

## Emergency Doctor in the Reanimation Room and Solution of Medical Problems

Basri Lenjani <sup>1</sup>, Agron Dogjani <sup>2\*</sup>, Edlira Harizi <sup>3</sup>, Aida Gavranovic <sup>4</sup>, Kenan Ljuhar <sup>4</sup>,  
Besim Mehmedi <sup>4</sup>, Arberije Fazliu <sup>4</sup>, Kledisa Harizi <sup>5</sup>, Dardan Lenjani <sup>5</sup>

Received: 21 June 2024 / Accepted: 13 July 2024 / Published online: 20 July 2024

This article is published with open access at <https://journal.astes.org.al>

© The author(s) 2024. © The Albanian Journal of Trauma and Emergency Surgery is an Open Access Journal. All articles are distributed under the terms of the Creative Commons Attribution Non-Commercial License: <http://creativecommons.org/licenses/by-nc/> which permits unrestricted non-commercial use, distribution, and reproduction in any medium provided the original work is properly cited.

### Abstract

**Introduction:** Emergency medicine is a dynamic specialty that offers various medical cases and situations. Emergency medicine doctors treat patients from all age groups and with a large spectrum of physical and mental disorders. Emergency medicine is the specialty of treating illnesses or injuries requiring immediate medical attention. Emergency medicine doctors assess and treat patients in the emergency department, regardless of their illness or injury type. Their primary focus is to stabilize patients as quickly as possible and determine the best next step in treating many patients simultaneously, with life-threatening conditions being the main priority. Emergency physicians treat all medical conditions of all age groups, such as cardiology, neurological, pulmonological, nephrological, endocrinological, hematological, gastrointestinal, orthopedic, gynecological-obstetrical, dermatological, psychiatric, traumatological, and accidental conditions. Efforts should be made to reduce the accumulation of ED with a solid organizational culture; rather than adopting “generic” approaches, interventions should be selected and implemented to address the unique challenges of each hospital ED. Emergency medicine can potentially improve patient care and outcomes; however, establishing evidence-based protocols and a multidisciplinary approach to patient management are essential. Creating long-term health policies to regulate the referral system through the national plan and document would regulate the three levels of health care to stop the overcrowding of the hospital’s ED.

**Keywords:** ED, health policy, overcrowding, improvement, emergency medicine,

### Introduction

Emergency departments (ED) represent an essential component of the healthcare system, providing timely access to care for evaluating, stabilizing, and treating patients who may be seriously ill or injured. The ED’s

ability to provide timely and efficient care is often hampered by overcrowding, lack of capacity, medical equipment, drugs, and human resources. [1]. Emergency medicine is the specialty of treating illnesses or injuries requiring immediate medical attention. Emergency medicine is a rapidly evolving discipline, encompassing almost all other branches of medicine. This broad spectrum encourages physicians to improve themselves in a specific area because emergency departments are no longer where just the first treatment is administered but also where treatment is maintained. Calmness and Control: Although emergency room physicians need to act quickly, they must also remain calm when attending an emergency. [1, 8].

Staying focused and in control of the situation when treating patients in critical condition is necessary. This paper aims to identify the needs and barriers to advanced training or sub-specialization in emergency medicine in Turkey using other countries as examples. EMS represents an organized system designed to provide emergency medical care at the scene while transporting the sick or injured to the

Original article, no submission or publication in advance or in parallel

\* **Corresponding author:**

Prof. Dr. Agron Dogjani, M.D, Ph.D. FACS, FISS, FICS,

✉ [agrondogjani@yahoo.com](mailto:agrondogjani@yahoo.com)

1 Emergency Clinic, University Clinical Centre of Kosovo, Pristina, KOSOVO

2 Department of Surgery, Faculty of Medicine, University of Medicine, Tirana, ALBANIA

3 Emergency Department, Durres Regional Hospital of Durres, ALBANIA

4 Emergency Medical Center of Canton Sarajevo, BOSNIA and HERZEGOVINA

5 Alma Mater Europaea College “Rezonanca” Pristine, KOSOVO

hospital. Health emergencies happen every day, everywhere. They affect adults and children and include injuries and infections, heart attacks and strokes, acute complications of pregnancy, and chronic disease. While specialized care may never be available at all times in all places, a systematic approach to emergency conditions saves lives. The Disease Control Priorities Project estimates that nearly half of deaths and a third of disabilities in low- and middle-income countries result from conditions that could be addressed by emergency care. [1, 7, 15].

