

Protocol for Reports from Major Accidents and Disasters in the International Journal of Disaster Medicine*

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Abstract

The aim of this protocol is to achieve a prospective, standardized methodology for reporting results and experiences from major accidents and disasters so that the data can be used for analysis, to compare results, to exchange experiences and for international collaboration in methodological development. Using this form, the authors of the reports retain full credit for the data and the publication of them. At the same time, the data will be available in the journal and on the Internet (www.europeantrauma.net), thus providing the abovementioned possibilities for scientific analysis and development.

Key Words

Major incidents · Mass-casualty incidents · Disaster protocol · Quality assurance

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Use of the Protocol

The protocol will be permanently available on the journal website (www.europeantrauma.net) and can also be requested at any time by e-mail, fax or regular mail from the editorial office (ejt@trauma.uni-frankfurt.de). It will be distributed to international and national societies and disaster medicine organizations, national and international centers, and persons known to have key positions in education about and the development of disaster medicine. We call for national representatives who are willing to take on the distribution of the protocol within their countries, and it is our hope that (over time) it will become available to the extent that it can conse-

quently be used prospectively. However, at least in the beginning, we also want to leave the door open for retrospective use of the protocol, and it is our aim to send it to disaster sites in an attempt to obtain a report produced according to the protocol for publication. Readers will be informed whether the protocol has been used prospectively or retrospectively. The protocol can be used either by staff from the locally involved organizations or by external observers, but then it has to be in agreement and/or in collaboration with the local organizations, which should be clearly confirmed in cases where an external observer submits a report.

Guidelines for the User

The report should be written with the headings below, using the relevant boxes. Commentaries for each box are optional and should be a maximum of five lines of manuscript for each commentary.

Short Summary of the Scenario

Location, time, what happened, type and number of injuries (maximum of ten lines).

Description of Hazard(s) Causing the Accident

Short description of the hazard(s) resulting in the accident, for example (maximum of ten lines):

- Airport, railway, ship – type and intensity of traffic
- Mass gatherings – type of activity and volume
- Hazardous material – type(s) of agents in production/transport
- Nuclear plant – type, surroundings, population
- Terrorist activity – anticipated scenarios
- Natural disasters – type, incidents and calculated risk, size and density of population

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Description of the Accident (Maximum of Ten Lines)

- Time: day, hour, office or nonoffice hours (weekend, holiday)
- Location: if possible indicate on a schematic map with given distances to available resources (see Table 4)
- Climate: temperature, wind, rain/snow, daylight
- Short description of the accident and its immediate effects: extent of material destruction
- The time when the first alarm reached the alarm center (or other unit, if first alerted)

Prehospital Resources Available and Alerted

Use Table 1 accompanied by a (schematic and simple) map of the area that indicates distances from the scene.

Comment briefly on the planned organization for the command of and coordination between different units.

Hospital Resources Available and Alerted

Use Table 2.

Comment briefly on the character of each hospital, and whether it was included in the disaster preparedness and planning process at the time of the accident.

Table 1. Prehospital resources available/alerted.

Unit	Size/type ^c	Distance (km) from the scene ^d	Alerted (yes/no)	Alerted (time)	First unit on scene (time)
Ambulance ^a					
-					
Helicopter ^a					
-					
Prehospital medical team ^a					
-					
Decontamination unit ^b					
-					
Rescue/civil protection ^b					
-					
Police ^a					
-					
Military ^a					
-					
Other (specify) ^a					

^aAlso indicate command and coordinator center, if available

^bIf relevant for this scenario

^cFor ambulances, helicopters and prehospital teams: number and capacity of unit, level of staff (doctor/nurse/paramedic). For rescue/civil protection: voluntary/permanent, number of available staff, special resources (tents, bandwagons). For police and military: number of available staff, special resources. (Available staff = staff usually available at the time when the accident occurred.)

^dIf possible, include a figure with a schematic map

Table 2. Hospital resources available/alerted (include all involved hospitals in the same table).

Name of hospital	Distance from the scene	Total beds	ICU beds	Ventilators	Operating theaters	Trauma unit (yes/no)	Burn unit (yes/no)	Decontamination (yes/no)
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Table 5. Coordination and command.

Unit	Organization for coordination and command	
	Was prepared (yes/no)	Function (score 1-5) ^a
Ambulance		
Helicopters		
Prehospital medical teams		
Hospitals		
Rescue/civil protection		
Police		
Military		

^aScoring:

- 1 = Never alerted or staffed
- 2 = Alerted but did not function
- 3 = Did function, but needs major improvement
- 4 = Did function, needs minor improvement
- 5 = Did function well

Table 6. Hospital damage (communication see Table 7, computer technology see Table 8) (include all hospitals involved in the same table).

Name of hospital	Material damage causing dysfunction (0-100%)					
	Emergency department	Surgery	Intensive care	Wards	Dysfunction of electrical supply (0-100%)	Dysfunction of water supply (0-100%)

Table 7. Communication systems.

Unit	System and function (score 0-3) ^a	
	External telephone net	Internal telephone net
Ambulance		
Helicopter		
Prehospital teams		
Hospitals		
Rescue/civil protection		
Police		
Military		

^aScoring:

- 0 = Was not used
- 1 = Did not function
- 2 = Did function up to a point (unreliable)
- 3 = Did function well

Table 8. Computer technology and back-up systems.

Unit	Computer system Used (yes/no); function (score 1–3) ^a	Computer back-up system Used (yes/no); function (score 1–3) ^a	“Manual” back-up system Used (yes/no); function (score 1–3) ^a
Ambulance			
–			
–			
Hospital			
–			
–			
Rescue/civil protection			
Police			
Military			

^aScoring:

1 = Did not work

2 = Worked up to a point (unreliable)

3 = Worked well

Table 9. Total number and type of injuries.

