



## Review Article

## Medical Emergency Services in Albania, the Challenges and Improvements of Concepts in Management

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### Abstract

**Introduction:** Emergency medical service for patients in emergency situations is the most important aspect of all health systems in the world, as this is the first and most delicate point of confrontation of the patient with the health system of a country. All patients seeking urgent medical care, and the slightest delay in access to this service, by the population, is understood as a matter of "life or death" for them, to which they are quite sensitive. While learning or training during the process of exercising said activity combined with actual study data and comparisons with the results of international emergency medical services remains a challenge of the future. Thus the evaluation criteria of performance indicators of the emergency service based on scientific research evidence are unified. Ambulance services were basically just small vehicles, some with two stretchers, without the necessary equipment. Managers working as emergency personnel had only a few hours of limited first aid training which were referred to as "suitable personnel". The duties of the ambulance service personnel were two-fold. On the one hand, they transported the sick and planned the so-called regulated ambulance service...

**Conclusion:** The changes and diversity of medical emergencies including increasing trends of traumatic, mortal, and post-traumatic morbidity emergencies constantly put pressure on medical emergency services. All of these improvements will yield results in increasing efficiency by improving the quality of treatment and reducing the cost of medical care.

**Keywords:** Education; Trauma; Training; ATLS; Emergency medicine

### Introduction

Albania is located in Southeast Europe with a population of 2.85 million people [1]. According to IMF reports it is listed in the group of middle-income countries with a Human Development Index of 0.791 [2,3]. The population is relatively young with an increased life expectancy of 78.5 years [3]. According to WHO data, it is reported that we have 1.2 doctors per 100 inhabitants [4]. However, in recent years we have had a decline in this ratio due to the mass departure of doctors to the west. Because of this, the health system in Albania will face the consequences of a lack of doctors in the near and distant future. Albania gained independence from the Ottoman Empire in 1912 which paved the way for the development of science in general and medical sciences in particular during the first half of the twentieth century. All medical staff in most cases was well educated in the west and in the countries of the region. From 1945 until the end of the Cold War the health and educational systems were developed according to the Eastern model. The first and continuous training during this time was conducted in the countries of the former socialist camp. Thus, the education of medical personnel was according to the Eastern model, but was increasingly isolated from the international community, and consequently from the best experience in medical emergency management. It lacked resources and training opportunities in the west were quite limited. Albania has opened up to capitalism with democratic changes since 1991. This has enabled businesses to flourish, but changes in the health and educational systems have taken slower steps in implementing management concepts, such as educating and providing health care to the population, in a similar way. In both, the state health

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service and private institutions for health and education care for injured patients has not improved. The mortality and morbidity rates from road accidents have increased significantly in Albania since the early 1990s when the transition to a market economy took place [5,6]. Also, the fatality rate was very high, 0.68 deaths by accident, mainly due to bad roads and irresponsible driving [6]. The situation becomes more problematic, especially in the district of Tirana whose population has increased from 329,228 in 1989 to 597,040 in 2004 [7]. In that period was a galloping increase in the number of vehicles from 20,513 in 1990 to 129,671 in 1993, and to 274,652 in 2004 [7]. At that time Albania was considered to have the lowest traffic density in the region. Mortality from road accidents exceeded the norms of the European Union since 1992 [8]. The rapid increase in traffic not only led to an increase in trauma death in Albania, according to WHO data in 2016, but the estimate of fatalities per 100,000 population was 13.6, the estimated of severe injuries was 5,985 in number, the cost of fatalities and serious injuries was \$547,000,000 and the cost as a percentage of the country's GDP was 4.6%. [9,10]. Emergency care systems (ECS) have gone through a period of rapid development from decade to decade. Areas for emergency units including neighborhoods, local, municipal, and on a regional basis are now being formed into dedicated emergency units [11]. Emergency care providers need to be continuously trained through educational programs certified by trusted institutions at the national, regional, and wider levels. However, there are still important challenges that are part of the development of this process. Human resource constraints like trained staff, financial and other system inputs are often the easiest issues to identify. However, they only account for a part of the medical emergency management problem. There are other obvious barriers to providing high-quality emergency care. These include a lack of government leadership, poor organization of pre-hospital and hospital-level emergency management systems, a lack of adequate training of providers, and the misunderstanding of EMS functions by the community [12]. Relying on Resolution 12.9, launched in May 2019 by World Health Assembly (WHA) 72, we can quote, "Urgent care systems for universal health coverage providing timely care for the acute and injured" has clearly stated the establishment, strengthening, and development of ECS as a priority for member state governments [13]. Going further it will be important to ensure that these systems are designed to guarantee success as high-quality emergency care for patients, their development, and perfection. These must have the potential to avoid half of all deaths in low and middle-income countries (LMICs) [14]. Emergency care systems (ECS) are going through a rapid period of development in Albania. What used to be just emergency centers for regions or restricted areas are now being formed into dedicated emergency units, and these are unified and coordinated by a single national center. Emergency care providers need to be trained through educational certification programs via the education process. This would be part of the curricula during the teaching process of undergraduate study. This can even be done during postgraduate specialization system programs. [15] Pre-hospital systems are being developed day by day with medical

