adoption of preventive measures, in accordance with recommendations from specific guidelines issued by UN-affiliated entities and organizations such as the Centers for Disease Control and Prevention (CDC), the Association of periOperative Registered Nurses (AORN), and ANVISA, proved effective, preventing up to 60% of surgical site infection (SSI) cases⁶. In this context, the pivotal role of the nurse stands out in the early recognition of risk factors and triggers for surgical site infections (SSIs) and in intervening to reduce perioperative complications, such as SSIs. However, adherence to best practices and SSI prevention measures is not yet fully established in professional practice³. In this regard, a preliminary search was conducted in JBI Evidence Synthesis and the Cochrane Database of Systematic Reviews to identify publications regarding barriers to nursing professionals' adherence to best practices for preventing surgical site infections, and to identify reviews and/or protocols sharing the same objective and/or research question as the proposed review; however, no similar studies were found. Given the need to systematically map the breadth of available evidence on the

topic, regardless of the Source, and to synthesize it, conducting a scoping review is justified. Therefore, the study aimed to map the barriers nursing professionals face in their practice regarding adherence to preventive measures for surgical site infections.

Methodology

This is a scoping review with a protocol registered on the Open Science Framework (osf.io/325nk) on June 17, 2023, and not published⁸. The review was developed and structured based on JBI recommendations⁹. To ensure the quality and clarity of this manuscript, the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) 2020 checklist were followed¹⁰.

Review Question

For this scoping review, the PCC (Population, Concept, and Context) framework was used, with P (population) defined as the nursing team and perioperative nursing; C (concept) as surgical site infection; and C (context) as barriers to preventive measures in healthcare settings, in all their complexities. Based on the PCC framework, the following review question was proposed: "What barriers do nursing teams face regarding adherence to preventive measures for surgical site infections?"

Search Strategy

In this stage, the selection of Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) was carried out in collaboration with the university librarian in Portuguese, English, and Spanish. The following terms were used to construct the search strategy: "Infecção da ferida cirúrgica," "Surgical Wound Infection," "Postoperative Wound Infection," "Postoperative Wound Infections," "Surgical Site Infection," "Infección de La Herida Quirúrgica," "Prevenção & Controle," "Prevention & Control," "Prevención & Control," "Profilaxia," "Prophylaxis," "Preventive measures," "Control," "Enfermagem Perioperatória," "Perioperative Nursing," "Enfermería Perioperatoria," "Equipe de Enfermagem," and "Nursing, Team." It is worth noting that the descriptor "Prevention & Control" (and its corresponding translations) was used to represent appropriate preventive measures for this review.

The search for scientific literature and the identification of studies were conducted on February 14, 2023, using the following databases: MEDLINE (via PubMed), LILACS/BDENF/SciELO (via BVS), Scopus, EMBASE, and CINAHL (via EBSCO). A search for theses, dissertations, books, and technical and government documents was also performed via the CAPES Journal Portal. The search strategy for the review was developed in collaboration with a librarian by combining descriptors using Boolean operators ("AND" or "OR") and selecting keywords and descriptors appropriate for each database; a date filter (2009–2023) was also applied, as shown in Chart 1. The year 2009 was selected as the starting point to align with the publication of the WHO manual "Safe Surgery Saves Lives". No language restrictions were applied.



Chart 1. Information resource and search strategy used for research, by search location. Rio de Janeiro, RJ, Brazil, 2009-2023

