# Disaster Medicine: A New Discipline or a New Approach?

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It is only within the last decade that an awareness of Disaster Medicine, as an autonomous body of notions, has appeared. And, in this context, we cannot but recall the figure of the anesthetist, Professor Rudolf Frey. With an enlightened vision, he established the need to study the roles of Medicine when faced with those particular phenomena caused by natural or man made disasters. This need was considered by a group of physicians from various European countries and from America and it led to the foundation of the Club of Mainz on 2 October 1976. The rapid development of the Club subsequently led to its transformation into the World Association for Emergency and Disaster Medicine(WAEDM) which has organized the present Congress(5th).

The world-wide mounting interest in this new sector of medical activity is a sign that we have an undoubtedly vital phenomenon. When we analyze the "Disaster Medicine" structure, the most characteristic aspect is its composite nature in so far as it groups elements of numerous disciplines of medical origin which are structured and codified in different ways: Traumatology; Resuscitation; Intensive Care; Epidemiology; Infectious Diseases; etc. and it includes non-medical disciplines as well: Communications; Transport; Logistics; etc.

To bring together so many different and non-homogeneous competencies into one body of unified notions is impossible and can be described by the metaphor of an ant nest. There, different forces carry out their functions in an organic manner with a purpose which transcends the individual ant, namely, the survival of the biological super-unit, the ant nest, at the lowest overall cost.

If we wish to consider disaster medicine as a discipline, we must prescind from the number of various functions and consider instead, the connective tissue which unites the whole and makes possible the fulfillment of its various activities with the minimum waste of energy and the maximum compatibility. It is legitimate, in this case, to speak of a new discipline or going beyond the boundaries of the accepted meaning of this term; of a new approach to the problem of medical assistance in case of disaster represented by analysis, experimentation, and the eventual codification of the infrastructures which will enable us to coordinate the different notions and operational bodies.

Disasters or catastrophes or whatever are not new in the history of mankind. And, if we embark on a short historical excursus, we can see how the organization which fitted the time, the socioeconomic conditions, the philosophy, and the actual knowledge always has tried to provide answers which were both assistential and preventive.

For example, during the earthquake in Pompei in the nineteenth century A.C., the first techniques of mass-evacuation of the population were tried. During the plague which consumed Europe in the Seventeenth Century, systems of isolation were adopted. Besides the alleviation of the symptoms, the fundamental role of adopting certain hygienic and preventive measures was understood: burial of the dead; control

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**Presented at the Fifth World Congress on Emergency and Disaster Medicine, Rio de Janiero, Brazil, 1987.*



https://doi.org/10.1017/S1049023X00029976 Published online by Cambridge University Press

of water and food; and disinfection of dwellings. But, it was only within the last century that physicians were able, through international medical cooperation, to limit the spread of epidemic-type infectious diseases. This envisaged a wide-ranging exchange of information, the importance of identifying the sources, and the ways of the spread of disease, and the systemic adoption of vaccination. Thus, this beginning of cooperation and coordination of the various preventive and curative activities represents, in embryo, the origin of modern Disaster Medicine.

Modern technological development and increased scientific knowledge have put at our disposal a number of means which may be much more efficacious. But, precisely because they are more complex to manage, and demand specific knowledge and skills, their coordinated application is more difficult. To this must be added the new concept of the value of a life, different from that of the past, insofar as it is now being separated from notions of race, ethnic group, religion, and politics. This imposes on mankind and, in particular, on the physician, an extended duty; and in case of a disaster, wherever it happens, whoever is involved, the physician's involvement has become mandatory.

This concept of the "value of life," we must unfortunately note, is not yet sufficiently widespread. Many present day manifestations like terrorism and rekindled religious and political sectarianism deny it completely. These manifestations not only impede its full application, but often are themselves the cause of disaster. It is well to stress that the progress of Disaster Medicine will be connected closely with society's capacity to face, in an effective way, possible future catastrophes linked to the uncontrolled development of our technological civilization.

