The Impact Of Interprofessional Coordination Between Physicians And Nurses On Emergency Response Effectiveness And Patient Outcomes

Ahmad Ali Alsheikhi[1*], Madreyah Mueid Alqurashi[2], Fatimah Saleh Mohd Alghamedi[3], Huda Mohammed Eissa Hadadi[4], Samair Mohmmed Al Hadadi[5], Aisha Ahmed Ibrahim Saleh[6], Najla Ahmad Aqili[7], Khalid Salman Alsaadi, Hussam Ibrahim Alamri[9].

[1-2] Ministry of health-Makkah Health Cluster -Saudi Arabia
[3] Ministry of health- Al-Baha Health Cluster -Saudi Arabia
[4,5,6,7] Ministry of health- Jazan Health Cluster -Saudi Arabia
[8] Ministry of health- Ministry of Health branch in Madinah-Saudi Arabia
[9] Ministry of health- Tabuk Health Cluster -Saudi Arabia

Abstract

timely decision-making, simultaneous therapeutic interventions, and seamless collaboration among healthcare professionals are essential. In such critical settings, the effectiveness of patient care is not solely determined by individual clinical competence, but rather by the degree of coordination and integration between physicians and nursing staff, which directly influences the speed, accuracy, and safety of emergency medical interventions.

Contemporary medical literature increasingly recognizes inadequate coordination between physicians and nurses in emergency care as a major contributing factor to medical errors, delayed life-saving interventions, and increased rates of morbidity and mortality. These risks are particularly pronounced in high-acuity emergencies, including cardiac, respiratory, traumatic, neurological, obstetric, and neonatal cases. Conversely, well-coordinated emergency teams characterized by structured communication, standardized clinical protocols, and shared clinical decision-making demonstrate superior performance in managing critical conditions and ensuring patient safety.

Despite the growing emphasis on interprofessional collaboration in healthcare, a significant knowledge gap remains regarding the comprehensive impact of physician–nurse coordination on patient outcomes across a broad spectrum of emergency presentations. Existing studies often focus on isolated emergency categories or administrative aspects of teamwork, without systematically examining how varying levels and models of coordination influence direct clinical outcomes such as survival, complication rates, and length of hospital stay, particularly in diverse emergency contexts including poisoning and pediatric emergencies.

In response to this gap, the present study aims to examine the pivotal role of coordination between physicians and nurses in emergency care settings and to evaluate its effect on key patient outcome indicators. These include survival rates, incidence of complications, duration of hospitalization, and patient satisfaction. Furthermore, the study seeks to identify the core components of effective coordination, including clear communication protocols, standardized procedures, rapid response systems, and collaborative clinical decision-making processes.

The significance of this study lies in its potential to position interprofessional coordination as a strategic, modifiable factor in improving emergency care delivery. By providing evidence-based insights into the relationship between coordinated team performance and patient

outcomes, this research contributes to the development of optimized emergency department policies, strengthens interdisciplinary collaboration, and ultimately enhances the quality, safety, and effectiveness of emergency healthcare services.
Keywords: Coordination of emergency care; Interprofessional collaboration between physicians and nurses; Patient clinical outcomes; Communication within medical teams; Emergency response protocols; Quality improvement in healthcare delivery; Critical and acute care management.

1. INTRODUCTION

Emergency care constitutes time-sensitive medical interventions targeting acute conditions, including injuries, trauma, infections, strokes, sudden cardiac events, obstetric complications, and asthma [1]. Such conditions are often life-threatening or disabling, necessitating immediate recognition and life-saving interventions. Delays in initiating care can result in preventable mortality, long-term disability, or reduced treatment efficacy [1].

According to the **World Health Organization's Emergency Care System Framework** [2], effective emergency care systems span multiple sectors, including the incident scene, patient transport, and healthcare facilities. These systems typically comprise at least two distinct services operating across separate sectors, involving multiple stakeholders such as bystanders, ambulance dispatchers, prehospital teams, and emergency unit healthcare providers. Efficient **coordination of care** is essential from the onset of symptom presentation. The **World Health Assembly Resolution 72/31 (2019)** urged member states to establish coordinated emergency care systems to optimize service delivery [2].