Search location	Search strategy	Number of identified texts
BVS	("Equipe de enfermagem" OR "Enfermagem perioperatória" OR "Grupo de Enfermeria" OR "Nursing, team" OR "Perioperative Nursing" OR "Surgical Nursing" OR "Perianesthesia Nursing") AND ("Infecção de sítio cirúrgico" OR "Infecção da Ferida Operatória" OR "Infecção de Ferida Cirúrgica" OR "Infecção do Ferimento Cirúrgico" OR "Infecção do Ferimento Operatório" OR "Infección de la Herida Quirúrgica" OR "Surgical Wound Infection" OR "Surgical Wound Infection" OR "Postoperative Wound Infection" OR "Postoperative Wound Infections" OR "Surgical Site Infection" OR "Surgical Site Infections" OR "Surgical Wound Infections") AND ("prevenção & controle" OR "prevenção" OR "controle" OR "profilaxia" OR "prevención y control" OR "prevention and control" OR prophylaxis OR "preventive therapy" OR "preventive measures" OR "prevention" OR "control")	86
CINAHL via Ebsco	("Nursing, team" OR "Perioperative Nursing" OR "Surgical Nursing" OR "Perianesthesia Nursing") AND ("Surgical Wound Infection" OR "Surgical Wound Infection" OR "Postoperative Wound Infection" OR "Postoperative Wound Infections" OR "Surgical Site Infection" OR "Surgical Site Infections" OR "Surgical Wound Infections") AND ("prevention and control" OR prophylaxis OR "preventive therapy" OR "preventive measures" OR "prevention" OR "control")	121
EMBASE	('Nursing, team' OR 'perioperative nursing' OR 'surgical nursing' OR 'perianesthesia nursing') AND ('surgical wound infection' OR 'postoperative wound infection' OR 'postoperative wound infections' OR 'surgical site infection' OR 'surgical site infections' OR 'surgical wound infections') AND ('prevention and control' OR prophylaxis OR 'preventive therapy' OR 'preventive measures' OR 'prevention' OR 'control') AND [2009-2023]/py	69
MEDLINE via PubMed	("Nursing, team" OR "Perioperative Nursing"[Mesh] OR "Perioperative Nursing" OR "Surgical Nursing" OR "Perianesthesia Nursing") AND ("Surgical Wound Infection"[Mesh] OR "Surgical Wound Infection" OR "Postoperative Wound Infection" OR "Postoperative Wound Infections" OR "Surgical Site Infection" OR "Surgical Site Infections" OR "Surgical Wound Infections") AND ("prevention and control" [Subheading] OR prophylaxis OR "preventive therapy" OR "prevention and control" OR "preventive measures" OR "prevention" OR "control") Filters: from 2009 - 3000/12/12 Sort by: Most Recent	84
Portal CAPES	("Nursing, team" OR "Perioperative Nursing" OR "Surgical Nursing" OR "Perianesthesia Nursing") AND ("Surgical Wound Infection" OR "Surgical Wound Infection" OR "Postoperative Wound Infection" OR "Postoperative Wound Infections" OR "Surgical Site Infection" OR "Surgical Site Infections" OR "Surgical Wound Infections") AND ("prevention and control" OR prophylaxis OR "preventive therapy" OR "preventive measures" OR "prevention" OR "control")	9
Scopus	"Nursing, team" OR "Perioperative Nursing" OR "Surgical Nursing" OR "Perianesthesia Nursing" AND "Surgical Wound Infection" OR "Surgical Wound Infection" OR "Postoperative Wound Infection" OR "Postoperative Wound Infections" OR "Surgical Site Infection" OR "Surgical Site Infections" OR "Surgical Wound Infections" AND "prevention and control" OR prophylaxis OR "preventive therapy" OR "preventive measures" OR "prevention" OR "control"	76

Inclusion and Exclusion Criteria

For this review, study eligibility was assessed based on adherence to the criteria established by the PCC starting in 2009, the year the Safe Surgery Checklist was proposed by WHO⁷. Studies for which full-text access was not possible were excluded, as were those published only as abstracts or letters to the editor.

Selection of Evidence

The identified studies were exported to Rayyan software, where duplicates were removed. Subsequently, utilizing the blinding feature of the program, two reviewers conducted an initial screening based on titles and abstracts. Next, the full texts of the pre-selected studies were independently read to verify compliance with the inclusion criteria. Disagreements were resolved by the reviewers themselves.

Data Extraction

Data from the included studies were independently extracted by the reviewers using a structured instrument

designed for this purpose. As recommended by the JBI⁹, the instrument included data on authorship, year of publication, study type, country, context/objective, population, publication type (article, dissertation, and government documents), and the barriers to adherence identified as relevant to the objective of this review.

Results

The search identified 443 publications across the six databases consulted. A total of 209 texts were excluded: 31 due to the time frame (2009–2023) and 178 due to duplication. After reviewing the titles and abstracts of the remaining 234 publications, 199 were excluded for failing to meet the established inclusion criteria. Consequently, the full texts of 35 items were read; of these, 20 were excluded due to the unavailability of the full text or failure to meet the inclusion criteria. Ultimately, 15 studies were included, as shown in the flowchart (PRISMA-ScR), Figure 1¹⁰.