Unfortunately, a parallel negative evolution of the types of disaster corresponds to the positive evolution of Emergency Medical Services(EMS). Until now, natural disasters (earthquakes, volcanic eruptions, floods) or man made ones (technologic accidents) have affected more or less limited areas involving regions or nations. The presupposition exists to assume that in the near future, certain disasters (nuclear, industrial, etc.) could affect entire continents to the point that the term "planetary disaster" could be justified. The possible effects of this type of catastrophe, the organization of aid, and the planning of interventions were analyzed in detail during the Third World Congress of Emergency and Disaster Medicine held in Rome in May of 1983. During that Congress, the worrisome increase of risk factors relative to major technological disasters (chemical, bacteriological, nuclear) was stressed. Unfortunately, events confirmed some of the preoccupations expressed then. The Chernobyl accident and others have demonstrated how the work of man is able to create risk situations which are beyond his ability to control.

Fortunately, the immediate consequences were not as imminently dramatic as could have been expected. But the accidents represent an experimental model of a type of disaster which could involve future generations in which man is not able to intervene to contain either the immediate or secondary effects.

We have seen, then, how Disaster Medicine has, only recently, found its definition and limited its operative tasks. This new scientific discipline has contributed, firstly, to stressing the fundamental importance, or rather the indispensability, of the cooperation of different forces in the national and international field; and it has confirmed its unfortunately still limited resources to face these types of events when they reach the extreme degree. But, Disaster Medicine, precisely because of its character as a new discipline, continually seeks to go beyond the confines of its own field of action; already we can identify what its future developments can be: transfer the progress made by biomedical technology from the emergency and mini-emergency situations to the macro and maxi-emergency; favor the realization of highly specialized hospital centers (Trauma, Neurotraumatology, Burn, Poison, etc.). These centers could be entrusted with the task of research with the aim of prevention of the effects of the disaster and the choice of the most opportune means and techniques

by which to face them; propose programs for the expansion of the present National Emergency Medical Services in order to reduce the time of intervention and improve the quality of the services both within the hospital structure and in the place of the disaster; identify the sectors of intervention in which a greater collaboration between civil and military medicine is both possible and desirable. This collaboration also should cross national boundaries. The convergence of several qualified interventions can only improve the quality of the aid and increase the store of information which is necessary for the more incisive work of prevention; finally, promote educational programs directed not only towards physicians and other experts in the area, but also towards the whole civil population. This last point represents exactly the task which confronts Disaster Medicine now. If specialized personnel acquire an ever higher degree of professionalism, the population which now must face a medical emergency are in the immediate condition of the "passive object" of aid and not, as would be desirable, the "active and collaborating subject." The result of this is that a lack of coordination exists between the institutions whose responsibility it is to organize aid and the mass of individuals involved in the disaster. The risks which can derive from these situations are enormous and it is our duty to make every possible effort to enable a greater number of people to take an active and efficient part in the aid intervention. For this precise reason, it is absolutely necessary to plan particular programs of health education directed towards the whole population.

Today, we have the technical means which permit a clear and rapid distribution of information; that the simple and elementary measures which concern the health of all are not adequately popularized, cannot be justified. Those who have been able to assist at a natural calamity are well aware that the dramatic force of the event is magnified by the impossibility of giving immediate, valid aid. In the majority of cases, the unfortunate spectators do not know what to do and they wait, impotently, for the arrival of specialized first-aid teams. If these spectators knew some simple, operative schemes, they would be able to identify and tampon an external hemorrhage, put the injured victim in a correct position, and remove any obstruction from the upper airway. Only the capacity of the people involved to cooperate can reduce the immediate damage and prevent the complications which inevitably follow delayed assistance. We have said this on many occasions before and will not tire of repeating it:

> "The degree and quality of this cooperation will be directly proportionate to the cultural heritage of the citizens. Any project, whose aim is Civil Defense, which does not contemplate a plan for cultural development of the population, is destined to certain failure."

