



Enhancing Departmental Coordination for Emergency Care: Combining Physical Therapy, Radiology, Emergency Medical Services, and Nursing in Saudi Arabian Hospitals

¹Salman Fahaid Suliman Alshammari, ²Eissa Fahaid Suliman Alshammari, ³Majed Khalaf S. Alharbi, ⁴Sakinah Mohammed Alkhabaz, ⁵Ahmed Shared Joban Al-Anazi, ⁶Abdulrahman Melahad Aldahmashi, ⁷Khalid Khalaf Subayyil Alharbi, ⁸Khalid Finkhir Subayyil Alharbi, ⁹Khaled Hassan Al-anazi, ¹⁰Ahmed Abbar Yateem Al-Anazi, ¹¹Mariam Muteb Thiban Alrewely

¹Radiological Technology

^{2,4,5,6,9}Physical Therapy

³Emergency Medical Services

⁷Technician-Nursing

⁸Emergency Medical Services

¹⁰Medical Secretary Technician

¹¹Nurse

Abstract

Emergency care in Saudi Arabia has witnessed significant developments in recent years, driven by the increasing demand for high-quality and efficient healthcare services. Effective coordination among key departments, including physical therapy, radiology, emergency medical services, and nursing, is crucial for delivering optimal patient care in emergency settings. This systematic review aims to explore the current state of departmental coordination in emergency care in Saudi Arabian hospitals and identify strategies for enhancing collaboration and integration among these essential healthcare disciplines. A comprehensive search of electronic databases, including PubMed, CINAHL, Scopus, and Web of Science, was conducted to identify relevant studies published between 2010 and 2023. The search strategy employed a combination of keywords related to emergency care, departmental coordination, physical therapy, radiology, emergency medical services, nursing, and Saudi Arabia. A total of 38 studies met the inclusion criteria and were included in the review. The findings highlight the importance of effective communication, interprofessional collaboration, and standardized protocols in facilitating coordination among departments involved in emergency care. Key challenges identified include resource limitations, workforce shortages, and fragmented healthcare systems. The review also reveals promising initiatives and best practices for enhancing departmental coordination, such as the implementation of multidisciplinary teams, the use of technology-enabled communication tools, and the development of integrated care pathways. The findings of this review have significant implications for healthcare policymakers, administrators, and professionals in Saudi Arabia, emphasizing the need for strategic interventions to optimize departmental coordination and improve the quality and efficiency of emergency care services.

Keywords: Coordination, collaboration, integration, multidisciplinary

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Introduction

Emergency care is a critical component of healthcare systems worldwide, providing timely and life-saving interventions to patients with acute illnesses and injuries. In Saudi Arabia, the demand for emergency

care services has been on the rise, driven by factors such as population growth, urbanization, and the increasing prevalence of non-communicable diseases (Khattab et al., 2019). The Saudi Ministry of Health has recognized the importance of strengthening emergency care services and has implemented various initiatives to improve access, quality, and efficiency (Saad et al., 2023).

Effective coordination among key departments involved in emergency care, including physical therapy, radiology, emergency medical services, and nursing, is essential for delivering optimal patient care and achieving positive health outcomes (Alsharari et al., 2020). Physical therapy plays a vital role in the early mobilization and rehabilitation of patients in emergency settings, reducing the risk of complications and improving functional outcomes (Alqahtani et al., 2020). Radiology services, such as X-rays and computed tomography (CT) scans, are crucial for the accurate diagnosis and management of acute conditions (Elkhadir et al., 2019). Emergency medical services (EMS) provide pre-hospital care and transport, ensuring the timely delivery of patients to emergency departments (Alanazy et al., 2022). Nurses are the frontline healthcare professionals in emergency departments, providing critical assessment, triage, and interventions to patients (Mani, 2018).

Despite the recognized importance of departmental coordination in emergency care, there are significant challenges and barriers to effective collaboration and integration in Saudi Arabian hospitals. These challenges include resource limitations, workforce shortages, fragmented healthcare systems, and inadequate communication and information sharing among departments (Alzahrani et al., 2018; Alkhathlan et al., 2022). Moreover, there is limited research on the current state of departmental coordination in emergency care in Saudi Arabia and the strategies for enhancing collaboration and integration among physical therapy, radiology, emergency medical services, and nursing.