The 15 included studies are presented in Chart 2 by title, year of publication, study type, population, and objective or conclusion.



Figure 1. Flowchart of the process for identifying and selecting studies included in the scoping review, in accordance with PRISMA-ScR criteria.

Rio de Janeiro, RJ, Brazil, 2009-2023

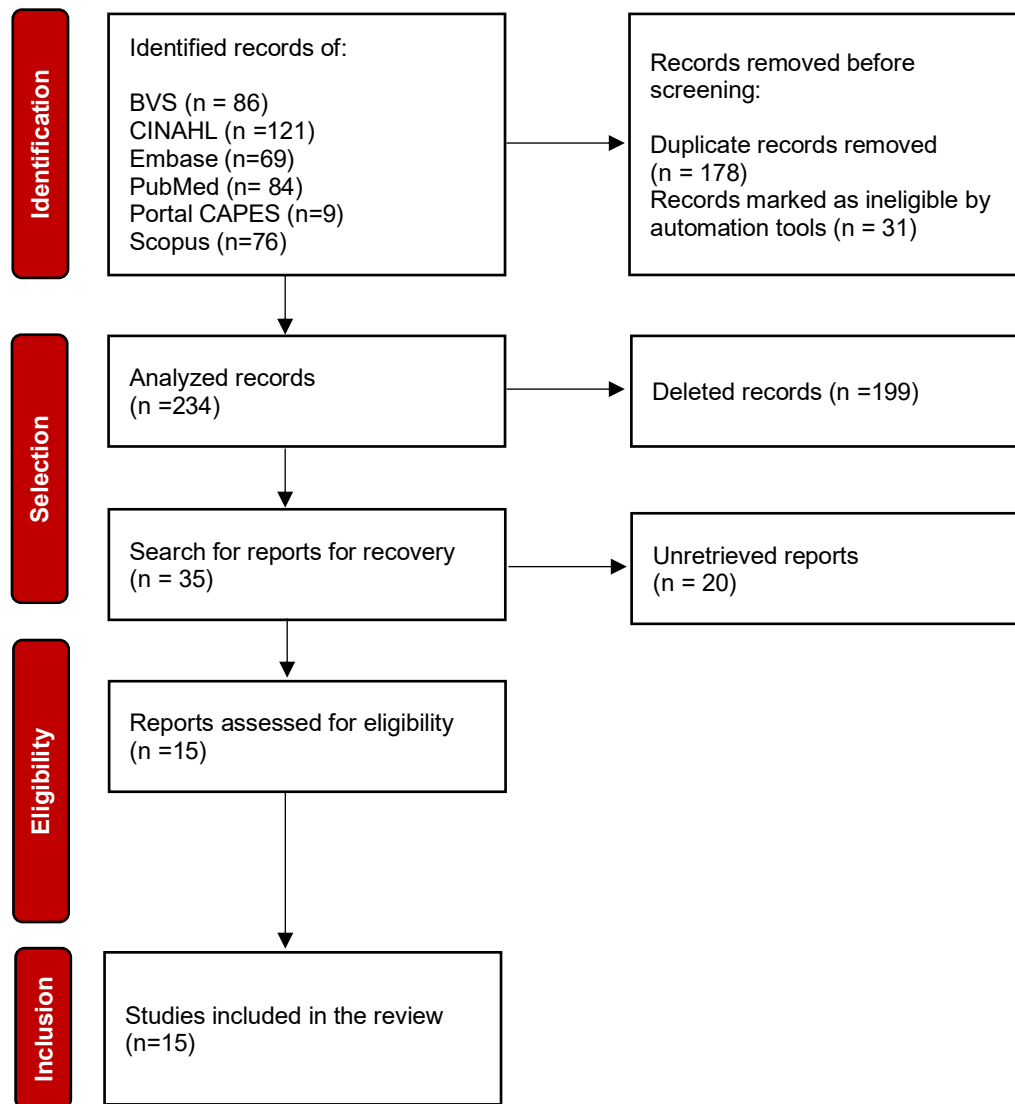
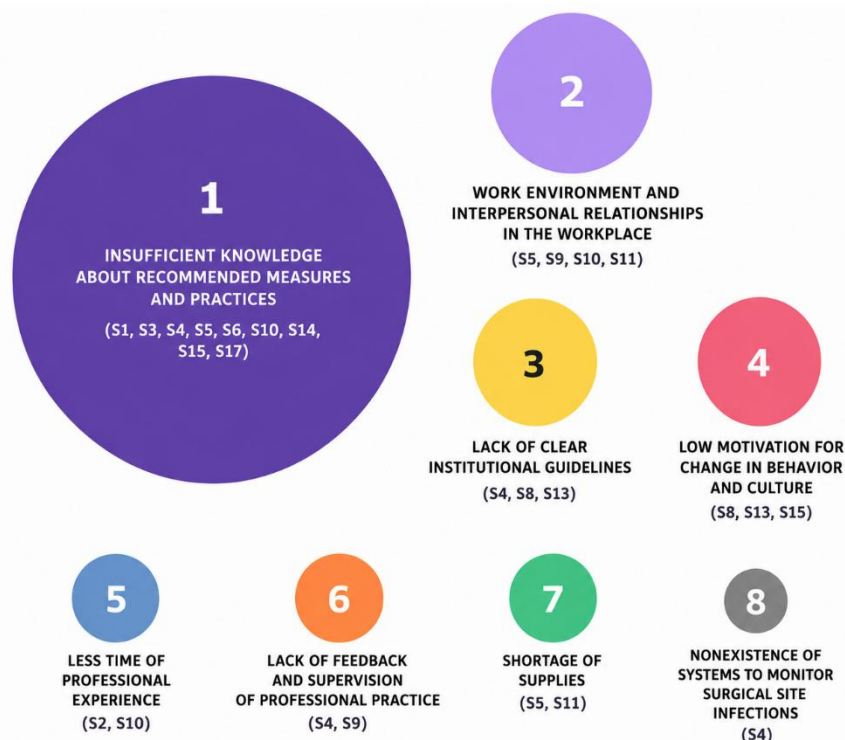


