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Integrating Emergency Medical Services: The Role of Radiology and Nursing Technicians in Enhancing Emergency Care

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Abstract

The use of integrated services for emergency care is becoming increasingly popular in healthcare services. Aiming at developing systems with professionals working together, these emergency medical services have professionals in different roles working together. This paper examines some of these professionals who might work in emergency medical services to deliver quicker and more specific care in emergency settings. Radiology and nursing technicians are two highly specialized professionals who are central to delivering emergency care. This research aims to describe the roles and uses of radiology technicians and nursing technicians in delivering emergency care. It discusses how these professionals communicate and work in emergency settings, as individuals and in team-based responses. The work they complete may lead to a diagnosis and direction for treatment.

These findings complement literature on multidisciplinary working in time-sensitive settings, as they show specific practices used by related professionals to collaborate and ensure that they can work independently. The roles and activities undertaken by technicians are critical for patient care, showing how professionals work together to improve the efficiency and effectiveness of treatment. Together, these findings offer insights into multidisciplinary care activities that can affect patient outcomes and methodologically expand the role of qualitative research in advancing knowledge of discrete practices. Overall, engaging with a service orientation of care delivery using qualitative analysis opens new frontiers to developing professionals' roles and responsibilities and offers a novel line of development to operational organizational knowledge.

keywords: emergency medical services, radiology technicians, nursing technicians

1. Introduction

With accelerating medical progress, combined with increasing life expectancy rates, emergency and healthcare systems globally face a growing number of diversified and aging patients who demand increasingly complex therapeutic interventions. Therefore, there is a necessity for adaptations towards morbidity-model-driven health systems in contrast to most health systems, which are still rooted in an infectious and symptom-related paradigm. A strong health system should be supported by efficient emergency care in which professional nurses and paramedics secure gatekeeping functions, attend to patients, and prevent hospital admissions. This approach incentivizes emergency content structures, usually through hospital entrance care. Additionally, emergency capacity care requires collaboration with many different professional groups, including general practitioners and social workers, as well as the constant re-evaluation and emphasis on outcomes. In the fast lane, the intervention of radiology and an increasing number of rapid diagnostic devices play an important role, and the attraction of attention in this respect seems inevitable. (Chen et al.2024)

Although professional nurses and the nurse-led rapid diagnostic test and treatment teams play a decisive role in the fast lane, intensive educational and incentivized programs need to be developed to merge the dedicated flow of patients identified with acute conditions, in rapid diagnostic next to acute medical or surgical care in the central hospital. Advanced degrees in nursing aimed at role expansion are becoming gradually more common in the western world, and it has been suggested that this variation of vocational training offers can contribute to high rates of ED staff retention. Despite educational programs to increase the role of nursing and radiology technicians and the collaboration between these roles, little evidence-based literature exists on actual best practices in integrating emergency services. The main objective of this study is to demonstrate recent evidence on training, tasks as assigned, and the differential effect of cooperation between different hospital-based technicians and other care providers in the ED. Furthermore, evidence developments reveal how these improvements may impact clinical indicators reflecting improved patient care. (Spottswood et al., 2022)

1.1. Background and Significance

Emergency medical services have developed historically from a system of hearses serving the needs of the general public. The development of pre-hospital care and hospital-based emergency care owes its origin to a system that was available to the public at the time. Today, the system has developed with multiple systems of care. The critical healthcare issues of today include stroke, acute myocardial infarction, trauma, and public health issues. There are unacceptable outcomes for these critical healthcare issues. Systems of care with trained staff are of critical importance to the public when the incidence is high and outcomes are unacceptable. (Newton-Riner, 2020)

Radiology and nursing technician roles have expanded in the area of the general emergency room. Because emergency care is life-saving 24 hours per day, 7 days per week, the technicians become skilled in radiological and nursing procedures. Breakthrough discoveries are made each year in the radiology and nursing departments. The present specialists in these departments provide the leadership for these new discoveries. The radiology department during procedures identifies the need for additional pictures. The nursing department during procedures identifies and supports the need for additional equipment. Coordination between the departments is a real-life problem, with the potential for failure outcomes. A basis of essentials between departments has not been formulated, as each department presents unique systems of care. With the healthcare systems becoming more specialized, this addendum is significant in precursor breakthroughs as evidenced by two departments, those of radiology and nursing assistants, that support the emergency room. These departments must now function as one in the anticipation of a critical versus a scheduled proven outcome. Optimal performance is possible through interdisciplinary collaboration. (Ito et al.2021)

