

# Deployability of international medical teams for disaster response

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**Abstract.** Over the last decade, all around the world, disasters have occurred in high-density areas where many people live and work and where there are many residential buildings. This has increased the demand for experienced urban search and rescue (USAR) teams; that is, specially trained and equipped teams to get involved in rescuing the population and property after earthquakes in areas stricken by such disasters. The established technical and logistical processes enable the teams to arrive at the incident sites faster and to start the technical rescue operations as soon as possible, as well as delivering life-saving medical supplies to the people really in need.

**Key Words:** UN INSARAG, medical team, disaster, international response, Search and Rescue.

**Introduction.** Medical interventions in disaster stricken areas require professionals whose experience, mainly, is in pre-hospital emergency care. During international missions, the teams' medical equipment has always been suitable to fulfil the basic tasks. However, based on experience, in future missions, more attention should be paid to the qualitative and quantitative composition of the medical equipment complement (Jackovics 2017).

When composing rescue teams for deployment to perform special tasks, it is recommended to consider how harmonised their activities are: the experience gained by the team members in live situations, their adaptability to the circumstances, their creativity and the individual member's ability to integrate into the team (Jackovics 2017).

**The system of international assistance, its legal basis, standard operational procedures (SOP), command and control.** Disasters, increasing in number and diversity of type, have caused major worldwide financial and personal losses. Their long-term effects cause severe damage, especially in developing countries (Euratom 2010).

UN General Assembly Resolution 57/150 creates the foundation for international disaster assistance. It was issued to increase of efficiency of international urban search and rescue assistance and of the effectiveness of co-ordination. The decision highlights and discusses the responsibilities of the country sending assistance, the rescue teams and the international organisations, as well as those of the country that suffered damage. It is necessary, therefore, to review the functions of those affected in disaster assistance, learning the international technical terms and their meanings (UN Resolution 2003).

In accordance with the UN Charter, countries granting assistance should fully respect the sovereignty, i.e., the territorial integrity and political independence, of states. So, accordingly, humanitarian assistance can only be provided with the agreement, and fundamentally only at the request, of the affected country.

The first and most important task of the country stricken by a disaster is to grant assistance to the victims of natural disasters and other emergencies occurring in its territory, as well as to request other countries to assist, where appropriate. The task of the country affected is primarily to organise and manage any assistance granted in the area affected, to utilise humanitarian aid received in the disaster-stricken area and (Jackovics 2017):

1. guarantee the safety and security of the personnel and equipment of rescue teams;
2. enable simplified border crossing and entry (equipment, instruments, dogs, communications, medicine);
3. provide background support to rescue forces that is required for operation and cannot be transported by air: local transportation, fuel, medical oxygen;
4. provide other conditions: interpretation and local leaders;
5. enable the protection of the rescue force in the area of operation;
6. provide free entry of items for teams, such as:

- visa-free travel;
- logistics assets;
- special communications equipment;
- search and rescue and medical equipment;
- emergency health care possibilities;
- entry search dogs.

**The structure of medical teams and the aspects of their composition.** The UN International Search and Rescue Advisory Group (INSARAG) Guidelines and Methodology (UN INSARAG 2011), and the International External Classification (IEC) expect that USAR teams are trained and equipped before being deployed to incident sites for international disaster assistance. To this end, a uniform system of certification and accreditation of USAR teams was set up, through which INSARAG wishes to ensure that rescue teams meet three basic criteria:

1. they have capacities that enable them to locate victims under rubble;
2. they have equipment with the help of which they are able to safely extricate the victims detected;
3. they have medical equipment that enables them to save the lives of victims.

In detail, rescue teams must:

- know the INSARAG Guidelines and use the INSARAG markings;
- integrate into the organisation of international assistance;
- be suitable to perform self-rescue;
- be able to transport and handle rescue equipment and instruments at the incident sites;
- have experience in international deployment;
- be in standby readiness to be deployed in due time;
- be self-sufficient and self-sustaining;
- be well trained and equipped;
- control and co-ordinate rescue operations - even independently;
- know the challenges caused by cultural and religious differences, and foreign languages;
- be self-sustaining up to a maximum of 10 days.

It is important for UN OCHA that there is only one single focal point in the participating countries. Otherwise, efficient international co-ordination cannot be achieved. All USAR teams, irrespective of their capacity classification and operational involvement, should be comprised of the following components:

1. management (command and control);
2. logistics;
3. search;
4. rescue;
5. medical.

**Team and team member criteria.** During international disaster and humanitarian assistance, the deployment of inadequately trained and/or inadequately or ill equipped teams in the country concerned must be prevented. The authorities (National Contact Points) of the sending and receiving countries have a responsibility to ensure that only rescue teams meeting the requirements of the request for assistance, trained and equipped for the mission and properly prepared for the task should travel to the incident site. During assistance, the rescue forces should bear in mind the importance of neutrality, humanity and impartiality. The minimum criteria that the medical staff has to meet are:

- medical specialist physician, ambulance officer, specialist nurse, nurse;
- disaster medicine, sub-specialty exam in emergency medicine (if accompanied by K9 element in the USAR team, knowledge of caring for dogs), knowledge of the triage system;

- treating shocked victims;
- knowledge of vaccinations;
- knowledge of field hygiene;
- work under extreme circumstances, tolerating physical and psychological stress (smells, sight, tolerating and processing stress).

