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CLASSIFICATION OF VICTIMS AND RULES FOR TRIAGE IN A MAJOR CIVIL DISASTER

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A disaster results in a large number of victims, and as in war, that epidemic of injuries in the broadest sense of the word, the disproportion between needs and the means of treatment immediately available calls for a classification, a categorization, it calls for triage.

Triage is a medical act of a diagnostic nature which must be complemented by the essential first-aid and «conditioning» for survival and transport. For injuries, triage determines the degree of urgency of an operation and thus establishes treatment priorities. Its aim is to optimize the use of the transport and treatment means which are known to be available and to ensure that they are used in the interest of the victims as a whole.

Triage is performed by all of the doctors in the evacuation chain, and especially in specialized teams called triage sections. However, classification is already carried out by the front-line doctor (regiments), and triage may also be done in each field hospital. It was during the 1914-18 war that the breakdown into initial rough triage (classification), technical triage (specialized), true, that is, surgical triage and confirming triage (at the rear and in central dispatching railway stations) became necessary.

Triage coupled with elementary, essential resuscitation measures, even if entrusted to organized and trained personnel, remains insufficient. Triage teams must be established according to the dictates of the tactical situation and the expected or real number of losses, and this implies «manoeuvring» triages which, once they have been deployed in tents or buildings, require a certain degree of stability.

In a military environment, triage must be speedy, accurate, certain and thorough. In principle it is the work of a surgeon or an experienced «practitioner» who has special knowledge in this field, experience, training, ... An initial mistake can prove fatal for the wounded person, and «second thoughts» are not always possible. Triage is undoubtedly more effective the closer it is to a surgical station which operates on absolute emergencies. But it is not an end in itself, any more than is evacuation.

Triage (classification - «conditioning») must take into account :

- the number of injured
- the seriousness and place of injuries
- their immediate and foreseeable after-effects

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- acceptable pre-operative delays : immediate, ≥ 6 h, ≥ 18 h, ≥ 36 h
- transport times
- possibilities of evacuation, transport, «conditioning», and conveying
- the degree of crowding in stations
- combat conditions
- post-operative recovery times (when there is hospitalization in the thick of battle).

Obviously, conditions are entirely different when the number of wounded is fairly small and there are good possibilities of evacuation by helicopter, or where large numbers of wounded must be evacuated by road under difficult conditions (traffic congestion, danger, etc.)

Military triage is almost exclusively surgical (war wounds). A special massive loss plan put into effect upon orders from the high command introduces the notion of radiation exposure in conjunction with wounds, as well as that of ~~mortu~~ victims of radiation exposure, to be isolated without treatment. There are no special instructions concerning the «chemically injured». The usual U2 and even U3 classifications obviously do not fit the respiratory distress and nerve disorders which would merit urgent emergency treatment as EU or U1 cases if the means were available. Nor has any classification been provided for «psychical» losses.

Review of military classification (conventional losses)

It includes absolute emergencies (EU and U1), and relative emergencies (U2 and U3), and does not take into account either sick persons or walking wounded. The accepted proportions are respectively 30% for the absolute emergencies (UAs), (EU - 5%, U1 - 25%) and 70% (U2 - 30%, U3 - 40%). The percentage of UAs has increased steadily in recent conflicts.

EUs must be operated on immediately; if there is any delay in taking life-saving measures and transporting a wounded person to a surgical station, he dies, and the EUs arriving at advance stations are serious U1 cases. EUs must be operated on either at triage stations (this is an exception, since it reduces efficiency), or in field hospitals with the help of evacuation by helicopter.

U1s must be operated on within no more than 6 hours. Absolute emergencies are the only ones which would be kept at field stations for operation.

U2s must be operated on within 6 to 12 hours (up to 18 hours) and U3s within 18 to 24 hours (up to 36 hours), unless a second medical examination indicates otherwise.

In wartime, U2s are to be evacuated to the infrastructure by air and to contact zones by rail, U3s in general by rail to the infrastructure.

Resuscitation allows EUs to be saved and upgraded to U1s. It can also change a U1 (for example, an extensive burn case) into a U2. But it must be remembered that U2 and U3 cases might become worse during transport, thus becoming U1s.

The special triage plan for massive losses (in principle from nuclear causes) distinguishes two categories of wounded, each representing 50% of losses. The first category includes those with minor wounds and slight radiation exposure (P1), and the more seriously wounded who require, *a priori*, long and complex treatment and (or) cases of massive radiation exposure, who are P4s, considered ~~mortu~~. The second category is made up of wounded who must receive treatment within 6 hours, 18 h or 24 h; this last group (U3) also includes persons exposed to medium levels of radiation. A last classification adapted to surgery under precarious conditions during the «civil war» type of conflict distinguishes absolute emergencies, delayed emergencies, «quondam» emergencies and potential emergencies, which must be watched and cared for by the resuscitator.

From many points of view the logistics in a civil disaster are comparable. However there are also differences in safety, assembled means, direction of evacuation, and general organization.