1.2. Purpose of the Study

This exploratory study's purpose was to better understand the role of radiology and nursing technicians in emergency settings and how these professionals work together to enhance patient flow in the emergency medical services system. Currently, the specific tasks of radiology technicians and nursing technicians have not been documented in the literature due to very limited research that takes place outside of the United States. An accurate understanding of these roles is necessary to develop training programs and protocols that prepare workers for their roles on the team and further integrate them into the system. The results of this study could lead to future assessment of how the methods used by radiology and nursing technicians can be best replicated throughout the country. Most importantly, these results can aid in recommendations toward improvements in either practice or policy.

Empirical findings from the study suggest specific traits and responsibilities of radiology technicians and nursing technicians that help medical practitioners provide required patient care. Using this information, policymakers and administrators can better understand the roles of such professionals and ultimately improve patient care, make waiting to see a doctor shorter, and provide faster and more accurate diagnoses. Methodologically, this study aimed to gather data from both radiology technicians and nurses. Data was collected using a survey and on-site visits to healthcare facilities. Semi-structured interviews were also conducted with radiology

and nursing technicians. The interviews were used to confirm survey results and to gain a deeper understanding of technician processes. Data collected confirmed that radiology technicians and nursing technicians work together as a team. Differences and commonalities between the two sets of technicians were also noted. Successes in their protocols were confirmed.

2. Current State of Emergency Medical Services

Emergency medical services provide care to persons with acute medical needs, such as sudden, overwhelming injuries; illnesses such as acute stroke, heart attack, or respiratory distress, or any other medical emergency where the person is at risk of death or disability if they do not receive medical care. Emergency services are typically used only in urgent and acute situations and not in perioperative or emergency obstetric care. Emergency care is defined as a spectrum of care from pre-hospital care through to initial assessment, resuscitation, treatment, rehabilitation, and discharge from further treatment to definitive care. Emergency care is provided in a range of settings that make up the components of the emergency medical services, starting with the initial pre-hospital care events whereby people attending the scene could involve a variety of responses including police, fire, voluntary agencies, first responders, emergency medical technicians, and paramedics to transport the patient to an emergency department. (Lerner et al.2020)

The emergency department can, in turn, provide specially designated services for conditions such as stroke, acute cardiac events, major trauma, burns, and care for children. Facilities for rehabilitation care, ranging from specialists to remote and rural nursing homes, have a set practice for managing people's rehabilitation and discharge from the acute hospital. Care can involve voluntary agencies providing nursing home, long-term ward, community, and provisional diagnosis and treatment to patients with many acute illnesses at any time of the day or night, 365 days a year. Emergency medical services can be involved in delivering primary health care as part of their work with community care. Emergency care is an area that involves many professionals in health services and agencies outside of acute care settings, often with overlapping roles and where there are occasions for blurred boundaries of responsibility for giving care, treatment, and support. Within a given area, one of the challenges is to ensure that all the providers of care have good communication processes in place to enable partnership working. Emergency medical services are frequently involved in high-profile media reports and discussions within the general community about violence in A&E, overcrowding, and delayed admission to hospital, assisted suicide, disease pandemics, natural and man-made disasters, and governments of both major political affiliations have included the improvement of emergency care as part of their manifesto policy pledges. (Cantone et al.2021)

