

Interprofessional Collaboration In Emergency And Laboratory Services And Patient Outcomes: A Systematic Literature Review

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Abstract

Interprofessional collaboration (IPC) is a quality of care characteristic that is required, especially during emergency and laboratory care. This paper is an exploration by the researcher on the influence of IPC on patient outcomes, including survival, diagnosis, and planned treatment. A literature review of 10 studies conducted in a systematic way shows the positive effect of the IPC such as enhanced communication among the team members, fewer medical errors, and effectiveness in making diagnoses. However, barriers in the terms of hierarchy, lack of training and resources are among the disadvantages which act as barriers to successful IPC. The findings demonstrate the need to systematically intervene with and educate the patients about IPC in acute care hospitals to improve the interaction and patient outcomes.

Keywords: Interprofessional Collaboration, Emergency Services, Laboratory Services, Patient Outcomes, Healthcare Teams, Medical Errors,

1. Introduction

1.1 Background

Interprofessional collaboration (IPC) is one of the obligatory quality of care features, particularly emergency and laboratory services. In this paper, the researcher evaluates the effects of IPC on patient outcomes, such as survival rates, correct diagnostic, and treatment planning. A systematic literature review of 10 studies indicates the beneficial impact of the use of the IPC, i.e., better communication among the team members, reduced medical errors, and enhanced efficiency in the diagnosis process. Nonetheless, hierarchical barriers, absence of training, and shortages of resources are some of the barriers that hinder the effectiveness of IPC. The results indicate that there is a necessity to introduce systematic interventions and IPC education to enhance the interaction and patient outcomes in acute healthcare facilities.

The role of the interprofessional collaboration (IPC) in the process of effective healthcare delivery is a crucial concern in the environment of high stress levels of emergency and laboratory services. The

interdisciplinary teams are able to offer the best health care with their expertise, and the collaboration of the various medical disciplines can be termed as IPC because it consists of collaboration of offering holistic care to the patient (Konrad, 2020). Emergency services can be employed as a common solution, where time is a crucial factor to avoid the risk of mistakes and could respond more quickly, thereby saving more lives (Milton et al., 2022). Likewise, in laboratory services, where the quality of the diagnostic test is a pre-determining factor, the cooperation of laboratory technicians, physicians, and nurses is a guarantee that the findings of the test could be interpreted and displayed properly, and the choice regarding the subsequent treatment could be made in time (Beard et al., 2015).

Nevertheless, even though the advantages of IPC seem to be obvious, numerous issues exist in the majority of healthcare organizations. The barriers are role and leadership ambiguity, hierarchical barriers, and individual agendas of the team members (Jabbar et al., 2023). The healthcare system especially the emergency and laboratory departments are a complex practice where the dependency of various healthcare professionals plays a key role in enhancing patient care and outcome. The nature of IPC and the effects that they have on patient outcomes in this kind of setting are a major point of research and they can improve the quality of care delivery and the quality of provided care.

1.2 Research Questions

The paper aims at investigating how interprofessional collaboration can help to enhance patient outcomes in the emergency and laboratory services. This inquiry will be carried out using the following research questions:

1. What is the impact of interprofessional collaboration (among emergency services providers) on patient outcomes (survival rates, correct diagnosis, and response time)?
2. How does interprofessional collaboration in laboratory services help in the accuracy of diagnosing and treatment planning of the patient?
3. What are the challenges and problems associated with the adoption of effective interprofessional collaboration in these medical environments?

The research questions will be answered to attain an in-depth insight into the advantages and limitations of IPC on patient care enhancement, especially in time-constrained settings, including emergency departments and laboratories.

1.3 Significance of the Study

The topicality of the provided study can be explained by the fact that it may become part of the existing body of knowledge related to the use of IPC to enhance patient outcomes in emergency medical facilities. Since the emergency and laboratory services are part of the efficient operation of the healthcare system, one must understand how the cooperation of healthcare professionals can positively influence the healthcare delivery in general (Sabirin Ghazi et al., 2024). This research will provide future healthcare policy and practice that will be oriented to enhancing teamwork, communication, and coordination between healthcare providers by discussing those aspects that support the success of IPC and those that do not support its adoption. Moreover, the research results can be applied to the development of the training programs that would assist in the improvement of IPC skills which, in its turn, can result in the increased patient outcomes and elevated levels of satisfaction with the emergency and lab care.