It is a duty of everyone to know these simple therapeutic techniques; to delay their execution means the outcome of the event may be modified completely and future, often belated, aid useless. And for this reason, it is necessary to put into practice, widespread programs to teach the fundamental operations of first aid. Naturally, even greater attention must be devoted to the preparation of physicians. The future of the physician called to operate in emergency circumstances must be characterized by three qualifying characteristics:

1) wide-ranging, basic and theoretical specialist preparation;
2) practical experience in facing all the clinical problems involved in an emergency; and
3) continued up dating through theoretical-practical courses which are programmed for this purpose.

Only this type of "expert" will be in a position to evaluate the dimensions and the qualitative and quantitative aspects of a catastrophe. Only he/she will be able to assume responsibility and be able to make, in agreement with the technico-political

authorities, decisions and operative choices in the eventuality of a natural or any other type of calamity.

Therefore, we believe that the teaching of Disaster Medicine should be obligatory in a degree course in Medicine and Surgery and not left to the goodwill of the student. These obligatory courses would guarantee not only the formation of the cultural store of young physicians but also the acquisition of a mentality which cannot be formed except by living the emergency day-by-day.

In conclusion, we would like to make a few brief and final considerations. The technological development of our time carries within itself two contradictory aspects which are, at the same time, decisive for the organic and coordinated development of Disaster Medicine. In the first place, the speed of communications makes timely and massive intervention possible if it has been programmed previously. At the same time, however, we are not infrequently witnesses and victims of catastrophes caused or aggravated by the very intervention of man, who today possesses means of unprecedented destructive potential.

Even in today's international society, which one could describe as one of mass participation, catastrophes always happen without warning so that they usually find the very organizations set up to deal with them unprepared. The most recent natural catastrophes have highlighted the urgency of a territorial policy. Disaster Medicine must promote this because such a policy falls within the ambit of prevention which is one of Disaster Medicine's tasks. Prevention, in fact, makes greater participation in this field possible and, at the same time, works towards a generalized sensitivity which is the necessary premise for the defense of the individual and of the multitudes.

There is, however, another aspect for which Disaster Medicine must be responsible. As distinct from normal conditions, a catastrophe often causes an effective contradiction between generosity of the intervention and its rational application. Even though both are necessary, they can hinder one another because of the anxiety the catastrophe introduces. This is why Disaster Medicine demands a vigilant coordination of forces, pragmatic intelligence in the utilization of resources, and a lucid vision of priorities. When there is a lack of proportion between the number to treat and the means available to do so, there always must be a clear awareness of what has priority and what can be done without.

Thus, the development of Disaster Medicine must find expression not only at the level of intervention when the catastrophe already has taken place, but above all, at the level of prevention. This is all the more true since there are cyclic catastrophes which seem to strike certain geographical areas of the earth with punctual and dramatic regularity. And unfortunately it has been demonstrated, both historically and daily, that the weakest populations are the most exposed so that their requests for aid are a constant fact which cannot be ignored without incurring blame.

The task of Disaster Medicine to respond to human need always has been felt. The progress of our times enables us to respond to this need in terms of authentic progress if they ignore the means of defending themselves against a calamity which inevitably or through their own fault strikes them.

Disaster Medicine is a real step forward for medicine. If this intervention, insofar as it takes place on larger numbers of injured people, can turn out to be modest, its efficacy can be decisive. Science and conscience, natural means and the resources of the spirit are the necessary presuppositions for effective Disaster Medicine, since it cannot prescind from an ethical vision of reality or of its own mission. Our hope, then, is not only for an increasing and progressive organization of the interventions of Disaster Medicine, but also of its collocation among the clearest and most noble expressions of human and civil progress.


https://doi.org/10.1017/S1049023X00029976 Published online by Cambridge University Press