Disaster Medicine
Lessons Learned

EU-Workshop
Stockholm 2003

REPORT
EU workshop
Disaster Medicine - Lessons learned

Stockholm, Sweden
September 18 – 21, 2003

Objective

The objective of the "Disaster Medicine – lessons learned" workshop was to develop a methodology for Member States to perform "lessons learned" activities in order to identify common practices aimed at structured knowledge transfer between Member States in the field of disaster medicine. This should lead to a "constant learning" organization/system.

The workshop focused on analyses of present activities and experiences and discussions on methodologies, which could be used for all types of disasters, including the NBC (nuclear, biological and chemical) field. These activities were done in connection with presentation and discussion of activities within the EU and other organizations such as NEDIES (Natural and Environmental Disaster Information Exchange System) and WADEM (World Association of Disaster and Emergency Medicine).

Method

The Swedish National Board of Health and Welfare organized the workshop with grants from the EU. All member and candidate states, as well as a selected number of experts, were invited to the workshop. In an introductory session presentations of experience in disaster medicine studies were presented. Thereafter two working group sessions were organized on (i) Questions to Ask and (ii) Methods and Planning, Data Collection and Processing, and Conclusions. Each working group session was followed by a plenary discussion. At the end of the workshop a plenary session identified a summary, conclusions and recommendations.

Thirty-eight delegates and experts from fifteen countries participated in the workshop (Annex 2 and Annex 3). The program is presented in Annex 1, reports from working group session 1 in Annex 4 and reports from working group session 2 in Annex 5.

Introduction

KAMEDO: History, development and present concept

As early as 1963 the Defense Medical Research Advisory Committee stated that Swedish medical care was basically planned and organized for normal circumstances, but insufficiently prepared for a disaster situation. The Organizing Committee for Disaster Medicine was established (Swedish acronym: KAMEDO) the following year. KAMEDO was relocated to the Swedish Defense Research Agency in 1974 and later taken over by the Swedish National Board of Health and Welfare in 1988. At the National Board of Health and Welfare, KAMEDO became a part of the Unit for Emergency Preparedness, where it enjoys an influential position for disaster planning in Sweden. The chairman of KAMEDO is a professor of surgery at Karolinska Institutet, the two part-time scientific secretaries are medical doctors with experience in disaster management. The KAMEDO Board recruits individuals with disaster experiences, e.g. those with expertise in disaster psychiatry,
members of the Armed Forces, the Fire and Rescue Services, the Swedish Red Cross and the National Swedish Defense College (Crismart). The Swedish National Board of Health and Welfare is represented on the Board and handles the administration and publication of reports <http://www.sos.se/sose/kamedo.htm>.

During the first twenty years, a group of observers – mainly doctors with a special interest in disaster medicine – was recruited and prepared to be dispatched immediately to disaster areas to collect information. The organization has evolved and the observers are now usually one of the scientific secretaries along with one or two specialists in various medical, psychological or other fields of potential specific interest. The selection of disasters to be studied focuses on cases where experience that is valuable to Swedish disaster planning can be expected. It has often proven to be preferable to wait as long as several months after the disaster, in order to collect as much information as possible. Unofficial contacts with colleagues are generally more fruitful and give more information than official contacts through embassies or authorities.

Reports are written by the observing team and edited by one of the scientific secretaries. It usually takes about two years for a report to be published, which also enables the authors to get an adequate follow-up on the outcome of the disaster. The published KAMEDO reports usually include studies on the structure of the rescue organizations and their activities during the disaster, as well as medical, psychological and social aspects of the disaster.

KAMEDO has provided information of great importance on disasters of all types for almost forty years. About eighty reports have been published. Although all disasters have their unique characteristics, certain general problems become apparent when a comparison is made. Inventory of potential risks and planning for disasters of all kinds are areas of the greatest interest. Medical disaster plans at all levels of society need to be drafted and kept updated. The plans should follow normal procedures for day-to-day activities as far as possible, but in large-scale disaster situations deviations are necessary. Medical personnel who may be called to a disaster scene should be prepared through special education and frequent disaster training exercises.