Acute emergency means a situation where emergency medical services are necessary to evaluate or treat a medical condition manifesting itself by the sudden and, at the time, unexpected onset of symptoms that require immediate medical attention.

ED intensivists are responsible for managing critically ill patients until admission to the ICU and advising their colleagues on controversial matters concerning treating severe diseases. [1, 14].

Emergency physicians in the emergency room are usually the first doctors to attend to the sick and injured by assessing medical conditions and determining whether the patient can be treated in the emergency room, admitted to the hospital for further treatment, or sent home. They also serve a vital role in stabilizing the critically ill and injured (such as those with medical problems and life-threatening trauma) before they are admitted to the hospital. [2].

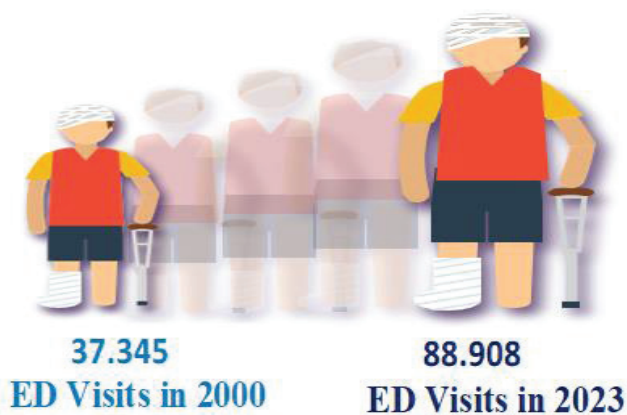


Figure 1. Emergency Department Visits.

**Why are emergency physicians important?** Timely care: It provides immediate care to patients, significantly improving their chances of survival and recovery. In critical situations, every minute counts, and emergency physicians are trained to act swiftly. Versatility: Doctors must be prepared for anything as they encounter various medical conditions. (fig. 1) Their primary job is to resuscitate and stabilize patients and transition care to an appropriate endpoint, whether in the ICU, general inpatient bed, another provider, another hospital, or home. [15].

It impedes the efforts of ED personnel to provide care to patients, stretching resources, delaying treatment, and leading to poorer patient outcomes. Due to the unscheduled

nature of emergencies, ED crowding will always be retained. Still, efforts can be made to mitigate the boarding of patients and the crowding that boarding creates. [8].

#### **What are the three types of medical emergencies - 7 Most Common Medical Emergencies?**

- Bleeding. Cuts and wounds cause bleeding, but severe injury can also cause internal bleeding that you cannot see.
- Breathing difficulties.
- Someone collapses.
- Fit and epileptic seizure.
- Severe pain.
- Heart attack.
- A stroke, etc.

**ED bed availability.** The increasing pathology of diseases, injuries, accidental conditions, aging population, and complex medical procedures have led to a greater demand for medical services during the last decade. EMS medical staff are faced with overcrowding, strain, challenges, and problems of all kinds that impede patient care, with an excellent need for bed availability and resources in the ED, and the demand for critical care services in Kosovo exceeds the supply of admission beds. European countries such as France (11.6 beds per 100,000 population) and Asian countries such as India and China (3 beds per 100,000 population) have significantly fewer critical care beds available than the US (34.6 beds per 100,000 population). In contrast, in Kosovo, we have (1 bed per 100,000 inhabitants). [3].

**Quick on their feet:** ER physicians must deal with many cases in one day. They must be able to diagnose and treat all patients, requiring them to think fast and make quick decisions. The lives of their patients depend on this ability. From one patient to the next, an ER doctor must switch gears and assess the situation many times without having the patient's complete medical history. [11].

