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REVIEW ARTICLES

Access and Emergency Medical Care for Massive or Multiple Injuries

Basri Lenjani[1], Nehat Baftiu[1], Blerim Krasniqi[3], Shpresa Makolli[4], Dardan Lenjani[1], Verica Mišanović[6], Kenan Ljuhar[5], Agron Dogjani[2*]

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Abstract

Access and emergency medical care for massive or multiple injuries is an comprehensive interdisciplinary challenge. Taking care of the growing causes of emergency care levels as well as cross-sectoral collaboration in the management of multiple incidents, reducing disease, disability, and mortality in the population with multiple disorders. In a disaster or extraordinary situation with mass casualties is a state in which the health care system is overloaded and the ability to provide emergency health care is considerably hindered. The aim of this review is to present the current state of knowledge on what we, the authors, say are the central aspects of trauma management of mass casualty incidents. Emergency planning and methodology are related to accidental states, elementary medical staff disasters, medical equipment, drilling material, concretizing assessment tools, monitoring, mass incident prevention. In terms of implementing a good action plan, effective collaboration between state agencies such as fire departament and law enforcement is necessary in identifying and directing critically ill patients to designated trauma centres. The integration of emergency systems for incident management, through providing resources like, medical equipment, drugs, autoambulances, ongoing education and training. This has the impact of increasing knowledge of medical emergency procedures that would help reduce the risk of consequences of mass incidents. When applied to MCI responses, damage-control principles reduce resource utilization and optimze surge capacity, consequently reducing the rate of mortality.
Keywords. Massive or multiple injuries, emergency medical car, EMS, disaster, emergency plan

Introduction

Access and emergency medical care for massive or multiple injuries is an interdisciplinary challenge, based on research and consensus on emergency access and medical care in early pre-hospital and hospital environments. Emergencies are serious or life-threatening situations that require rapid medical intervention. Incidents can be natural events or man made, which require an emergency response for the protection of life or material goods. Implementing key medical approaches will affect the early discovery of illnesses, disability and mortality, consequently improving the quality of lives. A disaster or an extraordinary situation with mass casualties is a state in which the health care system is overloaded and the balance between needs and the ability to provide health care is broken. [1]

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* ***Corresponding author:***
Prof. Dr. Agron Dogjani M.D., MSc, Ph.D., FACS, FISS, FICS,
✉ *agrondogjani@yahoo.com*

1 Emergency Clinic, University Clinical Centre of Kosova, Pristina, KOSOVO
2 Department of Surgery, Faculty of Medicine, Medical University of Tirana, ALBANIA
3 Alma Mater Europea Campus College"Rezonanca" Pristina, KOSOVO
4 University of Pristina "Hasan Pristina "Faculty of Medicine, Pristina KOSOVO
5 Emergency Medical Center of Canton Sarajevo , BOSNIA and HERZEGOVINA
6 Pediatric Clinic, Clinical Center University of Sarajevo, BOSNIA and HERZEGOVINA

Kosovo's population of 1.9 million is exposed to both hydrometeorological and geological hazards: floods, heavy snowfall, drought, forest fires, and earthquakes. The emergency situation, always comes unexpected, and is usually associated with adverse atmospheric conditions. The situation can often be even more complicated by inaccessible terrain, resulting in a worst case scenario associated with the loss of life.

November 2007 and June 2008, three floods displaced 3,500 people, caused damage to homes, infrastructure and agricultural land, necessitating humanitarian assistance from the international community. [2]

The triennial EFDRR has established itself as an important vehicle to address regional disaster risk challenges. It serves as a forum for other stakeholders to take a shared responsibility and make actionable commitments to reduce disaster risk. *The European Forum for Disaster Risk Reduction (EFDRR) forms the regional platform structure of Europe.*

Massive or multiple injuries can resemble natural and accidental disasters such as earthquakes, volcanoes, fires, rock/soil collapses, buildings, traffic accidents, industrial breakdowns during war, terrorist attacks, etc. For a short period of time a large number of people may suffer, various minor, medium and severe injuries. [3]

The principal cause of life-threatening injuries in Germany is blunt trauma, predominantly from road traffic accidents or falls from height. Furthermore, the demographic trend towards an aging population means that more elderly patients are suffering severe head injuries in falls from standing height.