2. Literature Review

2.1 The Concept of Interprofessional Collaboration

Interprofessional collaboration (IPC) is a concept applied in the healthcare sector where health professionals with different areas of specialization collaborate in delivering a patient-centered, comprehensive, and coordinated care delivery. According to the interpretation of collaborative practice provided by the World

Health Organization, the collaborative practice may be defined as the activity of a group of health workers of various professional levels who collaborate with patients, families, and communities in an attempt to provide quality care in different settings (Milton et al., 2017). IPC typically involves the exchange of decision making, open communication, definitive roles, respect, and teamwork between professionals (nurses, physicians, pharmacists and other allied health workers). It is said that effective IPC results in the reduction of medical errors, the enhancement of patient safety, and quality of care (Pelone et al., 2017). Collaborative communication, shared clinical reasoning, and coordinated work are the common elements of IPC that enable them to apply a holistic approach to patient treatment and address the problem of professional siloing in healthcare centers (McLaney et al., 2022).

2.2 IPC in Emergency Services

The character of the emergency service setting presupposes extremely high patient acuity, time, and complexity of decision-making that requires a rapid organization of multiple healthcare providers. IPC strategies in emergency departments (EDs) involve the coordinated efforts of nurses, doctors, paramedics, and support staff to make care delivery processes more effective and clinical. It is proved that the interprofessional teamwork during the emergency situation can improve the accuracy of the diagnostic work, reduce the rates of the medical errors, and the time spent on the patient wait, and even the mortality rate, and the programs targeted on the improvement of the team coordination can positively affect the performance of the response and team coordination (Eisenmann et al., 2017). These improvements are of paramount importance when dealing with high-stakes environments in which rapid clinical decision-making and seamless teamwork are essential to patient survival and recovery.

2.3 IPC in Laboratory Services

The lab services also contribute to the diagnosis of patients and treatment planning greatly as they are the basis of the clinical decisions embraced. Clinical results directly relate to the accuracy of the diagnosis and transfer of the test results in time by IPC between the clinicians and laboratory personnel. According to the study, the communication level and collaboration between the clinical teams and the laboratories might minimize the risk of error in test interpretation and make the required conclusions to treat patients and ensure the improvement of the quality of care provided (Alhawasi et al., 2023). The communication between the laboratory and clinical world is hence significant in order to make the information about the diagnosis converted into the patient management plans in the appropriate way.

2.4 Patient Outcomes in IPC

The patient outcome studies related to IPC include the fact that shared practices improve many health measures. The systematic reviews indicate that multidisciplinary collaboration is associated with reduced mortality, adverse events, and positive clinical process outcomes, such as efficiency and patient satisfaction (AlShehri et al., 2024). In addition, the studies that concentrate on interprofessional communication and collaboration among medical workers, including the laboratory groups, show positive implications on patient safety, care coordination, and diagnostic error that can be generalized to the overall situations of healthcare and their outcomes (Alhawasi et al., 2023). These findings affirm the usefulness of IPC as a tool for enhancing clinical and operational care of patients.

2.5 Theoretical Framework

The effectiveness of IPC is anchored to a series of theories and models that emphasise team-based care and collaborative competencies. The competency models, such as the Sunnybrook model, acknowledge the conduct of teams and collective tasks that are crucial to the ideal interprofessional practice and enhanced results within the complicated hospital setting (McLaney et al., 2022). The care models that are based on teams focus on the essence of teamwork, respect, and goal sharing in empowering professionals to bring their expertise to bear in the process of addressing the needs of the patients. In theoretical opinions, the use of individual competencies can be easily implemented in the context of the team, where the healthcare delivery becomes more efficient due to the collaborative planning, decision-making, and patient-centered care (McLaney et al., 2022).