As a general rule, no treatment is carried out in field stations and the existing nearby or remote hospital infrastructure is utilized, with care being taken not to overwhelm stations and to direct injured toward specialized services if need be. Near the disaster site, and after clearing, victims pass through an advance first-aid post and, if the disaster is a very large one, are then regrouped in a medical evacuation centre whose rôle is to check the initial triage and to direct evacuations.

The percentage of dead as compared with injured and the types and percentages of injuries or lesions differ according to the particular disaster. To the dead and injured must be added victims of special aggressions and the material damage suffered by the population (houses destroyed, burst water mains), which create special problems (evacuation, panic, hygiene, prophylaxis, etc.).

More importance must be given to intoxications and emotional neuroses than in military classifications. Victims of drowning and burns must be included. Along with very infrequent injuries caused by projectiles, crush and blast lesions it must be noted that there are more cases of multiple traumas than of multiple injuries and multiple «shrapnel» wounds.

The proportions of victims are much less precise than in warfare. Only a few examples of figures can be provided by way of indication. A large number of very sketchy or more complicated classifications have been proposed. (MOORE 1967, SAVAGE 1970, MILLER 1971, JACOBS 1979, YATES 1979, FINCH and HAMILTON 1982).

The classifications that are usually proposed (HARTERING-KOSLOWSKY) distinguish injured who can be saved at the price of immediate (top priority) or delayed treatment. Both classifications use a figure of 40%, divided into 20% for immediate treatment and 20% for which treatment can be delayed (if the victim is immediately «conditioned»). SAVAGE made a distinction, as in the army's EU and U1, between injured requiring immediate treatment and those requiring emergency treatment.

HARTERING does not provide any details on his classification. KOSLOWSKY gives in the first classification the usual absolute emergencies (uncontrollable haemorrhaging, serious burns, shock, asphyxiation) and in the second, osteoarticular and vascular trauma pathology.

Most often the authors particularize further in other groups :

- a group of lesser injured (slightly injured, ambulatory injured, minor injuries) who can be released once they have been attended to by ancillary personnel, and who in principle do not require hospitalization. This group is estimated at 40%;
- a group of wounded judged beyond the help of treatment resources and who can only be isolated and given analgesics (highly serious lesions, serious burns on more than 40% of the body, and for Koslowsky, massive radiation exposure).

Finally, there must be a category for victims «by implication», who have no somatic lesions, but who have lost relatives or property, and who must be taken into account by first-aid services. Some are only hungry and thirsty, and display normal behaviour. They simply need shelter; others, more emotionally affected, may display «panic» behaviour either in the form of prostration or in the form of agitation which is apt to hamper the functioning of triage. They must be kept separate and, when occasion demands, committed to the care of specialists (paramedics and doctors).

We propose a third classification with six categories. The first four partly overlap the army's EU, U1, U2, U3 classification, while introducing supplementary data on cases of intoxication, those suffering from hypothermia, in particular cases which require not just monitoring but treatment by resuscitators. These last two categories correspond to the walking wounded and P4s of the military classification and to the two categories previously distinguished in the civil context.

Table No. 1	Koslowsky's classification	
	I. Immediate treatment	20%
	Serious uncontrollable haemorrhaging	
	Asphyxiation	
	Shock	
	Serious burns (even respiratory tract)	
	II. Delayed treatment	20%
	Immediately after «conditioning»	
	Vascular wounds	
	Abdomen	
	Open fractures	
	Osteo-articular wounds	
	Fractures and dislocations	
	20 to 40% second degree burns	
	Cranial trauma	
	Ocular trauma	
	III. Ambulatory	40%
	Lesser wounds,	
	10% second degree burns and	
	10% third degree burns	
	IV. On hold	20%
	Burns on over 40%	
	Highly serious injuries	
	Massive radiation exposure, etc.	

Special emphasis must be placed on the problem of lesions to the hands and extremities. There is the risk that they will be classified as a low priority emergency (U2 or even U3 in the military classification). While such lesions do not endanger a good prognosis as to life, they are extremely important for the prognosis as to function. If treatment arrives too late, it cannot prevent ischemia and infection developing, which jeopardizes recovery.

This type of lesion must be considered an emergency mid-way between U1 and U2, since such lesions should be treated in a specialized service within 8 to 10 hours, or possibly by first-aid measures on the spot (personnel must be familiar with and apply the rules of dressing, «conditioning», positioning, and possible treatment), with secondary evacuation to a specialized surgical service where reparative treatment can be effected. Depending on the number of victims and the possibilities of evacuation, they must be considered either U1s or U2s.

As far as eye injuries are concerned, perforation wounds (and foreign bodies in the eye and orbit), and other traumas, must be distinguished. Ocular blast must always be suspected.

The physical examination must always be made with careful inspection for palpebral wounds, conjunctivo-corneal perforation, destruction of the anterior chamber, pupillary abnormality, iridic hernia, ruptured globe, and hyphema.

Washing the eye quickly without trying to remove blood clots, and covering the closed eye with a sterile pressure bandage to immobilize it should allow fairly prompt evacuation (within up to 12 hours approximately) to a specialized centre (for microsurgery and endo-ocular surgery of first intention). If evacuation is impossible, the wound must be closed with sutures after resection of herniated membranes.