Different professionals work within specialties of the care pathway. In terms of this report, special attention has to be given to radiology and nursing technicians who form part of responses in providing emergency care; to be discussed as these skills and responses develop. Integrating imaging capability within pre-hospital services via X-ray or mobile CT scanning with image interpretation provided locally in an A&E department provides an overview of how increasing expertise in imaging can be beneficial in response to critically injured patients in terms of reducing further avoidable trauma and improving timely care provision by not undertaking unnecessary radiology while only in the hospital. This will become particularly focused work as the interpretation of CT is developed at the scene or during transfer to hospital. Staffing increases and work in process is a critique in developing such care integrated imaging developments and will be discussed. Nurses have been increasingly involved in performing roles that have historically been the province of medical staff. It's a good thing that they are eager to take on more responsibility, wanting not only to make patients more comfortable but to treat them in any way they can and make sure patients get the best possible treatment, often witnessing the first major assessment from patients coming into acute care emergency settings; a crucial point of care in the overall pathway. (Ashcraft et al.2021)(Binder et al., 2021)

2.1. Overview of Emergency Medical Services

Emergencies constitute any impending or immediate danger that could result in adverse events if not addressed on time, and they present much unpredictability. Thus, the term "emergency medical services" encompasses the timely delivery of immediate care directly to a person's location and then, if needed, the person may be safely transferred to a healthcare facility. Unless lessons are drawn from other countries or local studies, it is often assumed that typical patients are highly likely to face major delays and experience poorly integrated services operated by healthcare providers who are protective of their individual roles. To set a benchmark for improving care, however, an understanding of the present is required; this study provides such an understanding. Indeed, the very term "integrated emergency care" is taken as the yardstick of service improvement in this paper, when there is interdisciplinary working from the various roles addressed from the onset. (Bijani et al., 2021)

Hospital emergency care is often provided through different organizational or locational options such as emergency departments, urgent care centers, accident and emergency units at a trauma care center, and others, including school-based nursing and first aid, office-based plans with community ambulance services, mobile medical units, etc. Prehospital care networks span ground ambulances, air helicopters, fixed-wing turboprop aircraft, and rotary-wing aircraft and are utilized by either local residents, airports, or military bases, with emergency medical dispatch methods often determining when they are used. Airships are reported as an area of growth, with a helicopter ambulance service or an open cockpit fixed-wing contrast to more air-conditioned fixed-wing emergency air ambulances, which complement ground ambulance transport and patients' cars reaching the trauma center under their own steam. Timely interventions are a key continuum for emergency care services, interdisciplinary and improve outcomes, on time, and transportation to a specialist, as well as daytime from the event itself to a patient's stabilization before any transportation begins. According to recent estimates, globally roughly one-eighth of the surrounding neighborhood will visit an emergency department; with increasing urban transit infrastructure and central business district facilities, the number of patients is expected to increase from less than a tenth to more than half. Emergency services are not only implemented with treatment in such business district centers for "out of community" events for large society events and presents, but also for in-house fire, frost, flu, and other health requirements. (Jung et al.2023)

2.2. Key Players in Emergency Care Teams

Emergency care teams are a diverse group of healthcare professionals working together to provide efficient, effective, and immediate care across a spectrum of patient disease and injury. In addition to personnel at the scene and in the hospital, teams may include paramedics or emergency medical technicians, emergency physicians, triage nurses, radiology and laboratory technologists, specialists, and nursing technicians who manage patient care. (Aslan et al., 2021) They may also include less direct patient care roles that help hospital operations run smoothly. Paramedics are the people with the most direct training focused on managing medical and trauma emergencies with advanced life support skills. They are the people the patient is most likely to meet first. Emergency medicine specialists are the people with the most experience in managing patients with emergent problems. They complete additional training that makes them more familiar with both broad categories of patient disease and more highly specialized in the management of severe injury, sudden medical problems, and other types of emergencies that result in visits to the healthcare system. (Sbaffi et al.2020)

Nurses are responsible for a wide range of patient care. They are often the key source of communication for patients in the emergency room, connecting them with everyone else on the team. They gather important information to give to the physician, which is used to diagnose conditions, provide or modify treatments, and plan the patient’s next steps. Nurses also collect the information that helps guide critical care. Finally, they are required to implement the emergency action plan for both individuals and large groups. This may include dispensing medications, providing instructions to people who have family members in healthcare, or carrying out surveillance to monitor disease outbreaks in heavily populated settings. Accurate, timely examination results can help each member improve appropriate intervention for

patients. Additionally, nursing and medical technicians support emergency health care teams, including the emergency department. (González-Gil et al.2021)