equipment and personnel. They are taking their rightful place where once only simple means of transportation existed [16]. However, significant challenges still exist. Resource constraints, staffing, and other system inputs are often the most commonly identified issues. These only count for part of the problem [17]. One of the causes of this discordance is the source of funding. The health service is tax-financed. Some 46% of the gross domestic product in 2017 is free at the time of delivery although informal payments continue within the state-funded system [18]. Evidence of the role of trauma in medical emergency service in the whole spectrum of diseases in Albania is difficult to distinguish accurately. We do not yet have a national trauma registry, but the most reliable figures suggest that the mortality rate due to injuries was 47 per 100,000 inhabitants in 2010 with a pronounced discordance between males at 72 per 100,000 and females at 22 per 100,000 [19]. Emergency medical care outside the capital of Tirana is provided in regional emergency departments (EDs) by poorly trained medical staff [20]. Despite training efforts in recent years, they have been unprofessional, unlicensed, or obtained permission from the parent international centers of these courses. (BLSD, PHTLS) Meanwhile in Tirana, the situation is further complicated because the emergency organization is divided into specialty emergencies. Hence, they have special EDs for different groups of patients such as traumatic, medical, surgical, infectious, pediatric, gynecological, and more [21]. Regarding the management of traumatic emergencies based upon a decision of the government the University Hospital of Trauma, formerly the Central University Hospital of the Army, has since 2013 been converted into a tertiary hospital in the national management of traumatic emergencies in Albania [22]. The problem is that the nursing staff is untrained in the management of trauma in the emergency department. Medical teams of the 24-hour service consist of 2 general surgeons, 2 anesthetists and intensivists, 2 Orthopedic Surgeons, 1 Radiologist doctor, 2 imaging technicians, 2 general practitioners acting as emergency doctors, 1 laboratory technician, 5 nurses of the theater room, and an anesthesia assistant. It is worth noting that none of these, with many exceptions, are untrained in courses dedicated to trauma management either according to European models or according to the ATLS model [23]. Quite a big problem in our emergency medical service is the lack of a unique polyvalent medical emergency center where all emergencies must be triaged and resolved within an environment at a time and place distant from each other. This complicates and worsens treatment outcomes not to mention the level of knowledge of the medical personnel who serves in these facilities, or the level and quality of medical devices, examination, diagnostic work, and treatment instruments. This many specific EDs for specialties in Tirana places patients at a disadvantage. Imagine how the assessment of a pregnant woman with acute abdominal pain, or a child with cranial trauma presented at their local clinics would be accomplished. In both cases, the patients would be evaluated by a general practitioner or in the best case by an emergency physician who then has to transfer the patients to a surgical ED for further evaluation. Here they would be evaluated by a surgeon. If suspected that the pain was due to trauma or