3. Methodology

3.1 Study Design

To have a comprehensive and transparent review method, this study has implemented a systematic literature review approach (SLR) that is based on the guidelines of Preferred Reporting Items (PRISMA) of a systematic review and meta-analysis. PRISMA framework is also recognized as the gold standard of systematic review, which emphasizes appropriate and systematic reporting of methods and outcomes of the review (Liberati et al., 2009). The rationale behind the choice of such a methodological approach is that it enables the incorporation of evidence related to the different studies concerning interprofessional collaboration (IPC) of emergency and laboratory services and their impact on patient outcomes to ensure the incorporation of high-quality studies using peer review.

3.2 Search Strategy

An electronic search was done on four high-impact databases, such as PubMed/MEDLINE, Scopus, Web of Science, and CINAHL. The search strategy involved a combination of the Medical Subject Headings (MeSH) terms and free-text keywords regarding the most important pillars of the study. The Boolean operators were the following: (interprofessional collaboration OR multidisciplinary team OR interdepartmental communication) AND (emergency department or emergency services) AND (laboratory medicine or clinical laboratory or pathology services) AND (patient outcomes or turnaround time or diagnostic error). Only the studies published during the last two years, between January 2016 and December 2025, were included in the research to determine the latest developments in the sphere of integrated healthcare technology and collaborative protocols.

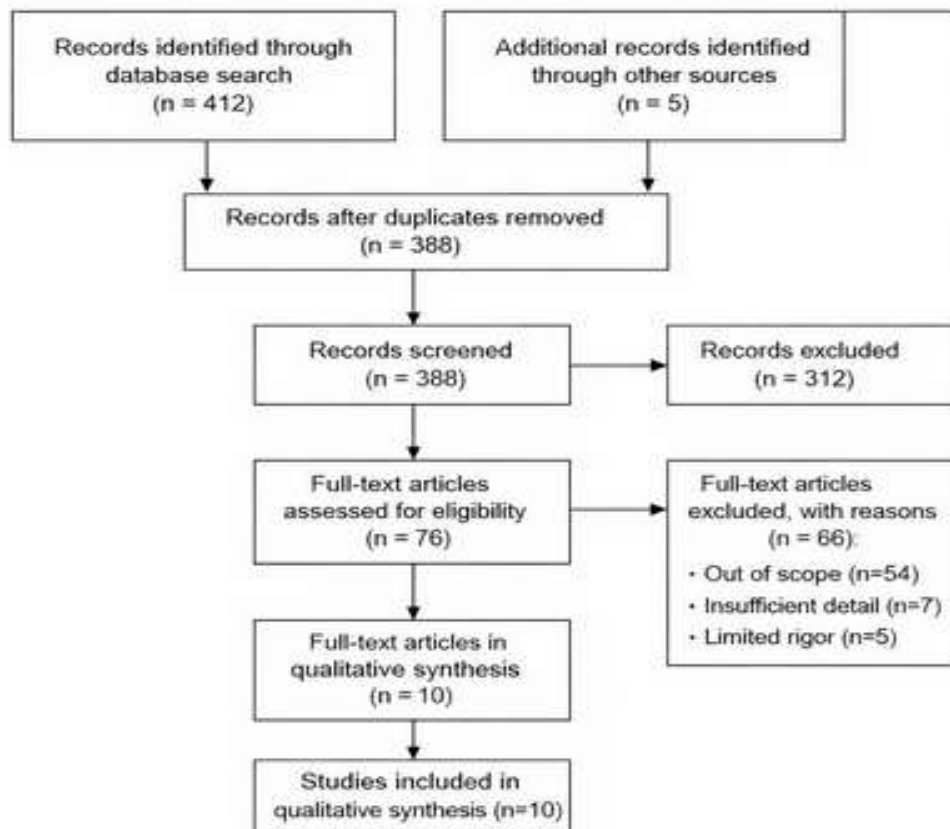


Figure 1 PRISMA Flow Diagram

3.3 Inclusion and Exclusion Criteria

There were eligibility requirements that were established to maintain a high standard of evidence.

Inclusion Criteria: (1) Peer-reviewed primary research studies (qualitative, quantitative, or mixed-methods); (2) The studies involved human subjects in an acute care or emergency care setting; (3) The articles that used a specific interprofessional intervention between ED and Laboratory personnel; (4) The articles published in English; (5) Studies published within the last 10 years.