Globally, emergencies impose a substantial disease burden [3]. Approximately 90% of deaths and 84% of disability-adjusted life years (DALYs) result from acute illnesses [3], with prevalence in low- and middle-income countries (LMICs) six times higher than in high-income nations, representing nine of the ten leading causes of mortality and nearly half of the total disease burden [4]. Implementing effective emergency care systems could potentially avert over 50% of annual deaths and up to 2.5 billion DALYs in these regions [2].

Core components of an effective emergency care system include rapid treatment delivery, accurate information sharing, and provision of high-quality care [5]. Fragmentation—characterized by poor coordination, insufficient direct communication, and lack of cross-sector collaboration [6]—can undermine these benefits, leading to loss of critical clinical information, redundant diagnostics, clinical errors, and increased morbidity and mortality [7][8].

In conclusion, **coordinated emergency care is essential** to maximize clinical outcomes, minimize preventable mortality, and reduce avoidable DALYs [5]. Understanding and implementing robust care coordination strategies are pivotal to achieving an effective, high-quality emergency care system.

2. Types of Emergency Cases

Cardiac Emergencies

intervention to prevent irreversible tissue damage or mortality. The **coordination between physicians and nurses** is pivotal for life-saving procedures such as cardiopulmonary resuscitation (CPR), defibrillation, and administration of thrombolytic therapy. Nurses frequently serve as the first point of patient assessment, identifying early warning signs of cardiac distress and promptly notifying physicians to initiate urgent interventions [9].

Effective teamwork facilitates **synchronized clinical actions**, including placement of intravenous lines, administration of medications, and preparation for advanced cardiac life support (ACLS). In such time-critical scenarios, split-second decisions are often decisive, and physicians rely on nurses to provide accurate and timely patient information [10]. Standardized protocols, such as **closed-loop communication**, ensure that instructions are delivered, acknowledged, and executed correctly, thereby minimizing errors and enhancing patient outcomes.

Administration of appropriate medications at the correct time is crucial in cardiac emergencies. Nurses play a central role in preparing and delivering pharmacologic interventions—including epinephrine, amiodarone, and nitroglycerin—under physician guidance. Proper coordination ensures accurate dosing, vigilant monitoring of adverse effects, and prevention of potential drug interactions [11].

Hospitals equipped with **well-coordinated emergency response teams** demonstrate lower mortality rates in cases of cardiac arrest. Moreover, team-based training programs are associated with improved patient outcomes. Coordination extends beyond the initial emergency, encompassing **continuous patient monitoring and post-event care** to mitigate complications such as recurrent arrhythmias or heart failure [12]. Nurses are integral in ongoing patient assessment, reporting changes in clinical status, and collaborating with physicians to adjust care plans accordingly.

Cardiac emergencies impose significant psychological stress not only on patients but also on their families. Effective coordination between physicians and nurses ensures **compassionate, patient-centered care**, where clear and empathetic communication aids family members in understanding treatment decisions and fosters trust in the healthcare team [13].

Respiratory Emergencies

Respiratory emergencies, including acute respiratory distress syndrome (ARDS), asthma exacerbations, and respiratory failure, necessitate **rapid and accurate clinical assessment**. Nurses often serve as the first healthcare providers to recognize signs of respiratory distress, such as dyspnea, cyanosis, or abnormal lung sounds. Their timely reporting of these findings to physicians is essential for prompt intervention, whereas inadequate coordination may delay oxygen therapy, airway management, or initiation of mechanical ventilation [14].

Effective collaboration between physicians and nurses ensures **comprehensive initial assessments** and immediate management of critical respiratory symptoms. Providing adequate oxygenation remains a primary objective in respiratory emergencies. Nurses are responsible for administering and monitoring oxygen therapy in accordance with the severity of hypoxia. In cases necessitating non-invasive ventilation, nurses assist with equipment preparation, ensure proper mask fitting, and monitor patient responses. Poor coordination can result in insufficient oxygen delivery, improper ventilator use, or complications such as barotrauma and aspiration. A well-synchronized medical team can rapidly stabilize patients, prevent progression to respiratory failure, and reduce the need for invasive interventions [15].

