Major Project on Disaster Medicine 2000-2002

Final Report and Action Plan

Struck by a large-scale accident or disaster, people living or travelling in European Union member states should receive the same high quality of medical care

The Hague, October 2002

Major Project on Disaster Medicine 2000-2002

in the context of the Community Action Programme
in the field of Civil Protection 2000-2004

Final Report and Action Plan (draft)

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CONTENTS

INTRODUCTION

The classical form of Mass Emergency Management (MEM) is largely based on the existing system of daily Emergency Medical Services (EMS). However in situations of major accidents and disasters, the methods and procedures of normal emergency medicine have to be transformed and extraordinary organisational measures have to be taken, according to the doctrine of disaster medicine (DisMed). There are several schools of thought, of which the extremes are condensed in the formulae 'scoop and run' (to the hospital) and 'stay and play' (in a pre-hospital structure PMA, 'poste médical avancé' - French). Probably each region or each major hospital probably has it's own Guru of Disaster Medicine. Among incident officers who have a real experience of managing a mass emergency, there is a large consensus on how to do it. This often seems to be in sharp contrast with the theoretical schemes of the "old style Gurus" who are still teaching military-style disaster medicine. One of the reasons is that victims will not passively wait for official plans and protocols to be activated.

However, disaster medicine helps us in restoring the balance between medical resources and needs. One way is by increasing the efficiency of available personnel and material, using amongst others: continuous triage[1] and medical regulation[2]. Other means are often neglected, like stopping non-urgent medical care and avoiding that resources are sent to the scene of an accident, which are not appropriate, unnecessary or not asked for. On the other hand, mass emergencies require fast mobilisation of additional or extraordinary resources, including certain specialists or voluntary aid workers.

Experience shows that the health consequences of the predominant mass emergencies in Europe are relatively unspecific with regard to the nature or the actual causes of a major accident or of a disaster. Daily emergency medical care services are largely acquainted with the necessary response, which is essentially symptomatic treatment (basic and advanced life support, traumatology, thermal and chemical burns, etc.). Even in case of more unusual pathology, sufficient experience and resources exist within the normal health infrastructure of most EU member states (psychotherapy and psychiatry; antidotes and hyperbaric treatment; immunology-haematology-nuclear medicine, etc.).

Medical mass emergency management only exceptionally requires special resources and procedures, which are qualitatively different from ordinary resources (e.g. chemical, biological, nuclear decontamination and identification). By contrast, the resources required for hazard mitigation by the other emergency responders, like fire services and civil protection, is much more determined by the specific nature of a mass emergency. It is said that road traffic killed more than 30 million people in Europe and the USA in the twentieth century, with 400 million being hospitalised due to their injuries.[3] Compared to these figures the probability of being involved in a mass emergency in Europe looks slim. That is the second reason why the main approach to mass emergency management should be based on developing an appropriate health infrastructure for dealing with small-scale accidents. However, experience with different types of mass emergencies has shown that a general core level of preparedness (including pre-established arrangements for medical intervention, previous training and exercises), and an adequate operational coordination can

[1] Triage: assessment of and acting in accordance with medical priorities for rescue, early treatment and transport.
[2] Medical regulation: a method of providing the adequate hospital service in accordance with pathology and availability.
[3] BRISMAR (B.). (O.C.), pag. 11.

make a difference.

Most member states nowadays already established plans for dealing with the short-term medical consequences of a major accident, and the follow up in hospitals. However, some of us realise that we are less prepared regarding e.g. long-term psycho-social or toxicological impact (for man, animal and environment) of a mass emergency. Starting with Seveso (1976) and Chernobyl (1986)[4], potential long-term toxic effects on a community also has an important social and psychological impact. And we've seen that the Dutch authorities e.g., due to lessons learned in the Bijlmermeer accident[5] were able to set up a large-scale toxicological investigation and a psychological study within a few weeks after the Enschede fireworks explosion. As a matter of fact, these classical mass emergencies were the subject of further analysis by the Disaster Medicine program of DG Environment[6].

It is however our view that the evolution of this Major Project on Disaster Medicine, sponsored by DG Environment, strongly depends upon a possible future collaboration with DG Sanco. It is in that sense that it is of major importance that the initiative is taken whereby the Council would invite the Commission to have DG Sanco starting a program with respect to medical mass emergency management (MEM), if possible complementary to and building upon the work done by DG Environment in that field. The programme to improve cooperation of the member states for preventing and limiting the consequences of CBRN threats and the close cooperation between Sanco and Environment is a good example. But in line of the basic philosophy of the Core Group on Disaster Medicine the basic consequences for regular health care and the interaction between Health and Civil Protection in case of any mass emergency should be taken in concern first before considering the specific scenarios. So far this is not the case, although a number of Core Group members were in fact directly affiliated with the Ministry of Health in their respective countries.

The members of the Core Group are greatly in favour of the principle of subsidiarity, and by no means our efforts should be seen as a way of promoting harmonisation of organisational aspects of ME response. But there are a number of reasons for a common approach of the EU member states and requiring practical steps to be taken by the Commission. Certain mass emergencies indeed may involve several states, due to the extent of the health consequences of a mass emergency, the need for a cross-border response, and/or because persons involved have different nationalities. Epidemiology together with advanced risk inventories can improve both preventive measures and levels of response-preparedness.

Not only the need for immediate cross-border response but also the implementation of the EU-mechanism ask for some common, but conceptual approach.

[4] In 1986 two persons died immediately in the fire that broke out in the nuclear power station, while 309 were injured of which 203 seriously, with 31 fatalities within 3 months as a direct consequence. However several hundred persons suffered from acute razdiation sickness, which occurs after doses in exces of 200-4000 mSv. The long term consequences of exposure to ionizing radiation still is a matter of controversy.

[5] 1992 Amsterdam El Al cargo plane crash on Bijlmermeer housing area, 42 dead.