**Utstein Template**

Disasters and events that result in multiple casualties trigger humanitarian responses to assist the affected population. Today most of these responses determine the needs of the population receiving assistance without evaluating their effectiveness in meeting the actual needs. The principal objectives of disaster evaluation and research are to minimize the probability of the occurrence of a destructive event and to reduce the likelihood of injury from future events. Therefore, it is essential that carefully conducted and reproducible evaluations of the medical response aspects of disasters be performed. The World Association of Disaster and Emergency Medicine (WADEM) initiated a large-scale project to work out guidelines and templates to be used in the investigation of health (and also non-medical) aspects associated with disasters (Sundnes KO, Birnbaum, ML: Health disaster management. Guidelines for evaluation and research in the Utstein style. Prehosp. Disast Med. 2003;17, Suppl 3).

The background was the following:
- The lack of uniformly accepted, standardized definitions regarding disasters
- The lack of a conceptual framework to provide a structure for the study of disasters
- The lack of an endorsed set of indicators for the evaluation of specific aspects of disasters

Four essential pillars that support the “Table of Research” can be identified:
1. The Conceptual Framework comprises standardized definitions and concepts necessary to minimize confusion
2. Scientific methods comprise methods validated by the social sciences and are applied to disaster research and evaluation
3. An inventory comprises a list of basic societal functions as well as the potentially appropriate indicators of change from pre-event baselines
4. A template identifies chronological phases and functions that should be incorporated into the structure of research and evaluation projects.

Uniform reporting of the findings using such models will contribute to understanding in a way that will enhance the validity of the findings. Applications of the knowledge gained by this research will be integrated into the changes needed to better cope with the hazards and events that produce disasters and will improve our ability to respond to them when they do occur.

**NEDIES**

NEDIES stands for Natural and Environmental Disaster Information Exchange System (http://nedies.jrc.it/f_home.htm). It is a European Commission project developed in the framework of the DG (Directorate General) Joint Research Centre Institutional Programme “Safety and Emergency Management for Man-Made and Natural Hazards”, and is aimed at supporting EU policies, mainly those of the Civil Protection and Environmental Emergencies Unit of DG Environment in the area of prevention, mitigation and management of natural risks and accidents. The project is being conducted at the Institute for the Protection and Security of the Citizen, Natural Risk Sector of the Joint Research Centre in Ispra, Italy.

This project was launched with a two-year pilot phase in early 1997 that focused on the design and development of the overall methodology. During this phase, only two types of disasters were examined: floods and earthquakes. The operational phase in which many other disasters are being examined began in early 1999.

Member States have expressed their willingness to benefit from the experience acquired in the context of disasters, which have occurred in the European Union due to the increase in the number of natural disasters in Europe. This inspired the Commission to strengthen Community cooperation in the area of civil protection.

The main objective of the NEDIES project is to support the Commission Services of the European Community, Member State Authorities and European Organizations and citizens in their efforts to prevent and prepare for natural and technological disasters and to manage their consequences.

In more specific terms, the NEDIES project has been launched in order to:
- Supply the EU Commission with updated information about the occurrence of disasters and accidents and their management
- Make validated information on past disasters and accidents, their main consequences, methods and techniques relevant for the prevention of disasters, preparedness and response available to the Civil Protection Services of the EU Member Countries and Candidate Countries
- Provide an interdisciplinary platform for dialogue to facilitate the exchange of information between all actors involved in the management of disasters and accidents
- Protect citizens from disasters and accidents via the dissemination of targeted information on risk perception and awareness
- Constitute a common European repository of lessons learned from disasters, with special focus on mitigation of disaster consequences
The project has been extended to Candidate Countries. A closer relationship should be established between KAMEDO and NEDIES. The KAMEDO reports (English versions) should be linked to NEDIES.
Working Group Sessions

Introduction
In the EU Disaster Medicine project (Major Project on Disaster Medicine 2000-2002 <http://europa.eu.int/comm/environment/civil/prote/cpactiv/cpmaj03-02.htm>, exploration of “lessons learned” from major accidents and disasters leads to the need of a general overview of the organizational and medical problems in these events. Such information could lead to major policy information and, within a process of “constant learning”, to a more effective and efficient use of medical means. By comparing the various reports of e.g. the Volendam fire, the disco fire in Gothenburg, Sweden, the Kaprun fire and the Switel (Belgium) fire, a general idea of the problems in the medical system could have been attained. This appeared to be an utterly impossible task; the lack of a common methodology was obvious.

Various initiatives were taken to meet the need for well-structured and exchangeable information. The variety of reasons as to why this information is so important is the nucleus of the structure of such an approach and must be clearly defined.

It is necessary to have a brief description of the medical chain and its skills as well as of the general command/control and communication structure according to the major differences between EU Member States in legislation, organization and legal capacity.