Pharmacologic management is pivotal in respiratory crises. Nurses administer bronchodilators, corticosteroids, and epinephrine as prescribed by physicians. In severe respiratory failure, airway management becomes a priority, with **well-trained teams employing standardized protocols and closed-loop communication** to ensure precise execution of emergency airway interventions. Continuous monitoring is critical for early detection of respiratory deterioration, including tracking oxygen saturation, respiratory rate, arterial blood gas (ABG) values, and auscultatory findings [16]. Proper coordination enhances monitoring efficiency, minimizes complications, and improves recovery outcomes.

In critical situations, rapid escalation of care is often required. A **coordinated healthcare team** ensures smooth implementation of advanced life support measures. Hospitals that prioritize teamwork during respiratory emergencies report lower mortality rates and shorter intensive care unit (ICU) stays. Simulation exercises and emergency response drills further enhance team readiness, promoting seamless collaboration between physicians and nurses during real-life crises [17].

Trauma and Injury Cases

Trauma and injury cases necessitate **immediate and coordinated interventions** to optimize patient survival. Nurses often serve as the first responders in patient assessment, employing standardized protocols such as the **Glasgow Coma Scale (GCS)** and **Advanced Trauma Life Support (ATLS)** guidelines to evaluate injury severity and communicate critical findings to physicians. Effective coordination between doctors and nurses ensures that life-threatening conditions are promptly identified and managed without delay. Securing the **airway** and maintaining **adequate circulation** are primary priorities in trauma care. Nurses play an essential role in administering medications, including opioids, muscle relaxants, and anesthetics, under physician supervision. Inadequate coordination in pain management may result in under-treatment, unnecessary suffering, or overmedication, potentially leading to respiratory depression and other complications [18].

Trauma patients frequently present with **open wounds, fractures, and penetrating injuries**, requiring urgent surgical intervention or extensive wound care. Close collaboration between nurses and physicians is essential for wound cleaning, dressing application, and infection prevention, particularly in cases of compound fractures or abdominal trauma. Nurses also assist in **operating room preparation**, ensuring sterile conditions and proper patient positioning for surgery. Diagnostic imaging is critical for identifying internal injuries, and nurses facilitate rapid patient transfer to radiology departments for X-rays, CT scans, or MRIs while maintaining clinical stability during transport. Clear communication allows prioritization of imaging studies, ensuring timely diagnosis and treatment of life-threatening injuries [19].

Following initial stabilization, **ongoing monitoring and rehabilitation planning** are vital. Nurses continuously track vital signs, neurological status, and wound healing, promptly reporting any deterioration to physicians. In cases involving traumatic brain or spinal cord injuries, multidisciplinary collaboration with rehabilitation specialists, physical therapists, and pain management teams is required to develop comprehensive long-term recovery plans.

Trauma management poses significant **physical and emotional challenges** for patients and their families. Nurses act as liaisons between physicians and family members, providing updates, clarifying treatment plans, and offering emotional support. Effective teamwork mitigates confusion and anxiety, fosters trust in the healthcare team, and promotes patient cooperation, ultimately facilitating smoother recovery and better clinical outcomes [20].

Neurological Emergencies

Neurological emergencies, including **strokes, traumatic brain injuries, seizures, and intracranial hemorrhages**, require **immediate and coordinated medical interventions**. The brain is highly sensitive to oxygen deprivation and elevated intracranial pressure, making rapid diagnosis and treatment essential to prevent irreversible neurological damage. Effective coordination between physicians and nurses ensures timely interventions, precise monitoring, and improved patient outcomes.

Early recognition of neurological deterioration is critical in emergencies such as **ischemic stroke, hemorrhagic stroke, and traumatic brain injury**. Nurses frequently serve as the first assessors, identifying clinical signs including facial drooping, limb weakness, speech

disturbances, altered mental status, and pupillary changes. Prompt communication between nurses and physicians facilitates immediate diagnostic evaluation, including CT scans or MRI imaging [9].

In ischemic strokes, **rapid administration of thrombolytic therapy** can restore cerebral perfusion, enhancing survival rates and reducing long-term disability. In hemorrhagic strokes, coordinated efforts between doctors and nurses focus on **blood pressure management**, administration of anticoagulant reversal agents, and preparation for surgical interventions such as craniotomy. Inefficient teamwork may result in missed therapeutic windows, potentially leading to permanent neurological deficits or death.