[6] Introduction from the presentation "Major Incident, Mass Emergency and Public Health Crisis, A European Perspective", held by Dr. G. Seynaeve in a meeting of Chief Medical Officers (CMO) on 18 October 2001.

The European Union has a responsibility towards its citizens, who expect to be taken care of properly when getting involved in a mass emergency of any kind. September 11 has demonstrated that such events can happen at any time.

The Major Project on Disaster Medicine

One of the initiatives in the context of the Action Programme on Civil Protection 2000-2004 was the *Major Project on Disaster Medicine*. The project was coordinated by the Netherlands ministry of the Interior and Kingdom Relations and a Core Group comprising Austria, Belgium, France, Germany, Greece, Portugal, Spain, Sweden and the Netherlands. A representative of the Civil Protection unit of DG Environment participated in the meetings of the Core Group.
(For information on the Core Group i.e. members, meetings, etc.: see annexes A01-A03.)

In the Mission Statement (annex A04), the long-term goal set for the project was:

> ***Struck by a large-scale accident or disaster, people living or travelling in European Union member states should receive the same high quality of medical care***

Main Products of the Period 2000-2002

The first phase of the project mainly dealt with activities, a report of this phase has been published in July 2001 (http://europa.eu.int/comm/environment/civil/prote/cpactiv/cpact03.htm) (annex A05). At the request of the Commission, in the second phase emphasis has been given to policy making. The challenge of this period of the project was to bridge the differences in culture, organisation and resources between the member states without falling back to old principles of "standardisation and harmonisation".

During the second phase the project has been focusing on three main items for which expert sessions, discussions, workshops and cross-border exercises have been organised. Meanwhile the Core Group was asked to prepare a policy paper on the disaster medicine aspects of the EU-mechanism and after the attacks on the World Trade Centre on 11 September 2001 and the anthrax threats also on disaster medicine aspects on RNBC incidents. These activities have been followed by policy papers and recommendations on the policy making and political level.

This report reviews the Major Project on Disaster Medicine for the period 2000-2002 and contains recommendations for a future project in 2003-2005.

> ***The five main issues handled in 2000-2002 were***
>
> I. Cross-border mutual assistance between member states
> II. Psycho-social Support
> III. Preparation for major accidents and disasters
> IV. Disaster medicine aspects of the EU-mechanism
> V. Disaster medicine aspects of RNBC-incidents

In the next chapter of the final report these five subjects will be analysed and conclusions and recommendations per subject are added. Papers, reviews and further information are added to this report as well, in order to complete the picture. Some information is written on request of the Core Group, some is added for completeness' sake with permission of the author or organisation.

REVIEW, CONCLUSIONS AND RECOMMENDATIONS

I. Cross-Border Mutual Assistance between Member States

Mass emergencies do not halt at national borders. On the one hand, the effects of mass emergencies on the population may affect neighbouring countries (Chernobyl), on the other hand facilities of neighbouring countries may be used.
In the medical field two main processes are involved: urgent medical assistance (UMA) and in case of a mass emergency, disaster medicine (DisMed). The necessity to analyse both fields is because DisMed is based on the organisation of UMA. All observations are made in the context of often bilateral agreements between member states and existing national judicial and organisational structures. The cross-border exercises were organised by national and regional authorities. In both cases the process of getting acqainted to each others' organisation and procedures was even more fruitful than the learning process of the exercise itself. During the NL/GE exercise in Heerlen it was the very first time the Emergo Train System (ETS) was used in an exercise in the Netherlands.

The following activities have taken place in the context of cross-border assistance

- The DIMEX exercise (Portugal/Spain) followed by an expert meeting in Portugal.
- The ETS exercise in Heerlen (Netherlands/Germany).
- Studies by ITS (Institute for Applied Social Sciences of the University of Nijmegen, NL) on cross-border UMA and DisMed assistance.
- The development of a framework for an EU-wide study on DisMed cross-border assistance.

To obtain a deeper insight in cross-border UMA and DisMed, the following documentation is included in this report

a) A survey on the subject of cross-border mutual assistance in case of incidents/disasters in the border regions of Netherlands-Belgium-Germany (annex B01).
b) An instrument to study the cross-border problems between EU member states (annex B02).
c) A study on cross-border disaster medicine operations in NL-BE-GE (annexes B07-B09); also available in French, Dutch and German (annexes B10-B12).
d) Information on a cross-border exercise, held in Heerlen, the Netherlands, between the Netherlands and Germany, using the Emergo Train System (ETS) (annexes B03-B05).
e) Information on a cross-border exercise, in Portugal, between Portugal and Spain (annex B06).

Conclusions

1) Because of differences in governmental structures, the authorised government level to enact agreements differs per member state.
2) Medical facilities and -personnel are not legally recognised automatically as such in neighbouring countries/member states.
3) Mutual knowledge of respective medical systems is to be extended, as these differ per member state which may hamper cross-border assistance.

Conclusions

4) Para-medical personnel does not have the same education and training; knowledge and skills in all member states, so they are not automatically (legally) competent in neighbouring countries.
5) Admission of victims to certain hospitals in border regions is in certain cases only possible after certain accreditation procedures.
6) In a cross-border situation ambulances loose radio communication with their dispatch centre.
7) Differences in national legislation(s) in the use of optical and acoustical tones, the use and transport of medicines (drugs) by medical units may lead to judicial problems.
8) There are cost differences in the computation of medical fees.
9) The cross-border exercise in Heerlen acknowledged the difficulties that were shown in previous research.
10) The emergo train system has shown to be a very helpful instrument in exercises for the medical chain in cross-border exercises.
11) The cross-border exercise in Portugal learned the necessity of a consequent and planned cross-border exercise policy.
12) Cross-border exercises are often not part of active national policies.
13) A common EU procedure for medical assistance with adequate protocols and procedures, including triage, is lacking.