Chart 2. List of selected studies, according to year of publication, study type, population, and objective/conclusion. Rio de Janeiro, RJ, Brazil, 2009-2023

No.	Title of the included study	Year of publication	Study type	Population	Objective/Conclusion
S1	Structure and process of nursing care for prevention of surgical site infection: observational study ¹¹	2009	Descriptive and observational study.	Nursing team.	To identify instances of compliance and non-compliance with the best practices for surgical site infection prevention proposed in the literature.
S2	Aseptic practice recommendations for circulating operating theatre nurses ¹²	2013	Self-report instrument.	144 circulating nurses from two university hospitals.	To develop an instrument for assessing intraoperative aseptic practices, to study the intraoperative aseptic practices performed by circulating nurses.
S3	Índice autorreferido pela equipe de ortopedia sobre a prevenção de infecção de sítio cirúrgico ¹³	2016	Descriptive study.	133 professionals, with over 75% being nursing staff.	To evaluate the self-reported adherence of the orthopedic surgery team to recommendations for the prevention of surgical site infections.
E4	Nurses' Surgical Site Infection Prevention Practices in Bangladesh ¹⁴	2017	Mixed-methods study.	182 general and orthopedic surgery nurses.	To identify nurses' practices, as well as the barriers to and facilitators of surgical site infection prevention, and to propose guidelines to improve nurses' practices in this area.
S5	Nurses' Knowledge and Practice Regarding Prevention of Surgical Site Infection in Bahir Dar, Northwest Ethiopia ¹⁵	2019	Cross-sectional study.	208 nurses.	To empirically determine the extent of knowledge and actual practice regarding STI prevention among nurses in the administrative region of the city of Bahir Dar.
S6	Preventing surgical site infections: Facilitators and barriers to nurses' adherence to clinical practice guidelines - A qualitative study ¹⁶	2019	Qualitative study.	4 focus groups with a total of 18 nurses.	To identify the facilitators of and barriers to nurses' adherence to evidence-based clinical practice guidelines (CPGs) for wound management in the prevention of surgical site infections (SSIs) at an Australian tertiary hospital.