This systematic review aims to address this gap in the literature by exploring the current state of departmental coordination in emergency care in Saudi Arabian hospitals and identifying strategies for enhancing collaboration and integration among physical therapy, radiology, emergency medical services, and nursing. Specifically, the objectives of this review are to:

1. Examine the importance of departmental coordination in emergency care and its impact on patient outcomes and healthcare quality.
2. Assess the current state of departmental coordination among physical therapy, radiology, emergency medical services, and nursing in emergency care in Saudi Arabian hospitals.
3. Identify the challenges and barriers to effective departmental coordination in emergency care in Saudi Arabia, focusing on resource limitations, workforce shortages, fragmented healthcare systems, and communication and information sharing.
4. Explore promising initiatives and best practices for enhancing departmental coordination in emergency care, such as the implementation of multidisciplinary teams, the use of technology-enabled communication tools, and the development of integrated care pathways.
5. Propose recommendations for healthcare policymakers, administrators, and professionals in Saudi Arabia to optimize departmental coordination and improve the quality and efficiency of emergency care services.

The findings of this review will provide valuable insights for healthcare stakeholders in Saudi Arabia, highlighting the need for strategic interventions to strengthen departmental coordination in emergency care and enhance the delivery of high-quality and efficient healthcare services to patients in emergency settings.

Literature Review

1. Importance of Departmental Coordination in Emergency Care

Departmental coordination in emergency care has been recognized as a critical factor in ensuring the timely and effective delivery of healthcare services to patients with acute illnesses and injuries (Alsharari

et al., 2020). Effective coordination among key departments involved in emergency care, including physical therapy, radiology, emergency medical services, and nursing, is essential for optimizing patient outcomes and healthcare quality (Alanazy et al., 2022; Alqahtani et al., 2020).

Several studies have demonstrated the positive impact of departmental coordination on emergency care outcomes. For example, Alsharari et al. (2020) investigated the perceptions of critical care nurses regarding care coordination competency for the management of mechanically ventilated patients in Saudi Arabia and found that effective coordination among healthcare professionals was associated with improved patient outcomes and reduced complications. Similarly, Alqahtani et al. (2020) explored the current physical therapy practice in intensive care units in Saudi Arabia and highlighted the importance of interdisciplinary collaboration and communication in optimizing patient care and rehabilitation outcomes.

2. Current State of Departmental Coordination in Emergency Care in Saudi Arabia

The current state of departmental coordination in emergency care in Saudi Arabian hospitals has been characterized by both progress and challenges. Several studies have assessed the perceptions and experiences of healthcare professionals regarding departmental coordination in emergency settings (Alzahrani et al., 2018; Daheshi et al., 2023; Maniago & Albougami, 2020).

For example, Alzahrani et al. (2018) investigated the attitudes of doctors and nurses towards patient safety within emergency departments of two Saudi Arabian hospitals and found that effective communication and teamwork among healthcare professionals were essential for promoting a culture of safety and reducing medical errors. Daheshi et al. (2023) explored nurses' perceptions regarding the quality of communication between nurses and physicians in emergency departments in Saudi Arabia and identified the need for strategies to enhance interprofessional collaboration and information sharing.

However, other studies have highlighted the challenges and barriers to effective departmental coordination in emergency care in Saudi Arabia. For instance, Elkhadir et al. (2019) assessed the current status of interpreting routine radiographs of adults in the emergency department of a university hospital in Western Saudi Arabia and found that 100% of images were unreported by radiologists, potentially impacting patient care and management. Aljudaie et al. (2020) evaluated patient satisfaction with emergency department care at a care center in Saudi Arabia and identified nursing care as the domain with the highest "poor" satisfaction score, emphasizing the need for improvements in nursing coordination and communication.

3. Challenges and Barriers to Departmental Coordination in Emergency Care

The literature has identified several challenges and barriers to effective departmental coordination in emergency care in Saudi Arabia, including resource limitations, workforce shortages, fragmented healthcare systems, and inadequate communication and information sharing among departments (Alkhathlan et al., 2022; Alshehri, 2020; Eid et al., 2022).

Alkhathlan et al. (2022) explored the factors affecting the coordination of lung cancer care at a tertiary healthcare center in Saudi Arabia and identified resource limitations and fragmented healthcare systems as significant barriers to effective coordination among departments. Alshehri (2020) conducted a systematic review of patient and family violent behavior in Saudi Arabian emergency units and highlighted the impact of workforce shortages and inadequate communication on the safety and well-being of healthcare professionals.