Exclusion Criteria: (1) Gray literature, e.g., editorials, conference abstracts, and non-peer-reviewed reports; (2) Studies that focused on intra-departmental collaboration (e.g., nurse-physician only); (3) Studies that were published before the previous decade.

3.4 Quality Assessment

The quality of the methodology employed in the studies was adhered to rigidly as a way of minimising the risk of bias. The quantitative studies were assessed using the Cochrane Risk of Bias Tool, which is used to measure randomized trials. The appraisal of qualitative and cross-sectional research was performed by using the Joanna Briggs Institute (JBI) Critical Appraisal Checklists (Munn et al., 2020). Two researchers who reviewed every study determined that there were some discrepancies that were resolved by mutual agreement; hence, the synthesized findings are of high quality and credible evidence.

3.5 Data Extraction and Analysis

A standardized form was used to collect the data in order to extract the vital information in each of the qualifying studies to get the data on the study design, sample size, IPC practices, and patient outcomes. Data have also been subdivided by the IPC category (e.g., team-based care, collaborative decision-making, communication strategies) and patient outcomes (e.g., diagnostic accuracy, patient survival rates, length of stay, and treatment delays).

Qualitative analysis was used to carry out data synthesis, where the basic findings of every study were synthesized and compared. Synthesis of the stories was utilized rather than the use of meta-analysis, as the studies were heterogeneous. The approach led to the synthesis of results (quantitative and qualitative), which provided a more detailed view of the impact of IPC on patient outcomes. The related researches were grouped to observe the related themes, and any gaps and discordance of the literature were also identified.

4. Results

4.1 Summary of Reviewed Studies

S.no	Study Title	Authors	Research Objectives/Questions	Methodology	IPC Practices Reviewed	Key Findings
1	The Role Of Collaboration Between Nursing And Laboratory In Enhancing Patient Care Outcomes	Allihyani et al. (2020)	To examine the roles of nursing and phlebotomy in patient care outcomes	Qualitative study, interviews	Collaboration between nursing and laboratory services	Improved coordination between nursing and laboratory services leads to more accurate diagnoses and timely treatments, especially for chronic diseases

2	Interprofessional Emergency Training Leads to Changes in the Workplace	Eisenman et al. (2017)	To assess the impact of interprofessional emergency training on team performance	Longitudinal simulation-based intervention	Collaborative training among emergency medicine, nursing, and paramedics	Participants showed improved communication skills, and changes were implemented in practice, leading to reduced errors
3	Interprofessional collaboration in emergency Department s: The importance of teamwork among nurses, pharmacists, and medical records, and physicians	Almanna et al. (2020)	To explore interprofessional collaboration between general physicians and emergency department teams	Qualitative study, group interviews	Collaboration between physicians and emergency department teams	Found that mutual trust, shared goals, and role clarification were essential for effective collaboration, but organizational factors hindered coordination
4	Interprofessional communication in the emergency department: residents' perceptions and implications for medical education	Bekkink et al. (2018)	To assess barriers and enablers to interprofessional communication in the ED	Focus group study	Communication and role clarity among residents, physicians, and nurses	Identified barriers such as hierarchy, workload, and lack of formal training; recommendations for structured IPC training in medical education
5	Patients' Experiences of Interprofessional Collaborative Practice in Primary Care: A Scoping Review of the Literature	Morgan et al. (2020)	To evaluate patient experiences with IPC in primary care settings	Scoping review	Collaboration between primary care providers (nurses, physicians, pharmacists)	IPC improved patient satisfaction and care coordination, though outcomes varied by type of collaboration