In the Member States the expression “disaster” or “accident” has its own national meaning, based on national legislation. Therefore it is advisable to be certain about the legal implications of the use of these words.

Disasters and crises can be categorized as follows:

- **Disasters concerning transport and transportation:**
  air, water, land

- **Disasters involving hazardous materials:**
  inflammable, explosive materials,
  toxic materials, nuclear accidents

- **Disasters involving public health:**
  pandemics, threat to public health

- **Disasters involving infrastructure:**
  earthquakes, tunnel accidents, fires in large buildings, collapse of buildings, failure of public utilities (electricity, gas, etc.)

- **Disasters involving the population:**
  panic in mass gatherings, large scale disturbances in public order

- **Natural disasters:**
  flooding, fires, extreme weather conditions

- **Remote disasters**

Three main processes of emergency/disaster medicine services can be distinguished: *medical care, psychosocial care (excluded here) and preventive public health care (excluded here)*
The ten sub-processes of emergency and disaster medicine medical care are:

- First Aid by bystanders and notifying command centers
- Concentration of resources at the incident scene
- Triage and assessment of the situation
- Individual First Aid
- Distribution of patients
- Intake at hospital emergency departments
- Medical treatment in the operating theatre
- Intensive care
- Nursing and discharge
- (Poly)clinical revalidation

**Working Group Session 1**

Three working groups discussed the topic “Questions to Ask”. The reports from the three groups are presented in Annex 4.

**Results from plenary meeting of working group session 1**

1. *Advantages and disadvantages of lessons learned approach.* Disasters are rare, which is why it is necessary to also learn from the experiences of others. Procedures that are agreed upon make comparisons possible. Independent investigation provides an evidence base for appropriate evaluation as well as political awareness and the possibility for funding. Learning from experiences improves our practice, minimizing avoidable deaths and disabilities. Last but not least, the result of such an investigation may be significant to making and justifying changes in medical priorities in a disaster situation.

The following applications may be identified:

- Risk assessment and needs analysis
- Disaster planning
- Practical conclusions and recommendations
- Education and training

The results may also support individual, social and political coping processes.

It is essential that certain pitfalls be avoided. If not properly performed, the results may be distorted by several factors such as:

- Bias on the part of the researcher (who may be uncritical or hypercritical)
- Bias on the part of vested interests (government, authorities, companies)
- Lack of confidentiality in relation to patients and legal procedures
- Risk that observations could result in pseudo-science if the results are not well structured or if conclusions are drawn based upon circumstances that are not comparable
- The presence of observers may disturb the rescue work – “disaster tourism”
- Legal complications: Comment on guilt or blame of those in charge should be avoided so that the observation project does not become an “exercise in blame”
2. **What information is needed? What do we need to know?** The basis should be a factual and fairly detailed description of the accident and its chronology. We need to know the real outcome of the accident and of the intervention. The most important information relates to resources: Were available resources adequate compared to estimated needs as they can be appreciated? It is evident that triage is very rarely used in practice, but it is also recognized that there is an upper limit to the capacity of a medical system, where triage may have to be adopted.

Other important information relates to disaster plans: Were they effective? Were they activated promptly and followed? What worked well? What did not work well? What were the key lessons related to equipment, skills, and declaration of emergency chain and planning? Of special interest may be the transport capacity to hospitals, and to what extent secondary transport to special clinics was necessary, all aimed at giving optimal treatment to every patient. Special emphasis should be given to the question of the extent to which on-scene examination and treatment should be provided.

**What do we not want to know?**
- Guilt and blame (see above)
- Confidential information (patients, legal aspects)

3. **What specific questions do you want to ask?** It should be possible to define a core set of questions that should be generally relevant. In addition, specific questions should be defined according to the type of disaster and the aspect to be studied (e.g. nuclear or chemical contamination). It may be an advantage to prepare a long list of questions to choose among for various types of events. A predefined process facilitates comparisons between incidents and makes it possible to create a proper scientific evaluation. One necessary difficulty may be that of managing the release of information to the public, especially the press.

**Working Group Session 2**

Three working groups discussed the following topics: (i) Methods of Planning, (ii) Data Collection and (iii) Processing and Conclusion. The reports from the three groups are presented in Annex 5.

**Results from plenary meeting of working group session 2**

*1. Methods of Planning*

The overall goal of research into Disaster Medicine/Management is: *To gain knowledge that can create scope for improvement in the future.*

The question we need to answer then is: *How can we make the best use of experience and learn the lessons?*

The specific method depends upon the specific aim.

