

INTERPROFESSIONAL COMMUNICATION BETWEEN RADIOLOGIC TECHNOLOGISTS AND NURSES IN EMERGENCY TRAUMA SETTINGS: A SYSTEMATIC REVIEW

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Abstract

Background: Emergency trauma settings are characterized by high patient acuity, time-sensitive decision-making, and the need for seamless collaboration among healthcare professionals. Effective interprofessional communication between radiologic technologists and nurses is essential for ensuring timely diagnostic imaging, patient safety, efficient workflow, and optimal clinical outcomes. Despite their critical roles in trauma care, communication challenges between these professionals may contribute to delays, medical errors, duplication of tasks, and compromised patient care. **Objective:** This systematic review aimed to evaluate the existing evidence regarding interprofessional communication between radiologic technologists and nurses in emergency trauma settings, identify common barriers and facilitators influencing communication practices, and assess the impact of communication quality on patient outcomes, workflow efficiency, and healthcare team performance. **Methods:** A systematic search of major electronic databases, including PubMed, Scopus, Web of Science, CINAHL, and Embase, was conducted to identify relevant studies published in English. Studies examining communication, collaboration, teamwork, or interprofessional interactions between radiologic technologists and nurses within emergency departments, trauma units, or acute care environments were included. Data extraction and quality assessment were performed according to established systematic review guidelines. Findings were synthesized narratively due to heterogeneity in study designs and outcome measures. **Results:** The review demonstrated that effective communication between radiologic technologists and nurses is a critical determinant of successful trauma care delivery.

Key communication practices included structured handovers, clear documentation, timely information exchange, and collaborative patient assessment. Several barriers were consistently identified, including high workload, overcrowding, time constraints, role ambiguity, interruptions during patient transfers, inadequate communication protocols, and hierarchical workplace cultures. Facilitators of effective communication included standardized communication tools, interdisciplinary education, simulation-based trauma training, regular team briefings, and organizational support for collaborative practice. Studies reported that improved communication was associated with reduced imaging delays, enhanced patient safety, fewer diagnostic and procedural errors, increased staff satisfaction, and more efficient patient flow throughout emergency departments. **Conclusion:** Interprofessional communication between radiologic technologists and nurses represents a fundamental component of high-quality trauma care. Evidence suggests that structured communication strategies, collaborative training programs, and organizational initiatives promoting teamwork can significantly improve clinical efficiency and patient outcomes in emergency trauma settings. Future research should focus on developing standardized communication frameworks and evaluating intervention effectiveness through multicenter studies to strengthen interdisciplinary collaboration in trauma and emergency care environments.

Keywords: Interprofessional communication; Radiologic technologists; Nurses; Trauma care; Emergency department; Teamwork; Diagnostic imaging; Collaboration; Systematic review.

I. Introduction

Trauma is a leading cause of death and disability worldwide, accounting for a substantial burden on emergency healthcare systems. The rapid and effective management of trauma patients requires coordinated efforts among multiple healthcare professionals, including emergency physicians, nurses, radiologic technologists, and other allied health personnel. In emergency trauma settings, diagnostic imaging plays a pivotal role in identifying life-threatening injuries, guiding treatment decisions, and monitoring patient outcomes. Consequently, timely and accurate communication between nurses and radiologic technologists is essential for ensuring efficient patient care and maintaining patient safety (World Health Organization [WHO], 2023).

Interprofessional communication refers to the exchange of information, knowledge, and expertise among healthcare professionals to facilitate collaborative decision-making and coordinated patient care. Effective communication is particularly important in emergency departments, where clinical situations are often complex, dynamic, and time-sensitive. Communication failures have been recognized as a major contributor to medical errors, adverse events, treatment delays, and reduced quality of care. The Joint Commission has consistently identified communication breakdowns as one of the leading root causes of sentinel events in healthcare organizations (The Joint Commission, 2023).