The incidence of severe trauma in Germany (20 000 to 35 000 cases/year) is a subject of recent debate, but regardless of the actual numbers, the management of these patients represents a challenge from the medical, logistical, and socioeconomic viewpoints**.** [4]

EMS system **-** Components and their attributes; Integration of EMS with health services, policy, legislation, regulations, norms and standards, communication systems and tools, and medical regulation**.**

Capacity increase; The ability to provide adequate medical care during events that exceed the normal operational capacity

Dispatch center and medical regulation; Emergency phone calls 112, immediate and possible contact with police, ambulance services, firefighters, and other dispatch centers, qualified staff for advice, decision making, immediate access to medical expertise, usually located near the ED, although often it is not in the ED service.

Communication functions of the coordinating center; Provide instructions prior to arrival, priority should be given to call, dispatch and coordinate medical units, and ensure coordination with the hospital system, agreements for the use of alternative care provision with ED. The use of GPS tracking is also necessary. Networking, important role in coordination, inter-hospital communications and inter-institutional communication system.

EMS system - Components and their attributes; Mass disaster preparedness, casualty management, information system, maintenance, purchase of equipment and medical strategy. Access to the public EMS system and the sustainability of the system, activities at the venue, manpower, human resources, monitoring, system evaluation (Quality improvement) and needs assessment.

EMS Public Health System responsibilities: Injury prevention, requirements, control. Personnel engaged in educational activities, mainly at the base and in the community (public education), supervision contribution to the dispatch center, epidemics dispatch center, unusual event warning system. [5]

In many countries, the health sector has limited resources, and state actors need to be mobilized. Existing resources are overwhelmed by the daily demand for EMS. The development of the cooperation mechanism (preliminary agreements) with the private sector, the security force, which can help increase capacities and optimise resource allocation. There are no definitions in these circumstances.

Essential components: Staff: trained and qualified number. Needed: equipment, drugs, supplies. Structure: both physical structures as such systems management - Incident management system. The management of these components requires plans, procedures and interdisciplinary management systems. Standardization is a key element for increasing cooperation and coordination between actors.

Focusing on capacity expansion (increase in beds, etc.).There are differences between increasing day-to-day

1. The scene	Medical
2. Transportation	Trauma
3. Accepting ED hospitals	surgery
4. Management Dispatch Information Coordination	pediatric
	Obstetrics
	S.contagious epidemic
Supported by laws / regulations / norms / standards / protocols	Public health
If an interacting factor is missing, then there is no system	Massive damage

Table 1 Factors Influencing EMS Delivery

Foto 1. Access and care and transport to multiple incidents.

Human resources	Human resources
Training	Information and education
Communication	Keeping patient records
Administration	Quality control
Transportation	Mutual aid
Equipment	Disaster plans
Critical care units	
Public safety agencies	

Table 2. System components

capacity, but also different from mass incidents that require special rapid response system plans and management. There is a need for special expertise (selection of special equipment) and development of unified protocols (due care).

In incidents may be included: major disasters, emergencies, terrorist attacks, urban and mountainous fires, floods, leaks of hazardous matter, nuclear accidents, air accidents, earthquakes, clamps, war-related disasters, public health emergencies and other events that require emergency response.

Foto 2. Resources needed to manage multiple incidents.

The number of injured and the severity of injuries can exceed the capacity of medical services in a space where the major or multipe accident occurs. Emergencies are serious or life-threatening situations due to illnesses, poisoning, natural disasters or acute emergency diseases which require rapid medical intervention.

Road traffic accidents kill approximately 1.3 million people each year and result economic losses in excess of 50 million dollars. They are the leading cause of deaths for the ages of 15-29. These risks can arise in an instant and require care for mass victims, like radiation which years after a nuclear accident could endanger human life. Disaster management has a broad scope. To understand what disaster management is, it is useful to study prevention, preparedness, response and recovery. For all types of risks, nurses and support staff play a major role in responding to disasters, managing their victims, and to ensure the best possible results of survival. This can be achieved with pre-education and training in most medical educational institutions, however we in Kosova do not in most cases cover this topic in the school curriculum. Readiness of medical staff and support in emergency disasters courses can provide knowledge and skill to manage events with multiple incidents and to participate in safe monitoring of the treatment of life-threatening medical emergencies. [6]

Assessment of the crash site, the risk rate of the injured and the risk of the response team;

The first aid should be provided to all the sick, injured and poisoned, whose lives are in danger. Given the dynamic development of life, they often resemble work injuries, traffic accidents, murder, injury, cold-fired blows, falling from high building floors, injuries from electric currents, water drownings, injuries from physical, chemical, biological means, heart attacks and other emergency conditions.

