

# Principles Of Hospital Disaster Planning

B Hersche, O Wenker

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## Abstract

### 1. INTRODUCTION

Chaos cannot be prevented during the first minutes of a major accident or disaster. But it has to be the aim of every disaster operation plan to keep this time as short as possible.

However, due to a great number of patients there may be pressure to practice disaster medicine and thereby to reduce the quality of medical treatment in the interest of a greater number of surviving people. But under all circumstances - also in the case of disaster - individual medicine in the hospital should be maintained.

**Figure 1**



An appropriate and effective organization in the disaster area should result in

Unfortunately, most hospitals overestimate their treatment capacities for seriously injured persons.

However, overcharging of hospitals and the resulting reduction of the quality of treatment has to be avoided. Particularly during the first phase of a disaster more

admission and treatment capacities are required in the hospital. Special preparedness planning has to be in effect not only at the disaster area but also at the hospitalization area.

In many hospitals only a simple alarm plan is used as disaster plan. This consequently leads to a false assessment of requirements.

The use of a more appropriate term like Organization for a Mass admission of Patients (OMP) would greatly improve the chance to prevent false association.

There is also the possibility that a hospital itself could be afflicted by a major accident, making a special and well-working disaster plan imperative.

### 2. GOALS OF THE ORGANIZATION FOR MASS ADMISSION OF PATIENTS IN THE HOSPITAL (OMP)

Every project has first to clarify its goals. Any plan concerning the organization for a mass admission of patients in the hospital (OMP) - mostly known simply as disaster plan - is a pretentious project. The time invested for a definition of the goals will always be well spent.

In case of external mass accidents further goals are:

In case of an internal major accident (i.e., fire, explosion) the goals of appropriate, prepared measures are

In addition, a concept for internal as well as for external events has to be prepared

Moreover in the course of the project all people involved should become aware of the problematic nature of the operation and do their best to keep it up to date.

### 3. THE DISASTER PLAN OF A HOSPITAL

#### 3.1 BASIC REQUIREMENTS

The hospitals need special planning for both, mass accident as well as damage area management. This means that every hospital, regardless of its size, requires a practicable and well trained plan for such cases. This does not only include the enhancement and coordination of the medical performance, but also important additional tasks which have to be added to the daily practice. That's why a plan for the organization at a major accident exceeds the simple task of only alarming additional forces.

Basic requirements are as follows:

#### 3.2 ORGANIZATION AND STRUCTURE OF MANAGEMENT IN THE HOSPITAL

Every management requires organization and leadership. Especially in times of a crisis an additional need of immediate action arises and decisions have to be taken in a straight forward way.

Therefore, the following principles and requirements apply:

#### 3.3 ALARM AND MOBILIZATION

In case of emergency the alarm has to be quick and reliable. The competence to set the alarm in motion has to be settled as low as possible in the hierarchy. Otherwise time is lost during early phases of the plan. This time is decisive and will not be compensated anymore. In conclusion, alarm has to be given early and generously even upon mere suspicion of a major accident. Delayed mobilization is irreparable. A surplus of personnel can always be dismissed later at any time. Alerting must never be a privilege of the director of administration or to the head of the physicians.

Mobilized people will have to know where to go (defined meeting point) and what to do. The communication network which will most likely be overcharged in such situations and must not be additionally strained. Checklists will be once more the only successful formula.

#### 3.4 COMPETENCIES AND EMERGENCY RIGHTS

Competencies will influence to a great extent the ability to act in a timely fashion. The declaration of an emergency state in case of a major accident will be indispensable.

It may contain among others:

#### 3.5 ADMISSION AND TREATMENT CAPACITIES

There are two common errors which may mislead the

number of patients who are to be admitted in case of major accidents.

It is the treatment capacity which is of importance. This capacity can be defined by available operating rooms and surgical teams as well as available intensive-care-unit places. This number can be increased by cancellation of operations, calling additional surgical teams and premature transfer of patients from the intensive-care units to the normal ward.

