

## MULTIDISCIPLINARY STRATEGIES TO PROMOTE PATIENT SAFETY IN INTENSIVE CARE UNITS (ICU)



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### ABSTRACT

This study addresses patient safety and the promotion of safe practices in Intensive Care Units (ICU), through multidisciplinary strategies that involve the collaboration of nurses, pharmacists and physiotherapists. From a literature review of the most recent available evidence, with consultations in databases such as PubMed, SciELO and VHL, it was possible to identify the practices and approaches that are addressed to improve patient safety in ICUs. The results show that the implementation of standardized clinical protocols,

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the use of assistive technologies, effective communication between health teams, and continuous training are essential to prevent medical errors, hospital infections, and complications in intensive care. However, challenges such as resistance to change and institutional limitations still represent obstacles to the consolidation of these strategies. It is concluded that the adoption of coordinated interprofessional practices and public policies aimed at patient safety are fundamental to ensure the effectiveness of interventions and the quality of care in ICUs.

**Keywords:** Patient Safety. Multidisciplinary Strategies. Clinical Protocols. Intensive Care. Quality of Care.

## INTRODUCTION

Patient safety is a central theme in discussions about the quality and effectiveness of health services, especially in Intensive Care Units (ICUs). These sectors, characterized by the high complexity of care and the intensive use of advanced technologies, require continuous attention to prevent adverse events. Data from the World Health Organization (WHO) indicate that preventable healthcare-related events affect millions of patients every year, resulting in serious consequences for both individuals and health systems (WHO, 2021).

ICUs are high-pressure environments, where effective communication, the adoption of clinical protocols, and multidisciplinary integration are indispensable. Studies show that collaboration between nurses, pharmacists, and physiotherapists plays a crucial role in reducing harm and promoting patient safety. For example, the use of checklists to avoid medication errors and mistaken procedures have been shown to be effective, in addition to practices such as continuous training of teams and the use of technologies for monitoring and recording clinical data (GOUVEIA et al., 2020; BARBOSA et al., 2021).

This article proposes an analysis of multidisciplinary strategies for the promotion of patient safety in ICUs, focusing on the integration of professional practices and the use of tools based on scientific evidence. The approach presented here seeks to highlight how the synergy between different areas of health can transform the reality of ICUs, providing safer and more humanized care.

The commitment to patient safety goes beyond technical barriers, becoming an ethical principle and a pillar of quality care. Throughout this article, challenges, advances, and perspectives related to the implementation of safety strategies in intensive care settings will be considered, based on the recommendations of international organizations and recent national studies.

## LITERATURE REVIEW

Patient safety in Intensive Care Units (ICUs) is a topic widely discussed in the scientific literature due to the complexity and criticality of the care environment. Next, the main aspects related to multidisciplinary strategies will be addressed, highlighting the contribution of different areas of health and the application of tools that promote safety and quality of care.

## THE IMPORTANCE OF MULTIDISCIPLINARITY IN THE ICU

Teamwork in ICUs is essential to ensure patient safety. According to Lima et al. (2021), the interaction between nurses, pharmacists, and physiotherapists allows for comprehensive care and reduces the occurrence of adverse events. This integration is enhanced through interdisciplinary meetings and shared protocols, which facilitate communication and evidence-based decision-making.

According to Barbosa et al. (2020), the adoption of collaborative strategies, such as the implementation of the SBAR (Situation, Context, Assessment, and Recommendation) method, improves communication between health professionals, reducing critical failures that can lead to serious adverse events. These authors highlight that communication is effective, one of the pillars of patient safety, as it ensures that information is transmitted clearly and accurately between team members.

## MEDICATION MANAGEMENT: ROLE OF THE PHARMACIST

Medication administration in ICUs is one of the areas of greatest risk to patient safety. Studies show that up to 70% of errors in hospital settings are related to the use of medications (WHO, 2021). The clinical pharmacist plays a key role in this context, working to review prescriptions, identify drug interactions, and guide the health team on the use of drug insurance.

Silva et al. (2020) emphasize that the presence of medications in the ICU contributes significantly to the reduction of medication-related errors, especially in the management of high-vigilance medications, such as sedatives and anticoagulants. In addition, the implementation of computerized systems for electronic prescription and the use of tools such as automatic dose calculation are strategies that enhance safety.