S7	Programa Cirurgias Seguras Salvam Vidas como Desafio Global da Organização Mundial da Saúde: panorama das medidas de prevenção de infecção do sítio cirúrgico adotadas em hospitais de grande porte de Minas Gerais ¹⁷	2019	Epidemiological study with a cross-sectional design.	133 professionals, with over 75% being nursing staff.	To evaluate the SSI prevention and control actions adopted in clinical practice at large hospitals in the state of Minas Gerais and propose a risk score for adherence to obtain an overview of how large institutions have adopted SSI prevention measures.
S8	Implementing a surgical site infection care bundle Implications ¹⁸	2019	Qualitative study.	Perioperative nursing.	The article highlights the importance of care bundles for surgical site infections and their implications for perioperative practice.
S9	Intraoperative prevention of Surgical Site Infections as experienced by operating room nurses ¹⁹	2019	Reflective Lifeworld Research (RLR).	15 nurses from seven hospitals.	To examine how operating room nurses experience the intraoperative prevention of surgical site infections (SSIs).
S10	Operating room nurses' experiences of skin preparation in connection with orthopaedic surgery: A focus group study ²⁰	2020	Qualitative exploratory study.	19 operating room nurses from four hospitals in Sweden.	To deepen the understanding of skin preparation in an orthopedic surgical setting from the perspective of the operating room nurse and to explore their experiences.
S11	Effectiveness of a preventive program of surgical site infection in a hospital of second level attention ²¹	2020	A quantitative, evaluative, cross-sectional, and prospective study.	Implementation of an SSI prevention model by nurses.	To measure the effectiveness of a preventive model for surgical site infections at a secondary care hospital in Nuevo León, Mexico.
S12	National Survey of Operating Room Nurses' Aseptic Techniques and Interventions for Patient Preparation to Reduce Surgical Site Infections ²²	2020	Descriptive cross-sectional study.	890 nurses working in the Surgery and Operating Room service.	To describe the daily clinical interventions performed by Swedish operating room nurses to prevent surgical site infections, in accordance with national guidelines.
S13	Intervention beam in prevention of local surgical infection ²³	2020	Descriptive, cross-sectional, and quantitative study.	54 nurses working in the surgery department and the operating suite.	To evaluate nurses' adherence to the intervention bundle for the prevention of surgical site infections in the surgical department of a hospital in northern Portugal.
S14	Important interventions in the operating room to prevent bacterial contamination and surgical site infections ²⁴	2022	Cross-sectional descriptive study.	890 nurses working in the surgery and operating room service.	To explore the interventions that Swedish operating room (OR) nurses considered important for the prevention of bacterial contamination and surgical site infections (SSIs).
S15	Nurses' Knowledge and Practice Regarding Prevention of Surgical Site Infection at Governmental Hospitals in Wasit City, Iraq 2022 ²⁵	2023	Cross-sectional study.	180 nursing professionals working in government hospitals in the city of Wasit.	To determine nursing knowledge and practices regarding the prevention of surgical site infections in government hospitals in the city of Wasit.

Figure 2. Breakdown of barriers faced by nursing professionals in their practice regarding adherence to preventive measures for surgical site infections. Rio de Janeiro, RJ, Brazil, 2009-2023



Of the selected studies, 93.3% consist of articles (n=14), and 5% (n=1) are from a master's thesis. Regarding language, English predominated (n=11), followed by Portuguese (n=3) and Spanish (n=1). As for the year of publication, most studies were published in 2019 (n=5) and 2020 (n=4), followed by the years 2009, 2013, 2016, 2017, 2022, and 2023, each with one study (n=1). Regarding the country of origin, Sweden stands out with four studies (n=4), followed by Brazil (n=3) and Australia (n=2). Next are Bangladesh (n=1), Ethiopia (n=1), Mexico (n=1), Iraq (n=1), Portugal (n=1), and England (n=1). The methodological approaches vary cross-sectional design (n=7), descriptive studies (n=5), qualitative (n=2), quantitative (n=2), observational (n=1), mixed methods (n=1), Reflective Lifeworld Research (n=1), and self-report instrument (n=1). Analysis of the publications identified eight barriers faced by nursing professionals in their practice regarding adherence to surgical site infection prevention measures; these are presented in Figure 2 using circles sized in proportion to their representation

Discussion

The results identified "insufficient knowledge regarding recommended measures and practices" as the primary barrier, present in 60% (n=9) of the studies, particularly concerning correct hand hygiene practices, the use of sterile gloves, proper skin preparation for surgical procedures, and postoperative wound care¹⁴. A study conducted at a hospital with 71 surgical nurses in Tanzania revealed that 41 participants (57.7%) used inappropriate techniques for postoperative wound care²⁶. Another study shows that nurses are not familiar with evidence-based guidelines for the prevention of surgical site infections. The overall score of the professionals on the knowledge test was low, with an average of only 2.61, or 29% correct answers²⁷.