#### 3.6 ADMISSION AND REGISTRATION OF PATIENTS

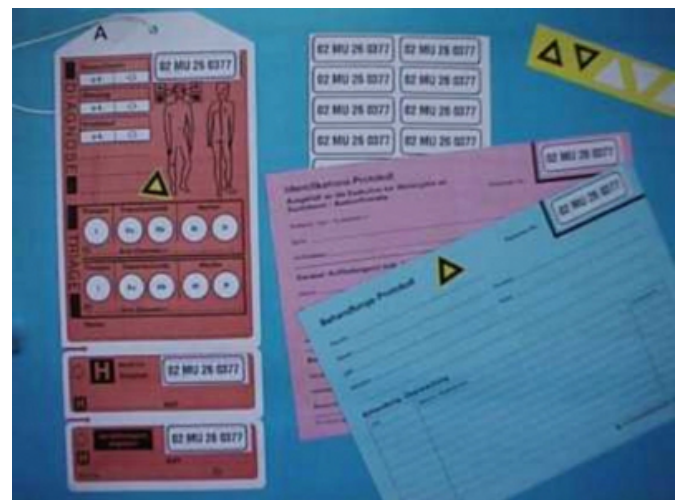
Admission and registration of patients as it is performed during daily routine will not be possible because of lack of time.

Therefore, the following is needed:

We highly suggest the use of the Casualty-Handling-System (CHS), a system developed in Europe. Please click here to get more information on the Casualty-Handling-System (CHS).

The CHS-pouch

**Figure 2**



We recommend to stock CHS-pouches at the entrance of the emergency room to mark arriving patient without pouches. At the University Hospital of Zurich this kind of identification has proved to be a good tool in handling unknown patients.

#### 3.7 PREDEFINED PATIENT TRANSPORTATION ROUTES

A colored guiding system with respective floor marking can be useful and help to avoid chaos.

### 3.8 MEDICAL MEASURES INCLUDING SORTING

All medical measures have to start at the emergency entrance. Sorting has priority in order to ensure decisive instructions. Physicians at the entrance play a key-role and have to be highly trained.

### 3.9 AREAS

Enhanced admission of patients require an enlargement of suitable spots, if necessary even by changing their function. In addition, the careful marking of additional areas (e.g. room for slightly injured persons, for the headquarters, for the catering and care of relatives, for the admission of media people including their identification) has to be prepared. All needs have to be exactly determined and realized on a basis of the existing possibilities.

### 3.10 COMMUNICATION

Communication is one of the main problems in case of major accidents and disasters. Information has to be reduced to the most important facts. Wire and radio contacts as well as messengers have to be integrated into the communication concept. It also has to be taken into account that any systems may fail. Cellular phones often fail in such situations due to overcharge. Appropriate marking of the staff in charge is also an important part of communication.

### 3.11 PROTECTIVE MEASURES

Security services have to be operational at very early stages. Some of their duties are:

### 3.12 MEDICAL, OPERATIONAL AND GENERAL RESOURCES

Not only the treatment areas but also departments such as radiology, blood bank, laboratory, and pharmacies have to prepare for more extensive performances.

### 3.13 INTERNAL AND EXTERNAL INFORMATION

Information does not only include the contact between rescue staff and media at the damage area. Information flow is also important within the hospital. Information chaos with subsequent criticism can only be prevented by a clear information concept. This concept consists of:

### 3.14 CARE

Social care of relatives or personnel should not be neglected. Appropriate and available personnel, psychiatrists and pastors are compulsory elements of such a concept.

### 3.15 TRAFFIC CONTROL AND CORDONING OFF

Traffic control and blocking access to certain areas help to avoid chaos in the case of a mass accident. Cooperation with police forces will be necessary.

### 3.16 SUBSTITUTE MEASURES AND REDUNDANCIES

Technical systems such as communication systems, powerplant, and medical gas supply may fail, due to overcharge or other reasons. At this stage of planning such possibilities have to be evaluated and expected. Counter-measures have to be prepared.

### 3.17 TASK-BOOKS AND CHECKLISTS

Planning documents are indispensable for training purposes but useless during disaster relief due to their large volume. Files are for the office! During disaster relief checklists are needed! Simple and easy-to-use checklists have to be created. They have to be readily available.

Figure 3

Notarzt am Einsatzort		CHECKLISTE
Erste Massnahmen		
Alarmzeit:	Gefahren:	
Einsatzort:		
Ereignis:		
<input type="checkbox"/>	Warnkleidung anziehen	Zeit:
<input type="checkbox"/>	<b>Auf Distanz anhalten - Gefahren?</b>	
<input type="checkbox"/>	Beim (momentanen) Einsatzleiter melden und sich informieren lassen	
<input type="checkbox"/>	Treffpunkt markieren (falls noch nicht vorhanden)	
<input type="checkbox"/>	Überblick verschaffen	
<input type="checkbox"/>	Triagestelle bezeichnen (Person für Ordnung einsetzen)	
<input type="checkbox"/>	Lagemeldung: <b>siehe Rückseite</b>	
<input type="checkbox"/>	Verbindung zur Leitstelle halten	
<input type="checkbox"/>	Nachfolgende Rttg Fz einweisen lassen	
<input type="checkbox"/>	Übrige Elemente SanHiSt/Verbandpl festlegen (mit Leiter SanHiSt/OrgL, falls anwesend)	
<input type="checkbox"/>	Abschnitte bilden - Aufgaben verteilen	
<input type="checkbox"/>	Patienten retten lassen	
<input type="checkbox"/>	weiteren Ärzten Aufgaben zuteilen	
<input type="checkbox"/>	<b>Medizin:</b>	
	1 Triage	
	2 mob Az Equipe / Berge-/Rettungstriage	
	3 Behandlung	