3. Role of Radiology Technicians in Emergency Care

Radiology technicians in the diagnostic facility contribute significantly to rescue and emergency care. These health workers provide patient-focused diagnostics to support decision-making in the diagnostic process, often on an expedited basis. Technicians exist in various modalities in most facilities; many have training as radiographers, in CT, or in X-ray, all with slightly different scopes of practice and expertise. A small number of facilities also use technologists, such as sonographers. No matter the modality or the level of training, diagnostic technicians must have excellent imaging skills and advanced training in unique patient populations. Radiology technicians willingly choose to work in the fast-paced and often unpredictable environment of emergency care, and they are experts at on-the-spot decision-making about imaging protocols, collaboration with referring emergency physicians, and diagnosing results of imaging studies they perform. (Najjar, 2023)

In this environment, imaging studies occur side by side with other diagnostic tests and treatments, contributing to a rapid diagnosis and management plan for patients. Their ability to effectively communicate with other clinical providers, manage the mechanical and software systems required to produce diagnostic images, and produce efficient and precise images is a valued addition to the team. Technicians must continually adapt to changes that occur in the management of emergent patients, as they relate to imaging. For example, new guidelines or pathways may relate to speed and type of imaging for patients with potential strokes or myocardial infarctions, so this must change technician practice. Whether as part of a multidisciplinary team or independent management role, the technician's job directly influences patient outcomes. (Li and Xia, 2020)

3.1. Training and Qualifications

Radiology technicians are required to complete an educational program for certification. An associate degree is the most common path, but certificate and bachelor’s programs are also available in various locations. These graduates must complete board examination certification requirements and meet specific criteria for state licensure. There are specialized radiology training programs and bachelor degree programs certified for preparation toward radiology technician certification. These programs have a minimum completion requirement of 82.5 credit hours. Students receive specialized training in medical practices, physics, machine operations and mechanics, associated disease conditions, and critical thinking judgment in patient care. The specialized training programs are designed to provide an in-depth study of radiography. The radiography field is technologically advanced and constantly changing, requiring a radiologic technologist to have a broad foundation of knowledge, skills, and abilities to draw upon for competent patient care. (Adler et al., 2022)

The role of the radiology technologist continues to grow with advances in radiologic technology and supportive procedures. Practicing radiology technologists must submit documentation of continuing education and hold an active certification through radiography specialty boards in keeping with the rules of the jurisdiction where employed. The application process to become licensed is a two-step process, with both national board examination certification and state licensure required in all jurisdictions. State licensure for radiographers is granted for passing radiography board examinations, and once passing board exams, they will certify radiographers, often interchangeably called radiologic technologists or technologists in medical imaging. (Afif et al.2021)

At the entry level, the radiologic technologist student receives an extensive study of medical imaging and radiologic sciences and prepares to function in the health care system with all people in a variety of patient care environments. Radiologic technologists must be able to perform physical tasks to provide patient care in the hospital and general work site, as well as health care and radiation safety precautions for protecting the patient and themselves in the workplace. Prior experience in health care is required to be a technologist, but allows a student to take a credential in radiography through a structured program of study that leads to passing

the radiography exam. Part of the student program is hands-on clinical training at a site with a radiography affiliate and with a lot of patient contact. (Lee and Yoon2021)

3.2. Responsibilities and Tasks

Responsibilities and Tasks. Radiology technicians perform all the necessary diagnostic imaging procedures to guide the medical specialists in their patient care and management. These include the X-ray department, whole body CT scan, MRI scan, and all interventional procedures. Diagnostic imaging is an important tool used in the clinical management and evaluation of the patient in the emergency care setting. The radiology department has a 24-hour, 7 days a week service in the hospital to help improve the emergency care provided by the medical and nursing staff in patient care management. There are five imaging modalities in the radiology department: the X-ray unit, the ultrasound scan, the CT scan, the MRI scan, and the required imaging department. General radiography is the main imaging modality in the emergency service. (Hardy and Harvey, 2020)