**Organizational skills:** An emergency room is, as the name describes, full of unplanned, life-threatening situations. Unlike doctors in other fields, ER physicians cannot organize their agenda, so they must be able to assess the severity of patients' conditions and prioritize cases, always keeping track of what they are doing.

**Energy:** ER doctors must work long shifts and spend much time on their feet. They need lots of energy to face whatever situation comes their way.

**Calmness and Control:** Although emergency room physicians need to act quickly, they must also remain calm when attending an emergency. Staying focused and in control of the situation when treating patients in critical condition is a must.

**Ability to Cope and Handle Stress:** ER doctors constantly face stressful situations. They must handle stress properly and cope when things do not turn out as expected. As we have described above, emergency physicians have to be able to deal with a wide range of situations and patients.

They need to think and act fast, always trying to make the right decision to save as many lives as possible and running against the clock. It is a lot to ask of someone, but our ER physicians prove it possible daily. Emergency physicians are excellent ER doctors, prepared and ready to attend to patients in the best way possible, 24 hours a day, seven days a week.

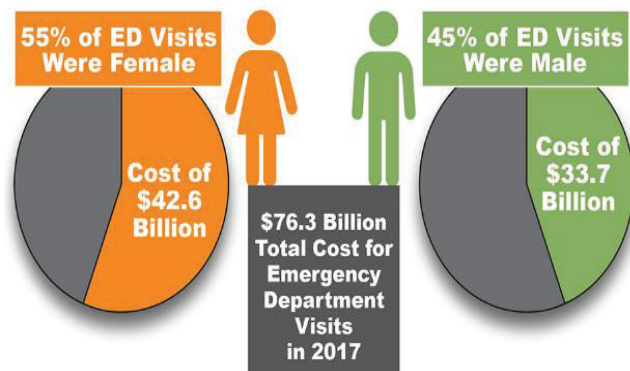


Figure 2. Gender and Emergency Department Visits. Source: AHRQ, Healthcare Cost and Utilization Project Statistical Brief #268: Costs of Emergency Department Visits in the United States, 2017 (PDF, 326 KB) and HCUP Data Partners.

Kosovo has an expected budget divided into primary, secondary, and tertiary levels. The budget of the primary level is divided by the regional hospitals and the University Clinical Center of Kosovo, and we need the financial cost of the expenses in the emergency clinic or at the country level. [6].

**What are the barriers and limitations?** Kosovo has 76 Nurses, 28 specialist emergency physicians, 22 residents, two academic staff, and EDs and specialist medical consultancies on call. In addition, general practitioners work in other EDs. The number of emergency and resident specialists needs to be increased for standard patient care, and continuing professional education for deficient branches remains a problem in the public sector. Some emergency and resident doctors resign during training due to stress factors and concerns about their future.

In Kosovo, more standard protocols and algorithms must be developed to treat the sick and injured. A continuous strategic plan for the education and training of the ED staff needs to be developed. The resuscitation room in the emergency department is set up in a state of immediate readiness to provide staff, equipment, drugs, and fluids for actual and potentially life-threatening emergencies.

All-round access to the patient permits simultaneous assessment by multiple personnel and practical procedures (in addition to cardiopulmonary resuscitation) to be carried out swiftly and safely. Education and training of ED staff still need to be completed during the training process, and most of them apply for education and postgraduate education individually without institutional support. [13].

There is no advanced sub-specialization training for ED; it remains to create curricula in the future, which must be implemented by the Ministry of Education, forcing the Faculty of Medicine to implement and practice both the theoretical and practical aspects. [3].

### Purpose of the Work

EMS aims to provide EMS in golden time to the sick, injured, and life-threatening, increasing the quality of EMS and reducing the rate of morbidity, disability, and mortality. EMS offers immediate access to care during life-threatening situations, making a significant difference in patient outcomes. Moreover, ERs serve as a crucial healthcare access point for those unable to get an immediate appointment with their primary care physicians or specialists.