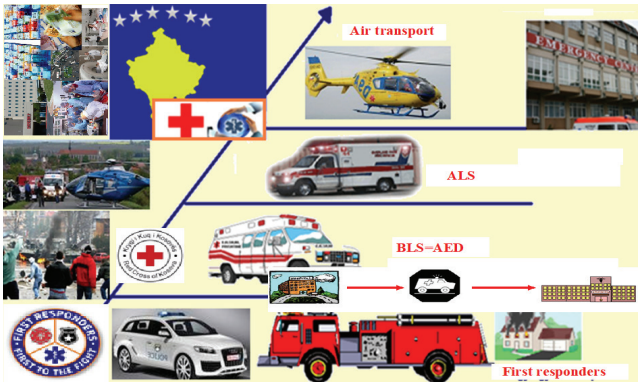

Foto 3. The necessary agencies that must be available in the management of multiple incidents.

In these cases it is necessary to provide rapid medical assistance within 10 minutes of the incident occuring. The first responder at the incident must apply the basic principles of providing first aid and consider it as a human and legal obligation to all those whose life is in danger. [7]

After assessing and recognizing the needs for providing first assistance, as well as making the decision to help the injured, the rescuer must create safe space for action at the site. [8]

Challenges in the emergency room. There is still no uniformly applied classification of severe trauma, very severe trauma, and multiple trauma. EMS and the people around it never dare to risk their lives, in such circumstances, the relevant police services, firefighters and other supportive SHME. All of these services must perform the work according to the obligations and circumstances which they incur.

Recognition and evaluation of access, care and management needs, when the victim's life is at risk in multipe incidents and as well as other accidental states. This requires rapid recognition of acute conditions or high-scale injuries to risk.

Why should we design an emergency plan? - To protect life, property and environment. to minimize the loss of services. To create emergency response and recovery systems and networks, to use all available resources in optimal, to increase cooperation between sectors and agencies. [4]

What should be done in the first phase of major injuries? Inform the state's emergency health service. To be informed, the population is mobilized with all the structures of society.

For mass injuries those with an acute problem, due to the small number of rescuers in these cases the injured may be reorganized for giving self-help, help one another. In circumstances of major unpredictable disasters we lack sanitary material to provide first aid, EMS must use the improvisational means that is close to the scene. [9]

What should be done in the second phase of major injuries? Providing emergency medical care in these circumstances of major accidental states requires creating good conditions for providing first aid, which in these circumstances if difficult.. The security force, firefighters and other emergency services that enable the provision of professional emergency medical care must be interconnected in these unpredictable situations.

The emergency medical care provider at this stage should remove the causes of self-risk (fire extinguishing, decontamination of the terrain, avoidance of fear, and mobilization of residents who are capable of providing first aid assistance). The phase of identifying injuries begins, rapid vibration, health care to the injured, the mass enterprise, the impede of deteriorating health status, providing first aid, care and evacuation of injured, use of standard means for transport. [10]

What should be done in the third phase in major

Scena	Initial assessment	Physical examination	Patient history	Continuing assessment	Patient handoff
What is the current situation? Medical or trauma? Mechanism of injury Observe for hazards	General Impression "A.B.C.D."	Expose and Examine Look for D.O.T.S. i.e. Deformities Open injuries Tenderness Swelling	S.A.M.P.L.E.	Repeat Initial Assessment	Patient age and sex
Where is it going? What are the possibilities?	Check Responsiveness (AVPU) Alert? Responses to Voice? Responses to Pressure (deep touch)? Unresponsive?	Head	Signs and Symptoms	Repeat Physical Exam	Chief complaint
How do I control it? What resources are needed?	Check Airway	Neck	Allergies	Reassess treatment and Level of consciousness	Level of consciousness
	Check Breathing	Chest and Back	Medications	Calm and reassure	Airway status
	Check Circulation	Abdomen	Past History		Breathing status
	Check Disability	Pelvis	Last meal		Physical exam findings
		Extremities	Events		S.A.M.P.L.E history
		Vital Signs Respiration, quality Pulse/BP Skin Pupils	Medical Information device/bracelet.	Patient history	Treatment Intervention

Table 3. Guidelines for Emergency Care and Treatment in case of multiple incidents (WHO, 2004).

injuries? The rehabilitation phase enables care for the injured, calming the fear, from EMS, undertaking medical curative measures, ensuring rehabiliting conditions for the injured (water, food, placement in a safe place). [11]

However, when the number of injured too large in mass incidents, special organizational approach and respect-sectoral mobilization and medical resources are needed, which with their consents can accomodate an emergency situation with a large number of victims.