## THE CONTRIBUTION OF PHYSIOTHERAPY TO PATIENT SAFETY

Physical therapy also plays a crucial role in patient safety in ICUs. According to Santos et al. (2019), the role of the physiotherapist in the prevention of respiratory complications, early mobilization and functional rehabilitation reduces the length of hospital stay and morbidity and mortality rates. Early mobilization, in particular, has been widely recognized as a safe and effective practice, as it prevents complications such as deep vein thrombosis, acquired muscle weakness, and lung infections.

The authors also highlight that the adoption of specific mobilization protocols, associated with the use of equipment such as mechanical ventilators and support devices, promotes safer and more efficient care. The interaction between physiotherapists and nurses, in this sense, is essential to ensure that interventions are carried out in a coordinated and safe manner.

## SAFETY PROTOCOLS AND INFECTION REDUCTION

Infections acquired during hospitalization are one of the main concerns in Intensive Care Units (ICUs). They are among the most frequent causes of complications in hospitalized patients and have a direct impact on mortality and length of hospital stay (Gouveia et al., 2020). Prevention practices, such as the correct use of protective equipment, adherence to hand hygiene protocols, and specific protection of environments and devices, are essential to reduce these risks. This care has been shown to be effective in reducing infection rates, positively impacting patient safety and quality of care (Barbosa et al., 2021).

## THE INFLUENCE OF TECHNOLOGY ON PATIENT SAFETY

The implementation of technologies in the context of ICUs has been shown to be a crucial ally in reducing medical errors and increasing patient safety. Tools such as electronic medical records, continuous monitoring systems, and smart alarms allow for the collection and sharing of data in real time, which facilitates the monitoring of the patient's evolution and quick and accurate decision-making (Oliveira et al., 2021). In addition, the use of automated systems for drug prescription and infection risk management are important in controlling adverse events and ensuring quality care.

## CHALLENGES AND PROSPECTS

Despite the advances, patient safety in ICUs still faces significant challenges. Resistance to change, work overload, and lack of resources are barriers that compromise the implementation of safe practices (SILVA et al., 2021). However, initiatives such as continuous training programs, regular audits, and incentives for safety culture show promising results in overcoming these obstacles.

## FINAL CONSIDERATIONS

A literature review shows that the promotion of patient safety in ICUs requires a multidisciplinary approach, which integrates evidence-based practices, technologies, and efficient communication among health professionals. Building a culture of safety, associated with the implementation of strict protocols and the continuous training of teams, is essential to transform challenges into opportunities for improvement and ensure high-quality care.

## METHODOLOGY

The methodology of this article consists of a systematic literature review, with the objective of identifying, analyzing and synthesizing multidisciplinary strategies to promote patient safety in Intensive Care Units (ICU). The choice for this type of research was due to the need to gather the knowledge available in the scientific literature, based on studies that address the different practices and approaches in the context of UTIs and their impact on the safety of critically ill patients.

## DEFINITION OF THE PROBLEM AND OBJECTIVES OF THE REVIEW

The main objective of the review was to examine the strategies adopted by multidisciplinary teams (nursing, pharmacology, and physiotherapy) to improve patient safety in ICUs. The research focused on aspects such as safety protocols, infection prevention, medication errors, interprofessional communication, and the use of technologies.

## DATA SOURCES

Data collection was carried out through a detailed search in the following scientific databases:

- PubMed: Database of medical and biomedical articles.
- SciELO: Database that brings together scientific journals from Latin America and the Caribbean.
- VHL (Virtual Health Library): Database with specific articles for the health area, available in several languages.
- Google Scholar: Search tool that indexes academic and scientific articles from different areas of knowledge.

The search criteria for the following descriptors in Portuguese and English were used: "patient safety", "ICU", "multidisciplinary strategies", "safety protocols", "medication error", "hospital infections", "physiotherapy in ICUs" and "technology in patient safety".

## INCLUSION AND EXCLUSION OF STUDIES

Studies were selected according to the following inclusion criteria:

- Scientific articles published between 2010 and 2024.
- Studies in which patient safety was specifically addressed in Intensive Care Units.
- Studies that analyzed the strategies of different professions, such as nurses, pharmacists and physiotherapists, in promoting patient safety.
- Portuguese, English or Spanish language studies.

The exclusion criteria involved:

- Articles that have not been addressed specifically for ICUs or patient safety.
- Studies that dealt with irrelevant details, such as patient safety in non-hospital settings.
- Studies not published in peer-reviewed journals, such as dissertations, theses, or conference papers.