### Material and Methods

This retrospective study in the Emergency clinic in UCCK analyzes the difficulties and problems of emergency doctors in the resuscitation room while providing emergency medical care and the pathology of emergency and non-emergency diseases and injuries.

#### A. Data collection methods and techniques

The research was conducted using data obtained from the evaluations of health care professionals based on anamnestic data, vital status, parameters, monitoring, medical procedures, injuries at the system level, type of health care delivery, and their system.

Updated protocols, interdisciplinary strategies, and data analysis can provide insights into organizational structures and sufficient levels of adequate medical staffing to manage life-threatening illnesses and injuries and minimize loss of life. EMS access to pre-hospital and hospital emergency settings that provide rapid response and require a professional medical approach. Treatment procedures and actions that assist the process in all stages of treatment with a health system organized in the comprehensive plan.

**b. Description of the sample.** The research was conducted based on data obtained from the evaluations of health care professionals based on anamnestic data, vital status, parameters, monitoring, medical procedures, injuries at the systems level, type of health care delivery, and their system.

**c. Description of data processing.** Data processing is described through statistical parameters (worked Excel Word), structure index, arithmetic mean, and standard deviation. Statistical tests: X2-test and T-test. The tests were verified for 95% and 99% confidence levels, respectively, for  $p < 0.01$  and  $p < 0.05$ .

### Result

During the study period, we analyzed 88,908 ED; with diseases, there were 73,450 cases or 82.6%, and with injuries, there were 15,458 cases or 17.4%. (Tab. 1).

Pathology	No. cases	%
Diseases	73,450	82.6
Injury	15458	17.4
<b>Total</b>	<b>88,908</b>	<b>100%</b>

Table 1. Number of cases according to pathology.

Pathology	No. cases	%
Emergent	19.652	22.1
Non emergent	69.256	77.9
<b>Total</b>	<b>88,908</b>	<b>100</b>

Table 2. Number of cases according to emergency conditions.

When emergency departments are overcrowded, ambulances are diverted. Interventions focused primarily on emergency departments have yet to have much success. To discover whether an active bed management quality improvement initiative could reduce ambulance diversion hours and emergency department throughput times.

Discharge from ED, No, (% by row)	No. cases	%
<b>At home</b>	78253	88
<b>Hospitalized</b>	7120	8
<b>Abandonment</b>	3,247	3.7
<b>Dead</b>	298	0.3
<b>Total</b>	<b>113</b>	<b>100</b>

Table 3. Advanced practice emergency service providers.

From our research, 78253 cases, or 88% of patients, were sent home, 7120 cases, or 8%, were hospitalized, 3247 cases, or 3.7%, left the ED, and 298 cases, or 0.3%, died. (Tab. 3).

ED providers spend a significant amount of time devoted to documentation, about 22%, but emergency physicians need more time directly related to patient care. [1]. In the ED, both the care and Description of the medical documentation for the patient could be more satisfactory; in this direction, the doctor and nurse must do much work.

Level	Maximum time to examination
<b>Immediate</b>	<b>0 minutes</b>
<b>Very urgent</b>	<b>10 minutes</b>
<b>Urgent</b>	<b>60 minutes</b>
<b>Standard</b>	<b>120 minutes</b>
<b>Non-urgent</b>	<b>240 minutes</b>

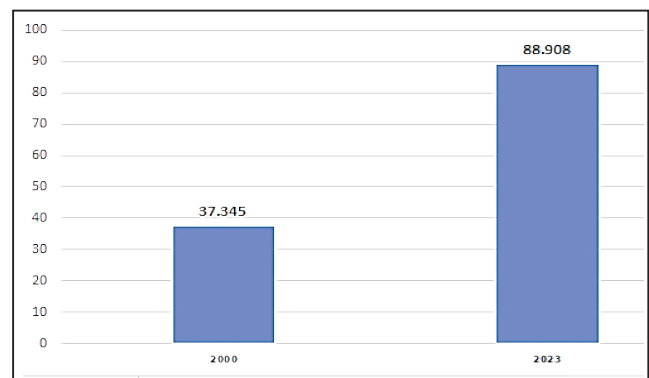
Table 4. Triage in a Modern Landscape — Integrated Graphene

From the table described based on the priorities, there is an international standard which is the priority in receiving emergency medical care; when in the ED-UCCK, no one waits as they have progressed according to them, the lack of spaces for triage and the lack of education of the staff is a problem At the country level, the system is chaotic and disorganized. According to them, everyone has an advantage.

