First Aid Station (fas)
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Abstract

1 MEDICAL HELP IN THE DAMAGE AREA IN CASE OF MASS ACCIDENTS

1.1 GENERAL

“Scoop and run” had been in Europe the method of rescue operations, but it was discharged some decades ago. Today it’s a principle not to help the patient as quick as possible but to take him to hospital in the best possible condition and thus to enhance the chance of survival during transportation. Consequently, pre-clinical treatment is of importance. The goal is to take a specially trained emergency physician within 15 minutes by car or helicopter to the patient. Due to difficult local conditions, this measure can not be guaranteed everywhere or without a gap.

This principle also applies to mass accidents or disasters with a great number of patients. The organization required will be described under “First Aid Station” (FAS), which has been uniformly introduced to the Switzerland and Austria.

Definitions for accidents, mass accidents and disasters.

- Accident denotes a sudden surprise event caused by force, involving personal injury and / or material damage which can be mastered with locally available resources.
- Mass accident denotes an accident coming upon a great number of persons and / or material damage but which still can be mastered with the locally or regionally available resources.
- A disaster denotes a surprise event causing enough patients and / or material damage that the crisis can not be managed with the personnel and resources available within the community. Outside help is needed.

1.2 SPECIAL PROBLEMS AND THEIR CONSEQUENCES

The sudden great number of injured persons entail a number of additional problems other than those of daily routine. Most of these problems in the field can be solved by good organization.

Additional problems regarding first aid in case of mass accidents are (among others):

- In the beginning, the situation is complex during a certain period of time and consequently systematic rescue measures will be difficult to establish
- The number of patients may be out of proportion to the available rescue personnel, physicians and transport means
- Try to prevent with all means not to transfer the disaster into the transport area or the hospitalization area in order to guarantee that in these areas individual medical treatment will be possible as long as possible
- A survey about the distribution of patients to the different hospitals must be available at any time, at least when the rescue operation is over
- Fortunately, mass accidents do not occur often. This is the reason that rescue parties are often not sufficiently trained

The crucial point is to prepare yourself. Then, interventions may succeed in such a critical moment despite all concurrent problems. The mere multiplication of mobilized personnel and resources doesn’t guarantee that the mass accident will get under control. You need a special organization which
must be precautionally planned, realized and trained.

There is an other essential difference to workday routine. In a normal traffic accident the individual patient is in the center of interest, receives the maximum help on the spot supported by modern technical equipment, and is perhaps treated by the paramedic/emergency physician over a long period of time. In case of mass accident the community is of importance, that means as many as possible have to survive and recover. This possibly means that the individual receives only a reduced treatment with all its consequences.

2 ORGANIZATION OF FIRST AID IN CASE OF A MAJOR ACCIDENT

2.1 GENERAL

According to the well known principles of disaster rescue, you will only succeed 1) if you command in the damage area, 2) if you gain time without rushing operations at the damage site and 3) if you prevent the crisis from spreading to other adjoining areas.

It is a humanitarian principle and one of our first and foremost tasks to put the human being into the center of interest and to give priority to his health. This is also our first goal in case of major accidents.

At first sight and based upon the sophisticated and specialized individual medical treatment which has become an everyday matter, one would of course guess that only the medical help on such a scene with many patients shall be of importance. Without organization, this help may not be crowned with success or even result into failure. For the organization of first aid you have to consider such issues as

- leadership
- time
- space

which are instrumental and must not be neglected. First aid must have leadership. This, in combination with time and space factor decides over survival. Do never forget the principle “prevent the crisis from spreading from the damage area to the transport or hospitalization area”. But that does not mean that anybody has to care for organizational problems. The different parties at the damage area can only do their best if they know the principles of an FAS as well as the possibilities of their operation partners.

The different types of major accidents have special critera and special characteristics concerning injuries. However, it does not make sense to create an individual organization pattern for each type of accident.

Not to mention that such a variety of examples would violate the principle of simplicity. It would also run the risk of disorganization and chaos due to minor discrepancies from the “normal case”. To keep things simple also means to be able to improvise. The leadership must have this ability and has to be decisive.

In order to secure an adequate assistance to injured (with the least possible delay) on the spot of a major accident, one has already to arrange special first aid measures in the damage area. These measures prevent an unbalanced assignment and overfloating of the different hospitals which have to care for seriously injured patients.