Type	Number of injured
Mechanical violence	
Fire	
Inhalation	
Corrosive agents	
Irradiation	
Cold	
Drowning	
Biological contamination (specify)	
Other (specify)	
Total	

Comment briefly on which figures are exact and which are estimated.

Why ISS?

There are probably as many opinions on which scoring system should be used in these situations as there are people working in disaster medicine, and most of these opinions are probably justified from some points of view. The reasons for suggesting ISS in this protocol are that:

- It is based on data that can and should be collected after the initial phase of the accident. Realistically, the middle of a major accident/disaster, with its highly pressed atmosphere, is not the best place to collect data like these, even though it would theoretically provide a useful aid for triage and reporting. In addition, complete data are not available until after the final diagnosis.

Table 10. Severity of injuries according to treatment.

Type	Number
Less severe injuries not examined or treated by medical professionals ^{a, b}	
Less to moderately severe injuries examined and/or treated by medical professionals	
Outside hospital ^b	
In hospital ^a	
Injuries requiring in-hospital care/observation	
In a regular ward	
In intensive care	
Requiring a ventilator	
Injuries requiring surgery	
Immediately	
Within 6 h	
Delayed	

^aMedical professionals defined as ambulance staff, paramedics, nurses and doctors

^bIn extensive scenarios, it may be necessary to estimate the figures

- It should be possible to obtain the data required for the ISS in any organization or hospital, at least for severely injured patients.
- There is extensive experience of the use of the ISS system for comparing outcome with score (assuming that the age of the patient is factored in), and there are data that indicate what the anticipated outcome should be for different scores and age levels. These data are from “normal” trauma care, and the same results cannot be expected in major accidents and disasters, but collecting them in such situations instead of starting new scoring systems that are

Table 11. Severity of injuries according to injury severity score (ISS).

ISS range	Number of patients
1–15	
16–20	
21–30	
31–40	
41–50	
51–60	
61–75	

Used only for injuries caused by mechanical violence and when data from the final diagnosis are available

especially for disasters can provide the basis for comparing results related to the severity of the scenario. Hopefully, in the future there will be a similar basis for scoring injuries caused by NBC (nuclear/biological/chemical) agents, but until then

we will have to use a simpler scoring system in those situations (Table 8).

Hospital Load

Use Table 12.

Comment briefly on whether any hospital was “overloaded,” i.e., patients could not be optimally treated because of congestion and/or a lack of personnel and material resources.

Psychological Reactions

Use Table 13.

Comment briefly on the strategy and plan for dealing with psychological reactions in the area.

Outcome

Use Table 14.

For trauma patients, the ISS should (if possible) always be used for dead and disabled individuals.

Table 12. Hospital load (include all hospitals involved in the same table).

Name of hospital	Number of hospitalized patients			Surgery		
	Number of patients in ambulatory care (outpatients)	In regular ward	In ICU	Requiring ventilator	Number of operations under general anesthesia	Number of operations under local anesthesia

Table 13. Psychological reactions and management.

Treatment	Number of			
	Injured	Noninjured	Relatives	Staff
Taken care of by voluntary teams ^a				
Treated by psychological teams outside hospitals				
Treated by psychological teams in hospitals				
Taken care of by other professionals working within medical care, the rescue services, civil protection, police, military				
Needing psychological care but not taken care of ^a				
Total number				

^aIn extensive scenarios, it may be necessary to estimate these figures

Table 14. Outcome with regard to mortality and persistent disability.

Patient no.	ISS (or short description) ^a	Age	Dead on scene	Dead during transport	Dead in hospital	Surviving but permanently disabled ^b

^aIf access to data makes it possible, use ISS. If not, use a short description of the injury; for multiple injuries (which are the most common in these situations, based on experience), underline the most severe. For limited numbers of patients, both can be used

^bSignificant disability as evaluated at the time of the report (loss of limb or part of it, neurological dysfunction, severe respiratory or gastrointestinal dysfunction)

Table 15. Estimated number of people affected but not injured.

Type of effect	Total number	Taken care of by relief organizations (%)			
		Not at all	In part	Satisfactory	Well
Loss of home					
Lack of food					
Lack of water					
Lack of heating					
Lack of electricity					
Secondary infections					
Refugees					
Prisoners (armed conflict, terror)					

Table 16. Post-accident evaluation of the quality of preparedness.

Unit/organization	Accuracy of disaster plan						
	Disaster plan existed (yes/no)	Plan activated (yes/no)	Did not exist, or did not function at all	Did function in limited parts	Did function in most parts, but needs minimal revision	Did function, requires major revision	Functioned fully and accurately

Table 17. Post-accident evaluation of training.

Unit/organization	Had any training or exercise been done?	Extent and accuracy of training				
		Useless	Highly insufficient	Partly insufficient, additional training needed	Extent of training sufficient, but not accurate for the purpose required	Extent of training was sufficient and methodology was accurate

Estimated Number of People Affected but not Injured

Use Table 15.

Comment briefly on which relief organizations or others were involved in the support of affected groups of people (for psychological reactions and their management see Table 13).

Post-Accident Evaluation

Use Tables 16 and 17. Add a conclusion, with a point-by-point list of both the positive and the negative experiences (half to a full page of manuscript).

Submit your report as soon as possible after the accident. It will be published with high priority either in the journal or on the website, referred to and

promptly commented upon in the journal. Consider that every report increases the chances of improving preparedness and saving life and health, and we trust that you regard that worth the effort.

We welcome your reports to the *European Journal of Trauma and Emergency Surgery* (manuscript submission at <http://mc.manuscriptcentral.com/ejt>)

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