The disaster plan should also include pharmaceutical products, the assortment of which should not be limited to urgent needs in crisis, but should be a permanent strategy for the vulnerabel population, which is can be used before the incident. When health care is provided in a crisis, it is necessary to plan participation and assistance in civil defense, the military, police, firefighters, the mountain rescue service. [12]

In all of this, we must not forget epidemiological surveillance and health protection. It is very difficult to measure the risk of an epidemic after a disaster, but with appropriate measures, its development can be prevented with preventive measures: sanitary cord, isolation, immunization, mass vaccination, not only of the vulnerable population, but also of "interfering" units, chemoprophylaxis, disinfection. It is essential to detect and predict risk, determine medical countermeasures, determine hygienic-epidemiological measures, sanitaro-technical measures, as well as sanitary and decontamination measures.

In simplified terms, the main tasks are: preventing infectious and parasitic diseases, providing shelter, food, water, medicine and other needs for victims and evacuators, food and water accuracy control and health control.

Material and Methods

The sources of key data are interrelated at the primary process and hospital care phase in multipe injuries are provided in accordance with the latest publications and scientific research. The results from this research paper were collated and based on natural and human error incidents and highlight the criteria for, problems, controlled approaches and management of multipe curves with a standstate coordinated by major actions. Unfortunately, there is no special categorization for some types of multippe incidents as in terms and view of assessing the severity of multipe incidents to serious injuries.

But there is a role to recognize two or more injuries at the level of systems and non-recognition can threaten the health of injured with multiple injuries. Protocols and updated interdisciplinary strategies and data analysis can provide knowledge of organizational structures and sufficient levels of effective medical staff for the management of multiple incidents in order to minimise the loss of life

Access of multiple views in SHME 112, it is those in pre-hospital and emergency hospital environments that provide the layers of response which require a professionalized medical approach, treatment procedures and actions that help the process at all stages of the topic with an organized health system in terms of comprehensive plan by optimising the process from the first phase. [13]

The disaster plan should also answer a large number of questions we have not listed here: the level of preparation for adequate crisis activities, the protection measures, are they fully functional in the event of a disaster, is there a risk of a secondary incident occuring, how will the disaster affect the function of operating halls, as an example. All of these questions need to be considered according to the predictable type of disaster and worst case scenario. The nature of injuries in different types of disasters can be assumed, but in situations of mass victims, a wide variety of injuries and complications may arise, for which responders must be prepared in order to be able to accomodate them. Developing emergency plans is a cyclical, disciplinary process of risk management and insurance, as follows: identifying risks, ranking of risk with regards to severity of injury or death.

In response to key risks, tolerance, treatment, transfer, interruption, resource controls, planning – response, reporting and monitoring of risk performance and review of the risk management framework.

Results

The sources of the main data are interrelated at the primary and hospital process phase where multiple injuries are provided in accordance with new scientific research. The research results were collated and based on natural and

Specialty	Local Trauma center	Regional Trauma center	University Clinical Center ED - Trauma center
Emergency doctor	X	X	X
Trauma surgery/orthopedics + special trauma surgery	X	X	X
Anesthesiology	X	X	X
Vascular surgery			
General surgery	X	X	X
Radiology	X	X	X
Neurosurgery		X	X
Vascular surgery		X	X
Thoracic surgery			X
Otorhinolaryngology			X
Ophthalmology			X
Oral and maxillofacial surgery			X
Urology			X
Cardiac surgery			X
Pediatrics/pediatric surgery			optional
Gynecology			optional
Hand or plastic surgery			optional

Table 4. Medical specialties required at local and regional trauma centers and University Clinical Center ED - Trauma center (Michael Frink, 2017).

human error, mass incidents and highlight the criteria of, problems, controlled approaches and management of multiple curves with a standstate coordinated by major acts.

The process of health care management of patients suffering from mass casualty incidents requires specialized teamwork. No individual will have all the skills, knowledge, expertise, or ability to fully manage traumatic patients. Initial management of patients with multiple trauma requires some medical specialists for a special period of time. The process of collecting and exchanging related medical information is an important step in accelerating operations and also improving the patient recovery process. On the other hand, an extra experimental document should be collected for increased patient recovery. For this reason, the process of urgent admission, diagnosis, patient care, and treatment with patients should be performed on the basis of standardized procedures. In this way, adequate education of health care providers to provide organized and general knowledge to trauma patients is very important. Once the emergency has been identified, a comprehensive impact level assessment is needed with the financial implications assessed. After evaluation, an appropriate plan or response that will depend on the special pre-determined criteria within the emergency plan should be activated.