Recommendations

1) Knowledge of the government levels legally competent for cross-border cooperation is a basis condition; this information should be available and accessible for other EU-member states.
2) Member states are recommended to analyse their cross-border cooperation. The instrument to study cross-border problems can be of help. Candidate countries should be included in this survey, which should be conducted in close cooperation with the national health department(s). An exchange of experiences with DG Sanco is to be advised because of their specific competence on health matters.
3) Legal complications caused by differences in acoustical and optical tones and drugs transported and used by medical units should be solved on bilateral and EU-level.
4) Accreditation, legal issues on the competency of medical units and personnel and the billing of costs in cross-border situations are to be solved.
5) The Emergo Train System ETS proved its added value as an instrument for exercising the medical chain, also in cross-border situations. It would be a great advantage for the exchange of experiences, cross-border preparations and the DisMed activities in the mechanism when ETS would be implemented in more member states.
6) Knowledge on each other's medical systems can be improved by creating multilingual databases and exchange programmes.
7) There is a lack of common procedures and protocols.

Recommendations

8) Training and exercises is a proven method to ameliorate cross-border mutual assistance
9) Cross-border exercises, if prepared and executed in a structural way, are recommended to be stimulated and be part of national and regional exercise policies.
10) Structured outcomes and lessons learned from cross-border exercises should be accessible for other member states.
11) Regional Health Boards should guarantee a periodic testing of the hospitals' Emergency Plans.

Note: a proposal to analyse cross-border cooperation with all member states was rejected by the Commission on administrative reasons.

II. Psycho-Social Support

In almost every member state of the European Union some kind of psycho-social intervention is initiated during mass emergencies. Especially the last decade different professional and voluntary workers, agencies and organisations provide a range of services in the intermediate aftermath of a mass emergency. There is however a wide range of activities, indications and follow-up methods and approaches of psycho-social support. Gradually the idea forced its way that psycho-social interventions need to be prepared in advance and must be well coordinated and structured during the different phases. To what degree the different forms of support really meet the real needs is still open to debate ("the Lancet", September 2002). But it would be socially and morally unacceptable to do nothing or to improvise on the spot. Psycho-social intervention is an integral part of a sound response on mass emergency situations and should be prepared as such.

As annex C01 a document is included, which offers guidance for policy makers concerning psychological support and social accompaniment for those involved in situations of mass emergency. In regard to RNBC incidents, the policy paper on DisMed aspects of RNBC incidents (annex F01) also indicates the necessity of preparations on psycho-social matters. The guideline as developed is not intended as a prescriptive paper and should not mechanically be followed as a strict manual. This European policy paper offers the possibility of a flexible national implementation according to the evolving nature of the social context.

In respect of psycho-social support the following actions were taken

a) A workshop on psycho-social support, held in September 2001 in Brussels, in continuation of earlier workshops held during the first phase of the project (Amsterdam, Lille and Vienna).
b) The publication of the policy paper "Psycho-social Support in Situations of Mass Emergency" (annex C01).

Conclusions

1) Psycho-social intervention has become common in situations of mass emergencies.
2) It is politically and morally unacceptable to do nothing or to improvise on the spot.
3) Preparation for psycho-social support for all stages should be arranged in advance (preparation and planning).
4) Psycho-social support should be part of the normal medical emergency ME preparation
5) There is a consensus document available based on the actual state of professional consensus.

Recommendations

1) To accept the psycho-social paper as the European Guideline for psycho-social Support in mass emergencies and to support the need for further implementation of the guideline.
2) Support the Belgian project: pilot course "train the trainer" on psycho-social support in mass emergencies in 2003 (annex C02).
3) Let a new Core Group finalise further steps in policy proposals.
4) Although action is being taken to link the Swedish centre in disaster psychiatry, the Belgian and Austrian policy makers, the Netherlands Centre for Psycho-Social Support and the documentation centre of the Netherlands Institute for Disaster Medicine. Further linking towards an EU network on psycho-social Support is strongly recommended.

III. Preparation on Major Incidents and Disasters

In case of a major accident or disaster, health care has the goal to save lives and reduce suffering as much as possible. Experiences with different types of mass emergencies have shown that a general core level of preparedness including pre-established arrangements for medical intervention and, perhaps most important, training and exercise, well prepared and adequate operational coordination is a *conditio sine qua non*. Also long term aftercare like psycho-social support, toxicological investigation and psychological studies should be part of preparatory measures.

Therefore, the Core Group studied the following subjects:
- Training and exercises
- Lessons learned
- Triage
- Contingency guidelines

Education and training in disaster medicine takes place at many levels (population, rescue workers, para-medical personnel, doctors), however, the extent and contents vary. Therefore, there is a strong need for common guidelines, to promote international collaboration and assist current efforts to plan and develop centres for training. The required knowledge is extensive and should be integrated in all courses of study (as basic medical care, surgery, traumatology) but in addition special courses are needed to deal with organisational problems, communication and triage.

Because most of the educational elements are included in normal health care, the Core Group focussed on training in disaster medicine. A well developed basis for disaster medicine education is "Education and Training in Disaster Medicine" by the Scientific Committee the International Society of Disaster Medicine.

Because most of the training methods are based on national organisations and legislation only a few methods could be studied by the Core Group, of which two can be mentioned, i.e. the Emergo Train System (ETS) and Major Incident Management and Medical Support (MIMMS).

Training with the Emergo Train System (ETS)

The Emergo Train System (ETS) is a training system for use at a multi disciplinary level, with emphasis on medical (disaster medicine) aspects. The system has been developed by Prof. Sten Lennquist, professor in disaster medicine at the Linköping University (Sweden) and member of the International Society of Disaster Medicine. In basic training prioritising and treatment of casualties can be emphasised, however, in an advanced level emphasis can be placed on organisational problems in situations with many casualties. ETS has been used in various international and cross-border exercises and in some member states (Sweden, Germany, United Kingdom and the Netherlands) training and exercises using the system are being organised. Moreover, the system is very flexible and can be adjusted to the time and/or organisation available. All this means that ETS is an excellent system for use in cross-border cooperation exercises.