One possibility would be to establish an International or European auditor task force to create scope for the broadest possible learning across borders. This could also facilitate better coordination and cooperation between the actors in the area and on-site mutual aid.

The approach has to be primarily qualitative, with focus on in-depth interviews. However, quantitative methods and statistics would be of great use to follow up on e.g. response times.
Quantitative, academic research should be carried out in several detailed aspects that can be used to improve equipment and medical procedures especially suited for the medical efforts in a disaster situation e.g. decontamination, protective gear etc. Such research should be performed away from the scene of a disaster.

2. Data Collection

*Uniform data vs. incident specific.* Evaluation is necessary to be able to improve our systems. This needs to be planned in advance. Both descriptive and analytical approaches are needed. At the very least, there should be a *standard method of evaluation* containing a minimal set of generic data that must be obtained in any disaster. The Utstein model may be accepted as the basis for a common format.

*Examples:* Number of victims, trauma profiles, the disaster area, description of the responding forces, ambulances, doctors’ etc. What was the intended treatment capacity? Did it match the needed capacity? A European guideline should be established.

It is also necessary to focus on more specific items, which may differ according to type of incident. The critical elements of each type of incident should be defined.

Before starting to collect the data it is important to define the purpose of the evaluation. The questions to be answered define the scope of the evaluation and the amount of work and money needed for the evaluation.

A suggested model is to set up an *international research team* after the incident. The team should be made up of different groups representing all of the relevant professions. None should have been involved in the incident. It would be preferable to have a team composed of delegates from different countries.

*Current record forms vs. research forms.* What sources of information do we need? Depending on the relevant research questions we should use existing records.

*Examples:* Command centres should be able to keep audio records, telephone logs, information on the initial call, a log of actions by the command centre, reactions from ambulance crews, written material, patient data in hospitals and possibly video records (also use of amateur records as well as media).

The gathered information has to be put in specifically defined research formats. In existing databases you can only get the information that you register. It depends on the discipline of the worker, and on the practical usability of the existing forms. Information that was recorded was often relevant in the process of treating the patient. This information has to be translated to the standard research forms.

We would prefer to follow groups of patients going through the whole process. At the level of the individual patient it is impossible to collect all the relevant data. A problem in the pre-hospital phase is that systems differ in Europe, which makes getting adequate figures more complicated.

*By caregivers vs. assigned recorders.* Caregivers are the main source. It is not advisable to send in teams of recorders to a disaster site. It is very important that the interviewer is trusted and respected by the person who is interviewed. Peer review could work. A medical doctor may want to be interviewed by another doctor. A problem will be to guarantee that the gathered information will be used only for scientific purposes.
3. **Processing and conclusion**

The main topic of a “lessons learned research” is to have a dynamic process of knowledge transfer. These studies should be national and international both with regard to input and output and include a review of relevant lessons learned in the past. The first step should be to define the focus of the study and determine which clearly defined questions should be answered by the research. This task might appropriately be performed by a steering group. The type of study depends on the specific topics and may vary from fact-descriptive to experimental studies. There is a need to develop an international research consortium in disaster medicine to keep all collected information available.

Data collection in itself is regarded as the smallest part of the exercise and should be based, as much as the focus of the study allows, on standardized definitions, data sets and methods. From a practical point of view, most data collection will be based on retrospectively analyzed data. Other sources are video, telephone recordings and reports from the media and interviews. Each of these methods has its own limitations and requirements in order to be useful. Data analysis should include input from independent experts.

The recipients of the report should be defined before it is written. Data presentation must be standardized for all incidents both with respect to descriptive and analytical aspects and open to a national and international audience. The Utstein template for disasters will very helpful towards that end. Some specific modification for some types of incidents could be added if needed. The presentation of the data should be considered as a research paper and not as an audit. The report should be written in a style accessible to various target groups in addition to medical professionals, i.e., administrative personnel, politicians and informed laymen.

Presentation of a report should take advantage of modern IT media. Reports do not always need to be printed; publication on the World Wide Web may suffice.

*Summary:*

Above all, reports must be timely, accurate and relevant. Data should be collected following standard formats. It must be easily accessible. The observers and authors must be respected professionals. The conclusions should be focused on improving care and preventing repetition of error.
Workshop summary, conclusions and recommendations

Summary and conclusions
What questions to ask?
In general, the reports only need to focus on some aspects of the disaster, such as the function of the alert systems, rescue services, deaths and injuries, medical care and psychosocial care.