Another finding relates to a lack of awareness regarding recommendations for the administration of prophylactic antibiotic therapy based on the type of surgery, particularly concerning the correct timing for medication administration¹⁷. A study conducted in 2022 showed that only half of the professionals in the study possessed knowledge regarding bacterial resistance to antimicrobials²⁸.

Limited theoretical-practical and technical-scientific knowledge results in significant and extensive adverse consequences, given that the nurse is the one who proposes nursing interventions^{29,30}. According to the WHO, adopting proper hand hygiene measures can reduce the incidence of infections and diseases by up to 40%³¹. Similarly, technical knowledge regarding postoperative wound care minimizes the risk of contamination and ensures patient safety during dressing changes using sterile gloves and instruments, alongside principles of asepsis, which include cleaning the environment and hands³².

A study investigating the application of sterile technique revealed that it is not related to age, gender, length of clinical experience, or the number of relevant training sessions attended. However, there is a clear association between knowledge and the proper application of sterile technique. Therefore, the need for nursing staff

qualification, which can be achieved through continuing education, is evident³³.

A study reveals that, despite the availability of a significant number of relevant techniques, research, and well-established guidelines, it is essential to consistently expose nurses to seminars and conferences where information on best practices is disseminated, particularly given that this is a constantly evolving subject^{34,35}. A study conducted in Ethiopia found that only 6% of the 333 nurses working in surgical wards and operating rooms had received specific additional training in surgical site infection (SSI) prevention³⁶. Continuing education has the potential to develop professionals' scientific knowledge and refine therapeutic approaches, as well as improve skills related to technical competencies¹⁸.

The second barrier relates to the "workplace environment and interpersonal relationships." Demanding conditions, such as the complexity of caring for surgical patients, excessive workloads, concerns regarding institutional expectations, and pressure to meet productivity requirements, render the surgical environment stressful^{15,21}. Workplace pressure, in turn, can have a negative impact on mental, cognitive, and physical well-being, influencing the quality of care provided to the patient²¹.

Given the tense and stressful nature of the operating room (OR) environment, teams need to maintain healthy interpersonal relationships to minimize harm to the patient. Communication issues within teams have been identified as a leading cause of adverse events in various international studies. Considering this, the development of the WHO Safe Surgery Checklist aims, among other things, to improve teamwork³⁸.

According to a study, despite the existence of a clearly structured hierarchy within the surgical team, the team's work directly impacts patient outcomes. Open communication and effective coordination skills are essential to avoid conflict and confusion, prevent boundary violations, and resolve existing conflicts constructively. Furthermore, a willingness to collaborate is necessary to complete tasks on time and share the workload fairly³⁸.

The third barrier relates to the "absence of clear institutional guidelines." The existence of institutional guidelines regarding the prevention of surgical site infections is directly linked to sound health administration and management within institution¹⁸. One example is the practice of hair removal (trichotomy). Guidelines from SOBECC and ANVISA regarding surgical nursing practice and the processing of health products recommend hair removal only in specific clinical situations, as it is preferable to leave hair intact on patients undergoing surgical procedures rather than performing the procedure incorrectly. If hair removal is necessary, the use of an electric clipper is recommended, performed as close as possible to the surgical incision and in an area outside the operating room³⁹. Although this technique involves standards defined by aligned national and international bodies, instances of non-compliance are observed in healthcare settings. A review revealed that the preventive measures implemented during surgical patient preparation, specifically hair removal, are not based on

unanimous or rigid protocols; rather, they depend on the surgeon, the surgical procedure, the specific nature of the surgery, and the patient's clinical condition⁴⁰. In this regard, institutional guidelines are important for appropriate care management.