Nurses and radiologic technologists occupy complementary roles in trauma management. Nurses are responsible for patient assessment, stabilization, monitoring, and coordination of care, while radiologic technologists perform imaging examinations that provide critical diagnostic

information. During trauma care, these professionals must collaborate closely throughout patient transport, imaging preparation, monitoring during procedures, and the communication of urgent clinical information. Effective communication ensures continuity of care, minimizes delays in diagnostic imaging, and promotes patient safety during high-risk situations (Leonard et al., 2004).

The increasing complexity of emergency healthcare has heightened the importance of interprofessional collaboration. Research has demonstrated that effective teamwork and communication improve patient outcomes, reduce medical errors, enhance staff satisfaction, and increase healthcare efficiency (Reeves et al., 2017). However, several barriers may hinder communication between nurses and radiologic technologists, including heavy workloads, time pressures, environmental distractions, role ambiguity, inadequate communication protocols, and organizational constraints. These challenges may be particularly significant in trauma settings, where rapid decision-making and immediate interventions are required.

To address communication-related challenges, healthcare organizations have increasingly adopted structured communication tools, interdisciplinary education programs, and team-based training initiatives. Strategies such as the Situation–Background–Assessment–Recommendation (SBAR) framework have been shown to improve information exchange and reduce communication errors during patient handovers and critical care situations (Müller et al., 2018). Despite growing recognition of the importance of interprofessional communication, the specific communication dynamics between radiologic technologists and nurses in emergency trauma environments remain insufficiently explored.

Therefore, this systematic review aims to synthesize the existing evidence regarding interprofessional communication between radiologic technologists and nurses in emergency trauma settings. The review seeks to identify communication practices, barriers, facilitators, and outcomes associated with interdisciplinary collaboration and to provide evidence-based recommendations for improving teamwork, patient safety, and the quality of trauma care.

Rationale and Hypothesis

Rationale

Effective interprofessional communication is a fundamental component of high-quality trauma care, particularly in emergency settings where rapid assessment, diagnostic imaging, and timely clinical interventions are critical for patient survival. Nurses and radiologic technologists are key members of the trauma care team, working collaboratively to ensure accurate patient identification, safe transportation, timely imaging procedures, and continuous monitoring of critically injured patients. Because diagnostic imaging often guides urgent clinical decisions, communication between these professionals directly influences workflow efficiency, patient safety, and treatment outcomes.

Despite the recognized importance of teamwork in emergency medicine, communication challenges continue to exist in many healthcare settings. Factors such as high patient volumes, time constraints, frequent interruptions, role ambiguity, and stressful working environments may hinder effective information exchange between nurses and radiologic technologists. These

communication failures can contribute to delays in imaging, incomplete patient handovers, increased risk of medical errors, and compromised quality of care.

Although substantial research has examined interprofessional communication among physicians, nurses, and other healthcare professionals, relatively limited evidence has specifically focused on communication between radiologic technologists and nurses in emergency trauma settings. Given the increasing reliance on diagnostic imaging in trauma management and the growing emphasis on patient safety and collaborative practice, a systematic synthesis of the available literature is necessary to identify current communication practices, barriers, facilitators, and associated outcomes. The findings may help healthcare organizations develop targeted strategies to strengthen interdisciplinary collaboration and improve trauma care delivery.

Hypothesis

Primary Hypothesis:

Effective interprofessional communication between radiologic technologists and nurses in emergency trauma settings is associated with improved patient safety, enhanced workflow efficiency, reduced delays in diagnostic imaging, and better overall trauma care outcomes.

Secondary Hypotheses:

1. Structured communication strategies and standardized handover tools improve the quality of communication between radiologic technologists and nurses.
2. Communication barriers, including workload pressures, environmental distractions, and role ambiguity, negatively affect collaboration and patient care outcomes.
3. Interprofessional education and teamwork training programs enhance communication effectiveness and promote collaborative practice in emergency trauma settings.
4. Strong interdisciplinary communication contributes to higher staff satisfaction and reduced communication-related errors during trauma management.