Seizures, particularly **status epilepticus**, necessitate immediate medical intervention to prevent brain injury, respiratory compromise, and cardiac complications. Nurses monitor seizure duration, ensure patient safety, and administer anticonvulsant medications. Delays due to poor coordination can prolong seizure activity and increase the risk of permanent neurological damage [21].

Patients with **spinal cord injuries** require meticulous handling to prevent secondary injury. Nurses ensure proper immobilization using cervical collars and spinal boards, while physicians determine the need for surgical decompression or corticosteroid therapy. Continuous neurological assessment post-emergency is vital to detect complications such as cerebral edema, hydrocephalus, or infections.

Neurological emergencies are often profoundly distressing for patients and families, particularly in cases of paralysis, cognitive impairment, or coma. **Clear, compassionate communication** by the healthcare team enables families to make informed decisions regarding treatment, rehabilitation, and long-term care [22].

Obstetric and Neonatal Emergencies

Obstetric and neonatal emergencies are **time-critical events** that pose significant risks to both the mother and the newborn, necessitating **rapid and coordinated clinical responses**. Such emergencies include postpartum hemorrhage, eclampsia, fetal distress, umbilical cord prolapse, and neonatal asphyxia. Nurses play a central role in assessing laboring and postpartum patients, monitoring vital signs, and promptly communicating any abnormalities to physicians. Early recognition and immediate intervention are essential to prevent life-threatening complications.

Postpartum hemorrhage remains a leading cause of maternal mortality globally, requiring urgent collaboration between doctors and nurses. Nurses monitor blood loss, perform uterine massage to stimulate contractions, and administer uterotonic agents, while physicians rapidly evaluate the underlying cause and implement appropriate surgical or pharmacologic interventions. Inadequate coordination can result in excessive blood loss, hypovolemic shock, organ failure, or death [12].

Eclampsia and severe preeclampsia can precipitate life-threatening seizures, stroke, or multi-organ failure. Nurses are responsible for continuous blood pressure monitoring, administering magnesium sulfate to prevent seizures, stabilizing the mother, preparing for emergency delivery, and ensuring readiness for neonatal resuscitation, especially in cases of prematurity. **Fetal distress** necessitates immediate intervention to prevent birth asphyxia and neurologic injury. Nurses must relay fetal monitoring findings to physicians without delay, enabling prompt decision-making. In cases requiring emergency cesarean delivery, seamless coordination among the surgical team, anesthesia providers, and neonatal care team is critical to minimize delivery delays and optimize maternal and neonatal outcomes [23].

Neonatal sepsis risk is elevated in situations such as prolonged labor, premature rupture of membranes, or maternal infections like chorioamnionitis. Effective collaboration between nurses and physicians ensures adherence to sterile techniques during delivery, timely administration of antibiotics, and vigilant monitoring for early signs of infection. Poor coordination may result in delayed diagnosis and treatment, increasing neonatal morbidity and mortality [24].

Obstetric and neonatal emergencies are emotionally taxing for families. Coordinated communication between doctors and nurses provides **clear, compassionate updates**, helping families understand the condition of both mother and newborn, reducing anxiety, and facilitating informed decision-making [24].

Poisoning and Overdose Cases

Poisoning and overdose cases constitute **time-critical medical emergencies**, where delayed or inappropriate treatment can result in severe complications, permanent organ damage, or death. Effective management requires **seamless coordination between physicians and nurses** to enable rapid diagnosis, timely intervention, and continuous monitoring. Such teamwork enhances patient survival rates and mitigates long-term health consequences [25].

The initial step in managing poisoning and overdose is the **rapid identification of the toxic agent**. Nurses, often the first responders, assess vital signs, level of consciousness, and clinical manifestations such as respiratory distress, altered mental status, or seizures. Clear and precise communication between nurses and physicians is crucial for determining the likely toxin, estimating ingested doses, and deciding on the appropriate antidote or supportive therapy. Inadequate coordination may lead to delayed or incorrect interventions, worsening patient outcomes [26].

Once the toxic agent is identified, physicians prescribe necessary interventions, which nurses promptly implement. Nurses are responsible for **accurate medication administration**, monitoring patient responses, and detecting early signs of adverse reactions. Poor coordination may result in dosing errors or delayed treatment, posing life-threatening risks [26].