**The practice of training of a medical team.** The chance of a trapped victim surviving decreases rapidly with time and it is, therefore, of utmost importance that the appropriate resources are assigned to the appropriate sites as soon as possible. The INSARAG external classification (IEC) system is designed to ensure that assisting countries send a team with the required skills and equipment. It also plays a major role in ensuring that the resources are properly assigned: for the sake of rapid international intervention, it should maintain stand-by readiness and develop an alert SOP:

- it should maintain the ability to manage international USAR operations;
- it should maintain full self-sustainment during the entire mission;
- it should ensure that the intended (suitable) team members have the appropriate vaccinations against infections, including dogs;
- it should develop personal contacts with local officials, who should be involved in managing USAR operations;
- it should provide an adequate schedule for all team members; a 24/7 Base of Operation (UN INSARAG 2011) should be established, ensuring immediate readiness and alert.

**Factors threatening mission. Preparedness for the unexpected.** Anyone participating in assistance must comply with the rules of safe conduct in order not to increase the risk of injury or death, with regard to oneself or team members. The danger of becoming injured or dead is higher in disaster management operations, and some incident always happens. The host nation's government is responsible for the safety and security of international teams, but the USAR team management has responsibility for the safety of its own team members. In addition, each team member is responsible for his/her own and their peers' safety, including identifying, confining, reporting and mitigating the consequences of unsafe situations. It is important that the personnel:

- work with suitable PPE (HUNOR SOP 2011);
- wear clothing adapted to the climatic conditions.

*Equipment and supplies* – the team management must ensure the following:

1. the respecting of the rules and of safety requirements during the transportation, packing, classifying and warehousing the equipment;
2. the training of team members for using PPE and available info-communications devices;
3. the avoiding an eventual lack of food, or the deterioration of foodstuff due the climate, having a negative impact on the health condition of the personnel;
4. the storing of enough water in the initial phase of the operation and the availability of adequate water purification support;
5. the availability of suitable medical equipment and means of hygienic care.

*Security* – ensured by team management: Team members should be trained to understand and use the security practices as specified by the UN Department of Safety and Security, which divides the security system into 6 phases:

- Level 1 – minimal;
- Level 2 – low;
- Level 3 – moderate;
- Level 4 – substantial;
- Level 5 – high;
- Level 6 – extreme.

In the deployment phase, or during medical evacuation (MEDEVAC), the transportation methods and the points of contact in emergencies should be identified and reported. They will be used during deployment to the requesting country. During travel, the safety and security measures implemented by the team should be monitored and full observance enforced.

**Co-operation with other health care organisations.** The team has to work together with the health authorities of the host country and it must seek a mandate for its medical activities. Permission must be obtained from the authorities for the use of any of the team's available drugs and vaccines with different active substances. Before departure, the recommendations of the World Health Organisation (WHO) for the given country should be taken into account. It is recommended to make a request for assistance by a local medical person, who is also able to help the work of the rescue team with interpretation. During international interventions, the request for medical students as volunteers in charitable activities works well. In the case of medical products, it is recommended to do an English translation that addresses the use of drugs and their possible posterior effects.

**The team operations in an area ruined by an earthquake.** As team physician, as an integrated component of the rescue team and the medical expert, should be familiar with the USAR team's incident site activities. Medical expert also have to know the marking, signalling, management and rescue methods used when rescuing victims trapped under the rubble. Medical expert should do everything possible during the rescue operation in order to be able to help the victims and increase their chances of survival. A USAR team will process the following reconnaissance information on the buildings at all work sites selected when compiling the tactical plan (Jackovics 2017):

1. original layout of the building;
2. height of the ruin/building;
3. type of building;
4. usage of the building;
5. collapse pattern;
6. why it collapsed;
7. how it collapsed;
8. what stopped the collapse;
9. local failures in the assessment of damages (e.g., supporting structure remained intact);
10. pillars;
11. walls;
12. beams;
13. flooring;
14. structural connections;
15. voids, in which the victims may find shelter:
  - information on their location;
  - implications, e.g. voice, etc.

When rescuing the victims, it has to be borne in mind that search and rescue activities are, often, influenced by the following factors:

1. voids created by the building and its rubble;
2. structural and static conditions of the building, which influence the sequence of rescue;
4. access to the most important void, where the assumed and localised victim is;
5. determine priority: slightly injured, severely injured as rescue sequence (casualties' evaluation by injuries, TRIAGE).

**Conclusions.** Medical interventions in areas affected by disasters basically require leaders with experience in disaster, professionals with pre-hospital emergency medicine experience and support personnel – all with good mental and physical stamina. It is noticeable that team members who have been used to working only in hospital or clinic conditions tend to adapt to the local needs more slowly and to a lesser extent, both in intervention planning or thinking and active health care. So, an all-round preparation is important, as one of whose fundamental pillars this article can serve.

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