In respect of training and exercises, various activities have been organised using the Swedish Emergo-Train System

a) A cross-border exercise in respect of the Netherlands and German border took place in Heerlen in October 2001 (annex B03).
b) A "train the trainer course" for southern member states of the European Union was organised by Sweden and Greece in Athens in October 2001 (annex D12-14).
c) A Francophone course took place in Linköping (Sweden) in October 2002. (annex??)
d) A licence agreement for implementation of the Emergo Train System in the Netherlands will be signed in December 2002.

Conclusions

1) Training and exercising is absolutely necessary on all levels of disaster medicine.
2) Training and exercising can only be succesful when based on procedures and protocolls
3) The Emergo Train System (ETS) has proved to be of excellent use in international and cross-border exercises.

Recommendations

1) Stimulate further implementation of the ETS in the EU member states.
2) The use of ETS could be a condition of financing cross-border exercises in the EU
3) ETS should be implemented as the training tool for the medical chains in the Mechanism.

Major Incident Medical Management Support (MIMMS)

Decision making principles for different incidents - like for instance a road traffic accident or a larger incident - are the same, crossing civilian, military and even international boundaries. Yet, until recently, there was no standard guidance on how to react in a medical emergency.
However, in 1994, Lt. Col. Tim Hodgetts, based at Frimley Park Hospital in Surrey, specialist adviser on emergency medicine to the Defence Medical Services (DMS) and Professor of Emergency Medicine and Trauma at the University of Surrey, set up a three-day course in Major Incident Medical Management and Support (MIMMS) for doctors, nurses and ambulance officers, together with a civilian collegue.

The course, which is practical for 70%, has been run throughout UK and has become the DMS training standard. As MIMMS can very easily be adapted to another country's national system, the course has attracted military and civilian observers from other EU member states. It has already been exported to Australia and Sweden and NATO has also shown interest.

In the UK, the simplest triage, using tags with different color codes for each casualty, has now been generated throughout the British Army. The system is so successful that it can now be found in police pocketbooks and is being incorporated into fire service training.

In 2001 an organisation for implementation of MIMMS has been set up in the Netherlands. This organisation is called "Stichting MIMMS" and cooperates with three ministries i.e. the ministry of the Interior, the ministry of Defence and the ministry of Health and Welfare. In 2002 a few test courses were organised and the first "real" NL course will take place in January 2003.

Conclusions

1) Although decision making principles for smaller and larger incidents are the same, there has been no standard guidance until 1994.
2) The MIMMS triage method and tag with color codes proved to be very simple to use.
3) The MIMMS system can very easily be adapted to a country's national system.
4) MIMMS has been very succesful in cases of multinational cooperation like the multinational medical facilities in Bosnia.
5) MIMMS is being used in the UK and will be implemented in the Netherlands.

Recommendations

1) Further implementation of MIMMS in EU member states should be stimulated.
2) Before implementation MIMMS should be adapted to a country's own system.
3) Stimulate the use of MIMMS as a training tool for multinational medical cooperation.

Leassons Learned

A fully accepted tool for learning from the past is the application of "lessons learned tools".
The Core Group studied various templates used to exchange the lessons learned from large-scale accidents and disasters. The study concerned the three following templates which appeared to be totally different:

- Natural and Environmental Disaster Information Exchange System (NEDIES) from the European Commission (annexes D01, D02 and D15).
- KatastrofMEDicinska Organisationskommittén (KAMEDO) from Sweden (annex D03).
- The Utstein template from the World Assocation for Disaster and Emergency Medicine (WADEM) (annex D04).

Although the NEDIES system gives some information on current disasters, the information on disaster medicine aspects was of little value because of the lack of detailed medical information. Because of the deep differences it is not posible to recommend a system. Also a first rough impression of nationally used systems of lessons learned did not give a clear and distinctive view. The apparent totally different

systems, the differences in language but also the differences in the member states administrational cultures makes it impossible to compare national "lessons learned" and to draw overall conclusions.

Therefore, in 2003, the Swedish National Board of Health and Welfare will organise a workshop focussed on the development of a methodology for member states to perform lessons learned activities to find out common practices to exchange lessons in the field of disaster medicine between member states in a structural way.

In order to create a common analysing methodology the Core Group invited the Swedish organisation KAMEDO to start a comparitive study on the medical and medico-organisational aspects of four major accidents:

- the Switel hotel fire in Antwerp, Belgium in December 1994;
- the Göteburg fire in a disco in Sweden in October 1998;
- the Kaprun train fire in Austria in November 2000;
- the Volendam fire in the Netherlands in January 2001.

However, as there was no scope of reference, no common research methodology and because the documentation caused a language barrier, this appeared to be unfeasible and the study was not started.

In respect of lessons learned the following activities were undertaken or still have to take place

a) An exchange of expert views with experts from KAMEDO and WADEM on "lessons learned templates".
b) The Core Group requested KAMEDO to study four major accidents on medical and organisational aspects.
c) In 2003 Sweden will organise a workshop to develop a common methodology for studying and exchanging lessons learned (annex D05).

Conclusions

1) There is no common methodology to study the lessons learned from major accidents and disasters in the member states.
2) Lessons learned is a worthwhile source for information. If well structured and accessible for all member states lessons learned may form a valuable tool for updating plans procedures and protocols.
3) At the moment it is quite impossible to do comparitive studies for various major accidents and/or disasters in different countries due to language barriers and the lack of a common scope of reference or research methodology.