## SELECTION PROCESS

The selection of articles was made in two stages:

1. First Stage: Searches were carried out in all the aforementioned databases, using the descriptors defined above. Initially, 350 articles were found that met the search criteria.
2. Second Stage: After reading the title and abstract, the articles that are most pertinent to the theme were selected. Of these, 50 articles were submitted for a complete analysis. After full reading and application of the inclusion and exclusion criteria, a total of 30 articles were finally selected for analysis.

## DATA ANALYSIS

The analysis of the articles was carried out based on the qualitative description technique, where the main findings of each study were organized and grouped into

thematic categories related to the objectives of the study. The categories addressed topics such as:

- Communication and collaboration strategies between multidisciplinary teams.
- Safety protocols in the ICU.
- Use of technology in the prevention of medical errors.
- Impact of hospital-acquired infections on patient safety.
- Contribution of physiotherapy and pharmacology to patient safety.

The information extracted was proven in terms of trends, best practices, and gaps in the literature. In addition, the findings were compared with previous studies to verify consistencies or divergences in the data.

## ETHICAL ASPECTS

As this is a literature review, there was no need for approval by ethics committees, as it did not involve data collection directly from human beings. However, all selected studies followed the ethical guidelines of the respective journals, ensuring that the data used in the research came from reliable and peer-reviewed sources.

## LIMITATIONS OF THE METHODOLOGY

As with all review research, an important limitation of this study is the dependence on data available in the literature. The review is based solely on published studies, which may represent a limitation to access to more recent research or studies that have not been published in peer-reviewed journals. In addition, the nature of the studies analyzed varies in terms of scope and methodology, which may have influenced the conclusions.

## RESULT AND DISCUSSION

The promotion of patient safety in Intensive Care Units (ICUs) requires a detailed analysis of different multidisciplinary strategies, with the aim of identifying the impacts of these approaches on improving the quality of care. In this section, we will discuss the results of the strategies adopted in ICUs, taking into account the contributions of the nursing team, pharmacists and physiotherapists, as well as the fundamental role of technologies and protocols in reducing adverse events.

## COMMUNICATION STRATEGIES AND MULTIDISCIPLINARY INTERACTION

Effective communication between members of the healthcare team is considered one of the fundamental pillars for patient safety in ICUs. Studies show that the adoption of communication protocols, such as the SBAR (Situation, Context, Evaluation, and Recommendation) method, has been shown to be effective in reducing communication errors (Barbosa et al., 2020). In the context of ICUs, where agility and clarity of information are crucial, the implementation of these strategies contributes to a rapid and coordinated response to complications.

The interaction between different professionals has also been shown to be an essential factor in reducing complications. Gouveia et al. (2020) highlight that collaboration between nurses, pharmacists, and physiotherapists is essential for the success of clinical management, especially in situations of hemodynamic or respiratory instability. Continuous exchange of information and alignment of care practices prevents the likelihood of errors, providing a safer environment for the patient.

## IMPACT OF MEDICATION MANAGEMENT ON PATIENT SAFETY

The safe use of medicines in ICUs is one of the biggest challenges faced by health teams. A reviewed literature reveals that the presence of clinical drugs in ICUs has a significant impact on the reduction of adverse events related to the use of medications, especially with regard to the administration of sedatives, anticoagulants, and high-vigilance drugs. Silva and others. (2020) report that, with the collaboration of pharmacists, medication error rates have reduced by up to 40%, with special emphasis on interventions that involve prescription review and continuous pharmacotherapy monitoring.

In addition, the implementation of computerized systems for prescribing and monitoring medication has positive results in patient safety. Electronic resolution, for example, allows for the immediate detection of drug interactions and dosing errors, which directly contributes to minimizing risks (Silva et al., 2020).

## EARLY MOBILIZATION AND REHABILITATION IN THE ICU

Physiotherapy has gained prominence in ICUs due to the benefits that early mobilization and rehabilitation prevent for critical patients. Santos et al. (2019) indicate that early mobilization significantly reduces the risk of respiratory complications, such as ventilator-associated pneumonia, and promotes improvement in muscle strength and

cardiac function. In addition, these practices are reduced to reduce the length of hospital stay and mortality rates, showing the importance of physical therapy in the prevention of adverse events.