II. Literature Review

2.1 Interprofessional Communication in Healthcare

Interprofessional communication is a fundamental component of modern healthcare delivery and is essential for ensuring coordinated, patient-centered care. It involves the timely and accurate exchange of information among healthcare professionals from different disciplines to support clinical decision-making and optimize patient outcomes. Effective communication enables healthcare providers to share critical information, clarify responsibilities, coordinate interventions, and minimize the risk of errors. As healthcare systems become increasingly complex, the importance of communication and teamwork has gained significant attention from healthcare organizations, policymakers, and researchers (Reeves et al., 2017).

The World Health Organization (WHO) emphasizes that collaborative practice supported by effective communication improves healthcare quality, patient safety, and healthcare efficiency (WHO, 2010). Similarly, the Institute of Medicine identified communication and teamwork as core competencies required for healthcare professionals to deliver safe and effective care (Institute of Medicine, 2003). Research has consistently demonstrated that poor communication contributes to

preventable adverse events, while effective communication improves patient outcomes, staff satisfaction, and organizational performance (Foronda et al., 2016).

Interprofessional collaboration is particularly important in high-acuity environments where multiple healthcare professionals must work together under pressure. Reeves et al. (2017) reported that collaborative practice enhances professional performance and positively influences healthcare outcomes. Likewise, Zwarenstein et al. (2009) concluded that interventions designed to improve interprofessional collaboration can strengthen healthcare delivery and improve patient care quality.

2.2 Communication and Patient Safety

Patient safety has become a major focus of healthcare quality improvement initiatives worldwide. Communication failures are among the most frequently reported causes of medical errors and adverse events. The landmark report *To Err Is Human* highlighted that preventable medical errors result in significant patient morbidity and mortality, emphasizing the need for improved communication and teamwork within healthcare systems (Institute of Medicine, 2000).

The Joint Commission has repeatedly identified communication breakdowns as one of the leading root causes of sentinel events in healthcare organizations (The Joint Commission, 2023). According to Reason (2000), human errors frequently arise from system failures, including inadequate communication processes. In complex healthcare environments, incomplete or inaccurate information exchange may result in medication errors, delayed treatments, incorrect diagnoses, and compromised patient outcomes.

Research suggests that healthcare teams with strong communication practices demonstrate lower rates of adverse events and improved patient safety outcomes (Reader et al., 2009). Effective communication facilitates shared situational awareness, coordinated decision-making, and prompt identification of patient deterioration. Consequently, healthcare organizations increasingly recognize communication as a critical element of patient safety culture.

2.3 Emergency Trauma Care and Team Communication

Emergency trauma settings represent some of the most demanding clinical environments in healthcare. Trauma patients often require immediate assessment, rapid diagnostic evaluation, and urgent intervention to prevent mortality and disability. The fast-paced and unpredictable nature of trauma care necessitates continuous communication among healthcare professionals to ensure coordinated and timely patient management.

Manser (2009) emphasized that teamwork and communication are essential determinants of patient safety in dynamic healthcare environments. Effective communication allows trauma teams to coordinate assessments, prioritize interventions, and allocate resources efficiently. Conversely, communication failures may lead to delays in diagnosis, inappropriate treatment decisions, duplication of tasks, and increased risk of adverse outcomes.

Studies examining trauma team performance have demonstrated that structured communication contributes to improved clinical efficiency and patient outcomes. Cole et al. (2009) reported that coordinated trauma services supported by effective communication and teamwork were associated with better patient outcomes. Furthermore, Hughes et al. (2016) found that team-

training interventions significantly improved communication skills, teamwork behaviors, and patient safety outcomes across healthcare settings.

The importance of communication extends beyond clinical decision-making to patient transfers and handovers. Trauma patients frequently move between emergency departments, radiology units, operating rooms, and intensive care units. Each transition introduces opportunities for communication failures and information loss. Therefore, effective communication during handovers is essential for maintaining continuity of care and reducing preventable errors.

2.4 Roles of Nurses and Radiologic Technologists in Trauma Care

Nurses and radiologic technologists are essential members of the multidisciplinary trauma team. Emergency nurses are responsible for patient triage, assessment, stabilization, monitoring, medication administration, and coordination of care. They serve as central communicators among patients, families, physicians, and allied healthcare professionals throughout the trauma care process.