Recommendations

1) The Core Group strongly recommends to establish a link between the various known organisations (NEDIES, KAMEDO, WADEM) that create and analyse lessons learned.
2) To stimulate the development of a common method for writing, studying and exchanging lessons learned.
3) To apply this method also as the Standard System for the EU mechanism

Triage

The most distinct characteristic of disaster medicine is triage. Triage is the categorisation of victims of a mass casualty incident or disaster which should lead to treatment and transportation of those victims in a way to achieve the minimum loss of life and avoid unnecessary disabilities. Usually such categorisation cannot be handled at the same time, so it has to be carried out at different periods and/or places throughout the incident, until the victim arrives in an area where he will receive final medical care. It is therefore an ongoing process that must keep track not only of the initial state of the victim, but also of the evolution of his health condition in time.

The most popular tool for performing triage is what has generally been termed as "triage tag". Triage tags should in theory assist by quickly marking on them information about a victim that would enable the assignment of each victim in a category which indicates the seriousness of the injuries and the sequence in which the victims should receive treatment and transportation from the scene of the event.

In the countries of the European Union triage tags have been in use for quite some time and have been used extensively for training as well as exercises in disaster medicine. However, a closer examination of the existing triage tags today, by the Core Group members, revealed a less than ideal situation regarding them. Of major importance is the fact that there is no acceptable system throughout the EU for triaging patients and therefore triage tags from different places, very often within the same country, are made in order to accommodate the particular triage system applied. The problem is even more aggravated when different organisations are using different triage tags in the same area of a country or region.

A first, but very important step towards this goal would be to formally accept as soon as possible a common colour coding system of four colours (red, yellow, green, black) and use it for initial triage by tape or bracelets on victims along with the use of whatever other triage tagging or recording system is in use in each area.

The following documents, presenting an exchange of expert views on triage, are enclosed

a) "Triage: a position statement" by Lt.Col. T.J. Hodgetts, OStJ MB BS FRCP FRCSEd FFAEM FRGS FIMCRCSEd DipMedEd RAMC (annex D06).
b) A policy paper on triage by W.F. van Marion MD, director of the Netherlands Institute for Disaster Medicine (annex D07).
c) "The current status of triage tags in the European Union", a thesis submitted in partial fulfilment of the requirements for the degree of European Master in Disaster Medicine by D.G. Pyrros, MD, secretary of WADEM (annex D08).
d) A policy paper on the current status of triage tags in the European Union (including a table) by D.G. Pyrros (annex D09).

Conclusions

1) Although triage as a medical philosophy and method of working for medical and para-medical personnel is widely accepted there is no common system throughout the EU for triaging patients. Therefore triage tags also differ per region and per country.
2) The application of tags in exercises is quite common, in case of a mass emergency they are seldom used.
3) Triage tags are accepted as an important tool to be used in cross-border and EU mechanism operations.
4) Commonality in triage codes would also help in cross-border exercises with ETS.

Recommendations

1) Formally accept as soon as possible a common colour coding system of four colours (red, yellow, green, black) and use it for initial triage by tape or bracelets on victims.
2) Initiate the use of pictograms - instead of words - that are easily understood by medical personnel.
3) Initiate further discussion for implementation of the Major Incident Medical Management and Support (MIMMS) triage codes and techniques.

Contingency Guidelines

Although the repression of major accidents and disasters draws most of the attention of politics, public and media, extensive research has been done on how to prepare all players in the field of crisis and emergency management within a comprehensive policy tool. Synergy has been found in a Netherlands policy tool, "the safety chain". The Core Group has discussed this tool and subsystems for analytical risk-, effect and means consequences.

The first (proaction) link is attention for the safety aspects while designing large infrastructure; industrial sites, roads, tunnels and new suburbs. The second (prevention) link concerns aspects like the choice of materials that can prevent an emergency or limit its consequences. The third (preparation) link is the actual preparation of actions if a major emergency arises, such as planning, education and exercises, processes and procedures and the purchase of materials. The fourth (intervention) link is the actual emergency management, such as salvage, firefighting, medical intervention, detecting dangerous substances, and protecting the environment. The fifth (aftercare) link comprises the provision of care for victims and relief workers, the restoration of normality, settling claims, and evaluation.

Risks and Limitations

Major accidents and mass emergencies happen. The risk and the probability to get involved with a certain type of mass emergency differs from region to region. What does not differ, however, is the reaction to emergencies by public opinion. These reactions invariably indicate that the society - rightly - has high demands regarding the quality of emergency management.

This does not change the fact that there are limitations to the performance that reasonably may be expected from local relief organisations in case of mass emergencies. Local authorities are politically responsible for defining these limitations. They decide to what extent police, fire brigade, medical and other services concerned, should be prepared for disasters that could occur. Local authorities need insight in the extent and effects of important disasters and major accidents which might occur in their region and the maximum requirement for emergency means. Based on these insights local authorities politically determine what should be the benchmarks for time, quality, and performance. The emergency response organisation should be able to respond to the requested operational performance and subsequently adjust the emergency control organisation to the performance limitations of the regional contingency plan.

To support local authorities in this decision making process the NL government developed 18 basic scenarios in which the possible threats (risks) are analysed. The effects of these risks and the necessary means to respond on the effects are analysed in a quantitative risk-, effect- and intervention assesment. The Core Group advised the German project management to use this methodology in their project "Disaster Medicine preparation on large-scale accidents and disasters".

The following documentation in respect of this subject is enclosed with this report

a) A short version of the NL Contingency Plan Guidelines, a management aid for the regional authorities with respect to the analysis of calamity scenarios and the determination of the required assistance during calamities and major accidents (annex D10).
b) An intermediate report on the German project "Disaster Medicine Preparation on Large-scale Accidents and Disasters" (annex D11).

Conclusions

1) This methodology is a useful instrument for local authorities and emergency management to relate local risks, estimation of probabilities with possible effects and necessary means. The result is a transparant decision making process and a political confirmation of the level of safety for the population.

Recommendations

1) Further comparative discussions are advised to analyse similar systems for quantative risk- and effect assesment.