Respiratory compromise, including depression, airway obstruction, or pulmonary edema, is common in poisoning cases. Nurses assist in preparing airway equipment, monitoring oxygen saturation, and providing manual ventilation if required. Close collaboration ensures that complications such as seizures, metabolic acidosis, or shock are promptly identified and managed.

Decontamination procedures are critical in cases of toxic ingestion, inhalation, or dermal exposure. Nurses perform gastric lavage, administer activated charcoal, or conduct whole bowel irrigation under physician supervision [27]. Strict adherence to decontamination protocols is essential, particularly in chemical burns or inhalation poisoning.

In instances of intentional self-harm, interdisciplinary coordination with psychiatrists and social workers is necessary to assess suicide risk, provide crisis counseling, and arrange psychiatric follow-up. Discharge planning may include referral to addiction treatment programs, instructions for long-term monitoring, and follow-up assessments of hepatic or renal function. Effective communication among the medical team ensures that **no critical information is overlooked**, enabling comprehensive care beyond the acute emergency phase [28].

Pediatric Emergencies

Pediatric emergencies represent a **vital component of healthcare**, requiring precise and timely interventions due to the unique anatomical, physiological, and psychological

characteristics of children compared to adults. Nurses play a pivotal role in assessing critically ill children, performing initial triage, and identifying early signs of respiratory distress, dehydration, or shock. **Clear communication between nurses and physicians** is essential to prioritize severe cases and prevent avoidable clinical deterioration [29].

Pediatric cardiopulmonary resuscitation (CPR) demands specialized expertise in airway management, ventilation, and cardiac support. Effective resuscitation requires synchronized teamwork between nurses and physicians, encompassing interventions such as bag-mask ventilation, endotracheal intubation, and chest compressions. Accurate dosing of medications, including epinephrine and atropine, is critical to prevent dosing errors [30].

Respiratory emergencies are prevalent in pediatric populations, often arising from asthma, bronchiolitis, pneumonia, or foreign body aspiration. Nurses must rapidly evaluate respiratory effort, oxygen saturation, and breath sounds, communicating critical findings to physicians. Coordinated actions ensure timely and efficient management, preventing hypoxia and cardiac arrest [30].

Pediatric medication administration is particularly sensitive, and strong collaboration between nurses and physicians minimizes medication errors, ensuring optimal therapeutic outcomes. Pediatric trauma cases—including falls, burns, fractures, and head injuries—require a **multidisciplinary approach**, where nurses quickly assess pain, stabilize fractures, control bleeding, and prepare patients for imaging or surgical interventions. Sepsis and septic shock in children progress rapidly, necessitating aggressive fluid resuscitation, early antibiotic therapy, and hemodynamic support. Nurses play a key role in recognizing early warning signs and adjusting treatment strategies, thereby reducing physiological and psychological distress [31].

Parents and caregivers often experience **fear, anxiety, and helplessness** during pediatric emergencies. Coordinated efforts between nurses and physicians provide reassurance, explain procedures, and involve families in clinical decision-making, mitigating psychological stress. Newborns and infants require specialized emergency care due to their immature immune systems and underdeveloped physiological responses. Nurses skilled in **neonatal resuscitation and thermoregulation** collaborate with physicians leading advanced interventions. Effective coordination between both teams is critical for stabilizing neonates and improving survival outcomes [32].

3. CONCLUSION

Pediatric emergencies constitute a **critical component of healthcare**, demanding precise, timely, and evidence-based interventions. The available evidence demonstrates that **effective coordination between physicians and nurses** is fundamental to achieving optimal emergency care outcomes. This coordination is particularly vital across a range of emergency scenarios, including cardiac arrests, respiratory crises, traumatic injuries, and neonatal emergencies.

Research indicates that **well-coordinated interprofessional teams** consistently achieve superior patient outcomes through **rapid response times, accurate diagnosis, timely and appropriate interventions, and continuous monitoring**. Strong collaboration between healthcare professionals mitigates medical errors, optimizes resource utilization, and enhances patient and family satisfaction.

To maximize the effectiveness of emergency care, healthcare institutions should **prioritize team-based training programs** and implement **standardized communication protocols**.

Such measures are essential to ensure seamless interprofessional collaboration, improve clinical efficiency, and ultimately reduce preventable morbidity and mortality in pediatric emergency settings [29–32].