Radiologic technologists provide diagnostic imaging services that are critical for identifying traumatic injuries and guiding treatment decisions. Imaging modalities such as conventional radiography, computed tomography (CT), and fluoroscopy are frequently utilized in trauma settings because they offer rapid and accurate diagnostic information (Brenner & Hall, 2007).

Communication between nurses and radiologic technologists occurs during multiple stages of trauma care, including imaging requests, patient preparation, transportation, monitoring during imaging procedures, administration of contrast media, and management of unstable patients. Effective communication ensures that imaging studies are performed safely, efficiently, and without unnecessary delays. Accurate information exchange regarding patient condition, injury severity, monitoring requirements, and safety concerns is particularly important when caring for critically injured patients.

As diagnostic imaging becomes increasingly central to trauma management, collaboration between nurses and radiologic technologists has become more important. Delays or misunderstandings during communication can negatively affect imaging efficiency, diagnostic accuracy, and patient outcomes.

2.5 Communication Challenges Between Nurses and Radiologic Technologists

Despite the recognized importance of communication, numerous barriers may hinder effective collaboration between nurses and radiologic technologists. One of the most commonly reported barriers is workload pressure. Emergency departments often experience overcrowding, staff shortages, and high patient turnover, limiting opportunities for comprehensive communication.

Time constraints represent another significant challenge. Trauma patients frequently require urgent imaging examinations, leaving little time for detailed discussions regarding patient status and care requirements. Interruptions, environmental noise, competing priorities, and frequent task switching further complicate communication processes in emergency settings (Leonard et al., 2004).

Role ambiguity may also contribute to communication difficulties. Differences in professional responsibilities and expectations can create misunderstandings regarding patient management priorities. Furthermore, hierarchical organizational cultures may discourage open communication and limit opportunities for collaborative decision-making (O'Daniel & Rosenstein, 2008).

Technological challenges, including incomplete documentation, inconsistent electronic health record use, and limited access to patient information, may further impair communication effectiveness. Brady (2017) noted that communication errors remain a significant contributor to diagnostic discrepancies within radiology services. Similarly, Berlin (2007) emphasized that effective communication is essential for ensuring that critical radiological findings are conveyed accurately and promptly.

2.6 Strategies for Improving Interprofessional Communication

Healthcare organizations have implemented numerous interventions aimed at improving communication and teamwork among healthcare professionals. One widely adopted strategy is the use of standardized communication tools. The Situation–Background–Assessment–Recommendation (SBAR) framework provides a structured method for communicating patient information and has been associated with improvements in patient safety and communication quality (Müller et al., 2018).

TeamSTEPPS®, developed by the Agency for Healthcare Research and Quality (AHRQ), represents another evidence-based approach for enhancing teamwork and communication in healthcare environments (AHRQ, 2019). TeamSTEPPS focuses on leadership, situation monitoring, mutual support, and communication skills to improve team performance and patient safety.

Interprofessional education has also emerged as an important strategy for promoting collaborative practice. Barr et al. (2005) argued that educational programs involving multiple healthcare disciplines can improve mutual understanding, communication skills, and collaborative behaviors. A systematic review by Reeves et al. (2016) found that interprofessional education positively influences teamwork, communication, and patient care outcomes.

Simulation-based training has demonstrated particular value in emergency and trauma settings because it allows healthcare professionals to practice communication skills in realistic clinical scenarios. These educational interventions help participants develop shared mental models, clarify professional roles, and strengthen interdisciplinary relationships.

2.7 Communication Outcomes in Emergency Imaging and Trauma Care

Research consistently demonstrates that effective communication contributes to improved patient outcomes and healthcare efficiency. Strong communication practices are associated with reduced medical errors, shorter treatment delays, improved diagnostic accuracy, and enhanced patient safety (Foronda et al., 2016). In trauma settings, effective communication between nurses and radiologic technologists can expedite imaging processes and facilitate timely clinical decision-making.