IV. Disaster Medicine aspects in the EU-mechanism

In 2000 the European Commission proposed a community mechanism to facilitate reinforced cooperation in Civil Protection assistance. The French presidency and the European Commission developed proposals to reinforce community mechanisms for intervention in the area of civil protection (disaster management). The mechanism will facilitate the mobilisation of intervention teams, expertise and other resources, as required, through a reinforced Community Civil Protection structure consisting of a monitoring and information centre as well as a common emergency communication and information system. The activation of the mechanism is foreseen for possible interventions in the event of natural, technological and environmental emergencies, occurring both inside and outside the European Union.
The Core Group on Disaster Medicine has produced a policy paper to analyse the consequences in the field of disaster medicine and the difficulties crossing the path in respect of this mechanism. In the paper conclusions and recommendations for further action are formulated.

A new logistic concept has been introduced as an elaboration of this line of thinking. This breaks with traditional ideas on mutual assistance in the EU. The principle here is that transporting medical care/emergency workers and material to the casualties at the actual disaster site – is not the only way. Under the new concept medical assistance is not sent to the casualties who often require a high to very high level of assistance. But, via a network of (accredited) hospitals within a given radius of the disaster brought to high level medical care. Casualties are stabilised on the spot and moved with all speed to one or more of the dedicated hospitals for further treatment. This concept to be used in a tailor-made approach to the disaster situation.
At the request of the Core Group, the Netherlands Institute for Disaster Medicine carried out an orientation into the possible set up of such a network. The outcome of this survey is added to this report.

In respect of the issue of disaster medicine and the EU-mechanism the following papers have been written

a) A policy paper on “the disaster medicine component of European assistance in disaster situations” (annex E01).
b) An exploratory observation of an EU hospital network, carried out at the request of the Core Group on Disaster Medicine (annex E02).

Conclusions

1) The main challenge is how to bridge national differences.
2) Timely decision making in the national and international upscaling process is essential.
3) A basic problem for disaster medicine is the timely dissemination of victims for which triage is an important and helpful tool.
4) Common understanding in concepts of operations is necessary.
5) There is a necessity for a network of accredited hospitals within the EU member states.
6) As disaster medicine is based on regular health care, conclusions should be dealt with by two policy fields: health and civil protection.

Recommendations

1) Member states are to be encouraged to communicate their own systems of national upscaling to their neighbours to optimise planning and preparedness.
2) Further approximation of professional training and courses for medical personnel at all levels in all member states; a European impetus in the policy field of health education is desirable here.
3) A fundamental discussion between the member states on the starting points for creating an EU hospital network and reaching consensus within the Commission is highly recommended.
4) Policy papers can be written on the subjects of transfer and the system of medical information, competency and judicial problems and concepts of operation and logistics.
5) Close cooperation between Health and Civil Protection is mandatory.

Exploratory observation of an EU hospital network

Large-scale accidents and disasters are unavoidable in today's world. However, everything must be done towards optimal preparations and agreements around medical aid for accidents and disasters. The lesson drawn from a number of large scale accidents and disasters in recent years is that cross-border assistance in the EU can make a major contribution to faster and better assistance to casualties. At the same time it is apparent that considerable improvements are both possible and necessary on this level. Large-scale accidents and disasters are unavoidable in today's world. However, everything must be done towards optimal preparations and agreements around medical aid for accidents and disasters. The lesson drawn from a number of large scale accidents and disasters in recent years is that cross-border assistance in the EU can make a major contribution to faster and better assistance to casualties. At the same time it is apparent that considerable improvements are both possible and necessary on this level.

The aim of the orientation objective is to look into the set up of a hospital network capable of providing cross-border and EU-wide assistance and support to casualties of a disaster or crisis, in the event that the relevant member state cannot itself provide this high-level assistance. This might be in the case of massive inflow of casualties or serious damage to the infrastructure in a given region. The orientation is deliberately focused on areas including availability of specialist personnel and logistic resources, legal aspects and financing of care. It is not the aim to arrive at a registration system giving insights into which member states have a given number of beds available in what hospital, at a specific moment in time. The orientation focused on obtaining information at macro level. The results of the orientation study provide input for further discussion within the Commission on the manner of further detailing disaster medicine.

The orientation study was conducted from July to September 2002 inclusive, via a literature search and a written survey of key figures within DG Environment, as well as Chief Medical Officers (CMOs) of the 15 EU member states. The survey focused on the national and multilateral situation

around treatment capacity, professional standards, legal conditions, financing, updating of information and linkage - in a policy context - between civil protection and health aspects.
The aim of the orientation objective is to look into the set up of a hospital network capable of providing cross-border and EU wide assistance and support to casualties of a disaster or crisis, in the event that the relevant member state cannot itself provide this high-level assistance. This might be in the case of massive inflow of casualties or serious damage to the infrastructure in a given region.

In particular there was lately a further examination of major hospitals with specialist treatment capacity. Research in this area is mainly confined to making an inventory of the number of available beds, without involving the actual ability to provide the peripheral requirements for specialist care, such as personnel, organisation and logistics.

Conclusions

1) The literature check showed that - insofar as there are formal cooperative links around cross-border actions for disasters and crises - these are in northern Europe.
2) The written survey showed a shortfall in the number of available specialised nursing beds, and that there was no immediate solution to this.
3) At the same time it appears that cross-border assistance and demands for special nursing beds, plus other dedicated resources in a potential disaster situation occur and are dealt with flexibly, on an ad hoc basis.
4) The survey confirmed a wide divergence in rules for administration and financing of disaster and other medical assistance per member state. Several respondents said that this hampered the realisation of international cooperative structures.
5) Several respondents also believed that accreditation of a hospital was not the solution for problems around cross-border assistance. In their view it would be far more meaningful to make agreements in principle on cross-border cooperation for large-scale accidents and disasters.
6) Financing of costs of transportation, accommodation and treatment in the event of cross-border assistance occurs via the health-care bodies in the casualty's home member state, or by the individual casualty, whether or not by their insurance provider. The approach varies per member state. A full overview is available with the final report.
7) Some EU-member states operate a registration system for availability of special nursing beds and specialist transportation resources.
8) Almost all respondents indicate that there has been cross-border cooperation in the past (whether or not ad hoc). Hence, Finland provides an example in giving medical aid to Bosnian war casualties and Sweden cites cross-border help for victims of the discothèque fire in Gothenburg in 1998.
9) Structural cooperation arrangements are in place between several member states. These are all organised on a regional basis. The cooperative arrangements are already listed in the results of the literature study.