There are organizational characteristics associated with ED decreased length of stay. Specific interventions targeted to reduce ED crowding were more likely to be successfully executed at hospitals with these characteristics. These organizational domains represent identifiable and actionable changes that other hospitals may incorporate to build awareness of ED crowding.

### Discussion

Over 90% of EDs report overcrowding, and many factors can contribute to the emergence of problems. The lack of space, specialties, and beds in hospitals and regional hospitals can affect the increase in the number of patients in the ED. Crowding creates operational inefficiency in the ED and has particularly concerning consequences for critically ill patients. Implementing critical care models of emergency medicine can improve the outcome of critically ill patients presenting to the ED.



Graf 1. In the ED-UCCK, despite the many efforts to reduce the number of ED visits, they were unsuccessful. In 2000, there were 37,345 thousand cases of visits to the ED, which this year marked an enormous increase to 88,908 thousand cases, and we had a 42% increase in ED visits from 2000 to 2023.

Regardless of specialty, ED physicians treating critically ill patients must be highly trained and skilled in resuscitation and managing life-threatening medical conditions.

Kosovo’s budget for 2024 is 3.3 billion euros, while the budget for health is 345 million euros. Despite the increased budget for health, problems in infrastructure, the supply of drugs, medical equipment, consumables, and resources continue to appear. Human resources and the flight of

professionals in the three levels of emergency care at the country level are increasing.[23]

The leading cause of these problems is the lack of coordination of activities between the actors and the wrong policies in not supporting the doctors, nurses, and additional resources for EMS; the government and the Ministry of Health are not showing how to solve these problems, but they affect demotivation by affecting even more their human well-being/ ED crowding is a symptom of operating capacity or over-capacity, limiting its ability to absorb the ED workload. [13].

Initial causes of crowding identified included fewer ED beds and growing ED volumes, with an emphasis on “avoidable” ED visits, retrospectively identified as unnecessary or visits for conditions that could, theoretically, be addressed at the primary care/ambulatory care level. Prospectively, it would be difficult to determine which patient presenting with acute chest pain is “avoidable” (e.g., acid reflux or gastritis) versus those with an emergency medical condition (e.g., acute coronary syndrome or cholecystitis).

This has resulted in only minor gains because the ED still affords a unique opportunity for immediate, on-demand access to a complete evaluation, including laboratory testing and imaging that would otherwise be fragmented within the ambulatory care paradigm. The root cause of ED crowding does not intrinsically reside in the ED; it is a patient-flow problem needing a hospital-wide solution. [6]. [10]. [13].

In the ED-UCCK, despite the many efforts to reduce the number of ED visits, they were unsuccessful. In 2000, there were 37,345 thousand cases of visits to the ED, which from this year marks an enormous increase to 88,908 thousand cases of visits to the ED, and we have had a 42% increase in ED visits from 2000 to 2023.

Most hospital EDs have failed to implement protocols with total capacity, even among themselves, to systematize and coordinate, but this needs to be improved as a cross-sectoral activity. Despite warnings and Evidence from hospital ED managers, they have yet to use many of the solutions described in the literature, prompting the question of whether interventions should be legislated and regulated to increase compliance. [5]. [18].

From the year 2000 until now, no progress has been made; some progress has been made regarding ED overcrowding, the insufficient referral system, and EDs of regional hospitals sending unprocessed cases despite the diagnostic and laboratory capacities and specialist consultations within the hospital having been able to be treated, as well as the problem of referral from primary medicine that burdened the ED even more, creating chaos and issues in solving critical cases. [4].