6	Interprofessional collaboration and patient-reported outcomes in inpatient care: a systematic review	Kaiser et al. (2022)	To assess IPC effects on patient-reported outcomes in inpatient care	Systematic review, meta-analysis	IPC in inpatient care settings	IPC led to small improvements in functional status, healthcare resource use, and professionals' adherence to practices
7	Interprofessional Collaboration between General Physicians and Emergency Department Teams in Belgium: A Qualitative Study	Karam et al. (2017)	To assess collaboration between general physicians and emergency department teams	Qualitative interviews	Coordination between primary care and emergency teams	Organizational barriers, such as unclear roles and a lack of leadership, hindered effective collaboration; better role clarification is needed
8	Evaluation of interprofessional student Teams in the emergency department: Opportunities and challenges	Hood et al. (2022)	To assess the effectiveness of interprofessional student placements in the ED	Pre/post placement evaluation	Collaboration between medical and nursing students	Positive outcomes in self-efficacy and team collaboration; identified challenges in clinical supervision
9	Interprofessional Collaboration In Emergency Healthcare: Optimizing Patient Outcomes Through Integrated Pharmacy, Radiology, And Nursing	Alanazi et al. (2022)	To evaluate IPC strategies in improving care in acute emergency settings	Longitudinal study	Collaboration between emergency, pharmacy, and nursing professionals	IPC reduced medical errors and optimized resource utilization, leading to better patient outcomes in acute settings

	Practices In Acute Care Settings					
10	Interprofessional collaboration to improve professional practice and healthcare outcomes (Review)	Pelone et al. (2017)	To assess the impact of practice-based interventions designed to improve IPC among healthcare professionals	Systematic review of randomised controlled trials	Interprofessional activities, rounds, meetings, checklists	IPC interventions improved functional status and adherence to practices, with mixed results on patient-assessed quality of care and collaborative working. Evidence quality was low to very low, highlighting the need for further research.

4.2 Impact of IPC on Patient Outcomes

The articles reviewed exhibit a degree of consistency in proving that interprofessional collaboration (IPC) has a positive impact on patient outcomes in the emergency and laboratory service settings. Among the major trends that were traced, there were a decrease in the number of medical errors, increased diagnosis accuracy, and patient satisfaction. Citing an example, Eisenmann et al. (2017) discovered that IPC training among the emergency services resulted in a greater level of communication skills, which were subsequently transformed into the decrease of clinical errors and patient outcome. Similarly, Alanazi et al. (2022) demonstrated that the collaboration of emergency and pharmacy and nursing teamwork decreased medical errors and maximized resources which led to improved patient outcomes in the acute setting.

A high recovery and survival has been pointed out in other studies. As Almanna et al. (2020) emphasized, there should be a sense of trust between physician and emergency department teams, and the responsibilities of each should be explained as much as possible to improve the patient survival rates. In addition to this, Morgan et al. (2020) also discovered that IPC within primary care locations resulted in increased patient satisfaction and coordination of care that indirectly influenced enhanced health outcomes. The study by Kaiser et al. (2022) has also identified slight yet significant patient-reported outcomes benefits in regard to functional status, healthcare resources utilization, and medical practice compliance in inpatient care. These results are aligned with the overall theme that IPC improves efficiency, quality of care, and patient outcomes.

The systematic reviews depicted statistical results of functional status and the efficiency of care improvement. Alongside this, Kaiser et al. (2022) demonstrated that IPC had a rather positive response on functional status, whereas Pelone et al. (2017) demonstrated that IPC interventions in inpatient facilities did not respond significantly but positively affected patient care. Even though the evidence quality of some of the studies is mixed, the results indicate the overall positive impact of IPC on patient outcomes when utilized in emergency and hospital settings.

4.3 Barriers to Effective IPC

Though IPC has been characterized as a positive thing, certain challenges to effective cooperation were identified. One of the most common problems that have been pointed out in the articles is the hierarchical structures, which do not allow free communication and interaction among all team members. Bekkink et al. (2018) and Karam et al. (2017) also discovered that hierarchical disagreements between nursing staff and physicians, in particular, in treating patients in the emergency unit, were barriers to effective communication, which led to delays in care and the loss of diagnostic opportunities. These findings echo those of Pelone et al. (2017), who noted that leadership shortage and ambiguity of roles were among such organizational factors that hindered the success of IPC, even though collaborative practices had been established in the settings.