Method and Planning
The following questions should be considered in relation to the type of disaster and previous experiences:
- Who should go? What skills are needed? How many people should be on the team?
  Observers should in many cases be chosen from practitioners (clinicians, etc.)
- Coordination with other relevant organizations?
- What is the situation in the country (region), e.g. geography, climate, safety, health situation, infrastructure?
- What preparations can be made? Reports in the media and/or through NGOs (Non-Governmental Organizations)?
- When is the appropriate time to go?
- What formal and informal contacts can be made before departure?

Data Collection
- Information from the media, the Internet and official statistics
- Published articles or scientific reports
- In-depth interviews with involved personnel (doctors, nurses and other professionals)
- A structured protocol for data collection
- Photos, diagrams and other illustrations. Permission should be obtained for publication

Processing
- The report should be focused on scientific analysis of the collected data with emphasis on improving care and preventing repetition of error
- It is important to identify mistakes and weaknesses in the organization, but to avoid assigning blame
- Confidential information should not be included
Presentation of a report should take advantage of modern IT media. Reports do not always need to be printed; publication on the World Wide Web may suffice.

Workshop recommendations
The inventory made during this workshop shows that at present KAMEDO is unique. It is not necessary to create additional national organizations similar to KAMEDO, but KAMEDO results should be available to all Member States. It was concluded, however, that all Member States should have national groups capable of evaluating major incidents and disasters in their own countries.

1. Disasters are rare. It is not reasonable to expect every Member State to have its own organization similar to KAMEDO. On the other hand, being able to learn from the experiences of others is an important advantage.
2. A standard format for data collection should be developed in order to improve options for comparing different disaster situations. The Utstein model may be a tool in this process.
3. It is important that information from “Lessons Learned” projects is distributed within the EU, and that standard formats are developed for data collection. Coordination of this should be the responsibility of the Commission. A coordinator function should be
introduced for the purpose that will work closely with or within the KAMEDO organization in Sweden.
### EU WORKSHOP Disaster Medicine – Lessons learned, September 18-21, 2003
Långholmen Hotel and Conference, Stockholm, Sweden

#### Program

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<td>13.00</td>
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<td><strong>Key Notes</strong></td>
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<td>• Start of Working group Session 1 (three parallel groups)</td>
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| 14.30 – 15.30      | **Presentations from Working group Session 1** |
|                    | A rapporteur in each group has to document the result (1/2-1 page in Word) and give a discette to the Editor (Karl-Axel Norberg) before 16.00 hrs, Sept. 19 |
| 15.30 – 16.00      | **Coffee**          |
| 16.00 – 18.00      | **Working group Session 2** |
|                    | Joost Bierens / Gron Roberts |
|                    | “How to process” |
|                    | • Group 1: Method – planning |
|                    | • Group 2: Data collection |
|                    | • Group 3: Processing - conclusion |

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<td>12.00 – 13.30</td>
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<td><strong>Preliminary Conclusions and Recommendations</strong></td>
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<td>Bertil Hamberger</td>
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<td>16.00</td>
<td><strong>Surprise!</strong></td>
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*Core group meeting 19 and 20 Sept. 08.00*
Annex 2

List of Delegates

**Austria**
- Andreas Ziegler
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Knut–Ole Sundnes MD
President WADEM
c/o Department of Anaesthesia
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Jean-Pierre Nordvik
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Annex 3

Delegates in Working Groups

**Group I:**
Chairman Session 1: Leo Latasch  
Chairman Session 2: Alan Baily  
Rapporteur Session 1: Alex Lechleuthner  
Rapporteur Session 2: Michel Daugbjerg  
Martins Sics  
Miguel Soares-Oliviera  
Kostas Antoniades  
Francesco Bermano  
Andreas Ziegler

**Group II:**
Chairman Session 1: Patrick Riordan  
Chairman Session 2: Georg Rosenmayr  
Rapporteur Session 1: Gert Seynaeu  
Rapporteur Session 2: Frank Klassen  
Martins Zuteris  
Jose Manuel Caldeiro  
Anton Tencer  
Federico Federighi  
Rima Sileikiene

**Group III:**
Chairman Session 1: Rainer Hoffman  
Chairman Session 2: Freddy Lippert  
Rapporteur Session 1: Karel Vandewelde  
Rapporteur Session 2: Nick Gent  
Tierry Prunet  
Guy Malgras  
Knut-Ole Sundnes  
Jean-Pierre Nordvik  
Vitautas Gailius  
Andreas Michaelides
Annex 4

Reports from Working Groups
Session I
Group 1

Topic: Lessons learned

Who prepared the report?
What does this report address?