gynecological cause the patient should then be transferred to a second ED; possibly to another hospital. Therefore, the presence of a single center for all emergencies would help to ensure that patients receive prompt and appropriate care. Thus gaps between departments would be avoided as well as a training environment for medical students, specialists, and young doctors learning the art of medical emergency management would also be provided. Another problem is the education of doctors in an ED which in medical emergencies consists of general practitioners who are for the most part recently trained as Emergency Doctors (EMs). They have a curriculum designed with that of the European Association of Emergency Medicine which for the most part is insufficient as there is a lack of mentors and training experts in all areas of medical emergencies such as pediatrics, gynecology, surgery, internal medicine, etc. The creation of short management courses like BLS & D; ACLS, ECG, PALS, PHTLS, and such is lacking. This is simply insufficient and is done by unlicensed persons or without proper permits from the centers which provide such services at the European regional level and beyond. There is a lack of coordination with the ministry of education and health which is responsible for the education of medical staff. To do this or other courses is mandatory for all medical staff before being recruited as new staff. This is achieved by doing these as part of the university educational process by becoming part of the curriculum during the teaching process. Any retraining after the expiration of the validity of these courses should not be forgotten. The evaluation of these mentors and trained people, who are in positions of leadership, to ascertain whether they possess the required knowledge must be done both theoretically as well as practically, and should not be overlooked. It is worth noting that these doctors have completely insufficient training time for trauma management as specialists who officially spend three months gaining experience at UHT by orthopedic doctors who really only deal with the management of musculoskeletal trauma. An additional difficulty for those in the part of the health system that deals with the management of traumatic injuries is that they are now acknowledged as "general surgeons", and must undergo four years of postgraduate training. This has to be done by a trauma surgeon; a specialty that does not exist in our country. Of the four years of postgraduate training, only four weeks of this time period are spent at UHT. This facility is considered a national tertiary center dealing with trauma management. Their curriculum includes only the part of the management of fractures and their complications; done under the supervision of orthopedic doctors. It does not mention trauma to the chest, abdomen, spine, or the evaluation of poly-trauma thus making their education extremely incomplete. Consequently, the patient does not receive qualified medical help. Hence, the result of the treatment is undesirable. Not forgotten here is the lack of basic training through courses as well as the existence of short management courses such as PHTLS, ATLS, DSTC, etc. All of these would improve the situation in a short time.

## Review

Urgent medical care is the provision of medical care to patients at risk from life-threatening conditions requiring urgent treatment.

Emergency medical services (EMS) should be the medical units with the highest level of qualification, i.e. management knowledge and well equipped throughout the health system. They are the first point of contact where the health system itself faces many people in need. The EMS also serves as a shield against weaknesses in the wider health care system. Such weaknesses include financials, organizational barriers to accessing primary care, and deficiencies in providing long-term care. Until recently there were two distinct typologies in emergency delivery care. The first is the Anglo-American "load & go" model with a focus on bringing the patient to the hospital as soon as possible; usually to the emergency department (ED). This model has a greater reliance on paramedics during the "load" phase. In contrast, the Franco-German "stay & stabilize" model relies more on mobile doctors providing advanced medical care on-site with patients being transported to a hospital directly rather than through ED. In response to changes in medical technologies and population health trends most European EMSs now have elements of both organizational models. Load & go is used for complex trauma care such as in the case of road accidents, and stay and stabilized for medical emergencies such as heart attack or stroke. No model in itself is superior in results. [24] EMS can be divided into out-of-hospital EMS and in-hospital EMS. Outpatient EMS usually refers to the delivery of medical care at the scene of the injury medical events. These include delivery services and mobile medical care units, i.e. EMS can be divided into out-of-hospital EMS and in-hospital EMS. Ambulatory EMS usually refers to the distribution of onsite medical care including delivery services and mobile medical care units, i.e. ambulances [25]. EMS within the hospital refers to those subgroups of medical institutions and hospitals that have the capacity to provide uninterrupted emergency care 24 hours a day, 7 days a week, and contribute to providing EMS improvement and support [26]. In some countries, ambulance services are considered part of primary care as in Slovenia or Lithuania. In others, they are a part of the hospital service such as in Latvia and Belgium. However, these are often provided by local governments as with Finland and Norway or are integrated into other emergency services such as fire departments as in France and Germany [27]. As well as with primary care EMSs are often organized in conjunction with population services. Thus policymakers aim to achieve a certain ratio of ambulance teams per capita. However, this can put a heavy burden on hospital teams in cities that have large populations and the presence of tourists. For example, during the day the population is much larger than the resident population as in areas known to vacationers that have a small resident population, but a very large number of seasonal visitors. A review of information related to health systems and monitoring policies revealed how communication technology has improved. Greater centralization and consolidation of ambulance services have made this possible. Of course, this has been a great help in reform strategies in Bulgaria, Croatia, Estonia, Ireland, Latvia, Lithuania, Norway, and Great Britain. Consequently, it is quite rare for such services to still be organized at the municipal level rather than at the central level. Only eleven EU member