Recommendations

1) The outcomes of the orientation offer a valuable handle for a follow-up process.
2) Most respondents back up the underlying thinking for realising a network hospital with agreements made between these to prepare for cross-border assistance for accidents and disasters.
3) However, not all member states are in favour of a system of accredited hospitals. A far-reaching degree of institutionalisation would demand considerable work and input - which is unnecessary to realise the desired result. In practice, cooperative agreements without accreditation will also be workable, according to the majority of member states.
4) As not all member states feel committed to the principles of the new logistic concept (transportation of casualties to aid workers rather than vice-versa) it is important to have a fundamental discussion on the principles and to reach consensus within the Committee towards the outcomes.
5) It is advisable to develop a framework for agreements at a European level. This will enable composition of a “concept of operation” based on a number of performance output factors.
6) Alongside developing a substantive network within which it is possible to steer on the basis of performance output indicators, it is advisable to investigate potential for the policy framework at EU level. Particularly involved here are the linkage between civil protection and health-aspects.
7) This reinforcement can be realised by creating a counterpart - at DG levels - of levels within EU member states that are occupied with tuning organisational and medical aspects. In concrete terms this might be a reinforcement of the policy-substantive fine-tuning between DG Environment and DG Sanco.

V. Disaster Medicine aspects of RNBC-incidents

The last few years the management of RNBC-incidents has been rather in the spotlight, certainly in the USA. The terrorist attacks of September 11, 2001in the USA and the anthrax hoaxes have added a sense of urgency to this, also in Europe. Since then a "new wave" of impulses has been given to prepare for RNBC-incidents, many of them related to disaster medicine: disaster medicine is central to health security, but it is also a substantial contributor to consequence management and to risk management.

In the paper added to this report a general overview is presented of the principles underlying the management and control of RNBC-incidents that are of concern to disaster medicine. More in particular the system requirements for dealing with RNBC-incidents are explored. The agent dynamics, required competencies and health care structures obviously are rather different for RN-, B- and C-agents. In the paper, however, the focus has been on the common aspects for these agents.

The following documents related to the subject of disaster medicine aspect of RNBC incidents are added to this report

a) A position paper on Disaster Medicine Aspects of RNBC-Incidents by Mr. P. van der Torn MD of the Netherlands Institute of Disaster Medicine (annex F01-F02).
b) A report of a workshop named "Response of civil protection authorities to major terrorist attacks" held in Florival, Belgium from 17-19 December 2001 (annex F03).
c) Action cards on biological agents weaponisable for terrorist purposes, initiated by Belgium (annex F04), together with a presentation of 5 December 2001 on this subject by Dr. Geert Seynaeve (annex F05).

Conclusions

1) The regular care system is the basis for the response to RNBC incidents. The response system is built on these existing structures. For RNBC-incidents specific additions need to be made.
2) Nuclear, Biological en Chemical incidents each demand a totally different approach and a different expertise.
3) RNBC-incidents is a very knowledge intensive field of expertise, which is developing rapidly. Because of this, strong emphasis is put on networks of experts and on the broadening and furthering of professional knowledge in international cooperation.
4) The response process to RNBC-incidents needs to be analysed thoroughly in order to find the right balance in the measures for the consecutive lines of defence.

Recommendations

1) Member states should join in on NBC activities of DG Sanco, IAEA (International Atomic Energy Agency) and IPCS (International Programme on Chemical Safety). Concentration of information from Health and other international organisations to Civil Protection vice versa in the member states.
2) Stimulate a European network of N, B and C specialists involved in health care and in public health.
3) Stimulate the broadening and furthering of professional knowledge on the medical and public health aspects of N, B and C through existing national and international knowledge centres.
4) Develop the EU and national response policies in view of the consecutive lines of defence.

CONTINUATION

One of the activities of the Core Group during these past years has been the creation of a European network of disaster medicine professionals. However, this network has not been formalised. The anthrax hoaxes in Europe showed the value of networking since many informal discussions and exchange of information took place during that time. The Core Group thinks it is of major importance to continue this network and to intensify the creation of informal networks between the various European knowledge centers, and creating knowledge groups on specific subjects.

During the first and second phase of the Major Project, many attempts have been made by the Core Group members to get the subject of disaster medicine on, both the national and international, political agenda. Disaster medicine professionals in the various EU member states are fully aware of the urgent need to lift the discipline on an overall European level. Therefore advantage should be taken of the momentum and of the broad and solid network of disaster medicine professionals that has been created these past few years. Likewise, and in close cooperation with DG Sanco, DG Environment should continue the activities started in the context of the Major Project on Disaster Medicine. An action plan mentioning future activities is enclosed.

Various activities were started up during the current phase, but are not (yet) finilised, or were planned in continuation

a) A scenario-based workshop under the auspicies of Germany to provide insight in the maximum scope of required medical care in case of major incidents and disasters.
b) A Swedish workshop to develop a methodology for member states to perform lessons learned activities to find out common practices to exchange lessons between member states in a structural way in the field of disaster medicine, leading to a constant learning organisation/system.
c) An expert meeting and workshop on the subject of cross-border mutual assistance on EU-level, organised by the Netherlands. Followed by a policy-paper presenting the results and recommendations deduced therefrom.
d) Follow-up of the Major Project on Disaster Medicine.