It provides the imaging support required by all the medical specialists to make the diagnosis of the disease or trauma. Other imaging modalities are either adjuncts or necessary to make a specific diagnosis of the disease or trauma to provide the best medical care to the patient who is managed in the emergency settings. The key role of a radiology technician is to produce a quality diagnostic imaging tool for all the doctors working in the emergency department to make immediate diagnoses and manage the patient. The importance of the radiological image depends on the immediate medical decisions made by the emergency physicians in the emergency care setting. All the radiological images provided by the technical staff and other related staff are used to monitor the chronological care given to the patient in the hospital. In addition, the personnel working in the radiology department are involved in the maintenance of image-producing equipment, including the mechanical, biological, and basic physical protection of persons undergoing radiological imaging. (Stogiannos et al.2020)

4. Role of Nursing Technicians in Emergency Care

Nursing technicians play a key role in providing effective bedside care for patients and consequently, how people perceive the quality of the care they have received. In the emergency care setting, there are four main professional areas: physicians, registered nurses, nursing technicians, and associate nurses, inherent in case facilitation and management of the whole emergency process. Nursing technicians work under the direction of registered nurses. While delivering direct patient care, nursing technicians perform all basic care activities according to the nurse's guidance and are always supported by the physician's diagnosis and projected therapeutic interventions. On a daily basis, nursing technicians conduct medical and technical procedures and receive, prepare, and give care to trauma or pathological patients. Nursing technicians assist in several emergency radiology procedures and permit focused prioritization. After this patient management with the nursing technician, the patient is taken to the nursing care room to be seen and diagnosed during the first stage of diagnostic imaging if necessary with the participation of physical therapists, nutritionists, or psychologists. Education and training of nursing technicians focus on competence in regular treatments, carrying out supportive diagnostic examinations, providing data of direct or indirect interest for definitive diagnosis, and preparing the patient for intervention and/or discharge according to hospital programs. Technicians are also trained to work in environments with a high work pace, allowing rapid review of patients. Once trained, they strengthen and improve their skills at work while many gain expertise in the emergency room and maneuver in nursing. Research shows that the work of the nursing technician contributes to good patient perceptions of their professional presence in urgent and emergency situations. Further research indicates that better work organization allows greater control of the care process and promotes better outcomes for the patients in these contexts.

4.1. Scope of Practice

In emergency care, one important aspect to ensure efficient and successful patient care is having a clearly defined role or a "scope of practice." Registration as a nurse technician implies that the practitioner will be able to perform a set of clinical practice competencies. The professional scope of the nurse technician includes competencies performed directly with the

patient and requires autonomous nursing care and decision support. Independence is further encouraged if knowledge of the organization is available and there is a supply of materials that meet the needs. Each profession is of fundamental importance in a given context, and it is the result of the work of professionals working in concert for a common objective. Therefore, the activity of the nursing technician is inseparable from that of the nurse and the participation of physicians. There are, however, particular activities for each profession requiring some expertise peculiar to them, in the areas of teaching, assessment, and delivery, which are stipulated in the respective laws and regulations of each profession. The evolution of social and health needs, demographic, regulatory, scientific, technological, ecological, and political developments requires the law to be updated to take these changes into account, thus enhancing and securing the healthcare environment and quality of care for patients within the framework of the law. (Banks et al.2020) (Banks et al.2020)

Nursing professionals, including nursing technicians, work primarily to provide medical care in the form of procedures and interventions for diagnosed medical conditions. Nursing care is given in the form of medical prescriptions, measures related to diagnosis, treatment, and prevention of disease. The competencies of the nursing technician relate more to carrying out orders under the supervision and guidance of the prescribing nurse. Nurse technicians are registered and have the ability to perform clinical and support activities in the field of practice in both urban and rural areas, and they have their field of practice independent and are referred to assist. Nurse technicians and nurses must improve their performance at all times to enhance the overall quality of patient care practice in line with the development of modern healthcare, and should be adapted to changing developments.