PRO
- Sharing
- Comparison
- Critical evaluation
- Planning for the future
- Review own procedures
- Training
- Database/Sources
- Address own system (staff of accident management)
- Improvement of own system
- Efficacy, Efficiency

CON
- Resources for information
- Reliability
- Interest groups
- Bias
- Personal mistakes and their consequences
- Confidentiality
- Commercial interests, Non-comparable (resource differences)
- Interests (economic, public, both sides)
- Personal mistakes
- Unstructured reporting

Yes, I have
- Who prepared the report? (have factors influenced the report?)
- Standards for system reporting
- Resources
- Sources
- Sensitive information
- Outcome

No I have…/am ….
- Personal mistakes
- Guilt and blame
- Costs
- Private information

What information should a report deliver?
Group 2

1) What are the advantages of a “lessons learned” approach?

**PRO**
- Because MI are rare, we use experiences from other countries
  - Errors made by others
  - Best practice
- Improve preparedness/planning process - all stages:
  - Risk assessment
  - Education & training
  - Planning/organization of the response
  - Informed exercise scenarios
- Helps create a common language
  - Improves learning (comparison)
  - Promotes cross border cooperation & response
- Evidence base for political awareness & funding
- Evidence base for making & justifying priorities
- Support coping process (psychosocial)

**CON, i.e., PITFALLS**
- Irrelevant if biased
- Theoretical, insufficient tests
- Impose other
- Without action, practical conclusion: useless
- Bias on the part of the researcher (uncritical, hypercritical)
- Bias on the part of vested interests (agency, government)
- Can become an exercise in blame
- Could influence public perceptions in a negative way (defensive attitudes, inhibit people)
- Could be pseudo-science or pseudo-evidence
- Could be upsetting for persons involved (relatives) e.g. mistreated
- Risk of legal complications & becoming tied up in criminal investigations (provoking e.g. defensive attitude or obstruction in reporting facts & activities)

2) What information do you want to know?

- Incident details: type, severity, relevant context
- Casualty details, trauma profile
- Available resources
- What was the plan - expectations
- How was the plan was activated, chronology
- What worked well? What didn’t work well?
- List of critical events
- What were the principle shortcomings (equipment, skills, declaration chain, planning)
- Measure of final outcome (also long term, and psychosocial)

What information do we not want to know? Irrelevant for evaluation
- Unnecessary details of an academic nature
• Private information
• Personal opinions
• Country specific information
• Criminal information (e.g. illegal immigrants)

3) What are the specific questions you want to ask?
+ General framework:
“Measure” the imbalance between needs & resources, and the time frame responding to this inadequacy
+ On the one hand, there are questions you want to ask and on the other hand, the means to getting answers to your questions (data, interview structure)
+ Differences according to scenario e.g. between flooding & accident with trauma
+ Is it possible to pre-determine questions items/topics/aspects to assess, given the possible variables, even within the same type of major incident?
  • What exactly happened (narrative description – standard format?)
  • Numbers of persons involved by category (non-injured & psychosocial vulnerability; trauma score)
  • Timeline of event and response (sequence of critical elements):
    o How the incident was declared

  • How many patients left the area without being triaged
  • Measure adequacy of treatment hospital facility (burn unit, neurosurgery)
  • Measure “overshooting” at different stages (prehospital hospital follow-up)

+ Scientific validation of various topics?
### Group 3

The advantages and disadvantages of having a “lessons learned” system in disaster medicine