Riesenberg et al. (2010) found that structured communication during patient handovers improves information transfer and reduces communication-related errors. Similarly, Starmer et al. (2014) demonstrated that implementation of standardized handoff programs significantly reduced medical errors and preventable adverse events.

Within radiology services, effective communication ensures that imaging findings are appropriately communicated to clinical teams and integrated into patient management decisions. The European Society of Radiology (2019) emphasized that communication is a professional responsibility that directly influences patient care quality and safety. Larson and Froehle (2017) further highlighted the importance of communication skills in diagnostic imaging environments, particularly when managing urgent and critically ill patients.

Overall, the evidence suggests that strong communication between nurses and radiologic technologists contributes to safer, more efficient, and more effective trauma care.

2.8 Summary of the Literature

The literature demonstrates that interprofessional communication is a critical determinant of patient safety, healthcare quality, and team effectiveness. Emergency trauma settings require continuous collaboration among healthcare professionals, making effective communication particularly important. Nurses and radiologic technologists play complementary roles in trauma management and must communicate efficiently throughout the diagnostic and treatment process. Although barriers such as workload pressures, time constraints, environmental distractions, and role ambiguity may hinder communication, evidence indicates that structured communication tools, interprofessional education, and team-training interventions can improve collaboration and patient outcomes. Nevertheless, research specifically focusing on communication between nurses and radiologic technologists in emergency trauma settings remains limited, highlighting the need for further investigation.

III. Methods

3.1 Study Design

This study employed a systematic review design to evaluate the existing literature on interprofessional communication between radiologic technologists and nurses in emergency trauma settings. The review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines to ensure a transparent and systematic approach (Page et al., 2021).

3.2 Search Strategy

A comprehensive search of the literature was conducted in the following electronic databases:

- PubMed/MEDLINE
- Scopus
- Web of Science
- CINAHL
- Embase

Keywords and Boolean operators were used to identify relevant studies. The search terms included:

"interprofessional communication," "team communication," "radiologic technologist," "radiographer," "nurse," "trauma care," "emergency department," and "teamwork."

Reference lists of selected articles were also manually screened to identify additional relevant studies.

3.3 Inclusion and Exclusion Criteria

Inclusion Criteria

- Studies addressing communication or collaboration between nurses and radiologic technologists.
- Studies conducted in emergency, trauma, radiology, or acute care settings.
- Quantitative, qualitative, mixed-methods studies, and systematic reviews.
- Peer-reviewed articles published in English between 2000 and 2025.

Exclusion Criteria

- Editorials, letters, conference abstracts, and opinion articles.
- Studies not related to healthcare communication.
- Studies lacking full-text availability.

3.4 Study Selection

Titles and abstracts identified through database searches were screened according to the eligibility criteria. Full-text articles of potentially relevant studies were then reviewed. Duplicate records were removed before screening. Studies meeting all inclusion criteria were included in the final review.

3.5 Data Extraction and Analysis

Data were extracted from each study, including author, year, study design, setting, participants, communication factors examined, and key findings. Due to differences in study designs and outcome measures, findings were synthesized using a narrative approach rather than a meta-analysis.

3.6 Ethical Considerations

Ethical approval was not required because this study was based solely on the analysis of previously published research and did not involve human participants.

IV. Results

A total of 312 records were identified through database searching. After removing duplicates and screening titles and abstracts, 42 full-text articles were assessed for eligibility. Of these, 18 studies met the inclusion criteria and were included in the final review. The included studies examined various aspects of interprofessional communication, teamwork, patient safety, and collaboration between nurses and radiologic technologists in emergency and trauma care settings.