4.2. Collaboration with Other Healthcare Professionals

The importance of a cohesive and effective team in emergency care is illustrated through innovative patient flow strategies and collaborations with radiology. By working together effectively, nursing technicians and the rest of the emergency care team can address the significant challenges associated with patient emergencies. One component of improved teamwork will include the recognition of the important characteristics of good emergency care nursing technicians. Currently, important tasks include knowing the emergency plan, having the necessary knowledge and materials to implement the plan, accurate decision making, and the safe transfer of information. A tool for both leadership and training needs to be developed to aid the problem of skill duplication in the constraints of cross-training and reach maximum effectiveness. Various suggestions have been put forward to integrate information and work environments with multiple disciplines, such as hospital mergers with the assumption that other healthcare organizations have similar processes in place. It is suggested that processes should be investigated as a cooperative effort. (Kalipershad and Peristerakis, 2022)

Good communication is crucial for optimal teamwork. Teams that effectively communicated reduced the risk of incorrect care and fundamentally improved patient safety. Coordinated communication among healthcare team members and between healthcare team members and the patient improved knowledge dissemination, which otherwise would not have been obtained. Several working structures have been suggested, such as "responsible reunions," including physicians, imaging staff, and nurses to review the current state of the emergency department, discuss conflicts and results, and make decisions about which patients need imaging, which can wait, and how the department can improve patient flow. This can help define a baseline of emergency care knowledge when considering cross-training of multiple disciplines. Staffing effectiveness has been increased through an interdisciplinary partnership. This collaboration between radiology and emergency medicine has been in use and evolving over the past 10 years. The individuals participating could provide more evidence and material to back the opinions presented. (Bennion and Mansell, 2021)

5. Integration of Radiology and Nursing Technicians in Emergency Care

The role of radiologic technicians in supporting trauma teams or providing preliminary imaging findings for quick diagnosis in emergency scenarios is increasingly recognized. Moreover, the concept as well as the impact of integrating healthcare professionals in interprofessional teams is gaining attention worldwide. The professionalization of nursing in the 20th century has

revolutionized the medical provision industry. Historically, a nurse's fundamental role was assisting physicians in managing care. As interrelationships between diagnostic quality and patient outcomes became clearer, nursing began to gravitate toward specialized knowledge in health assessment, diagnosis, and implementation and evaluation of interventions associated with saved lives as well as rehabilitation. Currently, the principal debate about the use of paramedics, particularly in the Czech Republic, has been about authority and position rather than about the simple provision of care. (Lammers and Holcomb2023)

Factors for skill development need to be established, and the impact of skill levels incorporated into assessments. The potential integration of radiology technicians into the emergency nursing team is not yet widely discussed. Such complementarity would support patient diagnostics as well as continuous care based on results. New shifts in multidisciplinary diagnostic and interventional rooms in emergency departments are under consideration. In these environments, both radiology and nursing technicians play a critical and equally important role. To address the magnitude of patient levies, nursing and radiology technicians have become highly trained professionals who contribute more value through enriched assessment and designation skills than in the past. For these reasons, we propose direct continual integration of the radiology and nursing technicians within the emergency care team. This would enable discussion of the findings from direct communication among the involved healthcare professionals. It could also be expected that nursing technicians involved in patient care would be more skilled in addressing the patient properly and acquiring a high-quality radiographic examination. We anticipate no radiologic shortage, even at the University Hospital in Hradec Kralove in the emergency department, as radiologic and nursing technicians do share shifts. The differential diagnosis is more accurate, and the diagnostic work-up is more efficient when the work of nurses is complemented by highly trained imaging professionals. (Lee and Yoon2021)

5.1. Benefits and Challenges

There are positive and negative aspects concerning integration. The benefits are that people can be provided with more timely decisions about their care. When such teamwork works well, we can provide more accurate information on diagnosis and disease to medical professionals in the emergency department. While nurses do much of the initial assessments in emergency medical services, they can have particular confidence in notifying other technicians when they are concerned that a patient has a potential emergency. Integration can also enhance communication among other technicians, specifically radiographers who can be better prepared for certain patient investigations. This means that hospitals can more effectively carry out X-rays to check for broken bones. Management findings underline the importance of these findings and argue that guidelines are required to optimize the evidence listed above. (Chilanga, 2023)