Another example identified in the literature was preoperative bathing. The 2017 Centers for Disease Control and Prevention (CDC) guideline recommendation for the prevention of surgical site infections states that, before surgery, patients should bathe using soap (antimicrobial or non-antimicrobial) or an antiseptic agent, at least on the night before the procedure, to reduce the existing microbiota⁴¹. Regarding the 2016 WHO Global Guidelines for the Prevention of Surgical Site Infection, preoperative bathing is a conditional recommendation; that is, experts consider that the benefits of the intervention likely outweigh the risks, based on moderate-quality evidence. Furthermore, the expert panel did not issue a recommendation on the use of chlorhexidine gluconate-impregnated cloths to reduce surgical site infections, due to limited, low-quality evidence⁴².

Beyond the existence of guidelines, it is essential to have plans and strategies for their implementation. A study conducted in low- and middle-income countries revealed that only 20% and 29%-57% of them, respectively, have plans and strategies for guideline implementation; overall, only 22% of all countries monitor their implementation and the impact on infections³¹.

The fourth barrier relates to "low motivation for changes in behavior and culture." Studies highlighted a weakness in management participation, despite it being essential and fundamental to the development of safety in the operating room^{15,23,43}. Hospital management actions can directly impact the importance the staff places on patient safety, thereby highlighting the significance of having managers committed to improving the safety culture⁴³.

Another study examined the improper practice of nursing professionals wearing jewelry and accessories, considering the associated risk of microorganism accumulation and contamination. In Brazil, Regulatory Standard No. 32 (NR-32) remains in effect, prohibiting the use of such items in the workplace. However, despite being aware of NR-32, more than 70% (n=41) of the 57 participating nurses reported wearing jewelry or accessories at work and noted a lack of concern regarding compliance with standard¹¹.

Therefore, there is negligence on the part of professionals regarding the importance of following preventive measures¹⁸, which is corroborated by another study, which revealed that only 45.1% (94) of nurses transfer the knowledge they have acquired to professional practice¹⁵.

Low participation in continuing education activities is still observed. A survey of 200 nurses in Jordan revealed that more than 75% of the participants had not attended specific training courses on SSI prevention⁴⁴. Another study showed that most of the study sample (94%) refused to participate in specialized training courses³⁶.

The fifth barrier relates to "less professional experience," considering that years of professional experience contribute to maturity and influence nurses' thinking and decision-making in critical situations^{12,20,44}. A study showed that having less than five years of professional experience can impact SSI rates and the quality of care provided. An analysis of the correlation between years of experience and adherence to preventive guidelines revealed that more experienced nurses possessed greater knowledge and practical expertise and consequently demonstrated higher compliance with SSI prevention guidelines⁴⁵.

The sixth barrier is the "absence of feedback and supervision regarding professional practice." Feedback serves to stimulate the development of reflective and self-evaluative capabilities. Upon receiving feedback, the professional is challenged to evaluate their own performance and discover ways to incorporate suggested new practices for future improvement^{14,19}. According to a cross-sectional study conducted in Ethiopia, feedback can serve as a facilitating and motivational factor, contributing to the adoption of infection control behaviors⁴⁶.

The seventh barrier is the "shortage of supplies." In the surgical setting, the multidisciplinary team relies on adequate infrastructure and available resources, such as materials and clinical support, to provide safe care and safeguard patient integrity^{15,21,47}. The limited availability of resources, such as water, soap, antiseptics, and gloves, hinders the implementation of WHO-recommended prevention practices, including scrubbing, disinfecting the incision site, and preoperative bathing⁴⁶.

The eighth barrier is the "absence of SSI assessment systems." A Brazilian study shows that, by establishing an SSI assessment system, average annual costs associated with post-surgical infections can be reduced by approximately one million reais, in addition to the benefits of preventive action⁴⁸.

Conclusion

The review provided an overview and understanding of eight barriers encountered by nursing staff in their professional practice regarding adherence to good preventive practices. The findings highlight the need for strategies to enhance knowledge and update practices concerning preventive measures, specifically their implementation and integration into the clinical routine of surgical nursing teams, to foster a safety culture and reduce surgical site infections.

Thus, this survey sheds light on an under-explored yet highly relevant area for informing local discussions, debates, and strategies, spanning from direct patient care to institutional strategic planning and higher-level management, aimed at strengthening health and institutional policies focused on preventing surgical site infections. A limitation of this study was the scarcity of existing research on nursing staff regarding this specific topic.



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