Other than the issue of hierarchy, the lack of formal training on IPC was also a significant challenge. According to the study by Bekkink et al. (2018), medical education systems tend not to prepare healthcare workers to collaborate in an interprofessional environment, and thus, they do not cooperate properly under high-stress conditions, like in emergency departments. In a similar vein, Hood et al. (2022) have found that although the student placements in the ED yielded good results, clinical supervision and the lack of training on IPC practices were still apparent.

Another problem that was established by other studies was the resource limitations. The findings of Alanazi et al. (2022) and Morgan et al. (2020) were that the absence of resources and technological support hampered the successful implementation of IPC strategies, particularly when it came to the resource-constrained setting. These barriers end up influencing the destiny of the patients, as they are involved in the delay of response time, high probability of errors, and the efficiency of care delivery.

5. Discussion

5.1 Discussion of Findings Relating to Research Questions

The key findings of this review of the literature systematically indicate the absolutely great importance of interprofessional collaboration (IPC) in patient outcome, particularly in the emergency and laboratory environment. The analyzed literature resources indicated that IPC activities, including collaborative care, role definition, and shared decision-making, were consistently associated with improved patient outcomes, including the decrease of medical errors, high levels of diagnostic performance, and reduced response time (Eisenmann et al., 2017; Pelone et al., 2017). These results prove that IPC positively affects the coordination of care and clinical decision-making, which is the direct answer to the initial research question regarding the significance of IPC in emergency and laboratory services.

With regards to research question of barriers to IPC, the studies presented universal barriers such as hierarchical structure, poor communication system and training. The presence of organizational silos (particularly in a high-pressure environment, such as an emergency department) made the highest potential of IPC complicated (Bekkink et al., 2018; Karam et al., 2017). All these obstacles undermined the advantages of IPC, which is based on the necessity to involve a systematic change and improve the interaction and communication between healthcare professionals.

5.2 Practice, Public Health, and Policy Implications

There are several implications of this review for healthcare practice, public health, and policy. Regarding the sphere of healthcare practice, the evidence shows that training interventions, meant to enhance the team dynamics, communication, and decision-making, especially in high-stakes settings, like those in the field of emergency care, demand the application of training initiatives that are IPC-based (Pelone et al., 2017). In order to ensure that the healthcare workers are prepared to cooperate in practice, a change in policies is needed, such as the implementation of IPC education into the medical curricula and the ongoing professional improvement. Above all, the purpose of the public health activity should focus on the IPC in

an attempt to maximize the efficiency and effectiveness of the provision of healthcare services, which ultimately will result in the reduction of morbidity and mortality rates in patients.

5.3 Strengths and Limitations of this Study

The broadness of the scope of including studies of various types, both qualitative and quantitative research in diverse healthcare settings, is one of the strengths of this review, contributing to the increased strength of the results. However, one of the weaknesses is the variation in the level of evidence of studies. Many of the studies had low to moderate methodological rigor, which limits the extrapolation of the results. The future research must focus on the enhancement of the methodological usefulness of the studies that explore IPC and consider its use in varying geographical and health care contexts.

6. Conclusion

6.1 Summary of Main Findings

This study assessed the application of interprofessional collaboration (IPC) in emergency and laboratory services and the impact of the application on patient outcomes. The systematic review found that IPC has consistent evidence that IPC positively influences patient care with its high-quality communication, reduced medical errors, more correct diagnostic results, and shorter response time, particularly in an emergency care environment. One of the collaborative practices that achieved these positive results was also found to be team-based care, role clarification, and joint decision-making.

Efforts to establish good IPC were also found to have some barriers to overcome in the research that included hierarchical organization, poor communication, and insufficient training. These obstacles limit the potential returns of IPC, and it denotes that further organization and formal training of the IPC implementation in healthcare should be provided.

6.2 Contributions of this Study

The contributions of the work lie in the fact that it enables building a deep concept of the role of IPC in healthcare provision in a critical environment and in determining the issues that must be addressed to make it as efficient as possible. To draw attention to the importance of IPC in promoting patient safety and outcomes, this review presents a review of findings obtained from various studies. It is also useful in reinforcing the body of knowledge that suggests the need to alter the policies to include IPC education in medical training programs and practices, which is paramount in promoting the quality and efficiency of patient care in emergency and laboratory settings.

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