*Based on research Emergency Department Crowding: High Impact Solutions Emergency Medicine Practice Committee American College of Emergency Medicine Advancing Emergency care pp. 3-15 May 2016.*

Wait times, publicly posting wait times to distribute traffic around a system or geographic area. For example, this

can be done online, with billboards, and through smartphone apps or messaging. Non-emergency patients can use this information to make better-informed decisions about where to seek care, although posted and actual wait times may not correspond in more significant EDs. Appointment times, or ED reservations, have been suggested as another means to smooth the arrival curve and have patients arrive at the ED at times when resources are available to care for them. [15].

Combining historical data with predictive software, EDs can model arrivals and allow patients with non-emergent complaints to schedule a visit in the future. Conversely, future appointments can be blocked off if a surge of patients arrives. One survey study in the United Kingdom found that 79% of patients with minor injuries prefer such a reservation system to the current walk-in method.<sup>28</sup> In addition to re-distributing arrivals, appointments provide patients with the convenience of waiting at home for their visit. They may also motivate ED staff to meet specific benchmarks to deliver scheduled appointments on time. Data from the US showed that patients with non-business hours access to their PCP had 7% fewer ED visits. Increasing primary care access

Improving access to primary care could decrease the influx of patients into the ED. A national study in Britain found that 26% of ED visits were due to an inability to obtain an appointment with a primary care physician, and data from the US showed that patients with non-business hours access to their PCP had 7% fewer ED visits. However, even this activity in our country can be regulated through the abovementioned activities as much as possible; the Ministry of Health can regulate this component through long-term policies. [17].

*Gary C Geelhoed FRACP, FACEM, MD Emergency department overcrowding, mortality and the 4-hour rule in Western Australia 2012, Evidence suggests that overcrowding leads to poor health outcomes. Increased risk of recurrent myocardial infarction is associated with prolonged ED stays. A relative risk of death at ten days of 1.34 has been shown among patients presenting during periods of ED overcrowding compared with periods when they were not overcrowded. Most of these patients were classified as more urgent and had a higher mortality rate by triage category. Compared with a non-diversion period, a raised incidence rate ratio during ambulance diversion has been reported.<sup>18</sup> A Victorian study found that the average excess length of stay for inpatients ranged from 0.39 days among patients who stayed in the ED for 4 hours or less to 2.35 days among patients who were in the ED for more than 12 hours.<sup>19</sup> A study in WA showed that ED overcrowding in Perth’s three tertiary hospitals was associated with an estimated 120 deaths in 2003.*

Based on our ED UCCK data, patients’ stays in the ED are longer than 4 hours, reaching more than 12 hours, creating even more problems, especially in freeing up beds for the sick or severe injuries. We do not have any research at the national level because of the lack of correct policies and the lack of support for EMS at the country level by the government and the Ministry of Health.

ED UCCK is a reference center for the whole of Kosovo. Within 24 hours in the ED of UCCK, 180-250 cases require emergency medical services. The ED of UCCK has only 17 beds for emergency cases, 1 bed for 100,000 inhabitants, and 20 beds for ICU. Some cases remain in the ED due to the lack of places in the ICU. Lack of capacities, medical, diagnostic, and laboratory equipment, lack of standardization and regulations,

EMS, referral systems. Human resources, non-implementation of the emergency care law. These irregularities burden the ED even more, creating problems at the system level. Until now, the Government of Kosovo and the Ministry of Health have shown no interest in fixing this very strategic point for the state of Kosovo.

## Conclusion

Active bed management is a multifaceted intervention led by the hospital's ED, consisting of proactive management of the hospital and departmental resources, including twice daily bed management rounds in the ED and the intensive care unit regular visits to assess congestion and flow; scheduling all admissions to the medical department and facilitating transfer from the emergency department to the appropriate care setting; and support from the "bed director," who can mobilize additional resources in real-time to increase the hospital's capacity to address emergency department turnover problems lack capacities, equipment, drugs, consumables, triage, lack of management techniques in ED, standard treatment protocols (presents difficulty in EMS in our country which is currently chaotic) by which patients with different needs are stratified during triage in different treatment protocols. [8].