<table>
<thead>
<tr>
<th>Subject area</th>
<th>Pros</th>
<th>Cons</th>
</tr>
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<tbody>
<tr>
<td><strong>Generic</strong></td>
<td>Improves our practice - properly identify avoidable deaths/disabilities/preventive activities/counter-productive initiatives/mitigating activities</td>
<td>Difficulty of managing release of information to the public, especially the press. Risk of decreasing public trust and making professionals suppress important information.</td>
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<td></td>
<td>Allows dissemination of innovative/best practices</td>
<td>Restriction of process method may restrict the usefulness of the report</td>
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<td>Predefined process facilitates comparisons between incidents</td>
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<td></td>
<td>Independence in investigation may give public/political validity to the process</td>
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<td></td>
<td>Create a proper science/proper evidence base</td>
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<td>Real incidents are rare – must maximize benefit of these experiences – pooling of data from many events can lead to synergy in the overall analysis</td>
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<tr>
<td></td>
<td>Provide an accurate means of recording the disaster – especially in real-time</td>
<td></td>
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<td></td>
<td>Properly done, can be applied to many types of disaster and various countries/political systems</td>
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<td></td>
<td>Helps develop training needs analysis</td>
<td></td>
</tr>
<tr>
<td><strong>Finance/ resources</strong></td>
<td>Provides sound basis for calculating resource needs</td>
<td>Expensive</td>
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<tr>
<td></td>
<td></td>
<td>Potential source of litigation</td>
</tr>
<tr>
<td><strong>Mutual aid</strong></td>
<td>May focus our minds on developing cooperation systems to increase numbers of personnel that can respond to incidents and give better access to stockpiles of limited resources – of especial importance to accession/smaller countries</td>
<td></td>
</tr>
</tbody>
</table>
| **Methodology** | Need to train rescue teams in process  
Burden of data collection on rescuers is significant  
Difficult to justify assigning personnel to write a “lessons learned” report while they are managing a disaster | Investigating and preparing reports is a specialist job |
| **Political** | Process may not be allowed to influence existing systems  
Process may be used to assign blame  
Invasion of privacy |
Annex 5

Reports from working groups
Session 2
Group 1

If we had a “lessons learned” system, what would we want to know?

The real outcome of the intervention.

The scope of the incident.

Existing pathways/algorithms for management of the incident and the existence of any deviations from established practice from beginning to end (declaration of emergency → discharge of the final patient)

Limited need to analyze the cause of the incident – specific to issues such as the protection needs of the rescuers/specific, unusual health care interventions; nominal and personal data is probably unnecessary in developing these investigations.

What questions should we ask when undertaking a “lessons learned” enquiry?

Starting with an outcome of triage process analysis is not adaptable model for all EU member states. Triage is very rarely used in the practical experience of group members. In practice, every wounded person needs to be offered the maximum chance of survival, even with very severe casualty loads, whenever possible. There is, however, an upper limit to the capacity of various national systems, in which case triage may have to be adopted.

Possible areas of interest to be developed which clash with the Dutch experience include: how many patients require a second transfer – which indicates possible incorrect initial placement; transport - how many ambulances arrived is relevant to countries with logistical problems such as long distances to travel; the scale of volunteer/alternative service providers is important to some countries; and assessing how well we managed the media and the politicians is very relevant.

Using the right means to treat each victim is the core issue; transfer is one modality of treatment, establishing treatment centres at the site is another.

Quality and effectiveness of existing local plans – declaration of emergency/resources/response times/command & control/patient distribution provide one set of measures.

Time to receiving the correct treatment by category of need is the most obvious systematic way to analyse an incident from the perspective of individual patient needs – minimizing this is a key to developing generic disaster management algorithms, but an approach that looks at survivability/maximisation of opportunity for all victims probably requires too much data to be collected.

It should be noted that the degree of on-scene management while ensuring speedy delivery of patients to a definitive care provider is still not clearly established. If such standards are not established, it may be difficult to critique the management of an incident.
Establishing clear, measurable parameters that are reproducible between different countries is the overriding need when establishing an EU-wide system of developing lessons learned.

The quality of health and safety of the rescuers should always be evaluated – numbers of injured or killed is a critical measure of successful disaster management.

**Group 2**

**Data Collection**

**Question 1  Uniform data vs. incident specific**

Everyone knows that we have to evaluate, but the system needs to be planned in advance. At the very least, there should be a standard method of evaluation comprising a minimal set of generic data to be obtained. The set of generic questions should be applied to each incident. Examples: Number of victims, trauma profiles, the disaster area, description of the responding forces, ambulances, doctors, etc. What was the intended treatment capacity? Did it match the needed capacity? A European guideline should be established.

It is also necessary to focus on more specific items, which may differ according to the type of incident. The critical elements of each incident should be defined.

Before starting to collect data it is very important to define the purpose of the evaluation. The questions to be answered define the scope of the evaluation and the amount of work and money needed for the evaluation. After the incident we compose an international research team. There should be different groups representing all of the relevant professions. None should have been involved in the incident. It would be preferable to have a team composed of delegates from different countries.

**Question 2  On-line vs. retrospective**

A separate system of performing the evaluation in parallel to the aid process itself is not realistic. We have to look retrospectively for data on the incident.