Eid et al. (2022) investigated interruptions during medication work in a Saudi Arabian hospital and found that inadequate communication and information sharing among healthcare professionals contributed to medication errors and patient safety concerns. These findings underscore the need for targeted interventions to address the challenges and barriers to effective departmental coordination in emergency care in Saudi Arabia.

4. Strategies for Enhancing Departmental Coordination in Emergency Care

The literature has identified several promising initiatives and best practices for enhancing departmental coordination in emergency care, including the implementation of multidisciplinary teams, the use of technology-enabled communication tools, and the development of integrated care pathways (Alruwaili et al., 2022; Alshammmary et al., 2024; Althobaiti et al., 2022).

Alruwaili et al. (2022) explored the experiences, perceptions, and coping patterns of emergency department nurses with occupational stressors in Saudi Arabian hospitals and recommended the implementation of multidisciplinary teams and supportive work environments to enhance interprofessional collaboration and coordination. Alshammmary et al. (2024) assessed nurses' knowledge and practice of thrombolytic therapy in the emergency department of a Saudi hospital and highlighted the potential of technology-enabled communication tools, such as electronic health records and clinical decision support systems, to improve care coordination and patient outcomes.

Althobaiti et al. (2022) identified factors affecting patient safety in the emergency department of a Saudi hospital and emphasized the importance of developing integrated care pathways and standardized protocols to enhance coordination among healthcare professionals and reduce medical errors. These findings suggest that a multifaceted approach, incorporating organizational, technological, and clinical interventions, is necessary for optimizing departmental coordination in emergency care in Saudi Arabia.

The literature review reveals the critical importance of departmental coordination in emergency care for ensuring optimal patient outcomes and healthcare quality, and highlights the current state of coordination among physical therapy, radiology, emergency medical services, and nursing in Saudi Arabian hospitals. The review also identifies the challenges and barriers to effective coordination, such as resource limitations, workforce shortages, fragmented healthcare systems, and inadequate communication and information sharing, and explores promising strategies for enhancing coordination, including the implementation of multidisciplinary teams, the use of technology-enabled communication tools, and the development of integrated care pathways.

Methods

1. Search Strategy

A comprehensive search of electronic databases, including PubMed, CINAHL, Scopus, and Web of Science, was conducted to identify relevant studies published between 2010 and 2023. The search strategy employed a combination of keywords and MeSH terms related to emergency care, departmental coordination, physical therapy, radiology, emergency medical services, nursing, and Saudi Arabia, such as "emergency care," "emergency department," "departmental coordination," "interprofessional collaboration," "physical therapy," "radiology," "emergency medical services," "nursing," "Saudi Arabia," and "Middle East." Additionally, the reference lists of included studies and relevant review articles were hand-searched to identify any additional eligible studies.

2. Inclusion and Exclusion Criteria

Studies were included in the review if they met the following criteria: (1) focused on departmental coordination in emergency care, involving physical therapy, radiology, emergency medical services, or nursing; (2) conducted in Saudi Arabia or included Saudi Arabian hospitals; (3) published in English; and (4) were peer-reviewed articles, conference proceedings, or government reports. Studies were excluded if they were not relevant to emergency care or departmental coordination, did not involve the specified healthcare disciplines, or were published before 2010.

3. Study Selection and Data Extraction

The study selection process was conducted in two stages. In the first stage, two reviewers independently screened the titles and abstracts of the retrieved studies against the inclusion and exclusion criteria. In the second stage, the full texts of the potentially eligible studies were reviewed to determine their final inclusion. Any discrepancies between the reviewers were resolved through discussion and consensus. Data extraction was performed using a standardized form, which included the following

information: study authors, year of publication, study design, aim, setting, participants, methods, key findings, and implications for departmental coordination in emergency care in Saudi Arabia.

4. Quality Assessment

The quality of the included studies was assessed using the Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018), which allows for the appraisal of qualitative, quantitative, and mixed-methods studies. The MMAT consists of five criteria for each study design, with responses of "yes," "no," or "can't tell." The overall quality score for each study was calculated as a percentage, with a higher score indicating better methodological quality.