Often, this strategy places separate patients in different physical areas of the ED and assigns a different treatment provider. However, different streams can be specified through color or other indicators besides physical location. Several studies show that split flow reduces LOS, wait time to see a provider, and LWBS, increasing patient satisfaction. Patients can be divided according to acuity level, need for a bed, need for laboratory studies, chief complaint, or any other. Denomination. [5].

Based on research Emergency Department Crowding: High Impact Solutions Emergency Medicine Practice Committee American College of Emergency Medicine Advancing Emergency care pp. 3-15 May 2016. The fast track is the most common way to divide patients. It differentiates between low and high acuity, often according to the Emergency Severity Index (ESI) level of alertness. Levels belong to a fast track, while level patients may be more undifferentiated.

Some evidence finds that dividing some ESI into fast track and others into regular flow according to the amount of resources they will require can decrease LOS for discharged patients. ED physicians and nurses can predict which patients will be discharged after a rapid triage with over 90% accuracy. Fast-track models have the most robust

Evidence for shortening wait times and LOS, and 10–30% of ED patients typically qualify.

In Kosovo, we have a chaotic system at three levels: emergency medical care, lack of access, and health policies that must oblige through obligations and legal responsibilities, which can be regulated with an inclusive approach of all actors.

Anyone can come to the ED-UCCK and receive care within minutes. Non-dangerous cases are the main actors in creating problems with emergency physicians and the system between emergency and non-emergency priorities due to the lack of a three-way referral system levels of care—medical emergencies. Expanding ED capacities, providing drugs, medical equipment, consumables, and staff education and training with advanced treatment methods should accelerate patient flow and increase patient satisfaction. This has also led to decreased patient satisfaction.

Six Sigma, first introduced at Motorola in 1986, is a quality improvement strategy that uses statistical methods and an infrastructure of leaders to achieve a product/process that is Six Sigma (99.99966%) free of defects. There are five steps in the Six Sigma process: define, measure, analyze, improve, and control. Other quality improvement methodologies exist, but the Lean and Six Sigma combination has demonstrated symbiosis. [1].

The introduction of the 4-hour rule to reverse overcrowding in the tertiary ED could significantly decrease the overall rate of morbidity, disability, and mortality. Implementing an active bed management process coordinated by ED physicians can also improve emergency department outcomes and diversion status.

## Recommendations

1. high-performance growth in collecting measurements of ED-specific organizational characteristics such as executive leadership, coordinated ED strategies, data-driven management, and performance accountability.
2. The specific types of interventions are not related to the performance of the hospital's ED; on the contrary, the interaction of the organizational characteristics must implement health strategies and policies.
3. Efforts should be made to reduce the accumulation of ED with a solid organizational culture; rather than adopting "generic" approaches, interventions should be selected and implemented to address the unique challenges of each hospital ED.
4. Creating long-term health policies to regulate the referral system through the national plan and document would regulate the three levels of health care to stop the overcrowding of the hospital's ED.

## Disclosure

The authors declared no conflict of interest. No funding was received for this study.

## Acknowledgments

We want to thank the medical staff of Emergency Clinic -UCCK Pristine, Kosovo.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