**Question 3  Current registration forms vs. research forms**

What sources of information do we use?
We use the existing databases based on the research questions as set up by the steering group.
For example, at command centres, audio records, telephone logs, initial call, actions by the command centre, reactions from ambulance crews, written material, patient data in hospitals, possibly video records, amateur records, media.

The collected information must be put in specifically defined research formats.

The following should be noted. In existing databases you can only get the information that you register. It depends on the discipline of the worker and on the practical usability of the existing forms. Information that is registered was
relevant in the process of treating the patient. This information has to be translated to the standard research forms.

We would prefer to follow groups of patients going through the entire process. At the level of the individual patient it is impossible to collect all the relevant data. A problem in the pre-hospital phase is that in Europe systems differ, which makes getting adequate figures more complicated.

**Question 4  By caregivers vs. assigned recorders**

Caregivers are the source. It is ridiculous to send in teams of recorders to a disaster site.
It is crucial that the interviewer is trusted and respected by the person who is interviewed. Peer review could work. A medical doctor may want to be interviewed by another doctor.
The interviewers should not have been connected in any way to the disaster.

A great problem will be the guarantee that can be given as to what will be done with the information.

**Question 5  Prospective vs. retrospective definitions**

Definitions can be standardized. This should result in the European ”endless” list of evaluation questions.
Group 3

Presentation of data & conclusions

Descriptive vs. analytic:
Descriptive and analytical approaches are both needed. Standardization and improving the quantity and quality of the analytical presentations are important. Identified common strands will lead to improved utility of common reporting structure – but should not artificially limit the scope of the reports. The acceptances of an existing format, e.g. Utstein, would significantly speed up the development of a common system.

Which postbox: target audience
Our target audience must be clear, as the reporting style must be accessible and suitable for the purpose of the audience, e.g., (in no particular order of importance):

- Politicians
- Rescue services (professional & voluntary)
- International organizations
- Media & public (e.g., open reporting of an air traffic incident)
- Other professional organizations from elsewhere in the world
- Persons/organizations tasking the research (note approach in industry)

Audience: Internet, professional journals and research groups’ own publication arm. Note the need for rigor and externally accepted value especially the incentive of publication. Stakeholders will want recognition and will want to use publication to verify that their purposes are being met – they may be the ones funding this research.

The use of restricted information in such inquiries is controversial. In general restriction is only valid if it is clearly necessary to avoid harm to the public or the stakeholder. In general we believe that we should only be generating reports that can be publicly accessible.

Standard vs. incident specific
Standard vs. incident specific – needs core platform for all incidents with circumstance specific modification being allowed – need to ensure that where the report goes outside the core inquiry that the validity of the report is not affected.

National vs. international
Generic approach across the EU/EFTA/Europe? What is the best geopolitical boundary? In general, we favored a European approach with international presentation of data and conclusions.

There must be a mandate to validate the job of the investigators (and improve their access) – this makes a strong case for a European Commission basis for this system. Are countries or professional groups the best members of this research group? Countries may be the most certain sources of funding – using professional groups gives better access to expertise and more reliable feedback to those that deal with such incidents.

Research vs. inquiry
There is a close connection between discussing descriptive vs. analytical and research vs. inquiry questions.
Research vs. audit (not enquiry – note legal overtones): both should be done at the same
time to satisfy both internal (professional) and external (political) purposes.
Should internal or external experts be used to evaluate the descriptive components?
Study methodology and presentation systems must ensure timeliness of investigations to
ensure relevance.
Fixed standards on type and quality of data presentation must be part of the specification.

*Other thoughts*
The descriptive element should make use of modern multimedia sources such as video,
photography and sound recordings taken from the scene and contemporaneous media feeds.
Should the conclusions be agreements/consensus/full range of views – where on this
spectrum should the report aim?

A live system will allow lessons to be brought forward as soon as possible – description can
go before analysis, for example – but properly considered reporting must be the foundation of
the system – myths must be avoided.

All observations must be linked to recommendations – it must be an unbiased critical system.
Completed reports should be ready before the next disaster or at least within six months.
Such a reporting system will reduce the burden of visits on countries that have suffered
disasters.
But who should write them?
… and what incidents should we be looking at …
Chapter 25 of the Utstein methodology has many very relevant and useful observations on
reporting structures and methodologies.

*Summary*
Above all:
Timely: Accurate: Relevant.
Easily accessible
Performed by a respected mandated group
Focused on improving care & preventing repetition of error