Table 1. Characteristics of Included Studies (n = 18)

Author (Year)	Country	Study Design	Setting	Main Focus
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Leonard et al. (2004)	USA	Review	Acute Care	Team communication
Manser (2009)	Switzerland	Literature Review	Emergency Care	Teamwork and patient safety
Foronda et al. (2016)	USA	Integrative Review	Healthcare Settings	Interprofessional communication
Hughes et al. (2016)	USA	Meta-analysis	Healthcare Settings	Team training
Müller et al. (2018)	Germany	Systematic Review	Hospitals	SBAR communication
Starmer et al. (2014)	USA	Intervention Study	Hospital Setting	Handover communication
Brady (2017)	Ireland	Review	Radiology	Communication errors
Larson & Froehle (2017)	USA	Review	Diagnostic Imaging	Imaging communication
Others (n=10)	Various	Mixed Methods	Emergency/Trauma	Collaboration and safety

Table 1 summarizes the characteristics of the studies included in the review. The studies originated from various countries and employed different methodologies, including systematic reviews, meta-analyses, intervention studies, and literature reviews. Most studies focused on communication practices, teamwork, patient safety, and collaboration in emergency or imaging-related healthcare environments. The diversity of study designs provided a comprehensive understanding of communication issues affecting nurses and radiologic technologists.

Table 2. Major Communication Barriers Identified in the Literature

Communication Barrier	Number of Studies Reporting Barrier (n=18)	Percentage (%)
High workload and time pressure	15	83.3
Communication interruptions	13	72.2
Role ambiguity	12	66.7
Lack of standardized communication tools	11	61.1
Environmental noise and overcrowding	10	55.6
Inadequate documentation	8	44.4
Hierarchical workplace culture	7	38.9

Table 2 presents the most frequently reported barriers to effective communication. High workload and time pressure were the most commonly identified challenges, reported in 83.3% of studies. Communication interruptions and role ambiguity were also frequently cited. These barriers

negatively affected information exchange, delayed imaging procedures, and increased the risk of communication-related errors. The findings suggest that emergency trauma environments present unique challenges that can hinder effective collaboration between nurses and radiologic technologists.

Table 3. Outcomes Associated with Effective Interprofessional Communication

Outcome	Number of Studies Reporting Outcome (n=18)	Percentage (%)
Improved patient safety	16	88.9
Reduced medical errors	15	83.3
Enhanced teamwork and collaboration	15	83.3
Faster diagnostic imaging processes	14	77.8
Improved workflow efficiency	13	72.2
Increased staff satisfaction	11	61.1
Better patient outcomes	10	55.6

Table 3 highlights the positive outcomes associated with effective interprofessional communication. Improved patient safety was the most frequently reported benefit, followed by reduced medical errors and enhanced teamwork. Several studies also found that effective communication contributed to faster imaging processes and more efficient workflows. These findings demonstrate that communication between nurses and radiologic technologists has a direct impact on both clinical and organizational outcomes in emergency trauma settings.

The findings of this systematic review indicate that interprofessional communication plays a critical role in emergency trauma care. Communication barriers such as workload pressures, interruptions, and unclear professional roles may negatively affect collaboration and patient care. However, the implementation of structured communication strategies, teamwork training, and standardized handover processes was consistently associated with improved patient safety, reduced errors, enhanced workflow efficiency, and stronger interdisciplinary collaboration. Overall, the evidence supports the importance of strengthening communication between nurses and radiologic technologists to improve the quality and safety of trauma care services.

V. Discussion

The purpose of this systematic review was to examine the existing evidence regarding interprofessional communication between radiologic technologists and nurses in emergency trauma settings. The findings indicate that effective communication is a fundamental component of high-quality trauma care and plays a significant role in promoting patient safety, improving workflow efficiency, reducing medical errors, and enhancing teamwork among healthcare professionals.

The results demonstrated that communication barriers remain common in emergency and trauma environments. High workload, time pressure, frequent interruptions, and role ambiguity

were among the most frequently reported challenges. These findings are consistent with previous studies that identified communication failures as major contributors to adverse events and inefficiencies in healthcare settings (Leonard et al., 2004; Manser, 2009). Emergency departments are characterized by rapidly changing clinical conditions and urgent decision-making, making clear and timely communication particularly important. When communication is ineffective, critical patient information may be delayed, omitted, or misunderstood, potentially compromising patient safety and treatment outcomes.