Another relevant study by Lima et al. (2021) points out that early mobilization not only reduces physical complications but also improves the patient's psychological well-being, resulting in a faster recovery and a more positive care experience. The collaboration between physiotherapists and nurses to perform mobilization, especially in patients with mechanical ventilation, has been indicated as a safe and efficient practice that should be expanded in ICUs.

## INFECTION PREVENTION PROTOCOLS

Prevention of healthcare-associated infections remains a significant challenge in ICUs. Adherence to infection control protocols, such as strict hand hygiene and the proper use of personal protective equipment (PPE), has shown positive results in the transmission of nosocomial infections (Gouveia et al., 2020). The literature indicates that ICUs that implement these strategies effectively have a significantly lower infection rate, which directly contributes to patient safety.

In a study conducted by Barbosa et al. (2021), it was identified that the implementation of safety checklists for invasive procedures and the formation of infection control teams helped reduce infection rates related to the use of central catheters and mechanical ventilation. The combination of preventive measures and the use of infection monitoring technologies to provide more effective control of sanitary conditions in the ICU environment.

## ADVANCED TECHNOLOGIES AND THEIR CONTRIBUTIONS

The incorporation of advanced technologies in ICUs has been shown to be a decisive factor in improving patient safety. The use of informed systems for the continuous monitoring of specific signs, such as blood pressure, heart rate, and oxygenation, allows the early detection of clinical changes, reducing the risk of serious complications. Oliveira et al. (2021) highlight that the use of smart alarms and continuous monitoring devices provide constant and efficient surveillance of critical patients.

In addition, the implementation of electronic medical records has facilitated access to information, promoting continuity of care and decision-making based on up-to-date

clinical data. The integration of these technologies with clinical practices has allowed for a more efficient and safer approach, resulting in a decrease in medical errors and improving the quality of care provided.

## CHALLENGES AND FUTURE PROSPECTS

Despite the advances, there are still significant barriers to the full implementation of ICU safety strategies. Resistance to change, work overload, and lack of resources are challenges often mentioned in the literature (Silva et al., 2021). In addition, the need for continuous training of teams and the promotion of a culture of safety are essential aspects for the successful implementation of new practices.

However, continuous research and implementation of new technologies offer promising prospects. The use of artificial intelligence to predict complications and the introduction of clinical decision support systems have the potential to transform care in ICUs, a convenience and even safer and more effective care.

## CONCLUSION

Patient safety in Intensive Care Units (ICUs) continues to be one of the greatest challenges in health care, requiring the implementation of strategies that involve multiple professionals and integrated approaches. The study of multidisciplinary strategies to promote patient safety in this context revealed that, in addition to well-defined protocols and advanced technologies, collaboration between different professionals — such as nurses, pharmacists, and physiotherapists — is essential to reduce errors and complications, ensuring safer and more efficient care.

Effective communication between team members, especially through protocols such as SBAR, was highlighted as one of the key strategies to improve care and avoid miscommunication, which can lead to serious complications. In addition, the involvement of clinical pharmacists in ICUs has shown a significant impact on the reduction of adverse events related to the use of medications, highlighting the importance of this specialization to ensure the safe administration of medications. Physiotherapy, in turn, has declared its vital role in the early rehabilitation of patients, contributing not only to physical recovery but also to the improvement of general well-being and the reduction of respiratory complications.

The incorporation of technologies, such as computerized monitoring and prescription systems, was another key point for the promotion of patient safety. These tools are shown to be crucial for early detection of clinical changes, allowing for rapid and effective interventions. The use of electronic medical records, for example, facilitates access to information and improves the continuity of care, fundamental aspects for the safe management of critical patients.

However, despite the advances, the challenges to fully implement these strategies will remain. Resistance to change, work overload, and scarcity of resources are obstacles often encountered in ICUs. The continuous training of health teams and the promotion of a culture of safety are essential to overcome these difficulties and ensure the effectiveness of interventions.

In a future scenario, technological innovation and the development of new practices can lead to a continuous improvement of safety in ICUs. Technology technologies such as artificial intelligence and clinical decision support systems promise to revolutionize the way care is provided, providing even safer and more personalized care.

Therefore, promoting patient safety in ICUs requires the implementation of a holistic and multidisciplinary approach, in which each team member has a crucial role to play. Interprofessional collaboration, the appropriate use of technologies, and adherence to safety protocols are the pillars for building a safer, more effective, and more humane care environment, directly reflecting on the quality of care provided to critical patients.

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