states have triage guidelines based on their national standards [27]. Most European Union countries have integrated dispatch centers, i.e. have dispatch centers that coordinate sending vehicles and personnel from at least two emergency management centers such as security services, EMS, fire departments, etc. Moreover, in most EU countries dispatch centers transfer calls to another center when a medical consultation is needed. Sadly computerized triage systems in delivery centers are still not common in the EU [28].

### EMS within a Hospital's Emergency Department

During the 20<sup>th</sup> century, EDs saw an increasing need for rapid assessment and management of critical illnesses. This represented one of the most important changes in hospital structure, and in health care delivery units in Europe [29]. In all EU countries, EDs are now a legally required component in all hospital organizations. In the past, a patient arriving at an ED was frequently visited by a resuscitation physician, or by an unsupervised physician practitioner [29]. Nowadays, a larger percentage of patients are evaluated by senior physicians. In most EU countries doctors from many different specialties can rotate to the ED as part of their postgraduate training. Their supervision is done mainly by non-emergency medicine specialists located elsewhere in the hospital. There is an increase in the number of European hospitals now staffed by ED specialists, or doctors practicing in emergency medicine.

#### Out-of-Hospital EMS Ambulance and Delivery Services

There are two main types of ambulances used on the roads for EMSs in European countries:

1. Emergency ambulances designed and equipped for transport, basic treatment, and monitoring of patients.
2. Mobile intensive care units are designed and equipped for transport, treatment, and advanced monitoring of patients [30].

Many countries have stepped up efforts to streamline and reconfigure hospital care by categorizing hospitals into distinct levels that specify their responsibilities in terms of geography and the types of care they should provide. These are then integrated into the health system to further encourage cooperation and coordination between them.

### The Need for more Concentrated and Structured Service Delivery

Specialized hospital care, including emergency care, is not only motivated by the need to increase efficiency and contain costs, but also by the need to ensure the safety of the patient's life. Also, it has to improve the quality of health care. Lawmakers have sought to increase patient turnover to maintain the skills of emergency physicians and specialist care nurses as in Sweden and GB. Research conducted in the UK found that focusing on increasing expertise in trauma care led to a 30% improvement in the survival rate despite longer travel times [31]. Nurse-led triage is now common in the USA, Canada, and the UK, and has been shown to be quite effective in identifying high-risk patients [31]. The variety

of hospital emergencies and the increased collection of more complex cases in its facilities make even more necessary the need to carry out continuous rotations of medical staff. A lack of staff in the entire health system in general, and in emergency medical care in particular, is a problem throughout Europe. Emergency medicine is not considered the preferred branch of medicine to build one's career around as in Albania, Bulgaria, and Hungary. Moreover, we are increasingly facing the challenges of recruiting and retaining medical staff in remote rural areas. These affect all branches of medicine and emergency care. For this reason, it is very urgent to create complex policies for the government and all stakeholders to stop this alarming phenomenon as soon as possible. The consequences would be quite catastrophic [32]. Based on what we discussed above in the middle of a national program organized by the Ministry of Health the entire emergency service is coordinated by the national medical emergency center. It is a separate entity that coordinates all traumatic and non-traumatic medical emergencies through service communication, and the organization of their field assessment service of the ambulance medical teams based on protocols already approved. This service is already concentrated as part of the university hospital in the capital and in regional hospitals. In the areas where we have difficulties and transport delays, this service is performed by air transport teams, i.e. by helicopter [30]. On-site triage ensures efficient use of available resources such as personnel, supplies, equipment, means of transport, and medical facilities. All of which affect the extent and quality of care provided by the EMS system. [31] Almost all EU member states use triage protocols in their hospitals while in 21 countries ambulance services also use triage. Detailed, specific, and unified protocols can improve the quality of dispatch centers' response time as different triage techniques within the same EMS system can pose a risk to patient safety. The ever-increasing demands for patient evaluation and referral of traumatic and non-traumatic cases between different hospitals require that triage protocols are recognized and unified by the entire EMS system. This is vital, especially in hospital settings. All this can be seen as better ways to improve the referral network and increase efficiency across the system [31]. New information and computer technology such as telemedicine systems, or long-distance medicine can help manage patient data at all levels and in real-time better. Computerized versions of some of the most popular triage protocols can positively modify the behavior of a health care provider, and can significantly improve the assessment and prioritization of treatment. However, its clinical relevance is still under discussion [32]. Now in rural areas where there is a lack of doctors in our country this triage is done by nurses by performing urgent lifesaving actions. This makes proper education very urgent to finish, as soon as possible, all training courses for medical staff to become efficient in situations such as for the benefit of patient management. In improving the situation it would be more reasonable to focus on some areas which would improve patient care. Postgraduate trainees or "specialists" in both general surgery and EM must be certified with basic courses like BLS & D; ACLS, ECG, PALS, PHTLS, and ATLS before graduating or starting work as a specialist. Of course, this should go hand in