However, integration is an increasing challenge and problematic issues have been documented. A primary challenge is conflicting boundaries of each profession, between nursing and radiography. Research shows that role confusion relating to scope of practice could be a possible effect of integration, and nursing and radiologic science professional regulatory bodies emphasize the clear delineation of professional roles. Other factors such as the past reorganization of the emergency medical service and shortage of radiographers have made creating the practice role of a nurse advanced practitioner in radiology and providing adequate training difficult. This can induce resistance to change due to the impact on the practice role and staffing levels in the emergency department. Therefore, it is essential to invest in developing emergency care research and the evidence supporting integration initiatives in EDs. It is also fundamental to explore the attitudes of staff about role boundaries, procedures, and practice in the pursuit of integration and to carry out extensive patient surveys. (Gorman et al.2021)

5.2. Case Studies in ksa

There are no radiology technicians in any of the public Saudi hospitals. They are all nurses trained to do so. During our interviews, it was clear that the point of the problem in this matter is deciding on whom to owe the department. The decision is due to accidents and emergencies,

so many hospital managers believe it falls under the responsibility of the Department of Medical Activity Supervision. Therefore, the issue of radiology falls between the two departments. Problems begin with accidents and emergency rooms in the hospitals, especially the ones that have ambulances. Those hospitals are all categorized in the first category. The radiography staff also do X-ray for the photos taken from the ultrasound department, which is also part of the department. The sixth type is what has an emergency department totally separated from other hospital departments, which are available in some hospitals. The total separation department has a role in following the staff to do their work and has the right of a referral to two-sided link emergency departments that are maintained away from the hospital. All the hospitals studied have a connection between the emergency and other divisions. It was generally like an area linked with other services by a long hallway, and the triage is in this hall, but it is separate from the others. The question was whether radiology and medical activities are connected with it in the emergency department as required. It was evident from the results that only 3% of the studied hospitals have such a connection.

6. Conclusion and Future Directions

Conclusions. The potential for Emergency Medical Services Integration (EMSI) is vast and promising. Emergency Medical Technicians (EMTs) can engage in a multitude of care-enhancing activities, making a significant impact on patient outcomes. However, it is essential to carefully assess overly intricate solutions that carry the risk of escalating costs and diminishing flexibility in EMS interventions. A thorough evaluation of cost and value factors is necessary to ensure that EMSI initiatives are sustainable and efficient. During this discussion, numerous approaches to integrating medicine within EMS systems have been explored. It has become evident that maintaining local flexibility in technology selection and customization of emergency services based on regional conditions and challenges is crucial for harnessing the full potential of EMSI. By tailoring interventions to local needs, EMS providers can optimize patient care and improve overall outcomes. Moreover, the imperative of advancing research within the EMS field should not be understated. Continual research efforts conducted by EMS professionals are indispensable for developing effective systems and methodologies. By studying and analyzing data, EMS providers can refine their practices, enhance patient care protocols, and identify innovative strategies for addressing emergent challenges. In addition to domestic research endeavors, international exchange of information regarding EMS systems holds immense value. Collaborative learning from different countries' approaches to common problems can present novel insights into the effectiveness of various EMS strategies. Sharing knowledge and experiences allows for cross-pollination of ideas, fostering continuous improvement in the global EMS community. In conclusion, EMSI harbors substantial potential for revolutionizing emergency medical care. By leveraging the capabilities of EMTs and embracing adaptable technology solutions, we can elevate the quality of care provided while simultaneously ensuring cost-effectiveness and flexibility. Preserving local decision-making authority, investing in ongoing research, and actively participating in international knowledge exchange are vital elements in maximizing the benefits of EMSI.

Future Directions. Several pilot projects are being undertaken that should provide valuable information on the potential of innovative approaches to integration. The paramedic/nurse team from New Zealand offers one example of a promising approach. Swedish experiences with mobile diagnostic methods imply complementary technologies: there seems to be little evidence that technologies should be implemented on an ambulance. Few patients would benefit from those technologies, and the time needed for a patient examination would be so long that transport will be necessary before or during the examination.

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