Discussions and Conclusions

In most countries in the world and in us Kosova many organizations, have high cost of spending and maintaining organizational structures and human resources and permanent employment of medical personnel in access, management and treatment for multipe incidents, but the complex challenge of many emergency medical systems in the world is ours challenge in itself. [14]

To sum up, this paper has contributed to our understanding of the differences between local-level incident management and how this differs in content

and context for personnel operating at a strategic-level of emergency management. There are many challenges ahead and understanding these has never been more important or timely [2]

Knowing every agency has their own responsibility with an obligation to assist, act, help. The impact should be that the expected number of lives saved is proportional to the speed and efficiency of the organization of emergency medical care. Related to the law of the integrated emergency system and emergency medical care law, I gave accuracy on how mass casualty incidents can be managed and also adjust the local level, regional and central for their obligation and responsibilities by being called to existing laws.

Evacuation is a particular problem and in the conditions of the crisis, i.e. in disasters, we must calculate the competency of the country, providing first aid to victims, transport of injured and sick from the scene to the hospital. A plan adequately structured for hospitals and other health care facilities can help by respecting standards and treatment protocols for victims in mass incidents. Our objective is to save victims, care for them, prevent epidemics, care for their physical, mental health, their rehabilitation, field hygiene, decontamination hence public health procedures are important. In such mass incident situations, normal health care procedures do not work, hence the response must comply with law and strategic plans, protocols and special treatment methods, provide survival care to victims and resources need to be focused where and when necessary and to do so, it is necessary to determine exactly who should be given the help first and what kind of help.

The first requirements and needs must be: saving lives in both preventive actions and the necessary activities on the ground. In situations of crises and multiple incidents, access, management, organization of emergency medical activities is essential. If we have an emergency situation with a small number of injured and/ or killed, e.g. 20 – 30, EMS in normal conditions can work without any particular reorganization; with a little more effort for a direction as best with the persistence. But in case of multiple or mass incidents, when we have large numbers casualties, the situation changes to the masses, then institutional access and management is required by enforcing applicable laws to any of the multiple incidents based on standards, for emergency and public opportunity.

Honorable actions are aimed at saving lives on victims in numbers as large as possible. Emergency medical care in a multiple incident begins at the site of disaster where we can have many victims. The plan in case of non-component should predict the number of victims for a particular area and the type of mass casualty incident, necessary step; resources, capacities, subscriptions, cannot be, or when word is found for an earthquake, poisoning, explosions, or a hurricane in a rare area, fires, verifications, appraisals, when we possess a detailed plan in case of crisis or disaster, we must also clarify for material requirements and the damage of property and objects. We in these situations can create bad conditions in the emergency medical work and actions at the scene. During the implementation of the work plan for MCI management, this must always start from the first reactions with the assessment of the required needs with which you must have available, supplies of equipment, medical materials, medicines... opportunities, capacities.

In organizing health care in crisis situations, we should optimize the human resource of staff like doctors, nurses, administrators and additional services and coordinating their activities for action. But one thing we need to know is the competency of medical operatives for the situation with multiple incidents, recognition, their proximity and action has an important role to play in managing the response.

It is necessary that even in Kosovo a team of centralists during planning to predict their training, but also “training them within the year to be here two times a year as well as recognizing and implementing the emergency plan. [12]

But one thing with a role is that during the planning of supplies with equipment, medical supplies, medicines, necessary to provide energy sources so that equipment effectively. In case you are the mass casualty incident,

immediately after the emergence of an extraordinary situation, we must observe three phases in organizing and implementing emergency medical care in a major situation or incident.

The first action is providing EMS, immediately after the start of the crisis due to circumstances accompanying disasters, namely: destroyed or damaged: facilities and equipment, transport routes, means of transport, communication tools even more EMS workable. We have created many problems like us organizational, logistical, if we have bad or killed in EMS staff, families of emergency care delivery stress can be created, prejudices can create problems in access, management, treatment and evacuation to victims.

We phase the second impossibility of providing EMS care, as isolated care provided by local resources, to us achievements in regional and central remains, the duration and period of isolation depends on the speed of central resources to us achievements at the scene.