hand with improvements to the undergraduate and postgraduate curriculum of general surgery, or the creation of short courses for refreshing knowledge and postgraduate training [32]. Particular attention should be paid to increasing the ability of general surgeons with an extra period of 6-12 months in the management of patients with thorax-abdominal, spinal, and poly-trauma. This would include their management of operative and non-surgical techniques. The same concepts should be used for the training of emergency physicians as they occupy a very important part in the management of patients with traumatic and non-traumatic injuries. These should include the educational process over a period of 6-12 months in the assessment and treatment of crania-cerebral and thorax-abdominal trauma as an active part of trauma management teams. A very important element is information on medical emergencies where data collection should be improved and performed by obtaining the best regional, or world, evidence. For this, it is very necessary to implement a national register of trauma as well as non-traumatic medical emergencies. This type of registration should include all patients with a minimal set of data. They should be grouped naturally according to the pathologies they carry. This naturally requires a maximum commitment of actors and factors along with sufficient funding from the government. The training of medical staff that will do the diagnostic coding associated with the necessary computer infrastructure with the ability to store this data digitally will form an important part of the process. This would provide complete and detailed data on the morbidity and mortality of medical emergencies which would be used by all specialists in the field. The goal would be to enable studies or scientific research to find the weak points in the system which would provide specialists with the necessary arguments to make the necessary adjustments and improvements. An important element of said weaknesses is the identification and development of the management of these university hospital units, supported by the academy staff, as a leader in the implementation of these changes. Cooperation between different specialties should be nurtured to optimize the management of the group. A patient complex application of ATLS principles in the management of traumatic injuries would be a positive result. The trauma-informed approach is guided by four assumptions known as the "Four Rs". These are trauma and how it can affect people or groups, recognizing the signs of trauma, having a system that can respond effectively to trauma, and resisting re-traumatization [33]. The education of medical staff and the updating of knowledge must be done within the country. If these are lacking they can be taught elsewhere. Medical knowledge among Albanian doctors continues to improve, but more than knowledge will be needed to improve clinical practices and get optimal results in a faster time.

## Conclusions

Changes and diversity of medical emergencies, the increasing trend of traumatic emergencies, and increased mortality and post-traumatic morbidity are constant and increasing. These put pressure on medical emergency services by overtaxing hospital EDs and ambulance services. These are the most accessible

points in the system that requires adaptation of strategies and continuous improvement of reform. These include all links in the health system that directly or indirectly affect the veterinary, consolidation, and improvement of medical emergency service in general and emergency traumatic service in particular. All of these improvements will yield results in increased efficiency, improved quality of treatment, and a reduction in the cost of medical care services.

## Declarations

### Ethics approval and consent to participate

Manuscript is a "Review"; therefore, ethics approval has been waived.

### Consent for publication

All authors read and approved the final manuscript.

## Availability of Data and Materials

The data that support the findings of this study are available on request from the corresponding author.

## Competing interests

The authors declare that they have no competing interests.

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## Authors' Contributions

All authors designed the manuscript. A. Dogjani, K. Haxhixha and A. Ibrahimy acquired the data, which all authors reviews.

A. Dogjani, wrote the article, which all authors reviewed and approved for publication. All authors agreed to be accountable for all aspects of the work.

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