The so-called “First Aid Station (FAS)” functions as first aid facility at the damage area. All above mentioned thoughts and experiences from past disasters were taken into account while creating this model. The FAS has:

- to enable a quick change from spontaneous help to systematic rescue measures,
- to be easily adaptable to different events and their peculiarities based upon a module principle and
- to guarantee an optimal efficiency in the case of delays or only partial establishment of the model
2.2 ORGANIZATION

In the following we describe a completely established first aid station (FAS). In special situations (for example if several damage areas are far away from each other, or if there are several entrances to the damage place without connections, and so on) or under specific preconditions (e.g. chemical accidents which need to install a decontamination place) the organization has to be equivalently adapted (ability to improvise!).

The first aid station consists of 3 organized spaces:

- Sorting area
- Treatment area
- Loading area

If necessary the sorting area can consist of several sorting places

The treatment area consists of 3 places:

- treatment place “Therapy” (sorting category T 1) for emergency treatment to make the patients transportable
- treatment place “Transport” (T2a and T2b) for patients which have to be transported by ambulances or helicopter to a hospital to receive their final treatment
- treatment place “Wait” (T3 and T4) for slightly injured and hopeless victims.

The loading area consists of

- a loading place for patients
- a landing and loading place for helicopters and
- a waiting place for ready to start ambulances.

2.3 THE VARIOUS AREAS AND PLACES
2.3.1 SORTING AREA

Depending on location and number of available physicians/paramedics, one or more sorting places have to be established close to the damage area, but beyond the actual and possible danger area. Each sorting place disposes of a sorting physician.

No later than at the arrival at the sorting place the patient has to be marked, for example with the pouch of the Casualty Handling System CHSTM.

Steps for first sorting:
- summary medical check-up of the general conditions
- investigation of local findings
- rough diagnosis
- stipulation of the urgency of therapy
- ev. instruction for necessary first aid treatment

In the case of major events, the physician has to examine many patients within short time. Therefore, the time available for each patient will be restricted. As a rule you need for sorting:
- for supine victims 3 min.
- for standing or sitting patients 1 min.

2.3.2 TREATMENT AREA

The treatment area is equipped with the majority of the FAS material and requires a high level of organization and coordination.

Treatment place “Therapy” (sorting category T 1)

The treatment place “Therapy” serves for lifesaving emergency treatment/operations to establish transportability. It deposes of an adequate equipment and one or several physicians for treatment who are able to execute the necessary medical operations. The following emergency treatments can be performed:

Relief of respiratory impairment:
- oxygen
- intubation
- ev. emergency coniotomy
- artificial ventilation
- thoracostomy tube drainage

Relief of circulatory impairment:
- hemostasis
- volume substitution

Analgesia / Anesthesia

Administration of medication

Cooling of burn victims

additionally if evacuation is impossible or delayed:
- Debridement
- Emergency amputation
- Wound revision

As soon as the patient is transportable he will be transferred to the treatment place “Transport”.

Treatment place “Transport” (T 2a and T 2b)

All patients coming directly from the sorting area, from the treatment place “Therapy” or from the treatment place “Wait” will be collected at the place “Transport” for transport by ambulances. If available, a sorting physician has to be employed at the treatment place “Transport” to sort the patients for transport based upon medical urgency.

Treatment place “Transport” provides simple medical help, e.g.
- bandage
- fixations
- pain management
- infusions as shock treatment
- oxygen supply
- nursing
- lifesaving immediate measures in case of critical disorders.
Treatment place “Wait” (T 3 and T 4)

The following patients are collected at the treatment place “Wait”:

- slightly injured or
- hopeless victims who have to wait for transport until the evacuation of those who have a chance to survive will be finished.

### 2.3.3 LOADING AREA

The loading area consist of

- loading place for ambulances
- landing and loading place for helicopters and
- waiting place for ready to start ambulances.

Direct your attention to a comfortable approach and exit for ambulances to avoid car maneuvers and jams. Assistance by police may be useful.

Tasks of the manager of loading area to:

- indicate and organize loading place, helicopter landing area and waiting place for ambulances
- lead and command the loading area
- take care of securing the helicopter landing area,
- keep informed about the capacities of the approached hospitals
- allocate the ambulances and rescue helicopters to the according hospital
- keep in touch with the manager of the treatment place “Transport” or the physician in charge if medical instructions (e.g. concerning category of hospital or transport) can not be carried out
- keep the record of transports
- guarantee free approach and exit in the loading area and if required call for assistance by the police
- keep in touch with the managers of the treatment place “Transport”, the first aid station and the transport area

### 2.4 ESTABLISHMENT OF THE FIRST AID STATION

The first aid station (FAS) has to be established at an early stage and has highest priority.