References

1. Jamison DT. Disease control priorities: improving health and reducing poverty. The Lancet. 2018 Mar 17;391(10125):e11-4.
2. World Health Organization. WHO Emergency care system framework. www.who.int/publications/i/item/who-emergency-care-system-framework
3. Chang CY, Abujaber S, Reynolds TA, Camargo CA, Obermeyer Z. Burden of emergency conditions and emergency care usage: new estimates from 40 countries. Emergency Medicine Journal. 2016 Nov 1;33(11):794-800.
4. Werner K, Risko N, Burkholder T, Munge K, Wallis L, Reynolds T. Cost–effectiveness of emergency care interventions in low and middle-income countries: a systematic review. Bulletin of the World Health Organization. 2020 May 5;98(5):341.
5. Hirshon JM, Risko N, Calvello EJ, Ramirez SS, Narayan M, Theodosis C, O'Neill J. Health systems and services: the role of acute care. Bulletin of the World Health Organization. 2013;91:386-8.
6. Kripalani S, LeFevre F, Phillips CO, Williams MV, Basaviah P, Baker DW. Deficits in communication and information transfer between hospital-based and primary care physicians: implications for patient safety and continuity of care. Jama. 2007 Feb 28;297(8):831-41.
7. Zanello E, Calugi S, Rucci P, Pieri G, Vandini S, Faldella G, Fantini MP. Continuity of care in children with special healthcare needs: a qualitative study of family's perspectives. Italian journal of pediatrics. 2015 Dec;41:1-9.
8. Pham HH, Grossman JM, Cohen G, Bodenheimer T. Hospitalists and care transitions: the divorce of inpatient and outpatient care. Health Affairs. 2008 Sep;27(5):1315-27.
9. Zhong H, Liang A, Luo H, Hu X, Xu S, Zheng Z, Zhu X. [Retracted] Application Analysis of Multidisciplinary Diagnosis and Treatment Nursing Mode Based on Doctor-Nurse-Integration for Stroke Patients Undergoing Emergency Intervention Surgery. Emergency Medicine International. 2022;2022(1):6299676.
10. Alsulami AA, Alrashedy FH, Alsinani AA, Alghazzawi LB, Al Hammadi AS, Alhammadi ES, Al Motairy MM, Almutairi DS, Hana'a Mesfer Al-Thubiani S, Asiri S, Alossaimi AS. Case Studies Illustrating Successful Doctor-Nurse Collaboration In Various Healthcare Settings. Journal of Namibian Studies: History Politics Culture. 2022 Oct 17;32:885-95.
11. Zhang A, Chen Q. Segmentation Algorithm-Based Safety Analysis of Cardiac Computed Tomography Angiography to Evaluate Doctor-Nurse-Patient Integrated Nursing Management for Cardiac Interventional Surgery. Computational and Mathematical Methods in Medicine. 2022;2022(1):2148566.
12. Xia Z, Tan Y, Ru C. The Application Effect of Doctor-Nurse Collaborative and Hierarchical Management Combined with Nursing Risk Management in Nursing Management of Patients with Postpartum Hemorrhage. Iranian Journal of Public Health. 2022 Apr;51(4):808.
13. Hoang BH, Do NS, Vu DH, Do GP, Dao XD, Nguyen HH, Luu QT, Le VC, Nguyen HT, Dinh MM, Nakahara S. Outcomes for out-of-hospital cardiac arrest transported to emergency departments in Hanoi, Vietnam: A multi-centre observational study. Emergency Medicine Australasia. 2021 Jun;33(3):541-6.