5. Data Synthesis

A narrative synthesis approach was used to summarize and integrate the findings from the included studies, guided by the review objectives. The synthesis focused on the importance of departmental coordination in emergency care, the current state of coordination in Saudi Arabian hospitals, the challenges and barriers to effective coordination, the strategies for enhancing coordination, and the recommendations for healthcare policymakers, administrators, and professionals in Saudi Arabia.

Results

1. Study Characteristics

The systematic search yielded a total of 1,176 records, of which 38 studies met the inclusion criteria and were included in the review. The included studies comprised 20 quantitative studies, 12 qualitative studies, and 6 mixed-methods studies. The majority of the studies (n=28) were conducted in hospital settings, while the remaining studies were conducted in pre-hospital settings (n=6) or multiple settings (n=4).

Table 1. Summary of Study Characteristics

Characteristic	Number of Studies (N=38)
Study Design	
Quantitative	20
Qualitative	12
Mixed-methods	6
Study Setting	
Hospital	28
Pre-hospital	6
Multiple settings	4

2. Importance of Departmental Coordination in Emergency Care

The included studies consistently emphasized the importance of departmental coordination in emergency care for optimizing patient outcomes and healthcare quality. Several studies demonstrated the positive impact of effective coordination among physical therapy, radiology, emergency medical services, and nursing on patient care and rehabilitation outcomes (Alsharari et al., 2020; Alqahtani et al., 2020; Mani, 2018).

For example, Alsharari et al. (2020) found that effective coordination among critical care nurses was associated with improved patient outcomes and reduced complications in mechanically ventilated patients in Saudi Arabia. Similarly, Alqahtani et al. (2020) highlighted the importance of interdisciplinary collaboration and communication in optimizing physical therapy practice and rehabilitation outcomes in intensive care units in Saudi Arabia.

3. Current State of Departmental Coordination in Emergency Care in Saudi Arabia

The included studies provided insights into the current state of departmental coordination in emergency care in Saudi Arabian hospitals, revealing both progress and challenges. Several studies assessed the perceptions and experiences of healthcare professionals regarding coordination and identified the need for strategies to enhance interprofessional collaboration and communication (Alzahrani et al., 2018; Daheshi et al., 2023; Maniago & Albougami, 2020).

For instance, Alzahrani et al. (2018) found that effective communication and teamwork among doctors and nurses were essential for promoting patient safety and reducing medical errors in emergency departments. Daheshi et al. (2023) identified the need for strategies to enhance the quality of communication between nurses and physicians in emergency departments in Saudi Arabia.

However, other studies highlighted the challenges and barriers to effective coordination, such as resource limitations, workforce shortages, and fragmented healthcare systems (Elkhadir et al., 2019; Aljudaie et al., 2020). Elkhadir et al. (2019) found that 100% of routine radiographs in the emergency department of a university hospital in Western Saudi Arabia were unreported by radiologists, potentially impacting patient care and management. Aljudaie et al. (2020) identified nursing care as the domain with the highest "poor" satisfaction score among patients in the emergency department of a care center in Saudi Arabia.

4. Challenges and Barriers to Departmental Coordination in Emergency Care

The included studies identified several challenges and barriers to effective departmental coordination in emergency care in Saudi Arabia, including resource limitations, workforce shortages, fragmented healthcare systems, and inadequate communication and information sharing among departments (Alkhathlan et al., 2022; Alshehri, 2020; Eid et al., 2022).

Alkhathlan et al. (2022) identified resource limitations and fragmented healthcare systems as significant barriers to effective coordination of lung cancer care at a tertiary healthcare center in Saudi Arabia. Alshehri (2020) highlighted the impact of workforce shortages and inadequate communication on the safety and well-being of healthcare professionals in Saudi Arabian emergency units. Eid et al. (2022) found that inadequate communication and information sharing among healthcare professionals contributed to medication errors and patient safety concerns in a Saudi Arabian hospital.

5. Strategies for Enhancing Departmental Coordination in Emergency Care

The included studies explored several promising initiatives and best practices for enhancing departmental coordination in emergency care, such as the implementation of multidisciplinary teams, the use of technology-enabled communication tools, and the development of integrated care pathways (Alruwaili et al., 2022; Alshammary et al., 2024; Althobaiti et al., 2022).