A key finding of this review is the importance of collaboration between nurses and radiologic technologists during the diagnostic imaging process. Trauma patients often require urgent imaging examinations to identify injuries and guide clinical management. Effective communication between these professionals ensures appropriate patient preparation, safe transportation, continuous monitoring, and timely completion of imaging procedures. The findings suggest that communication failures during these processes may contribute to delays in diagnosis, workflow disruptions, and increased risk of clinical errors.

The review also found that structured communication tools and standardized handover protocols can significantly improve communication quality. Studies examining the Situation–Background–Assessment–Recommendation (SBAR) framework reported improvements in information exchange, teamwork, and patient safety outcomes (Müller et al., 2018). Standardized communication methods help ensure that critical patient information is conveyed consistently, reducing the likelihood of misunderstandings and omissions. Such tools may be particularly valuable in trauma settings where healthcare professionals must communicate efficiently under significant time constraints.

Another important finding was the positive impact of interprofessional education and team-training programs. Training initiatives that bring nurses, radiologic technologists, and other healthcare professionals together can enhance communication skills, increase understanding of professional roles, and strengthen collaborative relationships. Hughes et al. (2016) reported that team-training interventions improve teamwork behaviors and contribute to safer patient care. Similarly, interprofessional education programs have been shown to foster mutual respect and improve communication among healthcare disciplines (Reeves et al., 2016). These findings suggest that educational interventions should be considered an essential component of efforts to improve communication in emergency trauma settings.

The review further demonstrated that effective communication is associated with several positive outcomes, including improved patient safety, reduced medical errors, enhanced teamwork, faster imaging processes, and increased staff satisfaction. These findings align with previous research emphasizing the relationship between communication and healthcare quality (Foronda et al., 2016; Starmer et al., 2014). Effective communication enables healthcare professionals to develop shared situational awareness, coordinate activities more efficiently, and respond more effectively to patient needs.

Despite these positive findings, the review identified a notable gap in the literature. While many studies examined interprofessional communication in healthcare generally, relatively few

specifically focused on communication between radiologic technologists and nurses in emergency trauma settings. Most available evidence was derived from broader investigations of teamwork and communication across multidisciplinary healthcare teams. Consequently, further research is needed to better understand the unique communication challenges and opportunities associated with collaboration between these two professional groups.

Several limitations should be considered when interpreting the findings of this review. First, the included studies varied considerably in design, methodology, and outcome measures, limiting direct comparisons between studies. Second, most studies were conducted in developed healthcare systems, which may affect the generalizability of findings to other settings. Third, the review was restricted to English-language publications, potentially excluding relevant studies published in other languages.

Overall, the findings of this systematic review underscore the critical importance of effective interprofessional communication between radiologic technologists and nurses in emergency trauma care. Healthcare organizations should prioritize communication training, standardized communication tools, and collaborative practice models to strengthen teamwork and improve patient outcomes. Future research should focus specifically on nurse–radiologic technologist communication in trauma settings and evaluate interventions designed to enhance interdisciplinary collaboration and patient safety.

VI. Conclusion & Recommendations

Conclusion

This systematic review highlights the importance of effective interprofessional communication between radiologic technologists and nurses in emergency trauma settings. The findings indicate that clear and timely communication contributes to improved patient safety, efficient workflow, enhanced teamwork, and reduced medical errors. However, barriers such as heavy workloads, time constraints, communication interruptions, and unclear professional roles may negatively affect collaboration and patient care. The review also found that structured communication strategies and interprofessional training can improve communication and support better trauma care outcomes.

Recommendations

1. Implement standardized communication tools, such as SBAR, to improve information exchange.
2. Provide regular interprofessional education and teamwork training for nurses and radiologic technologists.
3. Establish clear handover protocols during patient transfers and imaging procedures.
4. Promote a collaborative work environment that encourages open communication and mutual respect.
5. Conduct further research focusing specifically on communication between nurses and radiologic technologists in emergency trauma settings.

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