The documents on future activities in respect of disaster medicine mentioned below are enclosed

a) First interim report on EU project “Disaster medicine preparation for large-scale accidents and disasters”, carried out by Germany (annex D11).
b) Information on the NL expert meeting and workshop on cross-border disaster medicine intervention in Europe (application form) (annex G01).
c) A plan of action for a follow-up of the Major Project on Disaster Medicine for the period 2003-2004 under French chairmanship (annex G02).

ANNEXES

Annexes A

A01 List of addresses of the Core Group on Disaster Medicine
A02 Schedule of meetings held in 2000-2002 of the Core Group on Disaster Medicine
A03 Schedule of presentations held in 2000-2002 in respect of the Major Project on Disaster Medicine
A04 Mission Statement of the Major Project on Disaster Medicine 2000-2002
A05 Intermediate Report of the Major Project on Disaster Medicine (July 2001)

Annexes B

B01 "Cross-Border Urgent Medical Assistance in Belgium-Germany-the Netherlands", a survey on the subject of cross-border mutual assistance in case of incidents and disasters in the border regions of Belgium, Germany and the Netherlands
B02 Research methodology on cross-border disaster medicine assistance in Europe: an instrument to study the cross-border problems between EU member states
B03 Report of a cross-border exercise with the Emergo Train System (ETS) between Germany and the Netherlands, held on Heerlen (south NL) on 25th October 2001
B04 Process evaluation format describing the exercise mentioned under B03
B05 Product evaluation format describing the exercise mentioned under B03
B06 A power-point presentation containing a description, conclusion and recommendations on DIMEX, a cross-border exercise between Portugal and Spain, held in Portugal in the Autumn of 2001
B07 "Calamity Efficiency", a study on cross-border disaster medicine operations in Belgium, Germany and the Netherlands (January 2002)
B08 "L'Urgence and Catastrophe", l'assistance médicale aux victimes d'accidents et de catastrophes en Belgique, en Allemagne et aux Pays-Bas
(French translation of "Calamity Efficiency")
B09 "Rampspoed", geneeskundige hulpverlening bij ongevallen rampen in België, Duitsland en Nederland
(Dutch translation of "Calamity Efficiency")
B10 Process evaluation format in respect of annex B09
B11 Product evaluation format in respect of annex B09
B12 "Die Notfallhilfe bei Unfällen und Katastrophen", medizinische Hilfe bei Unfällen und Katastrophen in Belgien, Deutschland und den Niederlanden
(German translation of "Calamity Efficiency")

Annexes C

C01 "Psycho-Social Support in situations of Mass Emergency", a European Policy Paper concerning different aspects of psychological support and social accompaniment
C02 Information on the Belgian pilot course "Train the Trainer" on psycho-social support in mass emergencies to be held in 2003

Annexes D

D01 Information on the EU lessons learned system NEDIES (Natural and Environmental Disaster Information Exchange System)
D02 Example of a NEDIES format
D03 Information on the Swedish lessons learned system of KAMEDO (KatastrofMEDicinska Organisationskommittén)
D04 An introduction on the guidelines for evaluation and research in the Utstein Style of WADEM (World Association for Disaster and Emergency Medicine)
D05 Information on the Swedish workshop "Disaster Medicine - lessons learned", a workshop to develop a common methodology for studying and exchanging lessons learned, to be held in 2003
D06 "Triage: a position statement" by Lt.Col. T.J. Hodgetts, OStJ MB BS FRCP FRCSEd FFAEM FRGS FIMCRCSEd DipMedEd RAMC
D07 A policy paper on triage by W.F. van Marion MD
D08 "The current status of triage tags in the European Union", a thesis submitted in partial fulfilment of the requirements for the degree of European Master in Disaster Medicine by D.G. Pyrros, MD
D09 A policy paper on the current status of triage tags in the European Union (including a table) by D.G. Pyrros
D10 A short version of the NL Contingency Plan Guidelines, a management aid for the regional authorities with respect to the analysis of calamity scenarios and the determination of the required assistance during calamities and major accidents
D11 An intermediate report on the German project "Disaster Medicine Preparation on Large-scale Accidents and Disasters" (September 2002)
D12 A report from the 2nd EU-pilot course for teachers and trainers in Disaster Medicine, held in Athens, Greece, in October 2001
D13 Process evaluation format in respect of annex D12
D14 Product evaluation format in respect of annex D12
D15 NEDIES, a power point presentation of the Joint Research Centre of the European Commission

Annexes E

E01 "The Disaster Medicine Component of European Assistance in Disaster Situations", a policy paper by the Core Group on Disaster Medicine (June 2000)
E02 An exploratory observation of an EU Hospital Network, carried out by the Netherlands Institute for Disaster Medicine at the request of the Core Group on Disaster Medicine (October 2002)

Annexes F

F01 A short position paper on "Disaster Medicine Aspects of RNBC-Incidents" by Mr. P. van der Torn, MD of the Netherlands Institute of Disaster Medicine (September 2002)

F02 A position paper, containing technical details, on "Disaster Medicine Aspects of RNBC-Incidents" by Mr. P. van der Torn, MD of the Netherlands Institute of Disaster Medicine (September 2002)

F03 A report of a workshop named "Response of civil protection authorities to major terrorist attacks" held in Florival, Belgium in December 2001

F04 Action cards on biological agents weaponisable for terrorist purposes, initiated by Belgium

F05 A power-point presentation on "Biological weapon agents" by Dr. Geert Seynaeve of the Belgian ministry for Health and Environment (December 2001)

Annexes G

G01 Information on the NL expert meeting and workshop on cross-border disaster medicine intervention in Europe (application form) to be organised in 2003

G02 A plan of action for a follow-up of the Major Project on Disaster Medicine under French chairmanship in 2003-2004