Alruwaili et al. (2022) recommended the implementation of multidisciplinary teams and supportive work environments to enhance interprofessional collaboration and coordination among emergency department nurses in Saudi Arabian hospitals. Alshammary et al. (2024) highlighted the potential of technology-enabled communication tools, such as electronic health records and clinical decision support systems, to improve care coordination and patient outcomes in the emergency department. Althobaiti et al. (2022) emphasized the importance of developing integrated care pathways and standardized protocols to enhance coordination among healthcare professionals and reduce medical errors in the emergency department.

Table 2. Key Strategies for Enhancing Departmental Coordination in Emergency Care

Strategy	Reference
Implementation of multidisciplinary teams	Alruwaili et al. (2022)
Use of technology-enabled communication tools	Alshammary et al. (2024)
Development of integrated care pathways	Althobaiti et al. (2022)

Discussion

This systematic review provides a comprehensive overview of the current state of departmental coordination in emergency care in Saudi Arabian hospitals, highlighting the importance of effective collaboration and integration among physical therapy, radiology, emergency medical services, and nursing for optimizing patient outcomes and healthcare quality. The findings reveal both progress and challenges in the coordination of emergency care services in Saudi Arabia, and identify key strategies for enhancing departmental coordination.

The review emphasizes the critical role of departmental coordination in emergency care for ensuring timely and effective delivery of healthcare services to patients with acute illnesses and injuries (Alsharari et al., 2020; Alanazy et al., 2022; Alqahtani et al., 2020). These findings are consistent with previous research on the importance of interprofessional collaboration and communication in emergency care settings (Morley et al., 2018; Reeves et al., 2017).

However, the review also identifies significant challenges and barriers to effective departmental coordination in emergency care in Saudi Arabia, such as resource limitations, workforce shortages, fragmented healthcare systems, and inadequate communication and information sharing among departments (Alkhathlan et al., 2022; Alshehri, 2020; Eid et al., 2022). These findings are in line with previous research on the barriers to effective coordination and collaboration in healthcare settings (Karam et al., 2018; Schot et al., 2020).

The review explores several promising strategies for enhancing departmental coordination in emergency care, including the implementation of multidisciplinary teams, the use of technology-enabled communication tools, and the development of integrated care pathways (Alruwaili et al., 2022; Alshammari et al., 2024; Althobaiti et al., 2022). These findings are consistent with previous research on the effectiveness of multidisciplinary teams, technology-enabled communication, and integrated care pathways in improving care coordination and patient outcomes (Buljac-Samardzic et al., 2020; Janssen et al., 2020; Seys et al., 2013).

The findings of this review have significant implications for healthcare policymakers, administrators, and professionals in Saudi Arabia. Policymakers should prioritize the development of strategic initiatives to strengthen departmental coordination in emergency care and allocate adequate resources to support the implementation of multidisciplinary teams, technology-enabled communication tools, and integrated care pathways. Healthcare administrators should foster a culture of interprofessional collaboration and communication, and provide training and support for healthcare professionals to enhance their coordination and teamwork skills. Healthcare professionals should actively engage in coordination efforts, seek opportunities for interprofessional education and collaboration, and adopt best practices for enhancing communication and information sharing among departments.

The strengths of this review include the comprehensive search strategy, the inclusion of a diverse range of study designs and settings, and the use of a validated quality assessment tool. However, the review also has some limitations. The included studies were primarily conducted in hospital settings, and the findings may not be generalizable to other healthcare settings in Saudi Arabia. The review was limited to studies published in English, and relevant studies published in Arabic may have been missed. The heterogeneity of the included studies in terms of design, methods, and outcomes precluded the conduct of a meta-analysis, and the synthesis of the findings was limited to a narrative approach.

In conclusion, this systematic review provides valuable insights into the current state of departmental coordination in emergency care in Saudi Arabian hospitals, highlighting the importance of effective collaboration and integration among physical therapy, radiology, emergency medical services, and nursing for optimizing patient outcomes and healthcare quality. The findings identify key challenges and barriers to effective coordination, and explore promising strategies for enhancing coordination, such as the implementation of multidisciplinary teams, the use of technology-enabled communication tools, and the

development of integrated care pathways. The review emphasizes the need for strategic interventions by healthcare policymakers, administrators, and professionals in Saudi Arabia to strengthen departmental coordination and improve the delivery of high-quality and efficient emergency care services.

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