Chemical burns on the eyes require prompt washing in conjunction with ablation of toxic matter. The eye must be irrigated repeatedly and gently with large amounts of water or lotion on the spot (for 15 to 30 minutes), the eyelid everted to expose the conjunctival sacs (for example, when removing chips of lime). Anaesthetic collyrium may be used, and lastly, antibiotics may be administered and psychiatric attendance given before transfer to a specialized centre.

Finally, emergencies require admission to a hospital sector specializing in resuscitation. This is especially true for respiratory distress (traumatic, but also chemical, or caused by blast, or from acute kidney failure, multiple visceral failure, hypothermia and hot flushes, etc.).

It seems obvious that compared with military circumstances, which of course must be adapted to tactical considerations, a priority medical plan must exist for the casualties and victims of major civil disasters, a plan which imposes rational and effective classification and evacuation measures, so that, in principle, and no matter what the losses, good use can be made of the most advanced national and international hospital resources available.

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Communication presented at the 4th International Conference on Disaster Medicine, November 1985, in Grenoble, France.

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GENERAL ASSEMBLY OF THE ISDM

The 4th International Conference on Disaster Medicine, 27 to 30 November, 1985, Grenoble, France, was followed by the Session of the General Assembly of the ISDM. Here is a summary of the discussions and decisions on the items of the Agenda :

1. Report by the President.- Prof. C. Mannl (President of the ISDM) mentioned the various conferences in Europe which he attended as a representative of the ISDM. Prof. P. Huguenard (Vice-President of the ISDM and President of the French Society of Disaster Medicine) insisted on the importance of a better promotion of Disaster Medicine, especially in terms of university and post-university training, while Dr. M. Dubouloz (Vice-President of the ISDM) spoke about his experience in developing countries, for instance Mozambique where he noted that a Disaster Medicine infrastructure was practically non-existent.

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2. Report by the Secretary-Treasurer.- Dr. Bodi (Secretary-Treasurer and founding member of the ISDM) reviewed his many travels, especially in oversea countries, where he had the opportunity to speak about the ISDM and Disaster Medicine in general : Cairo (National Seminar on Disaster Preparedness); Sana'a, Yemen (Annual Conference of the Arab Red Crescent Societies - 1984); Daytona Beach, USA («Physicians for Disaster Preparedness» Congress); Caracas (Information Meeting organized by the National Red Cross); Baghdad (Colloquium in the Ministry of Public Health with the Emergency Services); Tunis (Annual Conference of the Arab Red Crescent Societies - 1985); Jakarta (Group of physicians members of the Medical First Aid Services); etc.. He referred to the recruitment campaign for new members and was gratified that representatives of remote countries had joined, as corporate or individual members, especially corporate (Authorities and Institutions) of Third World States. These new members did not always result in an increase in receipts as certain old members failed to pay their contributions.

3. Report by the Auditor.- Presented by Mr. Reymann (of the Committee, founding member of the ISDM) the Report was approved by the General Assembly and discharge was given to the Secretary-Treasurer.

4. Statutory elections.- The debates emphasized the necessity of maintaining a certain continuity, so the General Assembly decided to re-elect the Board of Officers of the Committee, namely : President - Professor C. Manni, Vice-Presidents : Professor P. Huguenard and Dr. M. Dubouloz, and Secretary-Treasurer - Dr. Bodi (founding member). As to the members of the Committee, the Assembly reconfirmed the functions of Mr. Abbas, Mr. Reymann (founding member) and Professor Rifat and elected three new members : Dr. Ben Yahmed (Tunisia), Dr. Gunn (Switzerland) and Dr. Perez Iñigo (Spain).

5. Enlargement of the Committee.- It was suggested to convene an extraordinary General Assembly where all the countries having members in the ISDM could submit an application as the Committee could be composed of 6 to 12 members. The concept of «corporate member» should also be clearly defined; as to the recently created National Societies of Disaster Medicine they could be admitted as such after review by the Board of Officers of the Committee of their statutes and then the General Assembly could confirm their acceptance.

6. Editing Committee.- For lack of time it was difficult for foreign correspondents to write articles of a general nature but sufficiently specialized to appear in the ISDM Newsletter. The Assembly was agreed on the necessity of conferring a more rigorous and substantial character to the articles intended for physicians dealing with Disaster Medicine or interested in mass casualty care. It was recalled that the ISDM Newsletter was distributed throughout the world in four separate editions (Arabic, English, French and Spanish) and was so far the only existing publication giving information and references on overall Disaster Medicine.

7. Miscellaneous.- The Spanish Society of Disaster Medicine proposed to organize an International Conference on Disaster Medicine in the Autumn of 1987 in Sevilla and called upon the ISDM to grant its sponsorship and collaboration so that the Conference would be a truly world event. The Spanish Society was invited to submit its official application until the end of 1985 with information on discussion topics and other organizational questions to the ISDM Secretariat in Geneva. The co-operation of the ISDM in the Congress of Rio in 1987 was raised by the President of the ISDM, but as the choice of a general theme was not yet known, the Assembly decided to postpone any decision on this matter pending more information and within the time-limit assigned to the Spanish application.

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