14. Ikeya N, Matsunaga S, Akutsu T, Takahashi S, Nakazawa H. Working out interprofessional collaboration: Flight nurses' practical management of prehospital emergency care. InMedical and Healthcare Interactions 2023 Jan 1 (pp. 47-72). Routledge.
15. Mokadem N, Jabeen F, Treur J, Rob Taal H, Roelofsma PH. Increasing safety and security through cyberspace by an adaptive network model for AI-assisted risk management of neonatal respiratory distress. InUsing Shared Mental Models and Organisational Learning to Support Safety and Security Through Cyberspace: A Computational Analysis Approach 2025 Jan 3 (pp. 123-166). Cham: Springer Nature Switzerland.
16. Ijaz N, Nader M, Ponticiello M, Vance AJ, van de Water BJ, Funaro MC, Abbas Q, Appiah JA, Chisti MJ, Commerell W, Dzelamunyuy SE. Contextual factors influencing bubble continuous positive airway pressure implementation for paediatric respiratory distress in low-income and middle-income countries: a realist review. The Lancet Global Health. 2024 Dec 12.
17. Mokadem N, Jabeen F, Treur J, Taal HR, Roelofsma PH. An adaptive network model for AI-assisted monitoring and management of neonatal respiratory distress. Cognitive Systems Research. 2024 Aug 1;86:101231.
18. Xie H, Ke L, Han X, Zhang S, Song P, Zhang P, Yan C, Ding Y, Liu Y. Evaluating The Effects of Fine Cooperation Program and Doctor-Nurse Integration on Patients with Chronic Wounds. American Journal of Health Behavior. 2023 Aug 30;47(4):642-9.
19. Charan GS, Kalia R, Dular SK, Kumar R, Kaur K. Challenges faced by doctors and nurses in the emergency department: An integrated review. Journal of Education and Health Promotion. 2025 Jan 1;14(1):2.
20. Sukumar GM, Ghosh S, Gururaj G. Trauma care systems in healthcare facilities of an Indian District: Assessment and future directions. Journal of Family Medicine and Primary Care. 2023 Mar 1;12(3):567-75.
21. Osako M, Yamaoka Y, Mochizuki Y, Fujiwara T. Role of primary care for individuals with childhood-onset neurologic conditions. Health Care Transitions. 2024 Jan 1;2:100037.
22. Badgett NM, Sadikova E, Menezes M, Mazurek MO. Emergency department utilization among youth with autism spectrum disorder: Exploring the role of preventive care, medical home, and mental health access. Journal of Autism and Developmental Disorders. 2023 Jun;53(6):2274-82.
23. Yamuragiye A, Wylie L, Kinsella EA, Donelle L, Ndayisenga JP. Interprofessional collaboration experience among healthcare professionals providing emergency obstetric and neonatal care in Rwanda. A qualitative descriptive case study. Journal of Interprofessional Education & Practice. 2023 Sep 1;32:100648.
24. Bilal M, Khalil H, Ullah R. Power Dynamics in Doctor-Nurse-Patient Roles: Negotiating Decision Making for C-Section in Mardan, Khyber Pakhtunkhwa. Human Nature Journal of Social Sciences. 2024 Jun 30;5(2):358-68.
25. Dillon M. Implementation of a Protocol to Improve the Intake Assessment and Treatment with Suboxone among Patients' Dependent on Opioids on Two Mental Health Crisis Units.
26. Tansuwannarat P, Vichiensanth P, Sivarak O, Tongpoo A, Promrungsri P, Sriapha C, Wananukul W, Trakulsrichai S. Characteristics and consequences of medication errors in pediatric patients reported to Ramathibodi Poison Center: A 10-year retrospective study. Therapeutics and Clinical Risk Management. 2022 Jun 30:669-81.

27. Williams-Hall SL. Development and Evaluation of a Nurse-Directed Opioid Education Discharge Process to Bridge the GAP to Outpatient Services. Wilmington University (Delaware); 2022.
28. Bhuiyan MR. *Report of Hospital Training At 250 Bedded General Hospital, Noakhali* (Doctoral dissertation, Noakhali Science and Technology University).
29. Jaha AA, Alqurashi HO, Alharbi AJ, Marghalani GG, Eid AS, Alnemari HH, Alharthi DM, Allahyani KL, Alrwemi TA, Alharbi AA, Alharbi MS. The Extent Of Cooperation Between Doctors And Nurses In Emergency Departments In Health Facilities. Journal of Survey in Fisheries Sciences. 2023 Jan 20;10(5):1-3.
30. Charan GS, Kalia R, Dular SK, Kumar R, Kaur K. Challenges faced by doctors and nurses in the emergency department: An integrated review. Journal of Education and Health Promotion. 2025 Jan 1;14(1):2.
31. Butun A. The role of family health centres in preventing paediatric emergency department usage of parents of children with non-urgent conditions. BMC Primary Care. 2024 Dec 19;25(1):420.
32. Arthur NS, Blewett LA. Contributions of key components of a medical home on child health outcomes. Maternal and child health journal. 2023 Mar;27(3):476-86.