### References

- Emergency Medicine Practice Committee, ACEP. Emergency department crowding: high impact solutions. p. 3-15 May 2016
- Powell, E. S., Khare, R. K., Venkatesh, A. K., Van Roo, B. D., Adams, J. G., & Reinhardt, G. (2012). The relationship between inpatient discharge timing and emergency department boarding. *The Journal of Emergency Medicine*, 42(2), 186–196. <https://doi.org/10.1016/j.jemermed.2010.06.028>
- Jarvis P. R. (2016). Improving emergency department patient flow. *Clinical and experimental emergency medicine*, 3(2), 63–68. <https://doi.org/10.15441/ceem.16.127>
- Institute of Medicine. Committee on the Future of Emergency Care in the United States Health System. *Hospital-Based Emergency Care: At the Breaking Point*. Washington, DC: National Academies Pr; 2007.
- Hastings NS, Whitson HE, Sloane R, et al. (2014). Using the past to predict the future: latent class analysis of patterns of health service use among older emergency department patients. *J Am Geriatr Soc* 62: 711–715.
- Emergency Medicine, Health careers NHS, date accessed-Jun 2020, <https://www.healthcareers.nhs.uk/exploreroles/doctors/roles-doctors/emergency-medicine>
- Sara Alnasse Analysis of Emergency Department Use by Non-Urgent Patients and Their Visit Characteristics at an Academic Center *Int J Gen Med*. 2023; 16: 221–232.
- Kawano T, Nishiyama K, Hayashi H. Adding more junior residents may worsen emergency department crowding. *PLoS One*. 2014;9(11):e110801.
- Weber EJ, Mason S, Carter A, et al. Emptying the corridors of shame: organizational lessons from England's 4-hour emergency throughput trial. *Ann Emerg Med*. 2011;57(2):79-88.
- Stretched to the limit, RCEM, pdf, published Oct 2013, date accessed- Jun 2020,
- Elagi AAA, Jaber BA, Wassly AHA, Ahmed RMS, Bosily FAA. Public's perception and satisfaction on the role and services provided by family physicians in Saudi Arabia: a cross-sectional study. *J Family Med Prim Care*. 2019;8(10):3282–3286. doi: 10.4103/jfmpc.jfmpc\_621\_19 [PMC free article] [PubMed] [CrossRef] [Google Scholar].
- Schull MJ, Kiss A, Szalai JP. The effect of low-complexity patients on emergency department waiting times. *Ann Emerg Med* 2007; 49: 257–264.
- Braitberg G. Emergency department overcrowding: The solution to any problem is a matter of relativity. *Med J Aust*. 2012; 196:88-89.
- Mitra, B., & Cameron, P. A. (2012). Emergency department overcrowding and mortality after the introduction of the 4-hour rule in Western Australia. *The Medical Journal of Australia*, 196(8), 499. <https://doi.org/10.5694/mja12.10315>
- Pines JM, Hollander JE. Emergency department crowding is associated with poor care for patients with severe pain. *Ann Emerg Med*. 2008; 51:1-5; discussion 6-7. [ 17913299].
- Viccellio P, Zito JA, Savage V, et al. Patients overwhelmingly prefer inpatient boarding to emergency department boarding. *J Emerg Med*. 2013;45(6):942-946.
- Abbass IM, Virani SS, Swing JM, et al. One-year outcomes associated with using observation services in triaging patients with nonspecific chest pain. *Clin Cardiol*. 2014;37(10):591-596.
- Geelhoed GC, de Klerk NH. Emergency department overcrowding, mortality and the 4-hour rule in Western Australia. *Med J Aust*. 2012; 196:122-126.
- Wall BM. History of Hospitals. <http://www.nursing.upenn.edu/nhhc/Welcome%20Page%20Content/History%20of%20Hospitals.pdf>. Last accessed March 28, 2016.
- Rooney KD, Schilling UM. Point-of-care testing in the overcrowded emergency department – can it make a difference? *Crit Care*. 2014;18(6):692.
- Work life (EM), Health careers NHS, date accessed-Jun 2020 [https://www.healthcareers.nhs.uk/explore\\_roles/doctors/roles-doctors/emergency-medicine/working-life](https://www.healthcareers.nhs.uk/explore_roles/doctors/roles-doctors/emergency-medicine/working-life)
- BMA Job Planning Guide for EM consultants, pdf, published Sept 2009, date accessed-Jun 2020, <https://www.bma.org.uk/media/1269/bmaemergency-medicine-consultants-model-job-plan.pdf>
- Lenjani, B., Dogjani, A., Arslani, N., & Lenjani, I. (2024). Challenges with Life-Threatening Injuries in the Room of Reanimation. *Albanian Journal of Trauma and Emergency Surgery*, 8(1), 1341-1346. <https://doi.org/10.32391/ajtes.v8i1.363>