The course in the third phase is the arrival of aid from national, international sources must be applied within 24 hours. It may happen that in some areas, after the crisis began. Following the three stages of medical care, when most victims have been given initial care after stabilization can be carefully discharged from emergency medical care at the secondary and digestive level better than before.

The number of critically injured survivors from an MCI has proven to be consistent, averaging 7% to 10%. Moving critically injured patients to level 1 trauma centers can result in a 25% reduction in mortality, when compared with care at non-trauma hospitals. US cities face major gaps in the surge capacity needed to manage an MCI. Sixty percent of "walking wounded" casualties self-transport to the closest hospital(s) to the incident. [15, 16]

Emergency health care principles in case ten are the major incident should initially be preserved victim's showcase, stabilization treatment and medical care to be transported to the hospital with the affair. In a situation in a crisis or multiple incident organizations can take part like the red cross and the military forces of ten are the country with government.

Kosovo has a center of emergency situations which center can be set up on a needs basis and this center has a good integrated overall plan, and the plan for managing situations with multiple incidents should begin to work as early as possible and working in such a situation will be organized according to the emergency system. When the number of victims far exceeds the capacity of local available facilities, vehicles, transport routes and plans should be addressed to the potential massive needs of patient care and transportation. The plan for hospital crisis situations should also take into account daily activities that cannot be discontinued due to the crisis situation: operations, dialysis, severe patients undergoing treatment, but also the possibility of the need for ambulance transport for patients who have nothing to do with the crisis situation.

Since multiple trauma can significantly increase mortality worldwide, all patients suffering from multiple trauma need a systematized risk reduction procedure due to undiagnosed trauma. Proper patient care needs impressive and organized transmission and specialized work in medical groups. One of the most common causes of death in trauma patients is hemorrhage that can be prevented if diagnosed early. Diagnostic imaging tools can play an important role in managing patients with multiple trauma. Finally, proper management of the patient with multiple trauma by improving the structure, procedure and consequences of the treatment of the emergency medicine department. An integral part of the plan should be the number of free hospital beds at the time of the crisis, the number of possible free beds with a time limit, as well as capacity and "quality" of care: beds in intensive care. unit, number of operating halls, materials supplies (blood, molten solution, antiseptics, analgesic, clothing material, vaccine - tetanus), given the expiration deadlines of all this and their renewal.

Triage always becomes the most experienced nurse or doctor, visually, based on perception and experience. Field navigation should be placed on the outskirts of the disaster area; if the victims are taken out of the building, near the exit from the building. Useful to be placed near the center that and there should be good communication with the hospital, emergency operations center and disaster management center.

When the number of large victims, a trio center can raise emergency medical service admissions, in an adaptation honor. School, sports center, hotel or restaurants. Or honoring tents weep slimming up to thirt and the downs of the priorities for treatment in secondary and tertiary care. However, there are still some challenges faced by the strategic emergency management sector to meet future demands and build community resilience to better manage, respond and recover from emergency events.

Mitigation and prevention efforts aim to reduce the potential damage and suffering that disasters can cause. While disaster management won't prevent disasters, it can prevent them from becoming compounded as a result of neglecting causal factors and manageable risks. Mitigation specifically refers to actions taken that can lessen the severity of a disaster's impact. Investing in measures that limit hazards can greatly reduce the burden of disasters.

Strategies that disaster management professionals implement to protect vulnerable communities and limit hazards include the following: Raising awareness about potential hazards and how to address them. Educating the public about how to properly prepare for different types of disaster. Installing and strengthening prediction and warning system. The evidence-based interdisciplinary treatment guidelines (Guideline Trauma Management) [10] and the verification of adequate structures and staffing levels in so-called certified trauma centers enable early. An emergency plan should be maintained regularly, structurally and methodically to ensure in the event of an emergency. Emergency managers generally need to follow them as a joint process to predict, evaluate, prevent, prepare, respond, and be cured by an incident.

The Government of Kosovo should have a National Preparedness Goal, a national preparedness system and framework to determine how best to meet the needs of individuals, families, communities and states in their ongoing efforts to prevent, protect, mitigate, react to and recover from any disaster event. Pre-incident training and testing - emergency management plans and procedures should include identifying properly trained staff members responsible for making decisions when a case occurs urgent. Training plans should include internal people, contractors and civil defense partners, and should declare the nature and frequency of training and testing. Testing the effectiveness of a plan should be performed regularly, and adopted to ever changing environments.

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