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Figure 4

Rtt g Äss/-San am Einsatzort CHECKLISTE	
Erste Massnahmen	
Alarmzeit:	Gefahren:
Einsatzort:	
Ereignis:	
<input type="checkbox"/> Warnkleidung anziehen	Zeit:
<input type="checkbox"/> <b>Auf Distanz anhalten - Gefahren ?</b>	
<input type="checkbox"/> Beim (momentanen) Einsatzleiter melden und sich informieren lassen	
<input type="checkbox"/> Treffpunkt markieren (falls noch nicht vorhanden)	
<input type="checkbox"/> Überblick verschaffen	
<input type="checkbox"/> Triagestelle bezeichnen (Person für Ordnung einsetzen)	
<input type="checkbox"/> Lagemeldung: <b>siehe Rückseite !</b>	
<input type="checkbox"/> Verbindung zur Leitstelle halten	
<input type="checkbox"/> Nachfolgende Rettungsfahrzeuge einweisen	
<input type="checkbox"/> übrige Elemente SanHiS/Verbandpl festlegen	
<input type="checkbox"/> Abschnitte bilden - Aufgaben verteilen	
<input type="checkbox"/> Patienten retten lassen	
<input type="checkbox"/> mit ersteintreffendem Arzt weiteres Vorgehen absprechen	
<input type="checkbox"/> 1. med. Aufgabe: <b>Triage !</b>	

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Checklist examples for emergency physicians and paramedics working at the site of disaster (in German)

### 3.18 TRAINING CONCEPT

The organization for a mass admission of patients (OMP) is a special concept although it is based upon the daily structures. A carefully directed training is mandatory. Theoretical education has to be followed by periodical exercises. Mock disasters have to be well prepared and executed without announcement. Not to long ago, 25 severely and 25 slightly injured patients, a number of anxious relatives und pushing journalists were channeled into the daily routine of the University Hospital of Zuerich-Switzerland as a surprise. Analysis of this event led to improvements in the Hospital Disaster Plan.

### 3.19 PARTICULARITIES OF INTERNAL DISASTERS

Measures taken for the EXTERNAL OMP-plan also apply to the case of an INTERNAL emergency case in the hospital. The INTERNAL plan is based on the same concept but

includes some modifications and additional measures. Again, hold on to the principle Change as little as possible of an existing and good management.

Additional or special measures are:

### 3.20 EVACUATION IN THE HOSPITAL

Evacuation in hospitals is a very demanding task. It will have to be differentiated between a total or a partial evacuation. Evacuations require serious planning and a good concept. Without adequate planning they will most likely fail.

### 4. TIME OF PLANNING

Every hospital without such a plan has to create one immediately. An OMP-plan and security concept should be included in the planning of any new hospital building. A lot of money can be saved by timely preparations. Numerous inexpensive measures which can later only be realized at additional high costs need to be integrated early on in the planning of a renovation/expansion of the hospital.

### 5. CONCLUSIONS

The key for any successful mastering of a crisis is to be well prepared. All potential problems have to be carefully analyzed and respective precautions have to be taken. Some investments may be expensive but are most likely well worth it.

Emotional denial of mass accidents and disasters results in an act of negligence. Only an illusionist beliefs that he will be able to manage major accidents and disasters without systematic planning by simply concentrating on existing resources. No one should rely too much or exclusively on high-tech facilities in extraordinary situations. Major accidents and disasters can only be mastered and controlled by intelligent planning.

### FOR FURTHER INFORMATION

Bruno Hersche, Civ. Eng. ETH/SIA  
Riskmanagement Consulting  
Austria - 3332 Sonntagberg 18  
Phone +43 7448 4126  
Fax Phone +43 7448 4126 6  
Or  
Switzerland -Freiestrasse 43, CH - 8032 Zürich  
Fax Phone +41 1 262 62 32

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**References**

**Author Information**

**B. Hersche**

Civil Engineer ETH/SIA, Risk Management Consulting

**O. C. Wenker, M.D., DEAA**