For this purpose you have to prepare as follows:

- develop an operational concept for personnel and material
- provide and mark the material to be prepared for transport within short notice into the damage area
- prepare and hold checklists at disposal for every function and task
- train and exercise the establishment and operation of a first aid station

It is mandatory to prepare and hold checklists at disposal for every function and special task for a first aid station. There will be no time for instructions during an emergency. The establishment of the first aid station should occur as if it were created automatically by pushing a button. There will be no time for further instructions. Everyone involved should know what to do.

### Figure 3

2.5 PROCEDURE

The handling or routing of the patient at the first aid station is as follows:

1. Rescue
2. Transport to sorting area
3. Marking the patient with the Casualty Handling System CHSTM.
4. Sorting
5. Transport to the indicated treatment place
6. Treatment and establishment of transportability
7. Sorting for Transport (urgency, type of hospital)
8. Transport

2.6 MOBILE SORTING TEAM (MST)
There is a need for rescue and evacuation teams to receive hints concerning priorities for rescue and transport to the sorting place. However, the emergency physician should not go directly to the place of discovery of the patients for their treatment, unless there is a sufficient number of physicians available. So-called mobile sorting teams will be in charge to perform this task. They consist of an emergency physician, a paramedic and a radio operator. If there is a great number of victims, the emergency physician of the mobile sorting team has to hold back with treatment at the damage area. A general survey and a statement of priorities will be his duty.

Figure 4

2.7 EMERGENCY PHYSICIAN IN CHARGE (EPC)
After analysis of the problems at the first aid station in past disasters we realized that a leader for medical rescue will be useful or even indispensable. He has to manage the medical operations in general and to assist/advise the general operations manager in the disaster area. A specially trained “emergency physician in charge (EPC)” will take over the function of the on-site medical manager. He will have to take a specially designed 60 hours course prior to be in charge.

Three conditions are essential for the operation to succeed:

- The EPC has to have good and profound knowledge about the basics of the organization in case of major events.
- He cannot be overloaded with organizational tasks preventing him to do his work as physician in charge.
- Major events require high management skills and request a clear hierarchy for quick and consequent instructions as well as a clear military-like command structure. Prestige thinking has no place.

2.8 MARKING OF RESCUE PERSONNEL
A good overview of the disaster area is a mandatory for successful management. In addition of having access to the situation, you may also control personnel which operates in a crowded place. It is indispensable to mark all persons in an specific way which will be also recognized in the dark. No “civilians” are allowed in the damage disaster area except...
people involved in the event.

Useful criteria for identification are:

- identify the different specialties
- different colors for managers (yellow) and teams (red / orange) will be an advantage
- the individual functions and experts (especially physicians) have to be identified with large, also in the dark readable and reflective letters.

The Austrian Red Cross is using special symbols to identify the areas and functions at the first aid station.

2.9 IDENTIFICATION OF PATIENTS

In case of a disaster you will have to identify and register all patients in the damage area. The system should be simple and easy to use. It should be applied without losing time and should contains all essential information. For this purpose you may use the suitable Casualty Handling System (CHS)TM.

Figure 5

The Casualty Handling System CHSTM for identification and handling of patients in case of large accidents and disasters

3 CONCLUSIONS

In case of disaster every single person acting in the damage area - not only the medical personnel - contributes to an optimal help to the patients if:

- a careful preparation and planning for operations in case of such events exists
- the necessary material for immediate use is prepared
- ready-to-use checklists are available
- clear and unmistakable managing structures (hierarchy) are well-known
- the best qualified person becomes the head at any level - in the last resort “the best makes himself a boss”
- nobody confuses management with expert competence
- all personnel - from the protocoling staff, physicians, experts up to the emergency physician in charge and the general operation manager - shall beware of their tasks and the different priorities
- managers always keeps the survey and
- the organization is well trained and coordinated
- it should be possible to meet the requirements of BOWERS

the best possible
for as many as possible
at the right time
at the right place
BOWERS

which guarantees to give those who are involved the highest chance to survive and recover.

References
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